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Culture and the cross-country differences in the gender commuting gap: Evidence from immigrants in the United States

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Abstract

This paper explores the role of the gender equality culture in cross-country gender commuting gap differences. To avoid inter-relationships between culture, institutions, and economic conditions in a simple cross-country analysis, we adopt the epidemiological approach. We merge data from the American Time Use Survey for the years 2006–2018 on early-arrival first- and second-generation immigrants living in the United States with their corresponding annual country of ancestry's Gender Gap Index (GGI). Because all these immigrants (with different cultural backgrounds) have grown up under the same laws, institutions, and economic conditions in the US, the gender differences among them in the time devoted to commuting to/from work can be interpreted as evidence of the existence of a cultural impact. Our results show that a culture with more gender equality in the country of ancestry may reduce the gender commuting gap of parents. Specifically, an increase of 1 standard deviation in the GGI increases women's daily commuting time relative to men by almost 5 minutes, a sizeable effect representing 23 percent of the standard deviation in the gender commuting gap across countries of ancestry. A supplementary analysis provides possible mechanisms through which culture operates and is transmitted, showing the potential existence of horizontal transmission and the importance of the presence of children in commuting. Our results are robust to the use of different subsamples, geographical controls, and selection into employment and telework.

Keywords: Commuting, culture, immigrants, American Time Use Survey

JEL Codes: R41, J16, Z13

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1. INTRODUCTION

The large differences across countries in the so-called gender commuting gap vary considerably from just 1–2 minutes in Estonia, Finland, and Sweden to around 30 minutes in Japan, Korea, and India (OECD Family Database).¹ This gender gap appears to be quite persistent over time, with, for example, little evidence of changes between the 1960s and the early 21st century in countries such as the US, France, the UK, or the Netherlands (Craig & van Tienoven, 2019; Dex et al., 1995; Giménez-Nadal & Molina, 2016; Grieco et al., 1989; Havet et al., 2021; Turner & Niemeier, 1997). Several non-exclusive frameworks have been proposed in the literature to explain the gender commuting gap: household responsibility, labor market, and gender commuting preferences (for an extensive review of the literature, see Reuschke & Houston, 2020). These possible explanations are able, at least in part, to account for the gender commuting gap but not for the large differences across countries. Our work examines a somewhat overlooked yet related aspect: the gender equality culture across countries. We aim to explore the role of gender equality cultural differences across countries in the gender commuting gap using the epidemiological approach.

Despite the major advancements in the converging roles of men and women, there are still some gender gaps in education, wages, and employment (Blau & Kahn, 2017; Goldin, 2014; Olivetti & Petrongolo, 2016) but especially in housework and family care, albeit with important cross-country differences (Fuwa & Cohen, 2007; Greenstein, 2009; Knudsen & Waerness, 2007; Marcén & Morales, 2019a). The Harmonised European Time Use Survey statistics data, available from Eurostat, show that women were clearly more involved, on average, in household labor and care activities than men in the period 2008–2015, with the time devoted to unpaid housework activities varying from 22 hours per week in Turkey to just 5–7 hours in Norway and France.² The additional time constraints faced by women as a result of outperforming men in household labor and family care may allow men to travel further to places of employment than women. The persistence of the cross-country asymmetric gender division of housework, which appears to be, at least in part, explained by underlying cultural differences in cross-country gender equality (Blau et al., 2020; Marcén & Morales, 2019a), may also be driving the cross-country dissimilarities in the gender commuting gap. An in-depth additional analysis of alternative determinants of the gender commuting gap is of interest to policy makers and society in general because of its inter-relationships with the gender wage and employment gap and the gender differences in job searches (Black et al., 2014; Farré et al. 2020; Le Barbanchon et al., 2021). In the case of France, female job seekers are paid 4% less per hour after unemployment and have a 12% shorter commute than men (Le Barbanchon et al., 2021).

¹ See Chart LMF2.6.A: Average time spent travelling to and from work, 1999–2014: <http://www.oecd.org/els/family/database.htm>

² See online data: TUS_00AGE in the Eurostat chart: Time spent, participation time and participation rate in the main activity by sex and age group: https://ec.europa.eu/eurostat/databrowser/view/tus_00age/default/table?lang=en

Culture was defined by the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2001) as “*the set of distinctive spiritual, material, intellectual, and emotional features of society or a social group. Not only does this encompass art and literature, but it also includes lifestyles, ways of living together, value systems, traditions, and beliefs*”. Almost all researchers agree on the importance of culture for human decisions, but they also agree that culture is not easily measured (Furtado et al., 2013). Because of the strong connections between culture, institutions, and economic conditions, disentangling the impact of culture in a cross-country comparison is quite tricky. The epidemiological approach put forward by Raquel Fernández (2007) offers a clean scenario in which to isolate the causal effect of culture from that of institutions and economic conditions. Following that empirical strategy, we study the behavior of early-arrival first- and second-generation immigrants whose ethnicity/ancestry or country of origin is known. The identification strategy of the epidemiological approach is based on all those early-arrival first- and second-generation immigrants who have grown up in the same country but have different cultural backgrounds; therefore, gender differences in the commuting time of those immigrants by country of ancestry can be understood as indicating the existence of a cultural impact.

Our paper adds to the recent and growing literature focused on the causal impact of culture on socioeconomic and demographic outcomes (Fernández, 2011; Giuliano, 2016) by exploring the impact of gender equality cultural differences on the commuting time to/from work. Several papers, using methodologies that are quite analogous to that proposed here, have provided empirical evidence on the importance of culture for living arrangements (Giuliano, 2007; Marcén & Morales, 2019b), employment and fertility (Bellido et al., 2016; Contreras & Plaza, 2010; Eugster et al., 2017; Fernández, 2007; Fernández & Fogli, 2009, 2006; Marcén, 2014; Marcén et al., 2018), divorce (Furtado et al., 2013), homeownership (Marcén & Morales, 2020), the gender division of household labor (Blau et al., 2020; Marcén & Morales, 2019a), and even the math, reading, and science gender gap (Nollenberger et al., 2016; Rodríguez-Planas & Nollenberger, 2018), among others.

We obtain the US data on early-arrival first- and second-generation immigrants’ commuting time and their corresponding country of ancestry from the Integrated Public Use Microdata Series Time Use (IPUMS Time Use) for the period 2006–2018 (Hofferth et al., 2018).³ To gauge culture, we consider the World Economic Forum’s Gender Gap Index, as used in several recent papers that regarded this index as a suitable proxy for cultural gender equality differences in the country of ancestry (Blau et al., 2020; González & Rodríguez-Planas, 2020; Marcén & Morales, 2019a; Nollenberger et al., 2016). Merging these two datasets, we are able to study the causal effect of culture on commuting time, avoiding reverse causality concerns because the behavior of early-arrival first- and second-generation immigrants is unlikely to influence the gender equality index of the country of ancestry (Nollenberger et al., 2016).

³ There is some evidence on the gender commuting gap considering differences by race/ethnicity (white, black, Hispanic, Asian) but not using data on first- and second-generation immigrants (Hu, 2020).

Our initial analysis reveals non-statistically significant differences in the commuting time between men and women without children. This can be explained by the slight decrease in the gender differentials in commuting time, especially among young individuals and those without children, in a similar way to other gender gaps, which even appear to be reversing (Le Barbanchon et al., 2021; Tilley & Houston, 2016). A clear gender commuting gap is observed for individuals with children. Mothers underperform fathers in the average time that they devote to commuting. This finding is in line with the literature pointing to the substantial costs of children for women's careers and lifetime earnings (Adda et al., 2017). In a very recent survey, the UK Institute for Fiscal Studies (IFS) showed that the gender commuting gap starts to widen after the birth of the first child in the family and continues to grow for around a decade after that (Joyce & Keiller, 2018). The aforementioned raw data of the OECD (OECD Family Database) also point to the gender commuting gap for individuals with children, but this is not so clear for those without children. What role are the cross-country cultural differences playing in gender equality? We provide empirical evidence that more gender-equal norms in the country of ancestry are associated with a lower commuting time of women relative to men. More gender-equal norms may be narrowing the gender commuting gap across countries of ancestry. Specifically, we find that a 1 standard deviation increase in the GGI is associated with an increase of almost 5 minutes in the commuting time per day of women relative to men, which represents 23 percent of the standard deviation in the gender commuting gap across countries of ancestry. Our results are robust to selection into employment and telework as well as to the inclusion of partners' characteristics and several socio-economic and geographical controls (including MSA fixed effects and country of ancestry fixed effects).

