

Campaña, Juan Carlos; Gimenez-Nadal, J. Ignacio

Working Paper

Gender gaps in time devoted to Commuting: Evidence from Peru, Ecuador, Chile, and Colombia

GLO Discussion Paper, No. 1185

Provided in Cooperation with:

Global Labor Organization (GLO)

Suggested Citation: Campaña, Juan Carlos; Gimenez-Nadal, J. Ignacio (2022) : Gender gaps in time devoted to Commuting: Evidence from Peru, Ecuador, Chile, and Colombia, GLO Discussion Paper, No. 1185, Global Labor Organization (GLO), Essen

This Version is available at:

<https://hdl.handle.net/10419/265368>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Gender gaps in time devoted to Commuting: Evidence from Peru, Ecuador, Chile, and Colombia.¹

Juan Carlos Campaña*, J. Ignacio Gimenez-Nadal**

**Department of Applied Economics and Public Management, UNED (Spain); ECEMIN, Nebrija University (Spain); GLO (The Netherlands) Contact: jcampana@der.uned.es.*

***Department of Economics Analysis and IEDIS, University of Zaragoza (Spain); GLO (The Netherlands). Contact: ngimenez@unizar.es.*

Abstract

We analyze the relationship between gender and the time devoted to commuting by men and women in Latin American Countries. Using data from time surveys from Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012 and 2017), we observe in the four countries, that women devoted less time to this activity compared to men. We find that among the possible justifications for these gender gaps, it is important to consider the presence of children in the household, the hours of work and the type of employment of individuals. These results illustrate the importance of studying this topic in countries where the evidence is scarce mainly due to limitations in comparing the data between countries.

Keywords: Time Use, Commuting, Gender Gaps, Latin America countries

JEL: D10, J22.

¹ J. C. Campaña and J.I. Gimenez-Nadal acknowledges funding from the Government of Aragón (Project S32_20R, funded by Program FSE Aragón 2014–2020), and the Spanish Ministry of Science and Innovation (Project PID2019-108348RA-I00, funded by MCIN/AEI/10.13039/501100011033). J. C. Campaña acknowledges funding from the Spanish Ministry of Science and Innovation (Project PID2019-111765GB-I00, funded by MCIN/AEI/10.13039/501100011033), and the Regional Government of Madrid (OPINBI Project H2019/HUM-5793, B.O.C.M. Num. 302).

1. Introduction

Commuting is the time/distance between home and the workplace, and its analysis has gained importance in the literature in the most recent decade. Commutes can be considered as shocks to time endowments (Ross & Zenou, 2008), and some uses of time, such as leisure, market work, child care or home production, are significantly correlated with commuting (Gimenez-Nadal & Molina, 2016; Gimenez-Nadal et al., 2018a). Longer commutes have been related to decreased worker health outcomes, lower subjective and psychological well-being, increased stress and sickness absence, lower worker productivity and significant negative effects on wages (see Gimenez-Nadal, Molina and Velilla (2022) for a review).

Kahneman et al. (2004) and Kahneman and Krueger (2006) show that time spent in commuting ranks among the lowest activities in terms of the “instant enjoyment” obtained by individuals. Gimenez-Nadal and Molina (2016) show that longer commutes may be related to higher levels of stress and fatigue of workers, which may in turn affect the quality of the time parents devote to caring for their children. Furthermore, commuting has been shown to have negative consequences for workers. Stone and Schneider (2016) show that commuting episodes are rated high in stress and tiredness and much lower in meaningfulness, compared with other daily activities, and thus commuting can be considered a low-well-being experienced. Furthermore, there are also psychological costs associated with travel (Koslowsky et al., 1995; Kahneman et al., 2004; Stutzer and Frey, 2008), which include increased blood pressure, physical disorders, and anxiety. Thus, the analysis of what factors are related to more time in commuting is important (Liu et al., 2017; Rosales-Salas & Jara-Díaz, 2017).

Several sociodemographic characteristics of workers have been found to be important determinants of commuting trips, and among them one of the most important is gender.² Gender has been found to be related to lower commuting times (Turner and Neimeier, 1997; Sandow, 2008; Sandow and Westin, 2010; Dargay and Clark, 2012; Groot et al., 2012; McQuaid and Chen, 2012; Gimenez-Nadal and Molina, 2016). Commuting is strongly gendered with the result that women tend to have shorter commutes than men,

² Literature has identified gender as a key factor linked with short/long commute distances and/or times (Fanning Madden, 1981; Hanson and Pratt, 1988; McLafferty, 1997), alongside other factors including earnings (McGregor and McConnachie, 1995); qualifications (Gordon et al., 1989a); age (Loewenstein, 1965); race and ethnicity (Ihlanfeldt and Sjoquist, 1990); rural and suburban locations (Molho, 1995); access to a car (Taylor and Ong, 1995) and household time budgets (Duffy, 1992).

a finding that is remarkably persistent over time and consistent across countries (Fanning Madden, 1981; Hanson and Pratt, 1988; Grieco et al., 1989; Dex et al., 1995; McLafferty, 1997; Turner and Niemeier, 1997; Crane, 2007; Hanson, 2010; Frändberg and Vilhelmson, 2011; Black et al., 2014; Gimenez-Nadal and Molina, 2016; Craig and Van Tienoven, 2019; Havet et al., 2021; Marcen and Morales, 2021).

The literature has suggested different reasons for the gender gap in the time devoted to commuting, and the Household Responsibility Hypothesis assumes that women devoted less time to commuting compared to men because of parenting and domestic responsibilities (Johnston-Anumonwo, 1992; Turner and Neimeier, 1997; Hjorthol, 2000; Clark et al., 2003; Lee and McDonald, 2003; Gimenez-Nadal and Molina, 2016). In this sense, the gender commuting gap is largest with the presence of children in the household (Fan, 2017). According to the Household Responsibilities Hypothesis (Gimenez-Nadal and Molina, 2016), mothers spend more time in childcare activities and other unpaid work activities than do males and they need more time for childcare than female workers without kids, leading to shorter commutes.

Despite the results shown above, other studies show what is known as the Commuting Preference Hypothesis. This hypothesis assumes that gender differences in the time devoted to commuting persist after controlling for household type and the presence of children, marital status, and age (Gordon et al., 1989b; Crane, 2007; Hjorthol and Vågane, 2014; Silveira Neto et al., 2015). Thus, this literature suggests that women's greater sensitivity to commuting could partly be the result of gender differences in commute choices, albeit constrained choices.

Another hypothesis that would allow us to understand the gender gap in commuting is that of the Labor Market Structures Hypothesis. This Hypothesis argues that women take shorter trips because they are constrained by part-time employment and low wages, so long trips don't pay off (Fanning Madden, 1981; Hanson and Johnston, 1985; Hanson and Pratt, 1988, 1992, 1995; Madden and Chiu, 1990; Carlson and Persky, 1999; Carter and Butler, 2008; Sandow, 2008). Hence, the type of employment is an important determinant of commutes, as prior research has found significant differences between employees and self-employed workers (Lee and McDonald, 2003; Van Ommeren & Van der Straaten, 2008; Rosenthal and Strange, 2012; Gimenez-Nadal et al., 2018b). But the evidence regarding gender gaps in the time dedicated to commuting by the self-employed is scarce, and the results differ considering countries. Rosenthal and Strange (2012) find

that self-employed women in the US, especially when they have children, commute less than their male counterparts, which the authors interpret as confirmation of the household responsibility hypothesis. Reuschke and Houston (2020) find little evidence for a gender commuting time gap amongst the self-employed in the UK, while their findings confirm existing evidence of a gender commuting gap for employees.

Despite of all this research in developed countries, the evidence on the relationship between the commuting and gender is scarce for Latin American countries, despite the flourishing literature on the determinants of time allocation in that region (Medeiros et al., 2010; Salvador and Galvan, 2013; Canelas and Salazar, 2014; Campaña et al., 2017,2018; Amarante and Rossel, 2018; Rubiano and Viollaz, 2019; Dominguez et al., 2019; Gimenez et al., 2021). This literature has focused on analyzing gender differences between individuals in the time dedicated to paid work, unpaid work, and care activities and their general results show that men spend more time to paid work and less time to unpaid work and care activities compared to women and variables such as presence of children, and labor activities, influence positively or negatively on the time spent by individuals on these time-use activities.

In these countries, characterized by traditional roles in which men are income providers in marriage and women are homemakers (Campaña et al., 2018), and where the primary responsibility for the care of the sick, the elderly, and children still falls to women (Folbre, 2006; Esplen, 2009), worker women with household responsibilities (mainly childcare responsibilities) may have to devote less time to commuting (shorter commutes) compared to worker women without household responsibilities (Gimenez-Nadal and Molina, 2016).

