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Commuting in dual-earner households: International Gender Differences with Time Use Surveys*

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Abstract

Prior literature analyzing gender differences in commuting has reported that men commute longer distance/time than do women, and one explanation for this gender gap is based on household responsibilities falling on women. But most of the literature examining gender differences in commuting has not considered the interdependence that exists between the members of couples. We analyze gender differences in commuting time for a sample of dual-earner couples living in Spain, Italy, South Korea, and the United Kingdom, taking into account the inter-relatedness of decisions within couples. We estimate Ordinary Least Squares equations for men and women on commuting time and mode of transport (private, public, and active transport) including own characteristics as well as spouse attributes and commuting choices. Results indicate that the number of children is significantly related to shorter commuting times for female workers in all countries, with no associations found for their male counterparts. In addition, having children is associated with changes in the commuting mode choice of women in Italy, Korea and the UK, but no associations are found for men. Our evidence indicates that, while the presence of children is related to commuting behavior of women, it is not the case for men. Furthermore, we find that couples' decisions on commuting are complementary, which may shed light on their relationship that should be addressed by theoretical models.

Keywords: commuting; gender differences, dual-earner couples; intra-spousal effects; household responsibilities; Multinational Time Use Study

JEL Classification: R40 - J22 - O57 - D19

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1. Introduction

Commuting is an important part of the daily lives of workers worldwide, as millions of workers commute to their work daily. For instance, workers in the European Union spend an average of 25 minutes per day commuting (Eurostat, 2020), while workers in the United States spend around 47 minutes per day commuting (BLS, 2019). Given that these are significant portions of the 24 hours available in the day, and that there is a negative association between commuting and health-related outcomes of workers (Hansson et al. 2011; Künn-Nelen, 2016), the analysis of commuting behavior has received increasing attention in economics.[1] Within the analysis of commuting behavior, a significant strand of the literature has centered on gender disparities. In general, men commute longer average distances and times compared to women. This is also observed in dual-earner households – a family arrangement that has received special attention over the years (Hanson and Hanson, 1980; Madden, 1981; Johnston-Anumonwo, 1992; Sultana, 2005).

Several reasons have been proposed to explain gender differences in commuting. Some studies have centered on the links between women's commuting and labor force participation (Madden, 1981; MacDonald, 1999), or on the geographical distribution of occupations (Hanson and Johnston, 1985; Hanson and Pratt, 1995; Benson, 2014). Other arguments state that gender differences in commuting behavior are closely related to the gendered division of housework and childcare. This latter explanation is known as the "*household responsibility hypothesis*" (Johnston-Anumonwo, 1992; Turner and Neimeier, 1997; Gimenez-Nadal and Molina, 2016), and posits that women have more space-time constraints, since they must adapt their out-of-home activities to their chores at home, which ultimately leads to shorter commuting times and distances (Turner and Neimeier, 1997; Lee and McDonald, 2003; McQuaid and Chen, 2012; Sandow and Westin, 2010; Gimenez-Nadal and Molina, 2016). Thus, household responsibilities may limit the commuting length of female workers.

[1] The negative health-related outcomes include lower subjective/psychological well-being (Dickerson et al. 2014; Roberts et al. 2011) and increased stress (Frey and Stutzer 2008; Gottholmseder et al. 2009; Novaco and Gonzalez 2009; Wener et al. 2003). These outcomes are important not only at the worker level, but also in terms of public health in general.

Household responsibilities may also affect the choice of the mode of transport used to commute. Women may be more likely than men to use public transit or active transport to go to work, even in situations when they have easy car access in the household (Matthies et al., 2002). However, greater household responsibilities may shift (i.e., increase) their priority to use the car to engage in household–support trips, given that women are more likely to engage in complex trip chains than men (Scheiner, 2014), and do most of the escorting of children (Motte-Baumvol et al., 2017). Scheiner and Holz-Rau (2012) study the intra-household allocation of cars, finding that having household responsibilities increases the chances of needing access to the car.

But most of the prior literature analyzing how household responsibilities are related to the commuting behavior of workers has focused on workers as single units, without taking into account the influence that other members of the household – mostly spouses – may exert on commuting behavior. Very few studies have explicitly incorporated this view in their methodological approach, since very few studies have analyzed the interdependence that exists between the decisions and outcomes of partners. When the relationship between the commuting behavior of spouses is taken into account, the evidence of the relationship to commuting between members of the same couple is not conclusive (Davis; 1993, Plaut, 2006; Picard et al., 2014; Roberts and Taylor, 2016; Chidambaram and Scheiner, 2020; Kwon and Akar, 2021; Oreffice and Sansone, 2022).

Within this framework, we analyze how male and female commuting duration is related to household responsibilities, in couples across countries, proxied by the number of children in the household. To that end, we use time use data from four developed countries – Spain, Italy, South Korea, and the United Kingdom – and explore the time devoted to commuting in dual-earner households.[2] In doing so, we also analyze the relationship of the commuting time of the members of the couple, given that prior evidence is inconclusive. Second, we explore how the mode of transport chosen for commuting by each member of the couple is related to household responsibilities, which is novel, as prior studies have not analyzed mode of transport decisions in the context of household responsibilities. A priori, women may be

[2] Because we focus on the daily commuting behavior of double-earner couples, we select those countries from the MTUS with available information on travels to/from work for both spouses.

more likely than men to use public transit due to their household responsibilities, or they have a lower priority to use the family car. Women with greater household responsibilities could be more dependent on a car due to their tight time budget and complex trip-chaining.

Because commuting decisions in couples are made jointly at the family level, we estimate Ordinary Least Squares (OLS) equations to model their decisions regarding commuting time and mode of travel (private, public, and active transport), in which the commuting decision of each spouse depends not only on own characteristics but also on the attributes and commuting behavior of his/her spouse. A key element of our methodological approach lies in the possibility of understanding whether commuting is complementary (i.e., trips to work are selected together as longer or shorter) or substitutable within the couple (i.e., one spouse tends to commute longer times, allowing the other spouse to commute shorter ones).

We find that having more children is significantly related to commuting times, but there are differences by gender and country. In Spain and Italy, female commuting time is shorter in the presence of children in the family (irrespective of how many), while in Korea and the UK it depends on the number of children. In contrast, having children is not associated with male commuting times. Then, it is expected that the gender gap in commuting time within couples widens as the number of children increases, supporting the household responsibility hypothesis across countries. Regarding mode choice, the presence of children is not related to changes in the male proportion of commuting time by any means of transport, but is associated with changes in the commuting mode choice of women in Italy, Korea and the UK (but not in Spain) even though results differ by mode of transport, number of children, and country. Our evidence also adds to prior studies showing that couples' decisions on commuting are complementary (Plaut, 2006; Roberts and Taylor, 2016), suggesting that couples jointly decide to increase (or decrease) their commuting duration as well as their fraction of commuting done by private, public, or active transport.

Our contribution to the literature is twofold. First, we add to the existing (but scarce) evidence on intra-spousal decision-making about commuting by examining the household responsibility hypothesis, while allowing for the dependence of commuting choices between spouses. We follow the standard approach of incorporating the number of children as an approximation of the levels of household responsibilities (Hanson and Johnston, 1985;

Johnston-Anumonwo, 1992; Lee and McDonald, 2003; McQuaid and Chen, 2012; Roberts and Taylor, 2016; Fan, 2017). This analysis is necessary, given that prior evidence of the relationship between commuting and household responsibilities is inconclusive. We also contribute to the analysis of the inter-dependence of commuting decisions within the couple, which few analyses have done in the past. Second, we extend the literature by exploring the links between the mode of transport used (private, public, and active) and household responsibilities. To our knowledge, no prior work has studied this while accounting for the interdependent nature of commuting decisions in couples.

The remainder of the paper is as follows. Section 2 presents a review of the literature. Section 3 presents the data and variables, Section 4 describes the empirical strategy, and Section 5 describes the results. Section 6 sets out our main conclusions.

2. Background

One significant strand of the literature has centered on the differences in the commuting behavior of men and women. The study of gender disparities in travel patterns has become important because it reveals how men and women decide on the allocation of responsibilities, their workplace, and their residential location. The literature shows that men commute longer distances/times compared to women, and different hypotheses have been proposed to explain this. Several authors have focused on the links between women's commuting and labor force participation (Madden, 1981; MacDonald, 1999). Some argue that because women tend to be the secondary wage earner within households, they work, on average, shorter hours and earn lower wages than men, increasing their costs of commuting (Waldfogel, 2007). Others argue for the importance of the geographical distribution of occupations, in the sense that differences in the configuration of home-work locations for women and men could explain why women engage in shorter commutes. Women are more likely to work in lower-status occupations and, if these jobs are less geographically concentrated than male jobs, then women probably work closer to their homes to reduce their commuting duration (Hanson and Johnston, 1985; Hanson and Pratt, 1995; Benson, 2014). However, gender differences in commuting decrease but do not disappear after controlling for income and occupation (Singell and Lillydahl, 1986; Hanson and Johnston, 1985; Sandow and Westin, 2010).