If culture really matters, we should find evidence of the channels through which culture operates and its transmission. To study the possible mechanisms, we use each of the four components of the GGI, which allow us to explore which of the gender equality aspects is driving our findings. With respect to the transmission, parents surely instill beliefs and preferences in their children (Furtado et al., 2013). Unfortunately, it is not possible to explore the vertical transmission of culture with our dataset, but we are able to analyze the horizontal transmission. Culture may be transmitted through neighbors or ethnic communities, so the higher the concentration of individuals of the same ethnicity, the greater the horizontal transmission of culture (Nollenberger et al., 2016).

The evidence provided in this work points to the importance of the gender equality cultural differences among countries in explaining, at least in part, the cross-country differences in the gender community gap. This cultural aspect is strongly related to the household responsibility hypothesis, which has been tested more extensively in the commuting time literature, showing mixed results (Giménez-Nadal & Molina, 2016; McQuaid & Chen, 2012; Olivieri & Fageda, 2021; Reuschke & Houston, 2020). A supplementary analysis, developed to test the role of culture further, also shows that, when analyzing commuting time to/from work accompanied by a child or commuting time during childcare activities, the less gender-equal the norms, the longer the commuting time of women in those activities relative to men, which again highlights the importance of cultural differences across countries.

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

2. DATA

2.1. Main Sample

We use the 2006–2018 American Time Use Survey (ATUS) to gauge the commuting time (Hofferth et al., 2018).⁴ The ATUS is a nationally representative survey provided by the Bureau of Labor Statistics. This time use survey collects detailed information about individuals' activities throughout the 24 hours of the previous day (from 4:00 a.m. to 4:00 a.m.) on weekdays and at the weekend. A single individual from each selected household is interviewed on a single day. Respondents are asked by a computer-assisted telephone interviewer to report their own activities as well as stating how long the activity lasted, who was there, and where the activity took place.

From the ATUS, we select early-arrival first- and second-generation immigrant workers living in the US and coming from 41 countries of ancestry.⁵ Our main sample contains 1,678 observations of workers aged 16 to 65 who have children under the age of 18 years living in the household.⁶ In the main sample, we exclude those workers who reported no time spent commuting to work on the day of the survey.⁷ We will revisit this issue below. Both first- and second-generation early-arrival immigrants are considered to amplify the size of our sample, following González and Rodríguez-Planas (2020) and Marcén and Morales (2019a), due to the low number of immigrants in the ATUS, which obtains information from a randomly selected subset of households from the Current Population Survey (CPS). This is a common weakness of the dataset, as reflected in the literature (Giuliano, 2007; Muchomba et al., 2020), but is mitigated by combining the two subsamples of immigrants. Note that the literature has considered that the two generations of immigrants are quite similar (Furtado et al., 2013). Early-arrival immigrants, like second-generation immigrants, have been exposed to the US's economic conditions and institutions for almost their entire lives and are not likely to face language barriers (Furtado et al., 2013). For the early-arrival first generation, we consider those immigrants living in the US who arrived in that country when they were aged 5 or younger and who report their country of origin. For the second generation, we select US native individuals whose father or mother were born in a different country. We assign the mother's country

⁴ The ATUS provides data since 2003, but, because the cultural proxy has been available only since 2006, we restrict our sample to the years for which the cultural proxy is available. This is possible if we assume that both generations of immigrants behave in the same way as their counterparts in their country of ancestry, which is a common strategy in the epidemiological approach (Furtado et al., 2013).

⁵ The 41 countries of ancestry are all possible identifiable countries of ancestry in the ATUS with available information on the GGI after eliminating those countries of ancestry with fewer than five observations, following prior studies (Furtado et al., 2013; Nollenberger et al., 2016). The sample is limited to individuals living in an identifiable US state.

⁶ The main results are maintained using a sample of individuals aged 21 to 65 including only those who are likely to have completed schooling and are below the retirement age; see below (Furtado et al., 2013). We initially extend the analysis to individuals without children, but this is not the main sample in our analysis; see more details below in the results section.

⁷ See Table A1 in the Appendix for the summary statistics of the demographic and geographic controls by country of ancestry.

of origin when the parents are immigrants from different countries of origin because the mother's culture has been suggested to be more important in the intergenerational transmission of gender roles (Blau et al., 2013).

2.2. Gender Equality Measures

To measure the gender equality culture in an immigrant's country of ancestry, we follow Marcén and Morales (2019a), Nollenberger et al. (2016), and Rodríguez-Planas and Nollenberger (2018) by using the annual national-level Gender Gap Index (GGI), which is available since 2006 (source: World Economic Forum 2018). The GGI includes a variety of indicators that measure the relative position of women in a society. As Nollenberger et al. (2016) explained, the GGI is a good proxy for gender norms or culture in relation to gender equality because it reflects the economic and political opportunities, education, and well-being of women in the country of ancestry. The GGI is an average of four sub-indexes: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment. All the sub-indexes range from zero to one, and larger values indicate a better position of women in society (see a detailed description in Table B1 in the Appendix).⁸

2.3. Descriptive Statistics

Table 1 shows the summary statistics for the main variables by country of ancestry, ordered from the smallest to the largest gender commuting gap for early-arrival first- and second-generation immigrants.⁹ On average, men outperform women by 12 minutes per day on commuting, as can be seen in the first column, in which the average gender commuting gap is measured as the average women's commuting time to/from work minus that of men by country of ancestry (in minutes per day).¹⁰ The unconditional average gender gap reveals large cross-country of ancestry differences in the gender commuting gap, which, at least in part, may be caused by the gender equality cultural differences across countries. To check this with the raw data, we present the cultural proxy by country of ancestry in column (2). Higher values indicate greater gender equality in that society. Our main cultural proxy, the GGI, presents a minimum of 0.56 in Saudi Arabia and a maximum of 0.81 in Sweden, averaging 0.70, with a standard deviation of 0.05. From a simple glance at these two columns, it is not possible to identify a clear relationship between the two variables; for this reason, we plot them in Figure 1. This figure shows the relationship between the gender commuting gap of early-arrival first- and second-generation immigrants living in the US (column (1) of Table 1) and the GGI by country of ancestry (column (2) of Table 1). Although, again, the figure is not quite clear, we observe a possible positive relationship between the two variables. It appears that the greater the culture of gender equality in the country of ancestry, the smaller the gender commuting gap. Of course, this is not a conclusive analysis, and will we check this in depth in the next sections.

⁸ We rerun the analysis using each of those sub-indexes separately; see below.

⁹ This corresponds to the main sample, which includes men and women with children under the age of 18 years living in the household.

¹⁰ A negative gap means that men outperform women in commuting time while a positive gap means the opposite.