Under this framework, we use data from time use surveys in Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012, 2017) to analyze gender differences in the time devoted to commuting by workers from these four countries. We estimate linear models (OLS) for each country separately and our main econometric results show that women relative to men devoted less hours to commuting. Women relative to men devoted 0.5, 0.6, 0.6 and 0,05 less hours to commuting in Peru, Ecuador, and Chile (hours per week) and Colombia (hours per day), respectively. We also find that when there are no children in the households, the gender gaps in the time dedicated to commuting is present in Ecuador and Colombia only, but when the presence of children is analyzed, we observe

gender gaps in the time devoted to commuting in the four countries, and the gender gaps in commuting increased in Ecuador and Colombia.

In Peru, Ecuador, Chile, and Colombia, we find that full-time female workers devote less time to commuting compared to their male counterparts, while the gender gap is present in Colombia only when we compare part-time male and female workers. And finally, when we analyze the influence of type of employment, in the case of employed workers, women devoted less time to commuting compared to men in Peru, Ecuador and Chile and in the case of self-employed we find that only in the case of Ecuador, the gender gap in the time dedicated to commuting increase. In the case of Colombia, women (self-employed) relative to men (self-employed) devoted less time to commuting.

We contribute to the literature by analyzing gender differences in the time devoted to commuting by men and women in these countries. This analysis of commuting of workers in four Latin American countries gives us a picture of how gender, are related to this activity. Most of the existing applied empirical work has focused on analyzing the influence of socio-demographic factors as gender to commuting for developed countries. In this sense, more empirical research is needed on how the commuting affects economic behaviors in non-developed countries.

The rest of the paper is organized as follows. Section 2 describes the data. Section 3 describes the empirical strategy. Section 4 presents our results and Section 5 concludes.

2. Data and variables

We use time use data obtained from time use surveys from Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012, 2017)³. These surveys provide us with information on individual time use, and represent the typical instrument used to analyze the time-allocation decisions of individuals (Bianchi, 2000; Gershuny, 2000; Aguiar and Hurst, 2007; Folbre et al., 2015; Campaña et al., 2018; Gimenez-Nadal et al., 2021, Gimenez-Nadal and Molina, 2022). The targeted population in these surveys are all members of households, aged 12 and older for Peru, Ecuador, and Chile, and aged 10 and above for Colombia. The four surveys use a list of pre-coded activities to classify and order different

³The methodologies for the time use surveys used in this paper have been defined by the relevant institutes of statistics in each country: INEI (National Institute of Statistics and Informatics) in Peru, INEC (National Institute of statistics and censuses) in Ecuador, INE (National Institute of statistics) in Chile, and DANE (National Administrative Department of statistics) in Colombia.

activities.⁴ Following Gimenez-Nadal et al. (2021), our sample consists of male and female workers, who are not students or retirees, have answered all sections of the survey and have positive hours of market work. After these restrictions are fulfilled, our study sample is 5,555 individuals in Peru, 16,312 individuals in Ecuador, 9,706 individuals in Chile, and 102,832 individuals in Colombia. The surveys for Peru, Ecuador, and Chile, take the previous week as reference period, while for Colombia the reference period is the previous day.⁵

Commuting is defined as the time between home and the workplace. Prior research has pointed to gender as an important determinant of commuting, from different perspectives, as women tend to have shorter commutes than men (Waldfogel, 2007; Sandow, 2008; Sandow & Westin, 2010; Dargay & Clark, 2012; McQuaid & Chen, 2012; Gimenez-Nadal & Molina, 2016). In Table 1, Column 1 for Peru, Column 2 for Ecuador, Column 3 for Chile, and Column 4 for Colombia, show the descriptive statistics for our analyzed samples, by gender. Regarding the time devoted to commuting, in the four countries, men devote more time to commuting than do women. In Peru, Ecuador and Chile men dedicate 5.05, 4.71, 6.63 hours per week respectively to commuting while women dedicate 3.74, 3.79 and 5.62 hours per week respectively to this activity (on average women devoted 1.08 hours less per week to commuting compared to men). And in Colombia men and women dedicate 0.46 and 0.39 hours per day to commuting (women devoted 0.07 hours less per day to commuting compared to men). These results are only a descriptive analysis, and we do not control for factors that may be affecting the results.

Among the main justifications for these gender differences in the time devoted to commuting, the presence of children in the home has been considered. Concerning the presence of children in the home, individuals (mainly women) may choose to work closer to home in order to fulfill their household responsibilities, which can affect their job search area and lead them to having less well-paid jobs. We choose the age range of 0 - 12 for children in the household, since as can be seen in Campaña et al. (2020), in this age range there are significant differences between self-employed and employed women,

⁴ For more information regarding Classification of Time-Use Activities for Latin America and the Caribbean see ECLAC (2015).

⁵ In the case of Colombia, as the information refers to the previous day, which could be a weekday or a weekend day, it would not be methodologically correct to multiply by 7. For this reason, and following Campaña et al. (2017, 2020) and Gimenez-Nadal et al. (2021), the comparison of Colombia with other countries continues to be in hours per day and not hours per week.

in terms of time spent on different time-use activities as paid work, unpaid work and child care.

Job characteristics, more specifically part-time employment, is linked to commutes of women (Fanning Madden, 1981). In this sense, it is important to analyze whether the gender gaps in the time dedicated to commuting vary when full-time or part-time workers are compared. Following Reuschke and Houston (2020), we consider as definition of part-time employment as working less than 30 hours per week. Furthermore, Van Ommeren and Van der Straaten (2008) consider that self-employed workers have better information about the job-search market than do employees, finding that self-employed workers commute around 40–60% less than their employee counterparts. Gimenez-Nadal et al. (2018b) studied differences in the time devoted to commuting by US employees and self-employed workers, finding a difference of about 17%. Also, Albert et al. (2019) analyzed the case of Spain, using information about commuting time from the Quality of Life at Work Survey, and found a difference between employees and the self-employed ranging from 13% to 19.5%. Regarding gender differences in the time devoted to commuting, Rosenthal and Strange (2012) find that self-employed women, commute less than self-employed men, while Reuschke and Houston (2020) find little evidence for a gender gap in the time devoted to commuting by self-employed, while the authors findings confirm existing evidence of a gender commuting gap for employees.

Table 1 shows that 62.5% of households in Peru, 56.5% of households in Ecuador, 44.5% of households in Chile and 54% of households in Colombia have presence of children (0-12 years). Concerning weekly working hours, the percentage of women who work part time is higher than that of men. In Peru, Ecuador, Chile, and Colombia, 12%, 12%, 11% and 8% of men respectively and 36%, 26%, 22% and 20% of women respectively work part-time. About self-employment, in Peru and Ecuador the percentage of women who are self-employed is higher compared to men, while in Chile and Colombia it is the opposite. In Peru, Ecuador, Chile, and Colombia, 40%, 37%, 22% and 45% of men respectively and 50%, 45%, 21% and 43% of women respectively are self-employed.

Respect the rest of control variables, based in previous time use studies we consider the following variables: wages, non-labor household income, education level, sectorial composition, age, if individuals are married/cohabiting, number of household members, ethnicity (indigenous), urban/rural area, and the various regions of each country

(Kalenkoski et al., 2005; Aguiar and Hurst, 2007; Campaña et al., 2017,2018,2020; Campaña and Ortega, 2021; Gimenez-Nadal et al., 2021). Higher wages are associated with longer commutes (Leigh, 1986; Zax, 1991; White, 1999; Crane, 2007; Ross & Zenou, 2008; Rupert et al., 2009; Mulalic et al., 2014; Gimenez-Nadal et al., 2018a;) and non-labour family income may also affect the time devote to different activities (Kalenkoski et al. 2005), this may also in the case of the time devoted to commuting by individuals.

Wages are measured as hourly wages, and non-labor household income in the four countries includes income from transfers (income from other households, and subsidies from the government or from private institutions), other income (income from renting houses, apartments, vehicles, machinery, and equipment), and also includes income from bank interest and income from stocks or dividends. Hourly wages and non-labor household income are expressed in US Dollars.⁶ In the case of the Peruvian Time Use Survey, information on non-labor household income is not available. Regarding education, the literature shows that people with more education are willing to spend more time commuting compared to their counterparts with lower levels of education, in order to get more specialized jobs (Rouwendal and Nijkamp, 2004; Dargay and Van Ommeren, 2005; Sandow and Westin, 2010; Dargay and Clark, 2012).