A different but central hypothesis involves gender roles and household responsibilities (Johnston-Anumonwo, 1992; Turner and Neimeier, 1997). The Household Responsibilities Hypothesis (HRH) states that gender differences in commuting behavior are closely related to the gendered division of household tasks. Evidence indicates that the burden of household work and childcare disproportionately lies on women (Aguiar and Hurst, 2007; Gimenez-Nadal and Sevilla, 2012). As a consequence, women have more space-time constraints, which affect their value of time (Rouwendal, 1999; Sermons and Koppelman, 2001; Brownstone and Small, 2005). They must adapt their out-of-home activities to their chores at home, which lead them to work in jobs closer to home and, ultimately, shorter commuting times and distances (Turner and Neimeier, 1997; Lee and McDonald, 2003; Sandow and Westin, 2010; McQuaid and Chen, 2012; Giménez-Nadal and Molina, 2016). Studies typically rely on household characteristics, such as marital status and the presence and number of children in the family, to approximate the levels of household responsibilities, and to test the hypothesis (Hanson and Johnston, 1985; Johnston-Anumonwo, 1992; Lee and McDonald, 2003; McQuaid and Chen, 2012; Fan, 2017). However, the evidence evaluating the extent of the gender differential in commuting patterns is mixed (Turner and Neimeier, 1997; Giménez-Nadal and Molina, 2016).

Part of the literature examining disparities in commuting patterns of men and women has placed special attention on the behavior of dual-earner households, because partners share a dwelling, but have separate working places. Commuting is central to work-home arrangements because it is the nexus between the worker and the housing market (Roberts and Taylor, 2016). Evidence of work trips in dual-earner families also indicates that women commute shorter distances and shorter times (Hanson and Hanson, 1980; Madden, 1981; Johnston-Anumonwo, 1992; Sultana, 2005), but men and women are affected differentially by household characteristics, household type, and housing tenure (Kim, 1994, 1995). Additionally, the literature has focused on comparing commuting decisions of dual-earners to those of single-earners (Green, 1997; McQuaid and Chen, 2012; Hirte and Illmann, 2019). Findings suggest that dual-earner households are more likely to live farther from their work locations than single-earners (Madden, 1980). However, workers of dual-earner households commute, on average, the same, or even less, than individuals in single-earner households (Rouwendal and Rietvald, 1994; Sultana, 2005; Surprenant-Legault et al., 2013), probably

because the home location could be chosen to minimize joint commuting distances (Kim, 1995), despite facing more constraints in balancing home and work locations.

These studies have analyzed different aspects of the gender disparities in commuting behavior by comparing different family types at the household-level (single- and double-earners), or by focusing separately on male and female individual decision-making in the context of dual-earner households. However, little work has been done on examining gender commuting differences by taking into account the interdependence that exists between the decisions and outcomes of partners in dual-earner families. Couples reach joint decisions in a variety of ways, as a result of interactions and bargaining processes. Partners make a joint decision regarding the location of their home, but make separate but dependent choices on employment location, which ultimately determines each spouse's commuting time (Roberts and Taylor, 2016).

Few studies explicitly account for the dependent nature of commuting decisions in dual-earner families. Plaut (2006) focuses on the role of housing in the inter-relationship between male and female commuting decisions of spouses in dual-income households in the US, estimating a Seemingly Unrelated Regression (SUR) model to account for the interdependence of commuting decisions between partners, and finding that men commute further than women, and owners commute further than renters. Following the same methodological approach, Roberts and Taylor (2016) introduce the conditions of local labor markets to analyze spouses' commuting behavior in the UK, finding that men's commuting times are more sensitive to local unemployment rates. Plaut (2006) and Roberts and Taylor (2016) find that commuting by men and women are complements rather than substitutes, meaning that work trips are adjusted together to be longer (or shorter) for both spouses. The complementary nature of spouses' commuting may be interpreted as a result of jointly made and mutually beneficial commuting decisions in order to obtain better housing and location opportunities (Plaut, 2006). Consequently, women's shorter commutes may not reflect their relatively weaker positions and lower bargaining power within the household.

However, Surprenant-Legault et al. (2013) argue that this complementarity does not imply that couples do not engage in trade-offs, but rather that they apply strategies in order to decrease their total commuting distance. Further, the evidence of complementary commuting

behavior within couples in dual-earner families is not conclusive, since earlier findings for the US suggest that commuting in couples is a substitute, in the sense that one spouse spends more time travelling to/from work in exchange for shorter trips for the partner (Davis, 1993). In turn, Kwon and Akar (2021) analyze the determinants of the household total commuting distance and share of women's commuting distance in the US, and find that commuting mode, the presence of children, and occupation-related characteristics affect the gender gaps within couples.[3]

But despite that this prior literature has developed several intra-household decision models, the models ignore the bargaining process within the family, as studied by family economists (Picard et al. 2014). One exception to this argument is Oreffice and Sansone (2022), who develop a model to show how to non-cooperatively allocate spouse's time between work in the labor market and household production, as in Bertrand et al. (2021), augmented with commuting time decisions.

3. Data and Variables

Our analysis relies on the Multinational Time Use Study (MTUS) data set, coordinated by the Centre for Time Use Research (CTUR) at University College, London, and incorporated in the Integrated Public Use Microdata Series (IPUMS) of the Institute for Social Research and Data Innovation of the University of Minnesota (Fisher et al., 2019). The MTUS is a dataset aimed at harmonizing time-use surveys worldwide and includes information on 69 activities performed by individuals during the day, for randomly selected samples, from 25 countries over 5 decades, including travel activities. In addition, the MTUS collects information on individual and family-level socio-demographics. Data is gathered via completion of personal diaries as well as individual and household questionnaires.

There is a growing literature using time-use surveys to analyze transportation behavior (Gimenez-Nadal and Molina, 2014; 2016; Jara-Díaz and Rosales-Salas, 2015; Gimenez-

[3] Using a different methodological approach, Chidambaram and Scheiner (2020) examine the gender gap in commuting distance within dual-earner couples in Germany. They find that gender disparities in economic prospects increase the gender gap in commuting distances. In addition, their evidence indicates that a relative dominance of car access by the female spouse reduces the gap, while an increase in time spent on unpaid work by the male partner decreases the gender gap.

Nadal et al., 2018a, 2018b, 2022a; Echeverria et al., 2022). Such surveys have become the "gold standard" to study other uses of time, including paid work, housework, and childcare (Aguiar and Hurst, 2007; Gimenez-Nadal and Sevilla, 2012), since the analysis derived from time use data yields more reliable and accurate estimates in comparison to time use information obtained from stylized questions (Robinson and Godbey 1985; Juster and Stafford 1985).

We select those countries from the MTUS with available information on travel to/from work for both members of the dual-earner couple.[4] The MTUS currently includes four developed countries whose surveys include that information, for the 2000s and 2010s: Spain (2002-2003 and 2009-2010), Italy (2002-2003 and 2008-2009), South Korea (2009), and the United Kingdom (2000-2001 and 2014-2015).[5] We restrict the analysis to heterosexual working couples aged between 21 and 65 years old (Aguiar and Hurst, 2007, Gimenez-Nadal and Sevilla, 2012) and with both members reporting positive time devoted to commuting during working days (Gimenez-Nadal and Molina, 2019; Gimenez-Nadal et al., 2018a, 2018b; Molina et al., 2020). The final sample is 6,751 couples (see Table A.1 for sample composition by country).

Our analysis focuses on two sets of dependent variables. First, we are interested in the commuting times of each member of the couple, defined as the minutes per day that they devote to travel to/from work (i.e., *Commuting time*).[6] Second, we are interested in the proportion of commuting time by private transport (car, truck, or motorbike), public transit, and active transport (walking and cycling). To construct these variables, defined at the individual level, we sum for each individual the commuting time (in minutes) by each mode

4 Following Browning et al., 1994, Blundell et al., 2005; Cherchye et al., 2012, we focus on dual-earner households, so that participation decisions in the labour market are not analyzed. The analysis of single-earner households may lead to different conclusions, and raises concerns about selectivity of couples. As commuting is a function of work, those who do not work do not commute, and perhaps they do not work because they do not want to commute. Those who work may be innately different than those not working, especially given that wives who were at one point out of the labor force (perhaps because of children) eventually re-enter the labor force. Furthermore, those dual-earner couples where any of the members do not commute are excluded from the analysis, leaving aside the analysis of teleworkers. Despite that telework (e.g., work from home) has become a common practice today, for the years on which the surveys are based this practice was not as widespread, and thus this issue may have little effect on the conclusions drawn here.

5 We do not consider time use surveys in previous decades (e.g., 1980s, 1990s) because we want to give an up-to-date view of commuting behavior within couples.

6 Because information on travel distance is not available in the MTUS, we rely on information regarding individual commuting times.

of transport, and divide it by the total time spent in commuting during the day by the individual.

Table 1 shows the time devoted to daily commuting and the proportion of that time done by private, public, and active modes of transport, by country and gender. We also report the results from statistical mean tests of gender differences (t-type test of equality of means, where H0 refers to the equality of means for men and women). We observe that, on average, men commute for longer times than do women, in all countries of the sample. The largest differences in commuting times between men and women are found for the UK (17.9 minutes), followed by Italy (8.6 minutes), Spain (7.1 minutes) and Korea (4.6 minutes). These differences are statistically significant at the 1% level, indicating that men in double-earner couples commute about 37% more than their female partners in the UK, 16% more in Italy, 14% more in Spain, and 8% more in Korea.