3. EMPIRICAL STRATEGY

Our empirical strategy is based on the epidemiological approach using a sample of early-arrival first- and second-generation immigrants. These individuals have lived under the same US economic conditions and institutions but have different cultural backgrounds. In this setting, if only institutions and economic conditions are important in the time spent travelling to and from work, we would expect no effect of the country of ancestry's cultural proxy. However, if the preferences and beliefs of both generations of migrants' ancestors matter and have been transmitted to them by their parents and/or their ethnic community, we would expect to observe that the cross-country differences in the gender equality culture could explain, at least in part, the gender differences in the commuting time of the early-arrival first- and second-generation immigrants living in the US (the host country). To check this, we estimate the following equation:

$$Y_{ijkt} = \beta_0 + \beta_1 Female_i + \beta_2 (Female_i * GGI_{jt}) + X'_{ijkt} \beta_3 + \delta_k + \eta_j + \mu(\delta_k * Female_i) + \theta_t + \varepsilon_{ijkt} \quad (1)$$

where Y_{ijkt} is the time devoted to commuting to/from work (minutes per day) reported by worker i of cultural origin j living in state k in year t .^{11,12} The variable $Female_i$ is a dummy variable that takes the value of one if the individual is a female and zero otherwise. GGI_{jt} is the cultural proxy in country of ancestry j in year t .¹³ A higher value of this index represents a more gender-equal culture. β_2 is the main coefficient of the interaction between the GGI_{jt} and the female indicator, which captures the role of the gender equality culture in explaining the gender differences in commuting time of early-arrival first- and second-generation immigrant women and men.¹⁴ We expect β_2 to be positive. This would indicate that more gender-equal attitudes in the immigrant's country of ancestry are associated with a smaller gender commuting gap in the host country. This is linked with the household responsibility hypothesis since women originating from more traditional ancestries face additional time constraints due to household labor and family care, which may allow men to travel further to places of employment than women. The vector X_{ijkt} includes a set of individual characteristics of respondent i . These individual controls are age, educational level (more college or not), race (white or not), and geographic location (living in a metropolitan area or not), which may affect the time that workers devote to commuting (Giménez-Nadal & Molina, 2016; Giménez-Nadal et al., 2018) (see Table A1 in the Appendix for summary statistics by country of ancestry

¹¹ Following Giménez-Nadal et al. (2018), we consider the activity “commuting to/from work” with the activity code “180501.” We compute the total time of commuting as the sum of all commuting episodes reported by the respondents throughout the day.

¹² Our results are maintained after redefining our dependent variable as the (log) time devoted to commuting by worker i , even when controlling for all the demographic variables included in Table 3 (see Table A2 in the Appendix).

¹³ It should be noted that, for the cultural proxy, we use a contemporaneous measure, which is common in the literature (Fernández & Fogli, 2009; Furtado et al., 2013; Marcén & Morales, 2019b, 2020; Marcén et al., 2018).

¹⁴ See a similar empirical strategy in the studies by Marcén and Morales (2019a), Nollenberger et al. (2016), and Rodríguez-Planas and Nollenberger (2018).

and Table B2 for a detailed description).¹⁵ These individual characteristics are also interacted with the female indicator. Controls for unobserved characteristics of the place of residence are added by using state fixed effects, denoted by δ_k .¹⁶ To capture the characteristics in the country of ancestry that may be related to gender roles, we introduce country of ancestry fixed effects, η_j , while, to capture the time-variant unobserved characteristics, we add year fixed effects, θ_t . The state fixed effects (δ_k) are interacted with $Female_i$ to account for variations in the state's gender commuting gaps that may arise from differentials across states in cultural or institutional channels. Standard errors are clustered at the country of ancestry level to account for any within-ethnicity correlation in the error terms.¹⁷

The empirical strategy presented in this section allows us to examine the effect of the gender equality culture on the commuting time of women relative to men. We extend our analysis by studying the transmission of culture and the possible mechanisms that could be driving our results by using alternative methodologies. A supplementary analysis also provides further evidence on the role of culture in explaining gender differences in the time devoted to commuting to/from work with children or commuting during childcare activities. This is a complementary analysis to that presented here since, if the gender equality culture has an impact on the gender commuting gap because those behaving in a traditional way spend less time commuting to work and more time with their children, we should observe that they spend more time commuting with their children. This is again related to the household responsibility hypothesis. Lastly, we reduce the possible concerns about selection into employment and telework. This is explained in detail in Section 4.

4. RESULTS

4.1. Do cultural differences in gender equality play a role?

Table 2 shows the estimated coefficients for our main specification after estimating Equation (1). Column (1) reveals that women underperform men in commuting time by, on average, around 4.6 minutes per day. This significant commuting gap appears to be caused by the different behavior of parents. Mother workers spend around 5.5 fewer minutes commuting than father workers, whereas a non-statistically significant relationship is detected between non-mothers and non-fathers after splitting the sample into columns (2)–(3). This simply reflects the abovementioned matter regarding the additional time constraints and career costs that mothers face after the arrival of their children (Adda et al., 2017; Joyce & Keiller, 2018). Is the observed gender commuting gap between mothers and fathers being driven by cross-country gender equality cultural differences? This is the main question to be answered in this work. To shed some light on this issue, we introduce the interaction between the female dummy and the GGI in column (4); this captures the role of culture in explaining the gender differences in the commuting

¹⁵ We enlarge the set of socio-demographic characteristics, job traits, and geographic characteristics and our results are maintained. See the results below.

¹⁶ We revisit this below by including MSA fixed effects among other geographical controls. The results are maintained.

¹⁷ All the estimates are repeated with/without weights and clusters. The results do not vary.

time to/from work of early-arrival first- and second-generation immigrant mothers relative to fathers. For a sample of individuals reporting having children living at home, the estimated coefficient for the interaction term is positive and statistically significant, suggesting that the gender commuting gap decreases among those originating from more gender-equal countries. We find that a 1 standard deviation increase in the GGI is associated with an increase of almost 5 minutes in the commuting time per day of women relative to men, which represents 23 percent of the standard deviation in the cross-country ancestry gender commuting gap. Since we find this for parents, one possible explanation for this cross-country ancestry gap is that commuting to/from work plays a multi-task role for women originating from traditional countries who are responsible for caregiving (dropping children off at and collecting them from school and extra-curricular activities). This is related to the household responsibility hypothesis but assumes that women from traditional backgrounds search for jobs in closer local markets to be able to attend to their children's necessities (McQuaid & Chen, 2012). We will return to this in the next subsections as a possible mechanism for how the gender equality culture operates, but before that we will check the robustness and consistency of our findings.

Our results are robust to the use of different subsamples. There are no changes in our estimates after excluding the countries with the highest (Sweden) and lowest (Saudi Arabia) country of ancestry GGI in column (1) of Table 3.¹⁸ Our results also remain broadly unchanged when we restrict our sample to those individuals who are likely to have completed school (aged 21 to 65) in column (2) and to those living with a married or unmarried partner in column (3). We can conclude the same when we limit the sample in column (4) of Table 3 to full-time workers, who are more likely to have the largest differences in commuting time by gender (McQuaid & Chen, 2012).

Our findings are maintained after the inclusion of additional controls in Table 4.¹⁹ We enlarge the set of socio-demographic and job characteristics in column (1). We include controls for whether the respondent lives with a married or unmarried partner, the labor status of the respondent's partner, the number of children in the household, the family size, whether the respondent is a full-time worker, whether the respondent is self-employed, the logarithm of the weekly working hours, and the occupation and industry of workers, which are found to be related to the time spent commuting (Giménez-Nadal & Molina, 2016; Giménez-Nadal et al., 2018; McQuaid & Chen, 2012).²⁰ We also add the GDP per capita (in constant 2010 US\$) as a control for the countries of ancestry characteristics in column (2) to mitigate the possible concern that we could be capturing the effect of other country of ancestry differences than that of culture.²¹ Our estimations do not vary substantially.

¹⁸ This is a common strategy to check the consistency of the effect of culture (Furtado et al., 2013).

¹⁹ The variation in the sample size is due to the limitation of our sample to those reporting their weekly working hours and occupation category. All the controls are also interacted with the female indicator. Table A3 in the Appendix shows all the estimated coefficients.

²⁰ Regarding the occupation and industry of workers, we consider the major classifications used by the ATUS dataset, which aggregates the occupation and industry codes into five and thirteen categories, respectively.

²¹ We also interact the GDP per capita with the female indicator and nothing changes. The data come from the World Bank Database.