The literature shows that there are significant differences in the times dedicated to commuting when workers' occupations are considered (McQuaid, 2009; McQuaid & Chen, 2012; Walks, 2014). Concerning occupations, three time-use surveys (Peru, Ecuador, and Colombia) have information about four major sectors (sectoral composition), encompassing the following activities. Primary Sector (agriculture, forestry and fishing, mining), Secondary sector (construction, manufacturing), Tertiary sector (transportation, electric, gas and sanitary services; wholesale trade; retail trade) and Quaternary sector (finance, insurance, and real estate; services and public administration). For Chile, we include information about the International Standard Classification of Occupations ISCO-88 (10 major groups): Legislators, senior officials, and managers; Professionals; Technicians and associate professionals; Clerks; Service workers and shop

⁶ In the case of Colombia, we analyze their two time-use surveys (2012, 2017). Thus, we consider 2012 as the base year to deflate both the Hourly wages and non-labor household income, considering the Colombian Consumer Price Index <https://www.dane.gov.co/index.php/estadisticas-por-tema/precios-y-costos/indice-de-precios-al-consumidor-ipc>. The exchange rate used according to the years of their time use surveys, for Peru, 1 US dollar, equivalent to 2.811 Peruvian soles. For Colombia, 1 US dollar, equivalent to 1817.52 Colombian pesos (exchange rate 2012). The official currency of Ecuador is the US Dollar, so it is not necessary to make any conversion in the case of this country.

and market sales workers; Skilled agricultural and fishery workers; Craft and related trades workers; Plant and machine operators and assemblers; Elementary occupations; and Armed forces.

We consider age and age squared divided by 100 (Kalenkoski et al., 2005; Aguiar and Hurst 2007) in order to take into account, the allocation of time to an activity over the whole life cycle. The presence of partners may produce specialization within the household (Becker, 1991), leading women to devote more time to unpaid work and less time to paid work and may less time to commuting, while the number of family members may influence the time devoted to commuting. To measure ethnic differences, we consider whether the respondents are indigenous, or not (Campaña et al 2017, 2020; Gimenez-Nadal et al 2021).

Regarding the area of residence, different behaviors are observed in terms of the time dedicated to commuting by individuals considering the area in which they live (Cropper and Gordon, 1991; Small and Song, 1992; Manning, 2003; Rodríguez, 2004; Schwanen et al., 2004; Susilo and Maat, 2007; Östh and Lindgren, 2012; Gimenez-Nadal et al., 2018b). It is important to distinguish between urban and rural areas because individuals have different behaviors in the time spent commuting, depending on the area in which they reside (Schwanen et al., 2004; Susilo and Maat, 2007; Östh and Lindgren, 2012). In the cases of Peru and Ecuador, their Time Use Surveys contains information if individuals live in urban or rural area, in the case of Colombia, urban refers to a municipality and rural refers to not being a municipality, and in the case of Chile their time use-survey only considers urban area. For the region of residence of respondents, in Peru we consider four regions (Rest of the Coast, Sierra, Selva, and Lima), in Ecuador we consider three regions (Sierra, Costa, and Amazon), in Chile we consider six regions (Norte Grande, Norte Chico, Central Nucleus, Concepción and La Frontera, Region of the Lakes, Region of the Channels), and in Colombia we consider six regions (Atlantic, Central, Eastern, Pacific, Bogota, and San Andres region).

Table 1 shows the average values for the samples of the 4 countries. In Peru, men earn \$1.65, while women earn \$1.59. In Ecuador, men earn \$1.96, while women earn \$1.86. In Chile, men earn \$4.13, while women earn \$3.13. And in Colombia, men earn \$1.99, while women earn \$2.04. Non-labor income in Ecuador for men is \$41.47 and for women is \$ 61.10. In Chile, non-labor income for men is \$36.66 and for women is \$ 50.50. And

in Colombia, non-labor income for men is \$52.38 and for women is \$70.34.⁷ In analyzed countries, non-labor income is higher for women compared to men. Respect to education we consider three education levels, primary education (less than high school degree), secondary education (high school degree), and university education (more than high school degree). The prevailing education level for men is primary education in Peru, Ecuador, and Colombia, with 39%, 65% and 49% respectively and university education is the prevailing education level in Chile, with 37%. For women is primary education the prevailing education level in Peru and Ecuador, with 40% and 54% respectively and university education is the prevailing education level in Chile and Colombia with 40% and 39% respectively.

Respect to sectorial composition we observe similarities between countries. We observe in Peru and Colombia men are mainly concentrated in the tertiary sector (30%, and 34% respectively) and in Ecuador men are mainly concentrated in the primary sector (32%). Women are mainly concentrated in Peru, Ecuador, and Colombia in the quaternary sector (40%, 40% and 53% respectively). Concerning occupations in Chile, men are mainly concentrated (22%) in occupation 7 (Craft and related trades workers) and women are mainly concentrated (27%) in occupation 9 (Elementary occupations). In terms of the age by ours samples the average age is very similar between men and women, in Peru is 36.6 years, in Ecuador is 42.1 years, in Chile is 42.37 years and in Colombia is 38.5 years. As for the individuals in our samples who are in a couple (Married / cohabiting), we observe that this percentage on average in the four countries is higher for men compared to women. In Peru, Ecuador, Chile, and Colombia, 63%, 73%, 65% and 62% of men respectively and 52%, 49%, 50% and 51% of women respectively are married/cohabiting. Regarding the number of household members, we find that on average there are four members in the households of our analyzed samples. Regarding ethnicity (indigenous), 16% in Peru, 6% in Ecuador, 7.5% in Chile and 4% in Colombia of the respondents of our samples correspond to this ethnicity. Regarding areas, the percentage of individuals of our samples who are living in rural area is 21% for Peru, 34% for Ecuador and 18% for Colombia.

⁷ In the case of the Peruvian Time Use Survey, information on non-labor income is not available.

3. Empirical strategy and results

For the time devoted to commuting by the workers in Peru, Ecuador, Chile, and Colombia, we estimate Ordinary Least Squares (OLS) regressions. Gershuny (2012) argues that OLS models can deliver accurate estimates of average activity times for samples and subgroups. Frazis and Stewart (2012) also prefer these models for the analysis of time-allocation decisions, while Foster and Kalenkoski (2013) discussing the analysis of childcare time, compare OLS and Tobit models, finding that the qualitative conclusions of the two models are similar.

Thus, we estimate the following equation by OLS regressions:

$$T_{ik} = \alpha_t + \beta_1 woman_{ik} + \beta_2 x_{ik} + \beta_3 Interactions_{ik} + \beta_4 Z_{ik} + \varepsilon_{ik} \quad (1)$$

where T_{ik} is the time devoted to commuting by individual ‘i’ in country “k”, $Woman_{ik}$ takes value ‘1’ if respondent ‘i’ in country “k” is a woman and value ‘0’ otherwise. X_{ik} is a vector of variables that includes dummies for the presence of children (between 0 and 12 in the household of respondent), if respondent work part-time, and if respondent is self-employed. $Interactions_{ik}$ includes a vector of interactions between the variables included in vector X_{ik} . And Z_{ik} includes additional socio-demographic variables (log wage, non-labor income, education, sector/occupation, age, age squared, married/cohabiting, number of household members, ethnic origin (indigenous), rural area and regions of the country). The “woman” dummy is included to measure gender differences in the time devoted to commuting. Thus, $\beta_1 < 0$ would indicate that, compared to men, women in Peru, Ecuador, Chile, and Colombia devote less time to commuting.

Table 2, Column 1 (Peru), Column 2 (Ecuador), Column 3 (Chile) and Column 4 (Colombia) show the results of estimating Equation 1. In these regressions, the reference category is men. In the four countries, we observe that β_1 is negative and statistically significant, so in our general econometric analysis we find gender differences in the time devoted to commuting. Women relative to men devoted 0.5, 0.6, 0.6 and 0,05 less hours to commuting in Peru, Ecuador, and Chile (hours per week) and Colombia (hours per day), respectively. These results are similar to those shown by the literature in developed countries (Turner and Neimeier, 1997; Waldfogel, 2007; Sandow, 2008; Sandow and Westin, 2010; Dargay and Clark, 2012; Groot et al., 2012; McQuaid and Chen, 2012;

Gimenez-Nadal and Molina, 2016). Respect to other variables, we observe interesting and statistically significant results at standard levels of the first equation. In the four countries log wages influence positively while non-labour income in Chile and Colombia influence negatively the time devoted to commuting by individuals. In the four countries age positively influences the time devoted by individuals to commuting. In Chile and Colombia to be in partner (married/cohabiting) negatively influences the time devoted to commuting. And, in Ecuador, Colombia and Chile, a greater number of household members influences positively the time devoted to commuting.