Regarding the mode of transport used for commuting, we observe important and cross-country-consistent differences by gender. For all countries of our sample, men spend on average a larger proportion of their commuting time using private transport (ranging from 73.5% in Spain to 79.8% in the UK), while women travel a larger fraction by public transit (ranging from 6.4% in Italy to 14.1% in Spain) and active transport (ranging from 20% in Italy and the UK to 41.8% in Korea). Further, gender differences are larger in the proportion of commuting by private car, followed by differences in active transport, while gender differences in the use of public transit are much smaller. In turn, these differences are consistently larger for Korea, followed by Spain, Italy, and the UK, irrespective of the mode of transport. Mean differences are statistically significant at the 1% level, except for the proportion of commuting time by public transport in the UK.

To account for the observed heterogeneity across individuals and couples, we include individual and household characteristics, including the number of children in the family. For personal characteristics, we consider age and the highest level of formal education achieved (primary education/uncompleted secondary, completed secondary, and higher education). Roberts and Taylor (2016) find that younger, more educated men and women in the UK commute longer, but the gradient is steeper for men (women) in the case of education (age). We also incorporate the hours of paid work per week and occupational category (Schwanen

and Dijst, 2002; Gutierrez-i-Puigarnau and van Ommeren, 2010; Gimenez-Nadal and Molina, 2014), which has been found to be significantly related to the commuting distance gap in German couples (Chidambaram and Scheiner, 2020).

We include the number of children under age 18 in the household, to proxy for household responsibilities, following Hanson and Johnston (1985), Johnston-Anumonwo (1992), Lee and McDonald (2003), McQuaid and Chen (2012) and Roberts and Taylor (2016). Children and childcare activities may impose differential constraints on the commuting of partners, and are affected by the opportunity cost of time. Evidence of the relationship between the presence of children and commuting is mixed. Some studies find that having a child is not a significant factor in commuting distance for men or women (Kim, 1994, 1995). In addition, having children is not related to the gender gap in commuting distance in the US (Chidambaram and Scheiner, 2020). In contrast, one study for the US suggests that increases in the number of children are likely to lead to longer commuting (total) distances for two-earner couples, while likely to decrease the share of women's commuting distance in total household commuting (Kwon and Akar, 2021). In the case of the UK, having children bears no relationship to men's commuting times but is associated with shorter commuting time for women (Roberts and Taylor, 2016).

We include a set of household characteristics, such as the residential location (urban/suburban or rural/semi-rural), ownership of a home (own outright, mortgage, or rent) and ownership of at least one motorized vehicle (either car or motorcycle)[7]. Abraham et al. (2010) find a differential willingness between the male and female to change the residential location in response to work-related incentives, and that a bargaining process operates within couples to minimize potential conflict resulting from migration. In this line, Mok (2007) argues that when there are children in the family, it is necessary to account for family-decision making in location decisions. In addition, evidence for the US (Plaut, 2006) and the UK (Roberts and Taylor, 2016) shows that owners commute further than renters, reflecting rigidities in the housing market. Car ownership is associated with shorter commuting times for women in the case of renters, and to longer trips for men homeowners in the US (Plaut,

[7] Information on ownership of a home and motorized vehicles is not available for Spain (2009-2010); ownership of motorized vehicles is not available for Korea, while urban location is not available for the UK (2014-2015).

2006), while the number of cars in the household is associated with shorter commuting times for women in the UK (Roberts and Taylor, 2016). However, in terms of the gender gap in commuting between partners in Germany, car availability is not related to commuting distance. In addition, there is no indication of greater gender equality in commuting in urban areas (Chidambaram and Scheiner, 2020).

Panel (A) of Table 2 reports summary statistics of the socio-demographic characteristics by gender.[8] Men are, on average, 42.7 to 45.8 years old, depending on the country, and are slightly older than women (40.6 to 42.8 years old). There is a larger proportion of men (women) with primary (or uncompleted secondary) education in Spain, Italy and the UK (Korea). In Spain (Italy and Korea), the proportion of men (women) with secondary education is larger, while in the UK it is of the same order. In Spain, Italy, and the UK (Korea), there is a larger proportion of women (men) with higher education. In all countries, the proportion of men and women who only achieved a primary educational level is the lowest. In Spain (Italy) there is a larger fraction of individuals with higher (secondary) education, while the distribution of individuals across secondary and higher levels of education is quite similar in the UK. Men work more hours per week than do women. Gender differences in paid work are the greatest in the UK (11.6 more hours per week), followed by Korea (7.1 hours), and Spain (5.9 hours).

Panel (B) of Table 2 reports the proportion of couples without children and with one, two, or more than two children. In Spain, Italy, and Korea, approximately 40% of couples do not have children, while that figure is 50% in the case of the UK. Spain and Italy have a larger proportion of couples with one child (31% and 34%, respectively) than with two children (26% and 23%, respectively). Korea and the UK have a larger proportion of couples with two children (35% and 24%, respectively) than with one child (21% for both countries). In all countries, the percentage of couples with more than two children is comparatively low (between 4% and 6%).

Panel (C) of Table 2 shows that Italy has a lower proportion of couples living in urban/suburban areas (62%), followed by Spain (72%) and Korea (94%). At the same time, 68% of couples in the Korean sample are home-owners, while this number is 78% in Italy

[8] Information on working hours is not available for Italy (2002-2003).

and 84% in the UK. In addition, almost all Italian couples in the sample own at least one motorized vehicle (99%), while only 60% of couples in the UK are owners of a car or a motorcycle.

4. Empirical Strategy

We analyze the decisions of spouses regarding commuting times and mode of transport in dual-earner couples, focusing on gender and cross-country differences. In our analysis, we take into account that commuting decisions of the members of couples are inter-related. To model this interdependence in commuting decisions, we estimate Ordinary Least Squares (OLS) regressions separately for the male and the female, including in each equation not only own characteristics but also the attributes and commuting behavior of the spouse.

First, we estimate an OLS model in which the dependent variables are the male and female daily commuting times in minutes (CT), and these variables are transformed to log form to interpret estimated coefficients directly as (semi) elasticities (Plaut, 2006; Roberts and Taylor, 2016). Model (1) is composed of two separate equations (Eq. (1.1) and (1.2)), one for each spouse (m = male and f = female) living in country (c), specified as follows:

$$\log(CT_c^m) = \alpha_c^m + \beta_c^m X_c^m + \gamma_c^m X_c^f + \theta_c^m CT_c^f + \eta_c^m CH_c + \delta_c^m H_c + \lambda_c^m FE_c + \varepsilon_c^m \quad (1.1)$$

$$\log\left(CT_c^f\right) = \alpha_c^f + \beta_c^f X_c^f + \gamma_c^f X_c^m + \theta_c^f CT_c^m + \eta_c^f CH_c + \delta_c^f H_c + \lambda_c^f FE_c + \varepsilon_c^f \quad (1.2)$$

where X_c^m and X_c^f are vectors containing the socio-demographic variables for the male and female, respectively. These include age (and its square), the highest level of formal education achieved (elementary, secondary or higher education), and the number of hours of paid work per week. CH_c is a vector of indicator variables at the household-level of the number of children under age 18. Specifically, we include an indicator for couples with one child, two children, and more than two children (couples with no child are the reference category).[9] H_c

[9]We have alternatively included the age of the youngest child to assess how children's age relates to commuting time, as children's age may have an important bearing on household responsibilities and hence on commuter choices. This information is only available for Italy and South Korea. Results indicate that an older youngest child is significantly related to shorter female commuting times in the case of Italy (at 10% level), with no

includes a set of household characteristics, such as the residential location (urban/suburban or rural/semi-rural), ownership of a home (own outright, mortgage or rent) and ownership of at least one motorized vehicle (either car or motorcycle). In the vector FE_c we include control variables to account for the occupational category of the men and women, and the region and year of the survey, when available. Standard errors are robust.

Our focus is on two sets of parameters. On the one hand, we are interested in η_c^m and η_c^f, as they show how male and female commuting duration is related to household responsibilities in couples across countries, proxied by the number of children in the household. A positive (negative) correlation for a given spouse would provide evidence that having more children is related to longer (shorter) commuting times of that spouse. On the other hand, we are also interested in assessing the sign of θ_c^m and θ_c^f, which associates the commuting time of one spouse with the commuting time of the other spouse. A significant association would indicate that commuting decisions in dual earner-couples are not independent. Further, a positive correlation would indicate that spousal commuting is a complementary, in the sense that trips to work are selected together as longer or shorter, conditional on individual characteristics and living arrangements. In contrast, a negative correlation suggests that spousal commuting is substitutable, meaning that one spouse tends to commute for longer trips to work, allowing the other spouse to commute for shorter ones.[10]

Second, we estimate model (2) composed of Eq. (2.1) and (2.2) to analyze how the mode of transport chosen to commute by each member of the couple is related to household responsibilities. We consider three alternative dependent variables in the SUR regressions: a) the proportion of commuting time done by private transport, b) the proportion of commuting time done by public transit, and c) the proportion of commuting time done by an active mode of transport. We estimate the following specification for each country, including the same control variables as in Eq. (1.1) and (1.2):

association found for male commuting time. In contrast, an older youngest child is significantly related to longer female and male commuting times in the case of South Korea. Results are available upon request.