In the rest of the columns in Table 4, we extend the geographical controls included in our estimates. The geographical controls are classified into three dimensions following the existing literature (Giménez-Nadal et al., 2018). First, we consider the location of individuals in their place of residence as a possible driver of commuting time since, depending on the location, individuals can have access to different modes of transport and/or intra-urban wage variation (Timothy & Wheaton, 2001). To gauge this, we define three dummy variables to control for whether our sample individuals live in the central city within a metropolitan area, on the fringe of a metropolitan area (or just in a metropolitan area if no distinction is made), or in a non-metropolitan area (the reference group) (see column (3)).²² Second, each of the places of residence may have unobserved characteristics that can affect the commuting time. To capture this, we include controls for the specific Metropolitan Statistical Area (MSA) where individuals are located by including MSA fixed effects (reference: not identified or non-metropolitan) in column (4).²³ This allows us to take into account the possibility that, for example, the employment structure of certain areas is more amenable to individual workers in our sample. Third, since individuals in larger cities are more likely to have longer commutes (Black et al., 2014; Gordon et al., 1989; Mieszkowski & Mills, 1993), we have to account for this by considering the size of the MSA of residence (reference: not identified or non-metropolitan) in column (5).²⁴ It is comforting to see that the effect of our variable of interest is still detected after adding all the geographic controls detailed above.

The ATUS provides information on the mode of transport of all the commuting episodes. To test further whether the cultural differences in the choice of the mode of transport (Hopkins & Stephenson, 2014) are affecting our findings, we include in our estimates the proportion of commuting that is carried out via different modes of transport. This is calculated as the sum of the commuting time using each mode of transport divided by the total time devoted to commuting. We define four different modes of transport: active commuting (walking or cycling), public transport (bus, subway/train, boat/ferry, or taxi/limousine service), private vehicle (car, truck, or motorcycle (driver or passenger)), and other transport (airplane or other mode of transportation). Our conclusions do not change.

We recognize that the inclusion of some controls can generate concerns because they can potentially be affected by the gender equality culture, though it is reassuring that our results do not change in all the robustness tests presented here.²⁵

4.2. How can culture be transmitted?

²² According to the US Census Bureau, a metropolitan area consists of a large population center and adjacent communities that have a high degree of economic and social interaction. Some smaller metropolitan areas do not have a central city/outlying area distinction, so households in those areas are included in the “metropolitan, not identified” category.

²³ Note that there is no available information on the variable “metarea” for all the individuals in our sample.

²⁴ The ATUS includes information on the population size of the metropolitan (MSA) area in which workers are located, coded as follows: 1) non-metropolitan; 2) 100,000–249,999; 3) 250,000–499,999; 4) 500,000–999,999; 5) 1,000,000–2,499,999; 6) 2,500,000–4,999,999; and 7) 5000,000+.

²⁵ The observed R^2 in all the specifications is low, which is consistent with the prior literature (Allard et al., 2007; Giménez-Nadal & Molina, 2016; Giménez-Nadal et al., 2018, 2020).

Our identification strategy is based on the idea that culture needs to be transmitted vertically and/or horizontally. Horizontal transmission takes place through neighbors, friends, or the ethnic communities in which early-arrival first- and second-generation immigrants live, and vertical transmission occurs through parents (grandparents or other ancestors), who probably instill values in their children. Unfortunately, we cannot extend our work to the study of the vertical transmission of culture because we do not have information on the characteristics of the respondents' parents. This subsection explores how culture is transmitted horizontally within communities. If culture is transmitted horizontally, the cultural impact should be more important for immigrants with greater exposure to their cultural norms in the host country (Furtado et al., 2013). Following Rodríguez-Planas and Nollenberger (2018), we calculate the proportion of individuals from the same country of ancestry in each state. Then, we rerun our main analysis by separating the sample into those who are above and those who are below the mean of concentration of individuals with the same ethnicity. The results are presented in columns (1)–(2) of Table 5. Whereas a statistically significant effect of culture is detected for early-arrival first- and second-generation immigrants living in states with a high concentration of individuals from the same ethnicity (above the mean), no effect is detected for those who live in low-concentration states (below the mean). This can be interpreted as indicating the existence of horizontal transmission of culture.

4.3. Channels shaping culture from the country of ancestry

Gender equality culture involves several aspects. In this subsection, we explore which pieces of the cross-country gender equality culture puzzle are shaping the gender cultural attitudes that ultimately affect the gender commuting gap in the host country. Accordingly, we utilize each of the four sub-indexes that defined the GGI separately; see the summary statistics in Table 1: Gender Gap Educational Attainment Sub-index, Gender Gap Economic Participation and Opportunity Sub-index, Global Gender Gap Health and Survival Sub-index, and Gender Gap Political Empowerment Sub-index. All these indicators reflect, in part, the beliefs about the role of women in society, capturing different aspects of the gender equality culture, so they can explain the gender commuting gap separately. Table 6 shows the estimated coefficients. As can be seen, there is only one statistically significant coefficient. Beliefs transmitted to early-arrival first- and second-generation immigrants regarding women's political empowerment appear to be driving the gender commuting gap. These results are consistent with those obtained by Rodríguez-Planas and Nollenberger (2018), suggesting that political empowerment plays an important role in shaping culture.

4.4. Selection into employment and telework

In this subsection, we account for the possible sample selection issues derived from using a sample of commuters. The use of a truncated sample can be problematic since the sample of excluded non-commuters has not been selected randomly. As Giménez-Nadal et al. (2018) pointed out, prior studies have suggested that the observed commuting time may overestimate the desired commute, being dependent on employment (Hamilton,

1982; Small & Song, 1992). Thus, we consider the selection into employment by estimating a Heckman selection model (Heckman, 1979). Formally:

$$L_{ijkt}^* = \beta_0 + \mathbf{H}_{ijkt}\beta_2 + u_{ijkt} \quad (2)$$

$$L_{ijkt} = 1 \Leftrightarrow L_{ijkt}^* > 0 \Leftrightarrow \text{Individual } i \text{ is employed}$$

$$L_{ijkt} = 0 \Leftrightarrow L_{ijkt}^* \leq 0 \Leftrightarrow \text{Individual } i \text{ is not employed}$$

where L_{ijkt}^* is an unobservable latent variable associated with being employed and \mathbf{H}_{ijkt} is a vector of determinants of employment. Following Giménez-Nadal et al. (2018), family characteristics (living in a couple, the labor status of the couple, and the size of the family) are used to control for participation in employment. The estimated commuting time function under the selection Heckman model is:

$$Y_{ijkt} = \beta_0 + \beta_1 \text{Female}_i + \beta_2 (\text{Female}_i * GGI_{jt}) + \mathbf{X}'_{ijkt}\beta_3 + \delta_k + \eta_j + \mu(\delta_k * \text{Female}_i) + \theta_t + \varepsilon_{ijkt} \quad (3)$$

$$Y_{ijkt} = Y_{ijkt}^* \text{ if } Y_{ijkt}^* > 0 \text{ if } L_{ijk} = 1$$

$$Y_{ijkt} = 0 \Leftrightarrow Y_{ijkt}^* \leq 0 \text{ or } L_{ijk} = 0$$

with Y_{ijkt} being the time devoted to commuting (minutes per day) reported by individual i , who may be a commuter or not, of cultural origin j living in state k in year t . The rest of the variables are defined as before. Commuting time to/from work is observed for those who are employed. The results are presented in column (1) of Table 7. As can be seen, the effect of culture is still detected when considering employment. The higher the gender equality in the country of ancestry, the smaller the gender commuting gap.

Additionally, the estimated effect of culture on commuting time may be confounding both the impact of the decision to commute, that is, working from home or not, and that of the length of time spent commuting to work. Thus, we also consider a Tobit model (Tobin, 1958) that allows us to control for participation in commuting on the day of the survey. Formally:

$$Y_{ijk}^* = \beta_0 + \beta_1 \text{Female}_i + \beta_2 (\text{Female}_i * GGI_{jt}) + \mathbf{X}'_{ijkt}\beta_3 + \delta_k + \eta_j + \mu(\delta_k * \text{Female}_i) + \theta_t + \varepsilon_{ijkt} \quad (4)$$

$$Y_{ijk} = Y_{ijk}^* \text{ if } Y_{ijk}^* > 0$$

$$Y_{ijk} = 0 \text{ if } Y_{ijk}^* \leq 0$$

where Y_{ijk}^* is the unobservable latent variable. The rest of the variables are defined as before. Column (2) reports the results of the estimation with a sample including non-commuters on the day of the survey. Our results are robust to sample selection issues since the inclusion of non-commuters in our sample does not change our conclusions.