In Table 3, we analyze the influence of the presence of children on the time devoted to commuting. We include the following interactions: Presence of children 0 – 12* women. The results shown for Peru are in column 1, for Ecuador in column 2, for Chile in column 3 and for Colombia in column 4. Firstly, we find that when we compare men and women without presence of children in the household, we find only gender gaps in commuting in Ecuador (hours per week) and Colombia (hours per day). In these two countries women relative to men devoted 0.4 and 0.03 less hours to commuting. While when we compare men and women with presence of children in the household, in the four countries we find gender gaps in the time devoted to commuting. Women relative to men devoted 0.8, 0.8, 0.9 and 0.07 less hours to commuting in Peru, Ecuador, and Chile (hours per week) and Colombia (hours per day), respectively. In the case of Ecuador and Colombia, the presence of children increases the gender gaps in the time devoted to commuting. These results are consistent with the idea that women with family responsibilities spend less time to commuting than women without family responsibilities (Gimenez-Nadal and Molina, 2016). Other interesting results are found in Peru and Chile. Men with presence of children in their households devoted 0.3 and 0.4 more hours to commuting per week respectively compared to men without the presence of children in their households.

In Table 4, we analyze the influence of working hours on the time devoted to commuting. We include the following interactions: part-time*women. The results shown for Peru are in column 1, for Ecuador in column 2, for Chile in column 3 and for Colombia in column 4. When we compare men and women who work full-time, we find for all four countries that women spend less time commuting compared to men. Women (full-time) relative to men (full time) devoted 0.6, 0.6, 0.6 and 0.05 less hours to commuting in Peru, Ecuador, and Chile (hours per week) and Colombia (hours per day), respectively. Later,

when we compare men and women who work part-time, we find that only in the case of Colombia, the gender gaps in the time dedicated to commuting increase. In Colombia when we compare part time workers, women relative to men devoted 0.08 less hours per day to commuting. Other interesting results are found in the four countries, men who work-part time relative to men who work full time devoted 1.9, 0.9, 2.4 and 0,13 less hours to commuting in Peru, Ecuador, and Chile (hours per week) and Colombia (hours per day), respectively.

In Table 5, we analyze the influence of type of employment on the time devoted to commuting. We include the following interactions: self-employed*women. The results shown for Peru are in column 1, for Ecuador in column 2, for Chile in column 3 and for Colombia in column 4. When we compare men and women who work as employed, we find for Peru, Ecuador, and Chile that women spend less time commuting compared to men. Women (employed) relative to men (employed) devoted 0.4, 0.4, and 0.6 less hours to commuting in Peru, Ecuador, and Chile (hours per week), respectively. Next, when we compare men and women who work as self-employed, we find that only in the case of Ecuador, the gender gap in the time dedicated to commuting increase. In Ecuador when we compare self-employed workers, women relative to men devoted 0.9 hours per week to commuting. And in the case of Colombia, women (self-employed) relative to men (self-employed) devoted 0.1 less hours per day to commuting. These mixed results are consistent with previous literature (Rosenthal and Strange, 2012 and Reuschke and Houston, 2020). Other interesting results are found in the four countries, men who work as self-employed relative to men who work as employed devoted 1.0, 1.5, 2.6 and 0,1 less hours to commuting in Peru, Ecuador, and Chile (hours per week) and Colombia (hours per day), respectively.

4. Conclusions

In this paper, we analyze the difference in the time devoted by men and women to commuting in four Latin American countries, with particular attention to the influence of the presence of children in the household, the hours of work and the type of employment. We use the time use surveys from Peru (2010), Ecuador (2012), Chile (2015), and Colombia (2012 and 2017), employing linear models on the time devoted to commuting for our econometric estimates. Our principal results show that female workers devote less hours to commuting in comparison to their male counterparts. We find that when there

are no children in the households, gender gaps in the time dedicated to commuting are present in Ecuador and Colombia only, but when the presence of children is analyzed, we observe gender gaps in the time devoted to commuting in the four countries. Furthermore, we find that the hours of working and the type of employment influence in the gender gaps in the time devoted to commuting. These results are similar to those shown in developed countries.

Regarding public policies, it is noteworthy that the fact of being a woman influences dedicating less time to commuting compared to men. Our results show that the presence of children partially explains the gender gaps in the time devoted to commuting. The literature shows that domestic responsibilities influence women to dedicate less time to commuting compared to men (Johnston-Anumonwo, 1992; Turner and Neimeier, 1997) and in countries as traditional as those analyzed, the greater unpaid work workload is done by women (Campaña et al., 2018). So, it is recommended that policy makers work to provide households with young children access to formal childcare services. Hallman et al., (2005), Contreras et al., (2012) and Mateo Díaz and Rodriguez-Chamussy, (2016), all show for Latin American countries the benefits of formal childcare services and their positive effect on mothers' working hours, so this could also influence the time spent by women to commuting.

One limitation of our analysis is that our data is a cross-section of individuals and does not allow us to identify differences in the time devoted to work, net of (permanent) individual heterogeneity in preferences and characteristics. At present, there are no panels of time-use surveys available, and we leave this issue, also, for future research.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Albert, J. F., Casado-Díaz, J. M., & Simón, H. (2019). The commuting behaviour of self-employed workers: Evidence for Spain. *Papers in Regional Science*, 98(6), 2455-2477. <https://doi.org/10.1111/pirs.12469>

- Aguiar, M., and Hurst, E. (2007). Measuring trends in leisure: The allocation of time over five decades. *The Quarterly Journal of Economics*, 122(3), 969–1006. <https://doi.org/10.1162/qjec.122.3.969>
- Amarante, V., & Rossel, C. (2018). Unfolding patterns of unpaid household work in Latin America. *Feminist Economics*, 24(1), 1-34. <https://doi.org/10.1080/13545701.2017.1344776>
- Becker, G. S. (1991). *A Treatise on the Family*. Cambridge, Mass.: Harvard Univ. Press.
- Bianchi, S. M. (2000). Maternal employment and time with children: Dramatic change or surprising continuity? *Demography*, 37 (4), 401–414. <https://doi.org/10.1353/dem.2000.0001>
- Black, D. A., Kolesnikova, N., & Taylor, L. J. (2014). Why do so few women work in New York (and so many in Minneapolis)? Labor supply of married women across US cities. *Journal of Urban Economics*, 79, 59-71. <https://doi.org/10.1016/j.jue.2013.03.003>
- Campaña, J. C., Gimenez-Nadal, J. I., & Molina, J. A. (2017). Increasing the human capital of children in Latin American countries: the role of parents' time in childcare. *The Journal of Development Studies*, 53(6), 805-825. <https://doi.org/10.1080/00220388.2016.1208179>
- Campaña, J. C., Giménez-Nadal, J. I., & Molina, J. A. (2018). Gender norms and the gendered distribution of total work in Latin American households. *Feminist Economics*, <https://doi.org/10.1080/13545701.2017.1390320>
- Campaña, J. C., Giménez-Nadal, J. I., & Molina, J. A. (2020). Self-employed and employed mothers in Latin American families: Are there differences in paid work, unpaid work, and child care? *Journal of Family and Economic Issues*, 41(1), 52-69. <https://doi.org/10.1007/s10834-020-09660-5>
- Campaña, J. C., & Ortega, R. (2021). Determinants of internet use by the elderly in Spain: time dedicated to search and communications. *Economics and Business Letters*, 10(1), 16-26. <https://doi.org/10.17811/eb1.10.1.2021.16-26>
- Canelas, C., & Salazar, S. (2014). Gender and ethnic inequalities in LAC countries. *IZA Journal of Labor & Development*, 3(1), 18. <https://doi.org/10.1186/2193-9020-3-18>
- Carlson, V. L., & Persky, J. J. (1999). Gender and suburban wages. *Economic Geography*, 75(3), 237-253. <https://doi.org/10.1111/j.1944-8287.1999.tb00078.x>
- Carter, P., & Butler, D. (2008). WOMEN'S WORK: THE HOME, THE WORKPLACE, AND THE SPACES BETWEEN. *Industrial Geographer*, 5(2). https://www.academia.edu/download/34321545/Womens_Work_2008.pdf
- Clark, W. A., Huang, Y., & Withers, S. (2003). Does commuting distance matter?: Commuting tolerance and residential change. *Regional Science and Urban Economics*, 33(2), 199-221. [https://doi.org/10.1016/S0166-0462\(02\)00012-1](https://doi.org/10.1016/S0166-0462(02)00012-1)