[10] In alternative regressions, we assess if bargaining power between spouses, captured by the difference in education level (Lundberg and Pollack, 2008), mediates the relationship between the number of children and commuting choices, by including an interaction variable. However, results are, in general, not statistically significant. Results are available upon request.

$$\log(P_c^m + 1) = \alpha_c^m + \beta_c^m X_c^m + \gamma_c^m X_c^f + \theta_c^m P_c^f + \eta_c^m CH_c + \delta_c^m H_c + \lambda_c^m FE_c + \varepsilon_c^m \quad (2.1)$$

$$\log\left(P_c^f + 1\right) = \alpha_c^f + \beta_c^f X_c^f + \gamma_c^f X_c^m + \theta_c^f P_c^m + \eta_c^f CH_c + \delta_c^f H_c + \lambda_c^f FE_c + \varepsilon_c^f \quad (2.2)$$

where P_c^m and P_c^f is the proportion of travel time by private, public transit, or an active mode by the male "*m*" and the female "*f*" in country "*c*", respectively. We also transform dependent variables to their logarithm form to interpret the estimated coefficients as elasticities.[11] Similarly to Eq. (1.1) and (1.2), we allow for the commuting choice mode of each spouse to depend on the choice of his/her partner.

5. Results

5.1. Commuting time

We present the results of estimating models (1) and (2) for dual-earner couples who travel to/from work in Spain, Italy, Korea and the UK. Regressions modelling commuting choices are separately estimated by gender and by each country in our sample. Estimated coefficients are interpreted as changes in percentage levels of the male and female commuting time.

Table 3 reports the estimates of model (1). We find that having more children is significantly related to commuting time, but there are differences by gender and country. In Spain and Italy, female commuting time is, on average, shorter when there are children in the family, irrespective of the number of children (and reductions are larger for an increasing number of children), while in Korea and the UK it depends on the number of children. Specifically, in Spain, having one child is associated with a 12.2% decrease in female commuting time with respect to women without children, while having two children is related to a 22.6% decrease, and having more than two children to a 27.4% decrease in time spent travelling to/from work. A similar result is found for Italy, where decreases in female commuting time are 11.2%, 21.8%, and 32.5%, respectively. In the UK, reductions of female commuting time are found in couples with one child (15.2%) and two children (19.2%), while no association is found in the case of having more than two children. In Korea, there is a

[11] We sum 1 to our dependent variables to avoid problems computing logarithms for individuals reporting no travel time by public or active transport.

reduction of female commuting time in couples with more than two children (14.6%), in comparison with childless couples, but no association is found for women with only one or two children.

We find that the presence of children is not associated with male commuting times in any of the four countries, with the exception f Italian couples with more than two children, for which we observe an increase in commuting time of 15.8% relative to men in childless couples. Given the lack of correlation between male commuting time and the number of children, it is expected that the gender gap in commuting time within couples widens as the number of children increases. These results are evidence for the household responsibility hypothesis across countries.

We find few significant associations between individual and family-level characteristics and commuting time. Regarding own characteristics, we find that more educated men commute longer in the UK but shorter in Spain, while more educated women commute longer in Italy and the UK. In turn, men working more hours per week commute significantly shorter times only in Korea, while women working more hours per week commute significantly longer times in Spain and the UK. The characteristics of the spouse are significantly correlated with own commuting time in the case of Spain. Specifically, when men (women) work more hours per week, women (men) commute less time, while in families with relatively older women we observe that male commuting time is longer. Regarding family-level attributes, we find that living in an urban/suburban location is positively associated only with male commuting time in Korea, while being the owner of a motorized vehicle is related to shorter female commuting time in the UK.[12]

Furthermore, our results provide evidence of a positive and statistically significant association between spouses' commuting time for all countries. The greatest positive association is found for Korea, while the lowest one is for the UK. That is, spouses increase (or reduce) their commuting times together, after controlling for individual and family characteristics. These results are in line with prior evidence using SUR estimates to analyze

[12] In alternative specifications we include a set of indicators to account for the number of vehicles. However, these variables are not significant.

commuting distances and times, in dual-earner couples for the UK (Roberts and Taylor, 2016) and the US (Plaut, 2006).

Several explanations are possible for this positive relationship between the commuting time of the spouses. The first is based on the assortative mating by education observed in marriage markets (Chiappori et al., 2020a, 2020b; Eika et al., 2019). To the extent that spouses match with partners of similar educational levels, highly-educated male workers tend to match to highly-educated female workers. On the other hand, higher education is related to higher wages (Heckman et al., 2006; Carneiro et al., 2011; Gunderson and Oreopolous, 2020), which creates two contrary effects on the job search market: 1) higher wages imply higher opportunity costs of commuting, and 2) higher wages imply longer commuting to reach those job places. The evidence is positive regarding the relationship between commuting and wages (Gimenez-Nadal and Molina, 2014; Gimenez-Nadal, Molina and Velilla, 2018b), indicating that the second effect dominates, and could explain why the relationship between the commuting for the members of the couples is positively related in highly-educated couples. In an intra-household context, in which wages are not controlled for, the fact that there is this complementarity means that the preferences of the spouses for a greater degree of specialization (higher wages) overcome the opportunity cost generated by commuting. In other words, if one of the spouses travels a lot to get a good salary, he/she prefers that his/her partner does the same and also travels to get a better salary.

Another explanation could be based on togetherness and synchronization with spouse's leisure. If one of the partners travels a lot (which reduces his/her leisure time, Gimenez-Nadal, Molina and Velilla (2018b, 2021), he/she has less time available to spend leisure time with his/her partner. But if his/her partner travels little, she/he will have leisure time that she/he will not be able to share with the spouse, but alone, which will provide less utility than the leisure time shared with the partner (Hamermesh, 2002,2020; Hallberg, 2003; Jenkins and Osberg, 2004; Cosaert et al., 2023; Gimenez-Nadal, Molina and Velilla, 2023). On the contrary, if one of the partners travels very little, he/she will have more time available to spend leisure time with his/her partner. But if the partner travels a lot, he/she will have leisure time that he/she will not be able to share with the spouse, but alone, which will provide

less utility. Thus, there may be a preference for couples to be together for leisure, creating a positive relationship between the commuting time of the spouses.

5.2. Commuting modes

Tables 4, 5, and 6 report the results of estimating model (2) for the proportion of male and female commuting time by private transport, public transit, and active transport, respectively, by gender and country. In Table 4, we observe that Italian women spend on average, a significantly larger proportion of their commuting time by car when there are one or two children (4.2% and 4.7% more than childless women), while in the UK only women living in couples with more than two children spend a larger proportion of their commuting time by car (7.2%). Table 5 shows that the fraction of commuting by public transport declines, on average, for Spanish men with two children (2.4%), for Italian women with one child (1.6%), and two children (3.1%), for Korean women with two (4.0%) and more than two (5.4%) children, and for women in the UK with more than two children (3.6%). Table 6 indicates that only Italian women with one child experience an average reduction in the fraction of active commuting of 2.5%.

In sum, we find that, after conditioning for individual and household characteristics, the presence of children is not related to the male proportion of commuting time by car, public and active transport in any country (with the exception of commuting by public transit in Spain when couples have two children). However, having children is related to changes in the commuting mode choice of women in Italy, Korea, and the UK. Specifically, it increases the proportion of female time commuting by private transport in Italy (one or two children) and in the UK (more than two children); decreases the fraction of female commuting by public transit in Italy (one or two children), Korea (two or more than two children) and the UK (more than two children), while decreasing the fraction of female active commuting in Italy (one child). In particular, Italian women seem to change their commuting mode of transport the most in the presence of children, followed by English and Korean women with several children. In contrast, Spanish women do not significantly alter the fraction of time commuting by each mode of transport in the presence of children.

Decisions regarding mode of transport are inter-connected between spouses, as captured by the positive sign of the commuting decision of one spouse on the commuting choice of the other spouse. As in estimates of model (1), the strongest associations are found for Korean couples. This evidence indicates that partners jointly decide to increase (or decrease) their fraction of commuting by private, public, and active transport together, rather than substituting modes of transport. This could also be a matter of sorting of couples, as couples more concerned with environmental issues may be using a higher proportion of alternative modes of transport to car use. This topic may be interesting for future research.

Several individual and household characteristics relate to the gendered use of modes of transport but differ by country. In Table 4, we observe that own age is significantly and positively associated with both the male and female fractions of commuting time by private transport in Korea. Women with higher education commute proportionally more by car than do less educated women in Korea. Women working more hours per week also commute a larger fraction of their time by private transport in Spain, Korea, and the UK, while this fraction also increases for men working more hours in the UK. Regarding the relationship between the characteristics of the spouse and commuting choices of the other spouse, we find that the male commute is longer (shorter) if the spouse has secondary (higher) education in the UK (Korea). In turn, female commuting is longer if the spouse has secondary (higher) education in Italy (the UK).

Men and women in urban locations spend a smaller proportion of their commuting time by private transport in Spain, but a larger change is found for women (7.2% vs. 3.0%). Homeowners spend a larger fraction of their commuting by private transport, but this association is more pronounced for women in Italy and the UK, while it is of the same order as partners in Korea. Having a motorized vehicle naturally increases the proportion of commuting time by private transport (in Italy and the UK), but the correlation is stronger for men. This result is in line with prior evidence suggesting that women have less access to a car in households sharing a car (Scheiner and Holz-Rau, 2012).