4.5. Commuting time with children

Until now, our results have suggested that more gender-equal norms may reduce the gender commuting gap. In this subsection, we explore whether this occurs because more traditional mothers are more likely to work closer to home than non-traditional mothers to attend to their children's necessities (McQuaid & Chen, 2012). Traditional-origin mothers are surely involved in picking up children from or dropping them off with a babysitter or at school, which poses additional time constraints for them. This aspect is somewhat related to the household responsibility hypothesis, which is one of the pieces of the gender equality culture puzzle. We focus our analysis here on the commuting time to work accompanied by children and/or the commuting during childcare activities, following Craig and van Tienoven (2019). This analysis is not a minor issue due to its associated psychological costs. More time spent on daily commuting is related to more sadness and fatigue during childcare activities (Giménez-Nadal & Molina, 2019).

We first use information on *with whom* respondents spend their commuting time to work, and we redefine our dependent variable as the time devoted to commuting (minutes per day) accompanied by a child. The use of the “who-with” information from time diaries is a common practice in the literature exploring how parental preferences and investments are reflected in the time spent with children present (Allard et al., 2007; Lundberg et al., 2007; Mammen, 2011). Using our main sample of commuters, we estimate a Tobit model (see section 4.4 for a detailed description of this kind of model) that allows us to take into account the decision to commute accompanied by children, and, if this occurs, the time devoted to commuting with them. Table 8 shows the regression results.²⁶ Our findings here point to women devoting more time than men to commuting to work accompanied by a child; see column (1). With respect to the cultural proxy, we find that more gender-equal norms in the country of ancestry are associated with a shorter commuting time to work with children of women relative to men; see column (2).

The ATUS provides information on other activities related to commuting during childcare activities, which we also examine here. We have considered the time devoted to “picking up/dropping off household children” and “travel related to household children's education” in addition to the commuting time to work with children discussed above.²⁷ As before, those not reporting time spent on such activities were not excluded to amplify the size of our sample, and Tobit models were estimated.²⁸ Columns (3)–(4) show the estimated coefficients with the dependent variable defined as the sum of the total time devoted to the three activities detailed above. The rest of the variables are defined as before. Again, our findings suggest that women outperform men in the time devoted to commuting or traveling with children, and this gender gap decreases among

²⁶ All the individuals in our sample are workers between 16 and 65 years old with a child below the age of 18 living in the household.

²⁷ The activity codes are “30112” and “180303,” respectively. Picking up/dropping off household children includes dropping off household children at a babysitter's, at a friend's house, or at soccer practice, picking up household children from church, day care, or school, and putting household children on a bus. The ATUS does not provide examples for the category activity “Travel related to household children's education.”

²⁸ Limiting the sample to those reporting time spent on such activities is not possible due to the small number of observations. Our sample is not restricted to commuters here.

those originating from countries of ancestry with more egalitarian attitudes. The same is observed when we repeat the analysis using a sample of workers with children under the age of 13 years, the age at which independent mobility starts increasing (Mammen et al., 2012; Schoeppe et al., 2014); see Table A4 in the Appendix. Women originating from backgrounds with more traditional gender norms spend more time commuting with their children. This points to the important role of children (childcare responsibilities) in explaining how the gender equality culture operates. Women with traditional backgrounds appear to choose to work close to their home to be able to take care of their children. This mechanism provides additional evidence to reinforce our findings on the effect of culture on the gender commuting gap.

5. CONCLUSIONS

Cross-country differences are clear and persistent over time in the gender commuting gap. Although existing research has confirmed a motherhood penalty in commuting time because of the presence of household and childcare responsibilities, this explanation has little to do with the huge cross-country differences in the gender commuting gap. Whereas, in India, Japan, and Mexico, men spend more than twice as much time as women traveling to and from work, in Estonia, Sweden, and Finland, men and women spend almost the same amount of time (OECD Family Database). In all those countries, women/men have children but behave in different ways. We explore in this work whether cross-country gender equality cultural differences can explain in part the gender commuting gap.

We disentangle the effects of markets and institutions from the effects of culture in determining gender differences in commuting time to work using the epidemiological approach. We select data from the IPUMS American Time Use on early-arrival first- and second-generation immigrant workers with children at home because the gender commuting gap has only been significantly observed for parents, and we merge these with the annual data on the GGI (our cultural proxy) in the country of ancestry (which avoids reverse causality). We find that the commuting time to work of early-arrival first- and second-generation immigrant women (relative to men) who originate from more gender-equal countries is greater than that of those from less gender-equal countries. We find that a 1 standard deviation increase in the GGI is associated with an increase of almost 5 minutes in the commuting time per day of women relative to men, which represents 23 percent of the standard deviation in the cross-country of ancestry gender commuting gap.

Our results are robust to the use of different subsamples and geographical controls (MSA fixed effects and country of ancestry fixed effects) and to the selection into employment and telework. We further explore which of the pieces of the gender gap puzzle appear to be driving this gap. We observe that cross-country differences in the gender norms shaped by beliefs about women's political empowerment are the only ones that are significantly affecting the gender differences in commuting time to work. A supplementary analysis of the transmission of culture, which is a key element of the epidemiological approach (if cultural backgrounds are not transmitted, there cannot be a cultural effect among our sample of immigrants), shows empirical evidence of the

horizontal transmission of culture through neighbors or ethnic communities, which reinforces our results on the possible importance of culture in the gender commuting gap.

Children matter in this setting. Women originating from countries with more traditional gender norms spend less time commuting than more egalitarian women relative to men. However, traditional-origin women devote more time to commuting with their children than women originating from more gender-equal countries relative to men. This is observed after extending our analysis to the commuting time to work accompanied by children and the commuting during childcare activities (i.e., picking children up from or dropping them off at a babysitter's or school). We observe that, when commuting takes place with children, women outperform men in commuting time and that culture plays an important role in reducing this gender gap. Overall, our results suggest that policies attempting to change cultural beliefs about the role of women in society may prove to be decisive in reducing the gender commuting gap and therefore achieving gender equality in the labor market.

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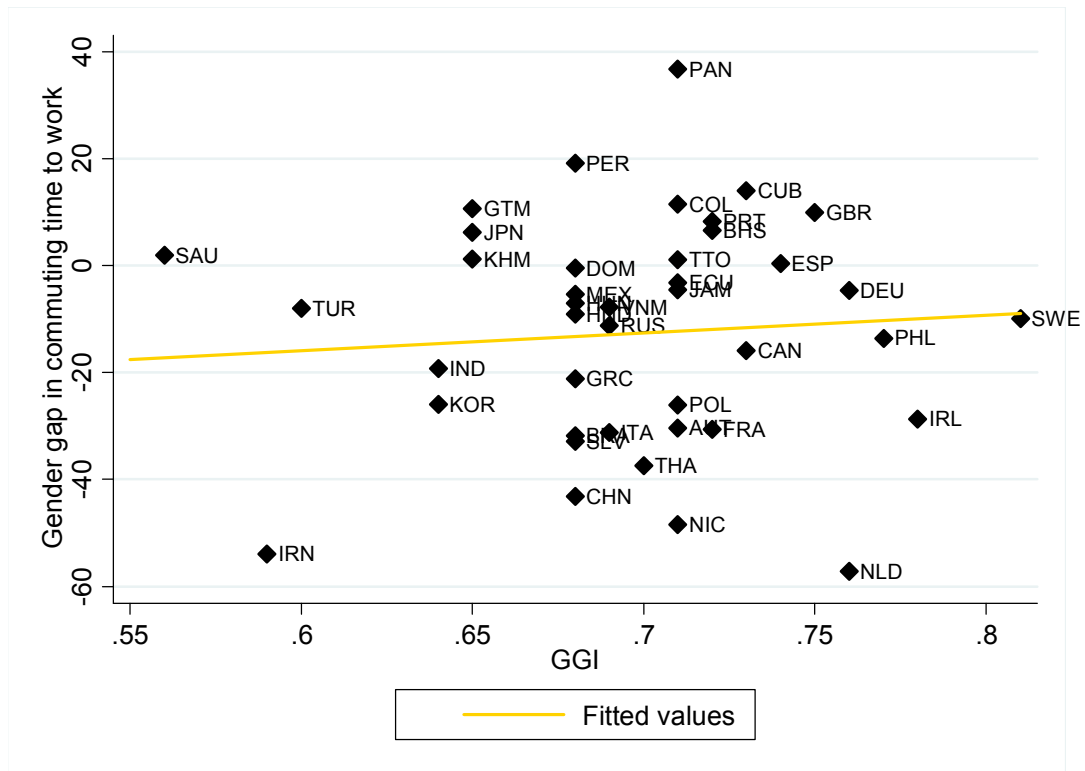
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Figure 1: Gender gap in commuting time to work and Gender Gap Index (GGI) by country of ancestry



Notes: This figure displays the relationship between the average gender commuting gap to/from work among early arrival first- and second-generation immigrants and our measure of culture in the country of ancestry. The gender gap has been calculated as the average women’s minus the average men’s commuting time to work (in minutes per day) considering a sample of individuals with children under the age of 18 living in the household.