- Contreras, D., E. Puentes, and D. Bravo. (2012). Female Labor Supply and Child Care Supply in Chile. Working Paper SDT 370, Department of Economics, University of Chile, Santiago.
<https://econ.uchile.cl/uploads/publicacion/93fc99073cf6830a16930b85e473c49df8b0d854.pdf>
- Craig, L., & Van Tienoven, T. P. (2019). Gender, mobility and parental shares of daily travel with and for children: a cross-national time use comparison. *Journal of transport geography*, 76, 93-102. <https://doi.org/10.1016/j.jtrangeo.2019.03.006>
- Crane, R. (2007). Is there a quiet revolution in women's travel? Revisiting the gap in commuting. *Journal of the American Planning Association*, 73, 298–316
<https://doi.org/10.1080/01944360708977979>
- Cropper, M. L., & Gordon, P. (1991). Wasteful commuting: A re-examination. *Journal of Urban Economics*, 29, 2–13. [https://doi.org/10.1016/0094-1190\(91\)90022-Y](https://doi.org/10.1016/0094-1190(91)90022-Y)
- DANE (2012) Encuesta Nacional de Uso del Tiempo, Colombia - ENUT (2012–2013).
<http://microdatos.dane.gov.co/index.php/catalog/214/study-description>
- DANE (2017) Encuesta Nacional de Uso del Tiempo, Colombia - ENUT (2016–2017)
<https://www.dane.gov.co/index.php/estadisticas-por-tema/pobreza-y-condiciones-de-vida/encuesta-nacional-del-uso-del-tiempo-enut>
- Dargay, J. M., & Clark, S. (2012). The determinants of long distance travel in Great Britain. *Transportation Research Part A: Policy and Practice*, 46, 576–587.
<https://doi.org/10.1016/j.tra.2011.11.016>
- Dargay, J. M., & Van Ommeren, J. N. (2005). The effect of income on commuting time using panel data. Paper presented at the 45th Conference of the European Regional Science Association at the Vrije Universiteit Amsterdam, Amsterdam.
<https://core.ac.uk/download/pdf/7046315.pdf>
- Deding, M., Filges, T., & Van Ommeren, J. (2009). Spatial mobility and commuting: The case of two-earner households. *Journal of Regional Science*, 49, 113–147
- Dex, S., Clark, A., Taylor, M. (1995). Household Labour Supply. Research Series No. 43.
- Dyck, I. (1990). Space, Time, and Renegotiating Motherhood: An Exploration of the Domestic Workplace,” *Environment and Planning D: Society and Space*, 8(4), 459–483. <https://doi.org/10.1068/d080459>
- Domínguez Amorós, M., Muñiz Terra, L. M., & Donoso, G. R. (2019). El trabajo doméstico y de cuidados en las parejas de doble ingreso. *Análisis Comparativo entre España, Argentina y Chile*. Universitat Autònoma de Barcelona; Papers; 104; 2; 1-2019; 337-374. <http://dx.doi.org/10.5565/rev/papers.2576>
- Duffy, C. (1992). Disadvantage and exclusion: the case of peripheral estates. *Local Labour Markets: Problems and Policies*, 89-116.

- ECLAC, N. (2015). Classification of time use activities for Latin America and the Caribbean (CAUTAL). Santiago: ECLAC, 2015. LC / W. 679 <https://www.cepal.org/en/publications/40170-classification-time-use-activities-latin-america-and-caribbean-cautal>
- Esplen, E. (2009). Gender and Care: Overview Report. Brighton: Institute of Development Studies: Overview Report. Brighton: Institute of Development Studies <https://www.inmujeres.gob.es/publicacioneselectronicas/documentacion/Documentos/DE0930.pdf>
- Fan, Y. (2017). Household structure and gender differences in travel time: spouse/partner presence, parenthood, and breadwinner status. *Transportation*, 44(2), 271-291. <https://doi.org/10.1007/s11116-015-9637-7>
- Fanning Madden, J. (1981). Why women work closer to home. *Urban studies*, 18(2), 181-194. <https://doi.org/10.1080/00420988120080341>
- Folbre, N. (2006). Measuring care: Gender, empowerment, and the care economy. *Journal of human development*, 7(2), 183-199. <https://doi.org/10.1080/14649880600768512>
- Folbre, N., Yoon, J., Finnoff, K., and Fuligni, A. S. (2005). By what measure? Family time devoted to children in the United States. *Demography*, 42(2), 373–390. <https://doi.org/10.1353/dem.2005.0013>
- Foster, G. and Kalenkoski, C. (2013) Tobit or OLS? An empirical evaluation under different diary window lengths, *Applied Economics*, 45, 2994–3010. <https://doi.org/10.1080/00036846.2012.690852>
- Frändberg, L., & Vilhelmson, B. (2011). More or less travel: personal mobility trends in the Swedish population focusing gender and cohort. *Journal of transport Geography*, 19(6), 1235-1244. <https://doi.org/10.1016/j.jtrangeo.2011.06.004>
- Frazis, H., & Stewart, J. (2012). How to think about time-use data: What inferences can we make about long-and short-run time use from time diaries?. *Annals of Economics and Statistics/Annales d'économie et de statistique*, 231-245. <https://doi.org/10.2307/23646463>
- Gershuny, J. (2000) *Changing Times: Work and Leisure in post-industrial Society*. Oxford: Oxford University Press. <https://www.jstor.org/stable/3559512>
- Gershuny, J. (2012). Too many zeros: a method for estimating long-term time-use from short diaries. *Annals of Economics and Statistics/ANNALES D'ÉCONOMIE ET DE STATISTIQUE*, 247-270. <https://doi.org/10.2307/23646464>
- Giménez-Nadal, J. I., Campaña, J. C., & Molina, J. A. (2021). Sex-ratios and work in Latin American households: Evidence from Mexico, Peru, Ecuador, Colombia, and Chile. *Latin American Economic Review*, 30. <https://doi.org/10.47872/laer-2021-30-3>

- Gimenez-Nadal, J.I., and J. A. Molina (2015). Health status and the allocation of time: cross-country evidence in Europe. *Economic Modelling*, 46(2): 188-203. <https://doi.org/10.1016/j.econmod.2014.12.034>
- Gimenez-Nadal, J. I., & Molina, J. A. (2016). Commuting time and household responsibilities: Evidence using propensity score matching. *Journal of Regional Science*, 56, 332–359. <https://doi.org/10.1111/jors.12243>
- Gimenez-Nadal, J.I., & Molina, J.A. (2022). “Time Use Surveys” in *Handbook of Labor, Human Resources and Population Economics*, Ed. (K. F. Zimmermann), Springer. https://link.springer.com/referenceworkentry/10.1007/978-3-319-57365-6_270-1
- Gimenez-Nadal, J. I., Molina, J. A., & Velilla, J. (2018a). Spatial distribution of us employment in an urban wage-efficiency setting. *Journal of Regional Science*, 58, 141–158. <https://doi.org/10.1111/jors.12351>
- Gimenez-Nadal, J. I., Molina, J. A., & Velilla, J. (2018b). The commuting behavior of workers in the United States: differences between the employed and the self-employed. *Journal of transport geography*, 66, 19-29. <https://doi.org/10.1016/j.jtrangeo.2017.10.011>
- Gimenez-Nadal, J.I., Molina, J.A., & Velilla, J. (2022). “Commuting time and sickness absence of US workers,” *Empirica* 49, 691-719. <https://link.springer.com/article/10.1007/s10663-022-09534-z>
- Gordon, P., Kumar, A., & Richardson, H. W. (1989a). The spatial mismatch hypothesis: Some new evidence. *Urban Studies*, 26(3), 315-326. <https://doi.org/10.1080/00420988920080321>
- Gordon, P., Kumar, A., & Richardson, H. W. (1989b). Gender differences in metropolitan travel behaviour. *Regional Studies*, 23(6), 499-510. <https://doi.org/10.1080/00343408912331345672>
- Grieco, M., Pickup, L., Whipp, R. (1989). *Gender, Transport, and Employment: The Impact of Travel Constraints*. Gower Publishing Company.
- Groot, S., De Groot, H. L., & Veneri, P. (2012). The educational bias in commuting patterns: micro-evidence for the Netherlands. Tinbergen Institute, Tinbergen Institute Discussion Papers, paper number 12-080/3. <http://dx.doi.org/10.2139/ssrn.2119929>
- Hallman, K., Quisumbing, A. R., Ruel, M., and de la Briere, B. (2005). Mothers’ work and child care: findings from the urban slums of Guatemala City. *Economic development and cultural change*, 53(4), 855-885. <https://doi.org/10.1086/427458>
- Hanson, S. (2010). Gender and mobility: new approaches for informing sustainability. *Gender, Place & Culture*, 17(1), 5-23. <https://doi.org/10.1080/09663690903498225>
- Hanson, S., & Johnston, I. (1985). Gender differences in work-trip length: explanations and implications. *Urban geography*, 6(3), 193-219. <https://doi.org/10.2747/0272-3638.6.3.193>