For public transit (Table 5), age is significantly and positively associated with men's fraction of commuting by private transport in Italy and the UK. Having a higher education decreases the fraction of commuting by public transit for women in Korea. Working more

hours per week is significantly and negatively associated with public transit for women in Korea and for men in Spain and the UK, but positively associated for women in the UK. In the UK, in couples where the man has secondary or higher education, or works more hours per week, the proportion of female commuting by public transit decreases, while the male proportion increases when the spouse has a higher education. Living in urban areas is positively and significantly associated with the fraction of commuting by public transit for both men and women in Spain, with a larger estimate for women, but only for women in Italy and men in Korea. Being a homeowner decreases the fraction of commuting time by public transit for men (women) in Italy (the UK), but is not associated with their female (male) counterparts. Having a motorized vehicle decreases the proportion of commuting time by public transit only for men in Italy and the UK.

Regarding the proportion of active commuting (Table 6), own age is positively (negatively) and significantly related to women's proportion in the UK (Korea), and negatively related to men's in the UK and Korea. Having a higher education is negatively and significantly associated with the proportion of active commuting for women in Korea. Working more hours per week is negatively and significantly associated with women's proportion of active commuting in Spain and the UK, but this correlation is positive for men in Korea. In turn, male (female) age is positively (negatively) related to women's (men's) proportion in Korea (Spain). In addition, when men (women) have a secondary education, the fraction of active commuting of the spouse decreases in Italy (the UK), and when men are older the female proportion increases in Korea. Living in urban areas is only significantly associated with the fraction of male active commuting time in Korea. Being a homeowner decreases, on average, the fraction of active commuting for both spouses in Korea and the UK, but only for women in Italy. Having a motorized vehicle significantly decreases the proportion of active commuting for both spouses in Italy and the UK, but the correlation is stronger for women in the UK, and somewhat similar in Italy.

In order to test the robustness of the results from Equation (2), we also estimate a multinomial logit to account for the fact that the choice of any mode of transport is dependent on the choice of the other two modes. Furthermore, adding 1 to each proportion of transport mode implies no discontinuity between zero use of a mode and a tiny use of a mode, but there

must still be a substantial discontinuity at 0 for mode choice. Results (reported) in Table 7) are robust in comparison to estimates of model (2) (reported in Tables 4 to 6), supporting our main conclusions of the relationship between mode choice by gender and number of children in the family across countries.

6. Conclusions

Prior literature analyzing gender differences in commuting reports that men commute longer distance/time than do women, and one explanation for this gender gap is that the bulk of household responsibilities falls to women. However, most of the literature examining gender differences in commuting has not considered the interdependence that exists between the members of couples. In this paper, we analyze how male and female commuting duration is related to household responsibilities, in couples from four developed countries, allowing for the possibility that one spouse's decision on commuting is related to that of the other. We find that having more children is significantly related to commuting times, but there are differences by gender and country. In Spain and Italy, female commuting time is shorter when there are children in the family (irrespective of how many), while in Korea and the UK this depends on the number of children. In contrast, having children is not associated with male commuting times. Then, it is expected that the gender gap in commuting time within couples widens as the number of children increases, supporting the household responsibility hypothesis across countries. Regarding commuting mode choice, the presence of children is not related to changes in the male proportion of commuting time by any means of transport, but is associated with changes in the mode choice of women in Italy, Korea, and the UK (but not in Spain) even though results differ by mode of transport, number of children, and country.

Our results may serve to stimulate further research on the topic of commuting behavior and its connection to household responsibilities. Theoretical, as well as further empirical, research is needed to shed light on the question of how gender affects individual commuting behavior. Furthermore, employment policies should consider the relationship between commuting and household responsibilities, since more family-friendly policies may increase the desire of women to work farther from home, ultimately increasing their labor force

participation – at least in the countries where we find evidence of limitations due to household responsibilities.

Identifying which workers are more likely to use public and/or active transport for commuting is important for firms and policy makers. For instance, the fact that the mode of transport is affected by household responsibilities may indicate that children interact with patterns of use of sustainable commuting (e.g., the use of green modes of transport, such as public or active transport), and thus incentives to those who are less likely to use these services may help to increase the use of such modes. This may include, for instance, offering discounts to working parents when using Mobility As a Service (Maas) applications, offering discounts to those working parents who use public transit, or offering free public transit services to children under a certain age. Far from being exhaustive, this paper does not offer a complete review of the existing incentives, and further research could focus on whether such measures are effective in increasing the use of public transport or bike-sharing services for working parents.

The fact that we find complementarities between the commuting time of the members of couples is at odds with common hypotheses and with findings in much of the prior literature, which may have implications at the theoretical level. Job search models (van den Berg and Gorter, 1997; van Ommeren, 1998; Rouwendal, 2004) consider commuting as a source of labor mobility that allows workers to access geographically dispersed labor markets without the need to migrate (Cameron and Muellbauer, 1998). In the field of transport economics (DeSalvo and Huq, 1996), commuters choose a mode of transportation to minimize the monetary and opportunity costs of travel. Theoretical models in the field of Urban Economics focus on the location of the home, where displacements are generally assumed to result in disutility, and households are located to maximize the utility obtained from the dwelling and all other goods (e.g., the monocentric city model, as in Alonso (1964), Mills (1967), and Muth (1969), and the "Polycentric City Model" developed by Muller (1981), Garreau (1991), and Knox and McCarthy (2005)). The fact that we find complementarities in commuting between the members of the couple may serve to corroborate or further develop these models.

Our analysis and results present several limitations. First, given the cross-sectional nature of the data, the results cannot be interpreted as causal, since time-variant and time-invariant

factors at both the individual and household level may be biasing the observed results. Furthermore, our definition of commuting time is restricted to commuting episodes only, and no chained trips (e.g., non-commuting trips while commuting to or from work) are included in the commuting journeys. This represents a limitation, as conclusions can change if a wider definition of commuting is used, especially when it comes to gender differences in commuting time (Gimenez-Nadal, Molina and Velilla, 2022b). More research on this topic is needed.

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Tables

Table 1. Commuting Time and Mode of Transport by Gender and Country

	Spain						Italy					
	(i) Male		(ii) Female		(iii) = (i)-(ii)		(i) Male		(ii) Female		(iii) = (i)-(ii)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean Diff.	Std. Err.	Mean	Std. Dev.	Mean	Std. Dev.	Mean Diff.	Std. Err.
commuting time (minutes)	59.6	40.2	52.4	35.9	7.1***	1.4	60.9	41.0	52.3	37.4	8.6***	1.1
proportion by private transport	0.74	0.42	0.56	0.48	0.18***	0.02	0.83	0.35	0.73	0.41	0.10***	0.01
proportion by public transport	0.09	0.26	0.14	0.32	-0.05***	0.01	0.04	0.16	0.06	0.22	-0.03***	0.01
proportion by active transport	0.18	0.35	0.30	0.43	-0.12***	0.01	0.13	0.30	0.20	0.36	-0.07***	0.01
number of couples	1,447						2,475					

	Korea						United Kingdom					
	(i) Male		(ii) Female		(iii) = (i)-(ii)		(i) Male		(ii) Female		(iii) = (i)-(ii)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean Diff.	Std. Err.	Mean	Std. Dev.	Mean	Std. Dev.	Mean Diff.	Std. Err.
commuting time (minutes)	65.6	38.4	61.0	34.4	4.6***	1.2	65.0	56.0	47.1	37.2	17.9***	2.1
proportion by private transport	0.74	0.41	0.44	0.46	0.29***	0.01	0.80	0.38	0.73	0.42	0.07***	0.02
proportion by public transport	0.05	0.18	0.14	0.29	-0.09***	0.01	0.06	0.22	0.07	0.22	-0.01	0.01
proportion by active transport	0.21	0.37	0.42	0.44	-0.20***	0.01	0.14	0.32	0.20	0.36	-0.06***	0.01
number of couples	1,737						1,026					

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015. Composition of the sample by country is detailed in Table A.1 of the Appendix. Column (iii) reports the difference in the average of commuting times and individual characteristics by gender, using t-type tests on the equality of means.

* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 2. Descriptive Statistics by Gender and Country

	Spain				Italy				Korea				UK			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Panel (A): individual characteristics																
age	43.3	8.8	41.1	8.3	44.3	8.4	41.2	8.2	45.8	8.3	42.8	7.9	42.7	10.1	40.6	9.9
elementary education	0.13	0.33	0.11	0.31	0.20	0.40	0.15	0.36	0.15	0.36	0.20	0.40	0.20	0.40	0.18	0.38
secondary education	0.33	0.47	0.29	0.46	0.66	0.47	0.69	0.46	0.58	0.49	0.64	0.48	0.40	0.49	0.39	0.49
higher education	0.54	0.50	0.60	0.49	0.14	0.35	0.16	0.36	0.27	0.44	0.16	0.37	0.40	0.49	0.43	0.50
hrs. of work per week	41.7	8.7	35.8	9.8	-	-	-	-	53.8	15.7	46.7	17.0	44.7	13.7	33.1	14.1
Panel (B): number of children																
0	0.40	0.49	0.40	0.49	0.38	0.49	0.38	0.49	0.39	0.49	0.39	0.49	0.50	0.50	0.50	0.50
1	0.31	0.46	0.31	0.46	0.34	0.48	0.34	0.48	0.21	0.41	0.21	0.41	0.21	0.41	0.21	0.41
2	0.26	0.44	0.26	0.44	0.23	0.42	0.23	0.42	0.35	0.48	0.35	0.48	0.24	0.43	0.24	0.43
more than 2	0.04	0.19	0.04	0.19	0.04	0.19	0.04	0.19	0.05	0.22	0.05	0.22	0.06	0.23	0.06	0.23
Panel (C): household characteristics																
urban location	0.72	0.45	0.72	0.45	0.62	0.48	0.62	0.48	0.94	0.25	0.94	0.25	-	-	-	-
owner of a house	-	-	-	-	0.78	0.42	0.78	0.42	0.68	0.47	0.68	0.47	0.84	0.37	0.84	0.37
owner of a vehicle	-	-	-	-	0.99	0.10	0.99	0.10	-	-	-	-	0.60	0.49	0.60	0.49
number of couples	1,447				2,475				1,737				1,026			

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015. Composition of the sample by country is detailed in Table A.1 of the Appendix. Information on working hours is not available for Italy (2002-2003); ownership of a home and motorized vehicles is not available for Spain (2009-2010); ownership of motorized vehicles is not available for Korea, and urban location is not available for the UK (2014-2015).

Table 3. OLS Regressions of Commuting Time, by country

	Spain		Italy		Korea		United Kingdom	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
M age	-0.017	0.007	0.017	-0.011	0.020	-0.017	0.049	0.000
	(0.026)	(0.027)	(0.022)	(0.020)	(0.025)	(0.023)	(0.031)	(0.029)
M age squared	0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
M secondary education	-0.122	-0.023	0.001	0.014	0.032	0.041	-0.048	0.020
	(0.074)	(0.068)	(0.040)	(0.039)	(0.046)	(0.046)	(0.068)	(0.066)
M higher education	-0.131*	-0.034	0.069	-0.054	0.074	-0.001	0.139*	0.019
	(0.079)	(0.068)	(0.059)	(0.057)	(0.058)	(0.056)	(0.075)	(0.072)
M hours of paid work per week	-0.003	-0.005**	-	-	-0.004***	0.000	-0.001	-0.002
	(0.002)	(0.002)	-	-	(0.001)	(0.001)	(0.002)	(0.002)
F commuting time (log)	0.198***	-	0.203***	-	0.394***	-	0.065*	-
	(0.028)	-	(0.022)	-	(0.025)	-	(0.034)	-
F age	0.052*	-0.040	-0.021	0.004	0.001	0.026	-0.010	-0.020
	(0.028)	(0.028)	(0.022)	(0.020)	(0.027)	(0.022)	(0.031)	(0.030)
F age squared	-0.001*	0.000	0.000	-0.000	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
F secondary education	0.074	-0.044	0.013	-0.004	0.022	-0.058	0.077	0.032
	(0.076)	(0.076)	(0.044)	(0.043)	(0.047)	(0.046)	(0.071)	(0.067)
F higher education	0.043	-0.034	-0.061	0.144**	-0.003	0.019	0.120	0.134*
	(0.083)	(0.079)	(0.058)	(0.057)	(0.064)	(0.062)	(0.082)	(0.073)
F hours of paid work per week	-0.005**	0.008***	-	-	0.001	-0.000	-0.000	0.003*
	(0.002)	(0.002)	-	-	(0.001)	(0.001)	(0.002)	(0.002)
M commuting time (log)	-	0.198***	-	0.191***	-	0.362***	-	0.056*
	-	(0.027)	-	(0.021)	-	(0.024)	-	(0.030)
couples with 1 child (ref.: none)	-0.050	-0.122***	0.046	-0.112***	0.038	0.010	0.091	-0.152**
	(0.046)	(0.044)	(0.032)	(0.032)	(0.039)	(0.037)	(0.065)	(0.063)
couples with 2 children (ref.: none)	-0.038	-0.226***	0.039	-0.218***	-0.007	-0.048	-0.041	-0.192***

	(0.053)	(0.053)	(0.037)	(0.035)	(0.038)	(0.035)	(0.072)	(0.065)
couples with + 2 children (ref.: none)	-0.069	-0.274***	0.158**	-0.325***	-0.048	-0.146**	0.080	-0.133
	(0.092)	(0.106)	(0.073)	(0.068)	(0.068)	(0.062)	(0.113)	(0.094)
urban location	0.005	0.054	0.006	-0.004	0.231**	0.115	-	-
	(0.042)	(0.043)	(0.027)	(0.025)	(0.096)	(0.119)	-	-
owner of a house	-	-	-0.040	-0.020	0.020	-0.020	0.060	0.082
	-	-	(0.032)	(0.031)	(0.029)	(0.027)	(0.070)	(0.068)
owner of a motorized vehicle	-	-	0.049	0.108	-	-	-0.061	-0.190*
	-	-	(0.142)	(0.129)	-	-	(0.140)	(0.102)
constant	3.884***	3.481***	3.275***	3.257***	1.860***	2.145***	2.641***	4.093***
	(0.448)	(0.475)	(0.372)	(0.356)	(0.345)	(0.363)	(0.512)	(0.423)
Occupation controls	Yes		Yes		Yes		No	
Region controls	Yes		No		No		No	
Year controls	Yes		Yes		Yes		Yes	
R-squared	0.121	0.162	0.058	0.076	0.261	0.204	0.033	0.058
Number of couples	1,447		2,475		1,737		1,026	

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015 (see Table A.1 of the Appendix). OLS regressions. Robust standard errors in parentheses. M- Male; F- Female.
* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 4. OLS Regressions of the Proportions of Commuting Time by Private Transport, by country

	Spain		Italy		Korea		United Kingdom	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
M age	-0.020	-0.007	-0.001	-0.003	0.031**	-0.016	0.005	0.011
	(0.013)	(0.014)	(0.007)	(0.009)	(0.014)	(0.013)	(0.010)	(0.012)
M age squared	0.000	0.000	0.000	0.000	-0.000**	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
M secondary education	0.010	0.009	0.011	0.030*	0.029	-0.008	0.012	0.020
	(0.030)	(0.034)	(0.014)	(0.018)	(0.025)	(0.026)	(0.021)	(0.026)
M higher education	0.019	-0.011	-0.009	0.031	0.023	0.002	-0.001	0.046*
	(0.030)	(0.035)	(0.021)	(0.024)	(0.030)	(0.032)	(0.023)	(0.028)
M hours of paid work per week	0.001	-0.002	-	-	-0.001	0.001	0.001*	0.000
	(0.001)	(0.001)	-	-	(0.000)	(0.000)	(0.001)	(0.001)
F proportion of commuting by private	0.187***	-	0.228***	-	0.266***	-	0.143***	-
	(0.025)	-	(0.020)	-	(0.020)	-	(0.032)	-
F age	0.020	-0.006	-0.004	-0.001	0.002	0.023*	-0.001	-0.017
	(0.014)	(0.014)	(0.007)	(0.008)	(0.014)	(0.012)	(0.010)	(0.011)
F age squared	-0.000	0.000	0.000	-0.000	-0.000	-0.000*	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
F secondary education	0.036	-0.020	0.021	-0.015	-0.019	0.038	0.049**	0.043
	(0.033)	(0.038)	(0.016)	(0.019)	(0.024)	(0.026)	(0.023)	(0.028)
F higher education	0.013	0.000	0.004	-0.030	-0.052*	0.155***	-0.011	0.043
	(0.035)	(0.040)	(0.022)	(0.024)	(0.031)	(0.035)	(0.027)	(0.030)
F hours of paid work per week	-0.001	0.003***	-	-	-0.000	0.001**	0.000	0.001**
	(0.001)	(0.001)	-	-	(0.000)	(0.000)	(0.001)	(0.001)
M proportion of commuting by private	-	0.234***	-	0.320***	-	0.347***	-	0.172***
	-	(0.030)	-	(0.027)	-	(0.025)	-	(0.038)
couples with 1 child (ref.: none)	0.030	0.026	0.000	0.042***	0.013	0.007	-0.013	0.037
	(0.020)	(0.022)	(0.012)	(0.014)	(0.018)	(0.021)	(0.022)	(0.024)
couples with 2 children (ref.: none)	0.029	0.028	-0.008	0.047***	-0.002	0.017	0.001	0.025

	(0.022)	(0.024)	(0.013)	(0.016)	(0.018)	(0.020)	(0.023)	(0.025)
couples with + 2 children (ref.: none)	0.026	0.041	0.019	-0.015	0.017	0.054	0.053	0.072**
	(0.039)	(0.045)	(0.023)	(0.031)	(0.030)	(0.036)	(0.033)	(0.037)
urban location	-0.030*	-0.072***	-0.011	-0.003	0.063	-0.090	-	-
	(0.017)	(0.020)	(0.009)	(0.011)	(0.061)	(0.070)	-	-
owner of a house	-	-	0.027**	0.033**	0.043***	0.040**	0.061**	0.082***
	-	-	(0.012)	(0.014)	(0.014)	(0.016)	(0.025)	(0.027)
owner of a motorized vehicle	-	-	0.198***	0.137**	-	-	0.259***	0.204***
	-	-	(0.058)	(0.055)	-	-	(0.055)	(0.053)
constant	-0.091	1.076***	0.398***	0.260*	-0.155	-0.276	0.004	0.067
	(0.194)	(0.217)	(0.133)	(0.156)	(0.233)	(0.200)	(0.166)	(0.175)
Occupation controls	Yes		Yes		Yes		No	
Region controls	Yes		No		No		No	
Year controls	Yes		Yes		Yes		Yes	
R-squared	0.094	0.132	0.112	0.121	0.164	0.168	0.113	0.103
Number of couples	1,447		2,475		1,737		1,026	