Table 1: Summary statistics by country of ancestry

Country of ancestry	Gender Commuting gap	GGI	GGI pol.	GGI Ec. Opp.	GGI health	GGI educ.	Obs
Panama	36.75	0.71	0.18	0.69	0.98	0.99	9
Peru	19.17	0.68	0.17	0.60	0.97	0.98	7
Cuba	14.06	0.73	0.34	0.62	0.97	1.00	46
Colombia	11.51	0.71	0.15	0.70	0.98	1.00	26
Guatemala	10.71	0.65	0.09	0.57	0.98	0.95	14
United Kingdom	10.00	0.75	0.31	0.71	0.97	1.00	83
Portugal	8.33	0.72	0.21	0.70	0.97	0.99	20
The Bahamas	6.60	0.72	0.08	0.83	0.98	1.00	6
Japan	6.28	0.65	0.08	0.57	0.98	0.99	30
Saudi Arabia	2.00	0.56	0.00	0.32	0.98	0.96	8
Cambodia	1.25	0.65	0.08	0.65	0.98	0.87	6
Trinidad and	1.13	0.71	0.20	0.68	0.97	0.99	11
Spain	0.42	0.74	0.36	0.62	0.97	1.00	10
Dominican	-0.47	0.68	0.11	0.63	0.97	0.99	20
Ecuador	-3.20	0.71	0.24	0.62	0.98	0.99	10
Jamaica	-4.50	0.71	0.13	0.73	0.98	1.00	24
Germany	-4.59	0.76	0.37	0.71	0.98	0.99	158
Mexico	-5.32	0.68	0.20	0.53	0.98	0.99	598
Hungary	-7.00	0.68	0.07	0.67	0.98	0.99	7
Vietnam	-7.73	0.69	0.13	0.73	0.95	0.94	23
Turkey	-8.00	0.60	0.08	0.43	0.98	0.91	6
Honduras	-9.00	0.68	0.17	0.59	0.98	1.00	6
Sweden	-9.83	0.81	0.49	0.79	0.97	1.00	7
Russia	-11.25	0.69	0.07	0.73	0.98	1.00	9
Philippines	-13.54	0.77	0.34	0.78	0.98	1.00	69
Canada	-15.93	0.73	0.20	0.76	0.97	1.00	110
India	-19.18	0.64	0.34	0.41	0.94	0.87	27
Greece	-21.17	0.68	0.11	0.64	0.98	0.99	18
Korea	-25.97	0.64	0.10	0.52	0.97	0.95	38
Poland	-26.00	0.71	0.19	0.66	0.98	1.00	20
Ireland	-28.74	0.78	0.42	0.72	0.97	1.00	23
Austria	-30.33	0.71	0.28	0.59	0.98	0.99	8
France	-30.61	0.72	0.25	0.66	0.98	1.00	17
Italy	-31.26	0.69	0.20	0.58	0.97	0.99	67
Brazil	-31.83	0.68	0.11	0.65	0.98	0.99	9
El Salvador	-32.83	0.68	0.18	0.59	0.98	0.99	34
Thailand	-37.44	0.70	0.07	0.75	0.98	0.99	17
China	-43.22	0.68	0.15	0.67	0.93	0.97	53
Nicaragua	-48.50	0.71	0.32	0.55	0.98	1.00	7
Iran	-54.00	0.59	0.03	0.39	0.97	0.96	7
Netherlands	-57.20	0.76	0.36	0.70	0.97	0.99	10
Average	-11.96	0.70	0.21	0.64	0.97	0.98	
Std. Dev.	20.78	0.05	0.12	0.10	0.01	0.03	

Notes: Data comes from the Integrated Public Use Microdata Series Time Use (IPUMS Time Use) for the period 2006-2018. The sample contains 1,678 observations of early-arrival first- and second-generation immigrants, aged 16 to 65 who commute on the day of the survey and have children under the age of 18 living in the household, originating from 41 different countries. Commuting time is measured in minutes per day.

Table 2: Main results

Dependent variable: Commuting time to/from work	(1)	(2)	(3)	(4)
	All	Without children	With children	With children
Female	-4.601** (1.764)	-2.958 (2.797)	-5.530** (2.070)	-91.990*** (33.248)
GGI x Female				94.885** (46.530)
Year FE	Yes	Yes	Yes	Yes
Country of ancestry FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State FE x Female	No	No	No	Yes
Observations	3,100	1,422	1,678	1,678
R-squared	0.092	0.148	0.093	0.123
D.V. Mean	45.12	45.96	44.33	44.33
D.V. Std. Dev.	46.78	44.23	48.84	48.84
GGI Std. Dev.				0.05

Notes: We estimate Equation (1). All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment and a dummy variable controlling for whether respondents live in a metropolitan area or not. These individual characteristics are also interacted with the female indicator in column (4). The sample in column (1) includes workers between 16 and 65 years old who commute on the day of the survey. The sample in column (2) includes workers between 16 and 65 years old who commute on the day of the survey and have no children under the age of 18 living in the household. The sample in columns (3) and (4) includes workers between 16 and 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

Table 3: Robustness checks using different subsamples

Dependent variable: Commuting time to/from work	(1) Dropping countries of ancestry with the highest/lowest GGI	(2) Aged 21 to 65	(3) Living with a married or unmarried partner	(4) Full-time workers
Female	-97.446*** (35.550)	-104.876** (38.744)	-151.697*** (51.100)	-102.054** (38.137)
GGI x Female	101.864** (48.987)	128.735** (56.423)	177.977** (73.953)	111.353** (48.639)
Year FE	Yes	Yes	Yes	Yes
Country of ancestry FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State FE x Female	Yes	Yes	Yes	Yes
Observations	1,663	1,473	1,097	1,325
R-squared	0.122	0.134	0.148	0.133
D.V. Mean	44.42	46.09	47.93	47.26
D.V. Std. Dev.	49.02	51.10	53.66	51.28
GGI Std. Dev.	0.05	0.05	0.05	0.05

Notes: We estimate Equation (1). All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment and a dummy variable controlling for whether respondents live in a metropolitan area or not. These individual characteristics are also interacted with the female indicator in all columns. The sample in column (1) includes workers between 16 and 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. Specification in column (1) excludes first- and second immigrants from Sweden and Saudi Arabia. The sample in column (2) includes workers between 21 and 65 years who commute on the day of the survey and have children under the age of 18 living in the household. The sample in columns (3) includes workers between 16 and 65 years old who commute on the day of the survey and have children under the age of 18 and a married or unmarried partner living in the household. The sample in column (4) includes full workers between 16 and 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level