- Hanson, S., & Pratt, G. (1988). Spatial dimensions of the gender division of labor in a local labor market. *Urban geography*, 9(2), 180-202. <https://doi.org/10.2747/0272-3638.9.2.180>
- Hanson, S., & Pratt, G. (1992). Dynamic dependencies: A geographic investigation of local labor markets. *Economic Geography*, 68(4), 373-405. <https://doi.org/10.2307/144025>
- Hanson, S., & Pratt, G. (1995). *Gender Work and Space*. International Studies of Women and Place, London: Routledge.
- Havet, N., Bayart, C., & Bonnel, P. (2021). Why do gender differences in daily mobility behaviours persist among workers?. *Transportation research part A: policy and practice*, 145, 34-48. <https://doi.org/10.1016/j.tra.2020.12.016>
- Hjorthol, R. J. (2000). Same city—different options: an analysis of the work trips of married couples in the metropolitan area of Oslo. *Journal of Transport Geography*, 8(3), 213-220. [https://doi.org/10.1016/S0966-6923\(99\)00040-X](https://doi.org/10.1016/S0966-6923(99)00040-X)
- Hjorthol, R., & Vågane, L. (2014). Allocation of tasks, arrangement of working hours and commuting in different Norwegian households. *Journal of Transport Geography*, 35, 75-83. <https://doi.org/10.1016/j.jtrangeo.2014.01.007>
- Ihlanfeldt, K. R., & Sjoquist, D. L. (1990). Job Accessibility and Racial Differences in Youth Employment Rates. *The American Economic Review*, 80(1), 267–276. <http://www.jstor.org/stable/2006748>
- INE (2015). Encuesta Nacional sobre Uso del Tiempo: Documento metodológico. ENUT 2015. https://historico-amu.ine.cl/enut/files/documentacion/documento_metodologico_ENUT.pdf
- INEC. (2012). Encuesta Específica de Uso del Tiempo, Ecuador 2012. https://www.ecuadorencifras.gob.ec/documentos/web-inec/Uso_Tiempo/Metodologia_EUT_2012.pdf
- INEI. (2010). Encuesta Nacional sobre uso del Tiempo, Peru 2010. https://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Lib0960/Libro.pdf
- Johnston-Anumonwo, I. (1992). The influence of household type on gender differences in work trip distance. *The Professional Geographer*, 44(2), 161-169. <https://doi.org/10.1111/j.0033-0124.1992.00161.x>
- Kahneman, D., & Krueger, A.B. (2006). Developments in the measurement of subjective well-being. *J. Econ. Perspect.* 20 (1), 3–24. <https://doi.org/10.1257/089533006776526030>
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: The day reconstruction method. *Science*, 306(5702), 1776-1780. <https://doi.org/10.1126/science.1103572>

- Kalenkoski, C. M., Ribar, D. C., and Stratton, L. S. (2005). Parental child care in single-parent, cohabiting, and married-couple families: Time-diary evidence from the United Kingdom. *American Economic Review*, 95(2), 194–198. <https://doi.org/10.1257/000282805774670176>
- Koslowsky, M., Kluger, A. N., & Reich, M. (1995). *Commuting Stress: Causes, Effects, and Methods of Coping*. New York: Plenum Press
- Lee, B. S., & McDonald, J. F. (2003). Determinants of commuting time and distance for Seoul residents: The impact of family status on the commuting of women. *Urban Studies*, 40(7), 1283-1302. <https://doi.org/10.1080/0042098032000084604>
- Leigh, J. P. (1986). Are compensating wages paid for time spent commuting? *Applied Economics*, 18, 1203–1214. <https://doi.org/10.1080/00036848600000073>
- Liu, W., Zhang, F., & Yang, H. (2017). Modeling and managing morning commute with both household and individual travels. *Transportation Research Part B: Methodological*, 103, 227-247. <https://doi.org/10.1016/j.trb.2016.12.002>
- Loewenstein, L. K. (1965). *The location of residences and work places in urban areas*. Scarecrow Press, New York.
- Madden, J. F., & Chiu, L. I. C. (1990). The wage effects of residential location and commuting constraints on employed married women. *Urban Studies*, 27(3), 353-369. <https://doi.org/10.1080/00420989020080321>
- Manning, A. (2003). The real thin theory: Monopsony in modern labor markets. *Labour Economics*, 10, 749–767. [https://doi.org/10.1016/S0927-5371\(03\)00018-6](https://doi.org/10.1016/S0927-5371(03)00018-6)
- Marcén, M., & Morales, M. (2021). Culture and the cross-country differences in the gender commuting gap. *Journal of Transport Geography*, 96, 103184. <https://doi.org/10.1016/j.jtrangeo.2021.103184>
- Mateo Díaz, M., and Rodriguez-Chamussy, L. (2016). *Cashing in on Education: Women, Childcare, and Prosperity in Latin America and the Caribbean*. World Bank Publications. <https://publications.iadb.org/en/cashing-education-women-childcare-and-prosperity-latin-america-and-caribbean>
- McGregor, A., & McConnachie, M. (1995). Social exclusion, urban regeneration and economic reintegration. *Urban Studies*, 32(10), 1587-1600. <https://doi.org/10.1080/00420989550012249>
- Mckenzie, B., & Rapino, M. (2009). *Commuting in the United States: 2009*. U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau.
- McLafferty, S. (1997). Gender, race, and the determinants of commuting: New York in 1990. *Urban geography*, 18(3), 192-212. <https://doi.org/10.2747/0272-3638.18.3.192>
- McQuaid, R. W. (2009). A model of the travel to work limits of parents. *Research in Transportation Economics*, 25, 19–28. <https://doi.org/10.1016/j.retrec.2009.08.001>

- McQuaid, R. W., & Chen, T. (2012). Commuting times: The role of gender, children and part-time work. *Research in Transportation Economics*, 34, 66–73. <https://doi.org/10.1016/j.retrec.2011.12.001>
- Medeiros, M., Osório, R. G., & Costa, J. (2010). Gender inequalities in allocating time to paid and unpaid work: evidence from Bolivia. In *Unpaid Work and the Economy* (pp. 58-75). Palgrave Macmillan UK. https://doi.org/10.1057/9780230250550_3
- Molho, I. (1995). Migrant inertia, accessibility and local unemployment. *Economica*, 123-132. <https://doi.org/10.2307/2554779>
- Mulalic, I., Van Ommeren, J.N., & Pilegaard, N. (2014). Wages and commuting: quasinnatural experiments' evidence from firms that relocate. *Econ. J.* 124 (579), 1086–1105. <https://doi.org/10.1111/econj.12074>
- Östh, J., & Lindgren, U. (2012). Do changes in GDP influence commuting distances? A study of Swedish commuting patterns between 1990 and 2006. *Tijdschrift voor economische en sociale geografie*, 103(4), 443-456. <https://doi.org/10.1111/j.1467-9663.2011.00697.x>
- Reuschke, D., & Houston, D. (2020). Revisiting the gender gap in commuting through self-employment. *Journal of Transport Geography*, 85, 102712. <https://doi.org/10.1016/j.jtrangeo.2020.102712>
- Rissel, C., Petrunoff, N., Wen, L. M., & Crane, M. (2014). Travel to work and self-reported stress: findings from a workplace survey in south west Sydney, Australia. *Journal of Transport & Health*, 1(1), 50-53. <https://doi.org/10.1016/j.jth.2013.09.001>
- Rodriguez, D. (2004). Spatial choices and excess commuting: A case study of bank tellers in Bogota, Colombia. *Journal of Transport Geography*, 12, 49–61. [https://doi.org/10.1016/S0966-6923\(03\)00025-5](https://doi.org/10.1016/S0966-6923(03)00025-5)
- Rosales-Salas, J., & Jara-Díaz, S. R. (2017). A time allocation model considering external providers. *Transportation Research Part B: Methodological*, 100, 175-195. <https://doi.org/10.1016/j.trb.2017.01.019>
- Rosenthal, S. S., & Strange, W. C. (2012). Female entrepreneurship, agglomeration, and a new spatial mismatch. *Review of Economics and Statistics*, 94(3), 764-788. https://doi.org/10.1162/REST_a_00193
- Ross, S. L., & Zenou, Y. (2008). Are shirking and leisure substitutable? An empirical test of efficiency wages based on urban economic theory. *Regional Science and Urban Economics*, 38, 498–517. <https://doi.org/10.1016/j.regsciurbeco.2008.05.009>
- Rouwendal, J., & Nijkamp, P. (2004). Living in two worlds: A review of home-to-work decisions. *Growth and Change*, 35, 287–303. <https://doi.org/10.1111/j.1468-2257.2004.00250.x>
- Rubiano Matulevich, E. C., & Viollaz, M. (2019). Gender differences in time use: Allocating time between the market and the household. *World Bank Policy Research Working Paper*, (8981). <https://ssrn.com/abstract=3437824>