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015 (see Table A.1 of the Appendix). OLS regressions. Robust standard errors in parentheses. M- Male; F- Female.
* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 5. OLS Regressions of the Proportions of Commuting Time by Public Transport, by country

	Spain		Italy		Korea		United Kingdom	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
M age	0.009	0.001	0.008**	-0.002	-0.006	-0.015	0.015***	0.002
	(0.007)	(0.010)	(0.003)	(0.005)	(0.009)	(0.012)	(0.005)	(0.006)
M age squared	-0.000	-0.000	-0.000**	-0.000	0.000	0.000	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
M secondary education	0.015	-0.016	-0.008	-0.005	0.006	0.022	-0.008	-0.034***
	(0.018)	(0.023)	(0.008)	(0.010)	(0.014)	(0.019)	(0.010)	(0.013)
M higher education	-0.000	0.008	-0.001	-0.002	0.003	0.005	0.018	-0.026*
	(0.018)	(0.022)	(0.012)	(0.014)	(0.017)	(0.023)	(0.012)	(0.015)
M hours of paid work per week	-0.001*	0.000	-	-	-0.000	-0.000	-0.001*	-0.001*
	(0.000)	(0.001)	-	-	(0.000)	(0.000)	(0.000)	(0.000)
F proportion of commuting by public	0.156***	-	0.150***	-	0.080***	-	0.228***	-
	(0.032)	-	(0.029)	-	(0.022)	-	(0.050)	-
F age	0.000	-0.005	-0.003	0.003	-0.001	0.017	-0.005	0.001
	(0.008)	(0.010)	(0.004)	(0.004)	(0.009)	(0.012)	(0.005)	(0.006)
F age squared	0.000	0.000	0.000	-0.000	0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
F secondary education	-0.019	0.031	-0.006	0.001	0.004	-0.010	0.003	-0.013
	(0.020)	(0.025)	(0.008)	(0.011)	(0.014)	(0.019)	(0.010)	(0.013)
F higher education	0.018	-0.027	0.001	0.013	0.004	-0.042*	0.031**	-0.005
	(0.021)	(0.025)	(0.012)	(0.014)	(0.017)	(0.025)	(0.013)	(0.015)
F hours of paid work per week	-0.000	-0.000	-	-	0.000	-0.001*	-0.001	0.001**
	(0.001)	(0.001)	-	-	(0.000)	(0.000)	(0.000)	(0.000)
M proportion of commuting by public	-	0.224***	-	0.259***	-	0.199***	-	0.244***
	-	(0.043)	-	(0.046)	-	(0.052)	-	(0.050)
couples with 1 child (ref.: none)	-0.017	-0.010	0.001	-0.016*	-0.000	-0.009	0.011	-0.011
	(0.013)	(0.015)	(0.006)	(0.008)	(0.009)	(0.016)	(0.014)	(0.015)
couples with 2 children (ref.: none)	-0.024*	-0.011	-0.004	-0.031***	-0.008	-0.040***	-0.001	-0.009

	(0.013)	(0.016)	(0.007)	(0.009)	(0.009)	(0.014)	(0.015)	(0.015)
couples with + 2 children (ref.: none)	-0.008	-0.006	-0.006	-0.027	-0.005	-0.054**	-0.020	-0.036**
	(0.028)	(0.032)	(0.011)	(0.016)	(0.015)	(0.023)	(0.019)	(0.014)
urban location	0.017*	0.059***	0.007	0.016***	0.071**	0.034	-	-
	(0.009)	(0.011)	(0.005)	(0.006)	(0.031)	(0.039)	-	-
owner of a house	-	-	-0.016**	-0.005	-0.011	-0.009	0.012	-0.033*
	-	-	(0.006)	(0.008)	(0.008)	(0.012)	(0.014)	(0.017)
owner of a motorized vehicle	-	-	-0.092**	-0.027	-	-	-0.119***	-0.035
	-	-	(0.044)	(0.037)	-	-	(0.042)	(0.033)
constant	0.377***	-0.215	-0.018	0.076	0.059	-0.072	-0.010	0.119
	(0.112)	(0.144)	(0.066)	(0.086)	(0.087)	(0.140)	(0.095)	(0.103)
Occupation controls	Yes		Yes		Yes		No	
Region controls	Yes		No		No		No	
Year controls	Yes		Yes		Yes		Yes	
R-squared	0.158	0.189	0.076	0.081	0.044	0.051	0.116	0.110
Number of couples	1,447		2,475		1,737		1,026	

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015 (see Table A.1 of the Appendix). OLS regressions. Robust standard errors in parentheses. M- Male; F- Female.
* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 6. OLS Regressions of the Proportions of Commuting Time by Active Transport, by country

	Spain		Italy		Korea		United Kingdom	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
M age	0.012	0.006	-0.006	0.005	-0.026**	0.028**	-0.020**	-0.015
	(0.011)	(0.012)	(0.007)	(0.008)	(0.012)	(0.014)	(0.009)	(0.011)
M age squared	-0.000	-0.000	0.000	-0.000	0.000**	-0.000*	0.000*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
M secondary education	-0.031	0.012	-0.001	-0.027*	-0.028	-0.008	0.001	0.011
	(0.027)	(0.033)	(0.013)	(0.016)	(0.023)	(0.025)	(0.019)	(0.024)
M higher education	-0.023	0.005	0.018	-0.033	-0.021	-0.004	-0.014	-0.024
	(0.027)	(0.034)	(0.019)	(0.022)	(0.027)	(0.032)	(0.020)	(0.024)
M hours of paid work per week	-0.000	0.001	-	-	0.001*	-0.001	-0.001	0.000
	(0.001)	(0.001)	-	-	(0.000)	(0.000)	(0.000)	(0.001)
F proportion of commuting by active	0.177***	-	0.252***	-	0.294***	-	0.102***	-
	(0.025)	-	(0.021)	-	(0.020)	-	(0.032)	-
F age	-0.022*	0.012	0.009	-0.003	-0.000	-0.035**	0.008	0.017*
	(0.011)	(0.012)	(0.006)	(0.007)	(0.012)	(0.014)	(0.009)	(0.010)
F age squared	0.000*	-0.000	-0.000	0.000	-0.000	0.000**	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
F secondary education	-0.014	-0.015	-0.014	0.019	0.012	-0.027	-0.051**	-0.040
	(0.030)	(0.036)	(0.015)	(0.017)	(0.022)	(0.025)	(0.022)	(0.026)
F higher education	-0.031	0.022	-0.006	0.030	0.043	-0.117***	-0.014	-0.044
	(0.031)	(0.038)	(0.020)	(0.022)	(0.028)	(0.034)	(0.024)	(0.027)
F hours of paid work per week	0.001	-0.002***	-	-	0.000	-0.000	-0.000	-0.002***
	(0.001)	(0.001)	-	-	(0.000)	(0.000)	(0.000)	(0.001)
M proportion of commuting by active	-	0.251***	-	0.345***	-	0.426***	-	0.130***
	-	(0.035)	-	(0.028)	-	(0.026)	-	(0.041)
couples with 1 child (ref.: none)	-0.015	-0.018	-0.004	-0.025**	-0.018	0.005	0.004	-0.030
	(0.016)	(0.019)	(0.010)	(0.012)	(0.017)	(0.020)	(0.019)	(0.021)
couples with 2 children (ref.: none)	-0.008	-0.020	0.009	-0.019	-0.000	0.016	0.003	-0.015

	(0.019)	(0.022)	(0.012)	(0.014)	(0.016)	(0.019)	(0.019)	(0.022)
couples with + 2 children (ref.: none)	-0.010	-0.043	-0.012	0.037	-0.024	-0.007	-0.038	-0.039
	(0.032)	(0.041)	(0.021)	(0.029)	(0.027)	(0.034)	(0.028)	(0.035)
urban location	0.015	0.019	0.006	-0.008	-0.129**	0.064	-	-
	(0.016)	(0.019)	(0.009)	(0.010)	(0.056)	(0.067)	-	-
owner of a house	-	-	-0.013	-0.029**	-0.036***	-0.029*	-0.074***	-0.057**
	-	-	(0.011)	(0.012)	(0.013)	(0.015)	(0.023)	(0.024)
owner of a motorized vehicle	-	-	-0.112**	-0.102*	-	-	-0.143***	-0.171***
	-	-	(0.055)	(0.056)	-	-	(0.054)	(0.053)
constant	0.355**	-0.385*	0.130	0.150	0.576***	0.744***	0.590***	0.472***
	(0.169)	(0.202)	(0.126)	(0.144)	(0.219)	(0.192)	(0.158)	(0.164)
Occupation controls	Yes		Yes		Yes		No	
Region controls	Yes		No		No		No	
Year controls	Yes		Yes		Yes		Yes	
R-squared	0.102	0.125	0.122	0.143	0.205	0.185	0.081	0.092
Number of couples	1,447		2,475		1,737		1,026	