Table 4: Robustness checks adding more controls

Dependent variable: Commuting time to/from work	(1)	(2)	(3)	(4)	(5)	(6)
Female	-83.914 (50.470)	-96.876 (58.130)	-76.290 (50.446)	-49.362 (53.816)	-75.880 (52.277)	-57.916 (49.239)
GGI x Female	115.475** (48.928)	133.686** (62.881)	105.638** (49.379)	90.916** (44.185)	118.432** (50.110)	126.389** (53.340)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of ancestry FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE x Female	Yes	Yes	Yes	No	Yes	Yes
State FE x Female	Yes	Yes	Yes	No	Yes	Yes
MSA FE	No	No	No	Yes	No	No
MSA FE x Female	No	No	No	Yes	No	No
Observations	1,589	1,589	1,589	1,545	1,589	1,589
R-squared	0.173	0.173	0.177	0.177	0.177	0.278
D.V. Mean	44.44	44.44	44.44	44.59	44.44	44.44
D.V. Std. Dev.	49.45	49.45	49.45	50.25	49.45	49.45
GGI Std. Dev.	0.05	0.05	0.05	0.05	0.05	0.05

Notes: The sample in all columns includes workers between 16 to 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. The sample is restricted to those providing information on their weekly work hours and their occupation. We estimate Equation (1). All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment, whether the respondent lives with a married or unmarried partner, respondent partner's labor status, the number of children in the household, family size, whether the respondent is a fulltime worker, whether the respondent is self-employed, the logarithm of the weekly work hours and the occupation and industry of workers. Specifications in columns (1) and (2) also include a dummy variable taking value 1 when the respondent lives in a metropolitan area, as a control or geographic characteristics. Specification in column (2) includes the GDP per capita (in constant 2010 US \$) of the country of ancestry. Geographic characteristics have been controlled by including two dummy variables capturing whether respondents live in the central city within a metropolitan area or on the fringe of a metropolitan area (ref: non-metropolitan area), MSA fixed effects and the size of the MSA of residence in columns (3), (4) and (5) respectively. All controls have been also interacted with the female indicator. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

Table 5: Transmission of culture

Dependent variable:	(1)	(2)
Commuting time to/from work	Concentration same-ethnicity above the mean	Concentration same-ethnicity below the mean
Female	-181.293*** (10.667)	-61.259 (47.912)
GGI x Female	279.449*** (14.364)	77.315 (65.738)
GGI		
Year FE	Yes	Yes
Country of ancestry FE	Yes	Yes
State FE	Yes	Yes
State FE x Female	Yes	Yes
Observations	566	1,112
R-squared	0.166	0.167
D.V. Mean	40.57	46.24
D.V. Std. Dev.	35.15	54.42
GGI Std. Dev.	0.04	0.05

Notes: The sample in all columns includes workers between 16 to 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. We estimate Equation (1). All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment and a dummy variable controlling for whether respondents live in a metropolitan area or not. Columns (1) and (2) include first- and second-generation of immigrants living in states where the concentration of individuals of their same country of ancestry is above and below the mean of the proportion of individuals of the same ethnicity, respectively. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

Table 6: Channels of shaping culture from the country of ancestry

Dependent variable: Commuting time to/from work	(1)	(2)	(3)	(4)
Female	-34.784** (13.470)	-46.273*** (16.904)	41.683 (55.775)	-28.608 (157.506)
Gender Gap Political Empowerment Subindex x Female	40.669** (16.421)			
Gender Gap Economic Participation and Opportunity Subindex x Female		31.946 (21.375)		
Gender Gap Educational Attainment Subindex x Female			-70.528 (52.864)	
Global Gender Gap Health and Survival Subindex x Female				2.511 (160.025)
Year FE	Yes	Yes	Yes	Yes
Country of ancestry FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	No
State FE x Female	Yes	Yes	Yes	No
Observations	1,678	1,678	1,678	1,678
R-squared	0.123	0.122	0.121	0.121
D.V. Mean	44.33	44.33	44.33	44.33
D.V. Std. Dev.	48.84	48.84	48.84	48.84
GGI subindex Std. Dev.	0.10	0.10	0.02	0.01

Notes: The sample in all columns includes workers between 16 to 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. We estimate Equation (1). All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment and a dummy variable controlling for whether respondents live in a metropolitan area or not. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

Table 7: Alternative results including non-commuters in the sample

Dependent variable: Commuting time to/from work	(1)	(2)
	Heckman model	Tobit model
Female	-118.904*** (38.356)	-38.920*** (0.628)
GGI x Female	112.278** (52.694)	43.432*** (0.901)
Year FE	Yes	Yes
Country of ancestry FE	Yes	Yes
State FE	Yes	Yes
State FE x Female	Yes	Yes
Observations	5,782	5,782
D.V. Mean	13.76	13.76
D.V. Std. Dev.	33.95	33.95
GGI Std. Dev.	0.06	0.06

Notes: This table shows the results of estimating with a sample including non-commuters on the day of the survey. The sample in all columns includes workers between 16 to 65 years old who have children under the age of 18 living in the household. We estimate Equation (3) in column (1) and Equation (4) in column (2). All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment and a dummy variable controlling for whether respondents live in a metropolitan area or not. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

Table 8: Commuting time with children using Tobit model

	(1)	(2)	(3)	(4)
Dependent variable:	Commuting time to/from work accompanied by children		Commuting time to/from work accompanied by children and commuting time during childcare activities	
Female	24.066*** (4.753)	-97.900*** (0.813)	12.870*** (1.022)	53.437*** (0.219)
GGI x Female		-304.777*** (1.162)		-79.225*** (0.312)
Year FE	Yes	Yes	Yes	Yes
Country of ancestry FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State FE x Female	No	Yes	No	Yes
Observations	1,678	1,678	3,710	3,710
D.V. Mean	1.63	1.63	3.78	3.78
D.V. Std. Dev.	12.06	12.06	11.63	11.63
GGI Std. Dev.	0.05	0.05	0.06	0.06

Notes: We estimate a Tobit model in all columns. Sample in columns (1) and (2) is the same as in Table 2, that is workers between 16 to 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. The dependent variable is redefined as the time devoted to commuting (minutes per day) accompanied by a child reported by worker i of cultural origin j living in state k in year t . Those reporting no time in commuting to work with a child have not been excluded from the sample. The sample in columns (3) and (4) includes workers between 16 to 65 years old who have children under the age of 18 living in the household. The dependent variable measures the time devoted to commute to/from work accompanied by a child, to pick up or drop off household children, and to travel related to household children's education. Those reporting no time in such activities have not been excluded from the sample. All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment and a dummy variable controlling for whether respondents live in a metropolitan area or not. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

APPENDIX A

Table A1: Summary statistics of demographic and geographic characteristics in our main specification by country of ancestry

Country of ancestry	Average commuting time to/from work	Average age	Proportion of women	Proportion of more college individuals	Proportion of white individuals	Proportion of individuals living in a metropolitan area
Canada	39.27	40.81	0.56	0.55	0.96	0.87
Mexico	39.90	31.91	0.49	0.16	0.96	0.93
El Salvador	49.18	29.18	0.50	0.21	0.88	0.97
Guatemala	38.21	29.36	0.50	0.14	1.00	1.00
Honduras	39.00	35.33	0.67	0.33	0.83	0.83
Nicaragua	33.86	39.29	0.71	0.43	1.00	1.00
Panama	58.33	34.56	0.44	0.67	0.67	0.89
Cuba	42.20	39.87	0.57	0.43	0.96	1.00
Dominican Republic	38.00	32.60	0.70	0.25	0.75	1.00
Jamaica	38.50	31.38	0.67	0.33	0.00	1.00
The Bahamas	50.50	36.17	0.83	0.50	0.33	1.00
Trinidad and Tobago	47.18	35.45	0.45	0.36	0.09	1.00
Brazil	39.89	28.89	0.33	0.33	0.89	1.00
Colombia	69.88	37.19	0.46	0.46	0.96	0.96
Ecuador	36.40	38.30	0.50	0.30	1.00	0.90
Peru	36.43	31.71	0.86	0.43	1.00	0.86
Sweden	43.29	40.57	0.43	1.00	1.00	1.00
United Kingdom	51.34	39.64	0.47	0.49	0.98	0.96
Ireland	59.04	45.83	0.43	0.70	0.96	1.00
France	53.71	43.88	0.59	0.65	0.94	0.82
Netherlands	62.40	40.90	0.50	0.30	1.00	0.90
Greece	50.39	40.06	0.44	0.67	1.00	1.00
Italy	55.48	42.93	0.37	0.54	0.99	0.99
Portugal	42.25	36.05	0.55	0.35	1.00	1.00
Spain	46.00	39.40	0.60	0.50	1.00	0.90
Austria	40.63	41.13	0.38	0.88	1.00	0.88
Germany	40.05	38.97	0.54	0.50	0.95	0.90
Hungary	87.00	43.43	0.71	0.43	1.00	0.86
Poland	56.00	46.95	0.50	0.75	1.00	1.00
Russia	40.00	40.44	0.56	0.33	1.00	0.89
China	62.81	39.09	0.43	0.66	0.09	0.96
Japan	46.87	39.57	0.57	0.37	0.43	0.97
Korea	58.97	37.21	0.42	0.58	0.24	0.87
Cambodia	23.33	30.50	0.67	0.33	0.00	1.00
Philippines	39.09	34.57	0.65	0.46	0.16	0.99
Thailand	54.06	30.29	0.53	0.41	0.24	0.94
Vietnam	38.13	32.78	0.57	0.57	0.13	0.91
India	49.81	35.26	0.41	0.78	0.33	1.00
Iran	47.57	36.86	0.29	0.71	1.00	1.00
Saudi Arabia	26.25	26.63	0.63	0.13	0.00	0.88
Turkey	22.17	35.50	0.67	0.33	0.83	1.00
Average	44.33	35.87	0.51	0.38	0.81	0.94
Std. Dev.	48.84	10.79	0.50	0.48	0.39	0.24