- Rupert, P., Stancanelli, E., & Wasmer, E. (2009). Commuting, wages and bargaining power. *Annals of Economics and Statistics*, 95/96, 201–220. <https://doi.org/10.2307/27917410>
- Salvador, S., & Galván, E. (2013). Modelos de la división intrahogar del trabajo total: los casos del Ecuador y México. En: *Redistribuir el cuidado: el desafío de las políticas*. Santiago: CEPAL, 2013. p. 291-324. LC/G. 2568-P. https://repositorio.cepal.org/bitstream/handle/11362/27879/S2012875_es.pdf
- Sandow, E. (2008). Commuting behaviour in sparsely populated areas: evidence from northern Sweden. *Journal of transport geography*, 16(1), 14-27. <https://doi.org/10.1016/j.jtrangeo.2007.04.004>
- Sandow, E., & Westin, K. (2010). People's preferences for commuting in sparsely populated areas: The case of Sweden. *Journal of Transport and Land Use*, 2, 87–107. <https://www.jstor.org/stable/26201640>
- Schwanen, T., Dijst, M., & Dieleman, F. M. (2002). A microlevel analysis of residential context and travel time. *Environment and Planning A*, 34(8), 1487-1507.
- Schwanen, T., Dieleman, F. M., & Dijst, M. (2004). The impact of metropolitan structure on commute behavior in the Netherlands: A multilevel approach. *Growth and change*, 35(3), 304-333. <https://doi.org/10.1111/j.1468-2257.2004.00251.x>
- Silveira Neto, R., Duarte, G., & Páez, A. (2015). Gender and commuting time in São Paulo metropolitan region. *Urban Studies*, 52(2), 298-313. <https://doi.org/10.1177/0042098014528392>
- Small, K. A., & Song, S. (1992). 'Wasteful' commuting: A resolution. *Journal of Political Economy*, 100, 888–898. <https://doi.org/10.1086/261844>
- Stone, A. A., & Schneider, S. (2016). Commuting episodes in the United States: Their correlates with experiential wellbeing from the American Time Use Survey. *Transportation research part F: traffic psychology and behaviour*, 42, 117-124. <https://doi.org/10.1016/j.trf.2016.07.004>
- Stutzer, A., & Frey, B. S. (2008). Stress that doesn't pay: The commuting paradox. *Scandinavian Journal of Economics*, 110(2), 339-366. <https://doi.org/10.1111/j.1467-9442.2008.00542.x>
- Susilo, Y. O., & Maat, K. (2007). The influence of built environment to the trends in commuting journeys in the Netherlands. *Transportation*, 34, 589–609. <https://doi.org/10.1007/s11116-007-9129-5>
- Taylor, B. D., & Ong, P. M. (1995). Spatial mismatch or automobile mismatch? An examination of race, residence and commuting in US metropolitan areas. *Urban studies*, 32(9), 1453-1473. <https://doi.org/10.1080/00420989550012348>
- Turner, T., & Niemeier, D. (1997). Travel to work and household responsibility: new evidence. *Transportation*, 24(4), 397-419. <https://doi.org/10.1023/A:1004945903696>

- Van Ommeren, J. N., & Van Straaten, J. W. (2008). The effect of search imperfections on commuting behaviour: Evidence from employed and self-employed workers. *Regional Science and Urban Economics*, 38, 127–147. <https://doi.org/10.1016/j.regsciurbeco.2008.01.008>
- Waldfogel, J. (2007). Parental work arrangements and child development. *Canadian Public Policy/Analyse de Politiques*, 33, 251–272. <https://doi.org/10.3138/cpp.33.2.251>
- Walks, A. (2014). *The urban political economy and ecology of automobility: Driving cities, driving inequality, driving politics*. New York: Routledge. <https://doi.org/10.4324/9781315766188>
- White, M. J. (1999). Urban areas with decentralized employment: Theory and empirical work. *Handbook of Regional and Urban Economics*, 3, 1375–1412 [https://doi.org/10.1016/S1574-0080\(99\)80005-4](https://doi.org/10.1016/S1574-0080(99)80005-4)
- Zax, J. S. (1991). Compensation for commutes in labor and housing markets. *Journal of Urban Economics*, 30, 192–207. [https://doi.org/10.1016/0094-1190\(91\)90036-7](https://doi.org/10.1016/0094-1190(91)90036-7)

Table 1. Descriptive statistics of the data

	Peru		Ecuador		Chile		Colombia	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Commuting time								
Commuting work (men)	5.05	(4.07)	4.71	(4.17)	6.63	(6.61)	0.46	(0.46)
Commuting work (women)	3.74	(3.77)	3.79	(3.93)	5.62	(5.50)	0.39	(0.57)
Children								
Presence of children 0-12 (men)	0.63	(0.48)	0.57	(0.50)	0.42	(0.49)	0.52	(0.50)
Presence of children 0-12 (women)	0.62	(0.48)	0.56	(0.50)	0.47	(0.50)	0.56	(0.50)
Working hours								
Part time (men)	0.12	(0.32)	0.12	(0.33)	0.11	(0.31)	0.08	(0.27)
Part time (women)	0.36	(0.48)	0.26	(0.44)	0.22	(0.41)	0.20	(0.40)
Laboral activity								
Self-employed (men)	0.40	(0.49)	0.37	(0.48)	0.22	(0.42)	0.45	(0.50)
Self-employed (women)	0.50	(0.50)	0.45	(0.50)	0.21	(0.41)	0.43	(0.50)
Other interest variables								
Hourly wage (men)	1.65	(1.52)	1.96	(1.69)	4.13	(3.56)	1.99	(1.98)
Hourly wage (women)	1.59	(1.68)	1.86	(1.81)	3.13	(2.52)	2.04	(2.04)
Non-labor Income (men)	-	-	41.47	(170.5)	36.66	(194.8)	52.38	(216.5)
Non-labor Income (women)	-	-	61.10	(238.6)	50.05	(142.2)	70.34	(249.1)
Primary education (men)	0.39	(0.49)	0.65	(0.48)	0.29	(0.45)	0.49	(0.50)
Primary education (women)	0.40	(0.49)	0.54	(0.50)	0.26	(0.44)	0.33	(0.47)
Secondary education (men)	0.34	(0.47)	0.21	(0.41)	0.34	(0.47)	0.28	(0.45)
Secondary education (women)	0.27	(0.44)	0.22	(0.41)	0.34	(0.47)	0.28	(0.45)
University education (men)	0.27	(0.44)	0.14	(0.35)	0.37	(0.48)	0.24	(0.42)
University education (women)	0.33	(0.47)	0.25	(0.43)	0.40	(0.49)	0.39	(0.49)
Sector 1/Occupation 1 (men)	0.24	(0.43)	0.32	(0.47)	0.03	(0.17)	0.20	(0.40)
Sector 1/Occupation 1 (women)	0.12	(0.33)	0.16	(0.37)	0.01	(0.11)	0.04	(0.20)
Sector 2/Occupation 2 (men)	0.24	(0.43)	0.23	(0.42)	0.15	(0.36)	0.23	(0.42)
Sector 2/Occupation 2 (women)	0.12	(0.33)	0.14	(0.34)	0.18	(0.38)	0.15	(0.35)
Sector 3/Occupation 3 (men)	0.30	(0.46)	0.27	(0.44)	0.14	(0.35)	0.34	(0.47)
Sector 3/Occupation 3 (women)	0.36	(0.48)	0.30	(0.46)	0.16	(0.37)	0.28	(0.45)
Sector 4/Occupation 4 (men)	0.21	(0.41)	0.18	(0.38)	0.04	(0.20)	0.24	(0.42)
Sector 4/Occupation 4 (women)	0.40	(0.49)	0.40	(0.49)	0.10	(0.30)	0.53	(0.50)
Occupation 5 (men)	-	-	-	-	0.14	(0.34)	-	-
Occupation 5 (women)	-	-	-	-	0.20	(0.40)	-	-
Occupation 6 (men)	-	-	-	-	0.02	(0.15)	-	-
Occupation 6 (women)	-	-	-	-	0.01	(0.07)	-	-
Occupation 7 (men)	-	-	-	-	0.22	(0.41)	-	-
Occupation 7 (women)	-	-	-	-	0.06	(0.24)	-	-
Occupation 8 (men)	-	-	-	-	0.14	(0.34)	-	-
Occupation 8 (women)	-	-	-	-	0.01	(0.11)	-	-
Occupation 9 (men)	-	-	-	-	0.11	(0.32)	-	-
Occupation 9 (women)	-	-	-	-	0.27	(0.45)	-	-
Occupation 10 (men)	-	-	-	-	0.01	(0.08)	-	-
Occupation 10 (women)	-	-	-	-	0.001	(0.03)	-	-
Age (men)	36.19	(12.44)	42.57	(14.75)	42.61	(14.26)	38.77	(13.76)
Age (women)	36.91	(12.43)	41.64	(13.69)	42.13	(13.39)	38.41	(12.68)
Married/cohabiting (men)	0.63	(0.48)	0.73	(0.44)	0.65	(0.48)	0.62	(0.48)
Married/cohabiting (women)	0.52	(0.50)	0.49	(0.50)	0.50	(0.50)	0.51	(0.50)
N. household members (men)	4.63	(2.23)	4.21	(2.10)	3.68	(1.76)	4.05	(1.99)
N. household members (women)	4.49	(2.17)	4.00	(1.95)	3.71	(1.71)	3.94	(1.86)