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015 (see Table A.1 of the Appendix). OLS regressions. Robust standard errors in parentheses. M- Male; F- Female.
* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 7. Multinomial Logit Regressions of Commuting Mode Choice, by country

	Spain		Spain		Italy		Italy	
	Male		Female		Male		Female	
	Public	**Active**	**Public**	**Active**	**Public**	**Active**	**Public**	**Active**
M age	0.252*	0.153	0.007	0.070	0.356*	-0.061	0.105	0.011
	(0.153)	(0.148)	(0.141)	(0.113)	(0.194)	(0.104)	(0.135)	(0.089)
M age squared	-0.003*	-0.002	-0.000	-0.001	-0.004*	0.001	-0.002	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
M secondary education	0.061	-0.277	-0.337	0.033	-0.476	-0.163	-0.147	-0.301*
	(0.419)	(0.305)	(0.366)	(0.258)	(0.347)	(0.194)	(0.305)	(0.171)
M higher education	-0.109	-0.225	0.068	-0.018	-0.346	0.056	0.046	-0.335
	(0.452)	(0.310)	(0.374)	(0.263)	(0.462)	(0.289)	(0.368)	(0.267)
M hours of paid work per week	-0.027	0.001	-0.001	0.008	-	-	-	-
	(0.019)	(0.010)	(0.013)	(0.009)	-	-	-	-
F age	-0.062	-0.191	-0.050	0.057	-0.137	0.103	-0.004	0.073
	(0.160)	(0.139)	(0.142)	(0.115)	(0.169)	(0.103)	(0.120)	(0.090)
F age squared	0.001	0.002	0.001	-0.000	0.002	-0.001	0.001	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
F secondary education	-0.354	-0.231	0.295	-0.056	-0.450	-0.249	-0.187	0.117
	(0.438)	(0.316)	(0.401)	(0.267)	(0.364)	(0.222)	(0.324)	(0.186)
F higher education	0.206	-0.337	-0.405	-0.201	-0.024	0.035	0.179	0.166
	(0.420)	(0.312)	(0.395)	(0.261)	(0.491)	(0.313)	(0.383)	(0.273)
F hours of paid work per week	-0.009	0.013	-0.017*	-0.014*	-	-	-	-
	(0.013)	(0.008)	(0.010)	(0.007)	-	-	-	-
couples with 1 child (ref.: none)	-0.355	-0.237	-0.291	-0.146	-0.132	-0.033	-0.523**	-0.360**
	(0.259)	(0.204)	(0.224)	(0.166)	(0.275)	(0.170)	(0.210)	(0.144)
couples with 2 children (ref.: none)	-0.515*	-0.147	-0.286	-0.116	-0.369	0.119	-0.881***	-0.192
	(0.290)	(0.220)	(0.256)	(0.184)	(0.337)	(0.194)	(0.259)	(0.165)
couples with + 2 children (ref.: none)	-0.080	0.076	-0.312	-0.356	-0.471	-0.214	-0.539	0.403
	(0.486)	(0.411)	(0.464)	(0.368)	(0.605)	(0.384)	(0.508)	(0.277)
urban location	0.867***	0.215	1.419***	0.269*	0.544**	-0.033	0.271	-0.103
	(0.308)	(0.183)	(0.276)	(0.150)	(0.256)	(0.138)	(0.183)	(0.116)
owner of a house	-	-	-	-	-0.740***	-0.363**	-0.230	-0.421***

	-	-	-	-	(0.241)	(0.160)	(0.195)	(0.134)
owner of a motorized vehicle	-	-	-	-	-2.603***	-1.620***	-1.518**	-1.518***
	-	-	-	-	(0.617)	(0.513)	(0.633)	(0.457)
constant	-6.355**	-1.996	-2.090	-4.390**	-6.579**	-1.640	-2.469	-2.258
	(2.817)	(2.272)	(2.377)	(1.851)	(3.176)	(1.887)	(2.151)	(1.679)
Occupation controls	Yes		Yes		Yes		Yes	
Region controls	Yes		Yes		No		No	
Year controls	Yes		Yes		Yes		Yes	
Number of couples	1,447		1,447		2,475		2,475	

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015 (see Table A.1 of the Appendix). OLS regressions. Robust standard errors in parentheses. M- Male; F- Female.
* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 7 (Cont.). Multinomial Logit Regressions of Commuting Mode Choice, by country

	Korea		Korea		United Kingdom		United Kingdom	
	Male		Female		Male		Female	
	Public	**Active**	**Public**	**Active**	**Public**	**Active**	**Public**	**Active**
M age	-0.177	-0.204*	-0.194	0.130	0.319**	-0.279**	0.211	-0.122
	(0.306)	(0.111)	(0.178)	(0.102)	(0.152)	(0.115)	(0.182)	(0.112)
M age squared	0.003	0.002**	0.002	-0.001	-0.004**	0.003**	-0.003	0.002
	(0.003)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
M secondary education	0.034	-0.392*	0.315	-0.014	-0.565	-0.052	-0.988***	0.104
	(0.540)	(0.213)	(0.332)	(0.195)	(0.409)	(0.279)	(0.357)	(0.226)
M higher education	-0.126	-0.338	0.004	-0.043	0.214	-0.239	-0.647*	-0.304
	(0.621)	(0.255)	(0.394)	(0.239)	(0.379)	(0.316)	(0.392)	(0.267)
M hours of paid work per week	0.000	0.009**	-0.007	-0.001	-0.015	-0.005	-0.030***	0.005
	(0.009)	(0.004)	(0.005)	(0.004)	(0.011)	(0.007)	(0.011)	(0.006)
F age	-0.118	-0.056	0.070	-0.250**	-0.120	0.136	-0.041	0.174
	(0.299)	(0.114)	(0.188)	(0.099)	(0.145)	(0.137)	(0.141)	(0.115)
F age squared	0.001	0.001	-0.001	0.003**	0.001	-0.001	0.001	-0.002*
	(0.003)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
F secondary education	0.279	0.070	-0.203	-0.383**	0.170	-0.735**	-0.349	-0.308
	(0.542)	(0.226)	(0.296)	(0.192)	(0.437)	(0.290)	(0.431)	(0.231)
F higher education	0.117	-0.016	-0.838**	-1.218***	1.151**	-0.216	-0.207	-0.506*
	(0.654)	(0.295)	(0.404)	(0.259)	(0.452)	(0.329)	(0.470)	(0.266)
F hours of paid work per week	-0.006	0.003	-0.006	-0.006*	-0.013	0.000	0.014*	-0.022***
	(0.008)	(0.004)	(0.005)	(0.003)	(0.010)	(0.007)	(0.008)	(0.007)
couples with 1 child (ref.: none)	0.061	-0.214	-0.036	-0.071	0.295	0.063	-0.079	-0.343
	(0.328)	(0.193)	(0.224)	(0.161)	(0.356)	(0.275)	(0.372)	(0.240)
couples with 2 children (ref.: none)	-0.453	0.028	-0.400*	0.013	-0.324	-0.019	-0.176	-0.257
	(0.355)	(0.179)	(0.223)	(0.155)	(0.422)	(0.290)	(0.350)	(0.243)
couples with + 2 children (ref.: none)	-0.519	-0.125	-0.887*	-0.097	-1.055	-0.823	-13.806***	-0.575
	(0.757)	(0.336)	(0.499)	(0.262)	(0.870)	(0.627)	(0.340)	(0.387)
urban location	15.426***	-1.006***	2.380**	0.304	-	-	-	-
	(0.281)	(0.239)	(0.956)	(0.548)	-	-	-	-
owner of a house	-0.477	-0.505***	-0.410**	-0.395***	-0.015	-0.925***	-0.632*	-0.636***

	(0.292)	(0.136)	(0.178)	(0.120)	(0.411)	(0.240)	(0.332)	(0.233)
owner of a motorized vehicle	-	-	-	-	-2.979***	-1.934***	-1.747***	-1.499***
	-	-	-	-	(0.524)	(0.440)	(0.587)	(0.400)
constant	-12.024***	4.910***	-11.778***	1.891	-3.138	4.384**	-1.883	1.069
	(2.612)	(1.574)	(2.211)	(1.802)	(2.989)	(1.960)	(2.904)	(1.704)
Occupation controls	Yes		Yes		No		No	
Region controls	No		No		No		No	
Year controls	Yes		Yes		Yes		Yes	
Number of couples	1,737		1,737		1,026		1,026	

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015 (see Table A.1 of the Appendix). OLS regressions. Robust standard errors in parentheses. M- Male; F- Female.
* Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Appendix

Table A.1. Sample Composition

Country	Survey Years	Number of Couples
Spain	2002-2003 and 2009-2010	1,448
Italy	2002-2003 and 2008-2009	2,540
Korea	2009	1,737
UK	2000-2001 and 2014-2015	1,026
All countries	2000 to 2015	6,751

Note: Sample consists of double-earner couples with positive daily commuting times, from the Multinational Time Use Study (MTUS) from 2000 to 2015.