Table 1. (Continued)

	Peru		Ecuador		Chile		Colombia	
	(1)		(2)		(3)		(4)	
Indigenous (men)	0.16	(0.37)	0.06	(0.24)	0.07	(0.26)	0.04	(0.20)
Indigenous (women)	0.16	(0.36)	0.06	(0.23)	0.08	(0.27)	0.04	(0.19)
Rural	0.21	(0.40)	0.34	(0.47)	-	-	0.18	(0.39)
Region 1	0.25	(0.44)	0.41	(0.49)	0.07	(0.25)	0.20	(0.40)
Region 2	0.30	(0.46)	0.55	(0.50)	0.05	(0.21)	0.25	(0.43)
Region 3	0.11	(0.31)	0.05	(0.21)	0.67	(0.47)	0.17	(0.38)
Region 4	0.33	(0.47)	-	-	0.14	(0.35)	0.18	(0.38)
Region 5	-	-	-	-	0.06	(0.24)	0.20	(0.40)
Region 6	-	-	-	-	0.02	(0.13)	0.001	(0.04)
Observations	5555		16312		9706		102832	

Notes: Data sources are time-use surveys from Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012,2017). The sample is restricted to workers who are not students or retired. Weekly hours for commuting are considered for Peru, Ecuador and Chile, and daily hours for commuting are considered for Colombia. Standard deviation in parentheses

Table 2. OLS estimates on the time devoted to commuting.

VARIABLES	Peru (1)	Ecuador (2)	Chile (3)	Colombia (4)
Women	-0.514*** (0.124)	-0.622*** (0.120)	-0.549*** (0.159)	-0.0513*** (0.00468)
Presence of children 0-12	0.0645 (0.137)	-0.221* (0.129)	0.130 (0.182)	-0.00838 (0.00529)
Part-time	-1.680*** (0.134)	-0.974*** (0.125)	-2.496*** (0.171)	-0.157*** (0.00586)
Self-employed	-1.139*** (0.132)	-1.594*** (0.118)	-2.583*** (0.196)	-0.116*** (0.00483)
Log wage	0.131* (0.0741)	0.140** (0.0655)	0.683*** (0.124)	0.00298** (0.00140)
Non-labor Income	-	0.000108 (0.000256)	-0.000831*** (0.000316)	-4.33e-05*** (7.14e-06)
Secondary education	0.185 (0.140)	-0.148 (0.139)	-0.116 (0.195)	0.00279 (0.00607)
University education	0.318** (0.155)	-0.330** (0.168)	-0.0964 (0.253)	0.00222 (0.00620)
Sector 1/Occupation 1	-	-	-1.341 (1.682)	-
Sector 2/Occupation 2	-1.483*** (0.198)	-0.192 (0.144)	-1.859 (1.580)	-0.0935*** (0.0105)
Sector 3/Occupation 3	-2.403*** (0.185)	-0.525*** (0.137)	-0.607 (1.582)	-0.147*** (0.0103)
Sector 4/Occupation 4	-1.942*** (0.192)	-0.260* (0.148)	-1.224 (1.588)	-0.130*** (0.0105)
Occupation 5	-	-	-1.598 (1.582)	-
Occupation 6	-	-	1.527 (1.703)	-
Occupation 7	-	-	-0.332 (1.585)	-
Occupation 8	-	-	-1.078 (1.593)	-
Occupation 9	-	-	-0.210 (1.584)	-
Age	0.113*** (0.0279)	0.0561*** (0.0178)	0.0473* (0.0285)	0.00456*** (0.000846)
Age squared	-0.138*** (0.0346)	-0.0784*** (0.0185)	-0.0417 (0.0316)	-0.00626*** (0.000966)
Married/cohabiting	-0.116 (0.136)	0.0134 (0.116)	-0.381** (0.173)	-0.0167*** (0.00479)
N. household members	-0.0276 (0.0258)	0.126*** (0.0269)	0.133*** (0.0511)	0.0121*** (0.00137)
Indigenous	0.776*** (0.168)	0.879*** (0.178)	0.345 (0.272)	-0.0215** (0.0108)
Rural	0.267* (0.160)	-0.615*** (0.107)	-	-0.0633*** (0.00792)

Table 2. (Continued)

	Peru (1)	Ecuador (2)	Chile (3)	Colombia (4)
Region 1	-2.287*** (0.149)	0.702*** (0.108)	0.632* (0.359)	0.196*** (0.00724)
Region 2	-1.927*** (0.159)	0.319*** (0.116)	0.972** (0.391)	0.213*** (0.00697)
Region 3	-3.001*** (0.160)	-	2.667*** (0.296)	0.169*** (0.00741)
Region 4	-	-	0.661** (0.300)	0.233*** (0.00794)
Region 5	-	-	0.482 (0.341)	0.494*** (0.00831)
Year 2	-	-	-	0.0109** (0.00450)
Constant	6.416*** (0.530)	4.177*** (0.429)	4.202** (1.640)	0.0520** (0.0223)
R-squared	0.197	0.091	0.112	0.126
Observations	5,555	16,312	9,706	102,832

Notes: Data sources are time-use surveys from Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012,2017). The sample is restricted to workers who are not students or retired. *Weekly hours for commuting are considered for Peru and Ecuador, and daily hours for commuting are considered for Colombia. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3. OLS estimates on the time devoted to commuting (considering the presence of children).

VARIABLES	Peru (1)	Ecuador (2)	Chile (3)	Colombia (4)
Women	-0.148 (0.194)	-0.379** (0.171)	-0.271 (0.206)	-0.0325*** (0.00627)
Presence of children 0-12	0.299* (0.169)	-0.0675 (0.154)	0.425* (0.242)	0.00609 (0.00684)
Presence of children 0-12*women	-0.597** (0.232)	-0.441** (0.213)	-0.650** (0.289)	-0.0357*** (0.00874)
Constant	6.301*** (0.531)	4.123*** (0.428)	4.062** (1.638)	0.0463** (0.0223)
R-squared	0.198	0.091	0.112	0.126
Observations	5,555	16,312	9,706	102,832

Notes: Data sources are time-use surveys from Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012,2017). The sample is restricted to workers who are not students or retired. *Weekly hours for commuting are considered for Peru and Ecuador, and daily hours for commuting are considered for Colombia. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 4. OLS estimates on the time devoted to commuting (considering hours of working).

VARIABLES	Peru (1)	Ecuador (2)	Chile (3)	Colombia (4)
Women	-0.593*** (0.144)	-0.595*** (0.134)	-0.527*** (0.179)	-0.0468*** (0.00509)
Part time	-1.886*** (0.202)	-0.907*** (0.180)	-2.417*** (0.288)	-0.138*** (0.00971)
Part time*women	0.352 (0.255)	-0.141 (0.247)	-0.139 (0.340)	-0.0331*** (0.0117)
Constant	6.499*** (0.534)	4.154*** (0.435)	4.189** (1.642)	0.0472** (0.0225)
R-squared	0.197	0.091	0.112	0.126
Observations	5,555	16,312	9,706	102,832

Notes: Data sources are time-use surveys from Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012,2017). The sample is restricted to workers who are not students or retired. *Weekly hours for commuting are considered for Peru and Ecuador, and daily hours for commuting are considered for Colombia. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5. OLS estimates on the time devoted to commuting (considering type of employment).

VARIABLES	Peru (1)	Ecuador (2)	Chile (3)	Colombia (4)
Women	-0.377** (0.166)	-0.432*** (0.162)	-0.564*** (0.180)	-0.00246 (0.00627)
Self-employed	-1.023*** (0.163)	-1.457*** (0.141)	-2.612*** (0.258)	-0.0753*** (0.00614)
Self-employed*women	-0.317 (0.226)	-0.456** (0.209)	0.0729 (0.346)	-0.115*** (0.00878)
Constant	6.340*** (0.533)	4.078*** (0.432)	4.203** (1.640)	0.0179 (0.0226)
R-squared	0.197	0.091	0.112	0.128
Observations	5,555	16,312	9,706	102,832

Notes: Data sources are time-use surveys from Peru (2010), Ecuador (2012), Chile (2015) and Colombia (2012,2017). The sample is restricted to workers who are not students or retired. *Weekly hours for commuting are considered for Peru and Ecuador, and daily hours for commuting are considered for Colombia. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1