Notes: Data comes from the Integrated Public Use Microdata Series Time Use (IPUMS Time Use) for the period 2006-2018. The sample contains 1,678 observations of early-arrival first- and second-generation immigrants, aged 16 to 65 who commute on the day of the survey and have children under the age of 18 living in the household, originating from 41 different countries. Commuting time is measured in minutes per day.

Table A2: Regression on log of commuting time

Dependent variable: Log (commuting time to/from work)	(1)
Female	-2.118** (0.988)
GGI x Female	1.986** (0.934)
Year FE	Yes
Country of ancestry FE	Yes
State FE	Yes
State FE x Female	Yes
Observations	1,589
R-squared	0.201
D.V. Mean	3.40
D.V. Std. Dev.	0.91
GGI Std. Dev.	0.05

Notes: We estimate Equation (1). The sample includes workers between 16 and 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. It includes a constant, as well as all demographic and geographic controls included in column (1) of Table 4. Commuting time is measured in log of minutes per day. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

Table A3: Robustness checks adding more controls showing all estimated coefficients

Dependent variable: Commuting time to/from work	(1)	(2)	(3)	(4)	(5)	(6)
Female	-83.914 (50.470)	-96.876 (58.130)	-76.290 (50.446)	-49.362 (53.816)	-75.880 (52.277)	-57.916 (49.239)
GGI x Female	115.475** (48.928)	133.686** (62.881)	105.638** (49.379)	90.916** (44.185)	118.432** (50.110)	126.389** -57.916
<i>Demographic and socioeconomic characteristics</i>						
Age	0.148 (0.236)	0.130 (0.239)	0.110 (0.237)	0.110 (0.255)	0.141 (0.227)	(53.340) 0.133
Age x Female	-0.234 (0.221)	-0.207 (0.223)	-0.203 (0.224)	-0.182 (0.271)	-0.253 (0.218)	(0.226) -0.254
More college	4.409 (5.182)	4.445 (5.377)	4.167 (5.076)	7.988* (4.648)	4.195 (5.086)	(0.186) 3.817
More college x Female	0.560 (7.026)	0.817 (7.240)	0.679 (6.860)	0.684 (7.172)	0.973 (6.982)	(5.089) 0.787
White	-0.966 (4.412)	-1.495 (4.529)	-1.783 (4.445)	-2.427 (3.864)	-0.845 (4.282)	(7.232) -5.173
White x Female	8.607* (4.460)	9.778* (4.907)	9.011* (4.589)	9.673** (4.498)	9.003** (4.207)	(4.770) 8.447*
Log (weekly work hours)	17.961** (8.282)	17.826** (8.279)	18.833** (8.365)	18.369* (9.365)	17.484** (8.239)	(4.786) 16.848***
Log (weekly work hours) x Female	-8.101 (8.912)	-7.768 (8.938)	-8.912 (8.927)	-6.564 (9.958)	-8.937 (8.893)	(5.795) -13.793**
Married or unmarried partner	9.352* (5.011)	9.412* (4.999)	10.076** (4.780)	8.215 (6.194)	10.626** (4.449)	(6.070) 9.888**
Married or unmarried partner x Female	-13.123 (10.377)	-13.446 (10.379)	-13.565 (10.083)	-7.766 (11.020)	-14.175 (9.510)	(4.606) -11.775
Number of children	3.260* (1.766)	3.175* (1.788)	2.690 (1.797)	1.596 (1.999)	2.938 (1.794)	(10.573) 1.496
Number of children x Female	-6.440* (3.494)	-6.355* (3.455)	-5.994* (3.477)	-6.764** (2.964)	-6.107* (3.392)	(1.463) -4.744
Fulltime worker	-8.109 (5.914)	-8.092 (5.979)	-8.273 (5.992)	-5.365 (5.827)	-7.653 (5.884)	(3.381) -3.275
Fulltime worker x Female	11.102 (8.411)	11.123 (8.487)	11.220 (8.317)	3.982 (9.125)	12.055 (8.222)	(4.562) 11.792**
Family size	-1.347 (1.062)	-1.308 (1.063)	-1.198 (1.003)	0.229 (1.179)	-1.277 (1.044)	(5.775) -0.579
Family size x Female	4.538** (1.710)	4.465** (1.686)	4.533** (1.728)	3.838 (2.345)	4.351** (1.723)	(0.965) 2.752
Partner working	-5.049 (3.791)	-4.987 (3.770)	-5.130 (3.814)	-7.375* (3.919)	-5.226 (3.792)	(1.808) -3.580
Partner working x Female	4.605 (4.849)	4.703 (4.852)	4.359 (4.882)	4.977 (5.418)	4.867 (4.610)	(3.307) 2.767
Self-employed	-5.953 (6.336)	-6.233 (6.029)	-5.926 (6.292)	0.460 (6.317)	-6.154 (6.174)	(4.981) -5.735
Self-employed worker	2.435 (10.268)	3.417 (10.378)	2.534 (10.229)	0.303 (10.393)	4.054 (10.334)	(6.951) -6.258
Country of ancestry GDP pc		-0.001 (0.001)				
Country of ancestry GDP pc x Female		-0.000 (0.000)				

Table A3 continued

Occupations

Service Occupations	2.388 (4.209)	2.634 (4.333)	2.162 (4.201)	5.949 (4.789)	2.562 (4.108)
Sales and Office Occupations	0.590 (5.142)	0.757 (5.190)	0.787 (4.983)	6.379 (3.857)	0.659 (5.213)
Natural Resources, Construction, Maintenance Occupations	2.384 (5.603)	2.619 (5.604)	2.192 (5.645)	3.691 (5.136)	2.513 (5.551)
Production, Transportation, and Material Moving Occupations	-2.895 (5.065)	-2.737 (5.080)	-3.331 (4.932)	0.304 (4.811)	-3.785 (4.870)

Industries

Construction	21.459*** (4.481)	21.537*** (4.385)	24.433*** (3.999)	19.441*** (6.206)	19.438*** (5.198)
Manufacturing	12.810* (6.473)	13.119** (6.364)	14.627** (6.756)	13.481** (5.060)	12.262* (7.151)
Wholesale Trade	18.674** (8.095)	18.551** (8.194)	20.052** (8.127)	14.517* (7.624)	17.306* (8.606)
Retail Trade	0.565 (5.172)	0.513 (5.112)	1.889 (5.358)	-3.631 (4.763)	-0.412 (5.382)
Transportation	9.089 (8.137)	9.013 (8.038)	11.564 (8.120)	8.934 (10.293)	7.863 (7.859)
Information	16.752** (7.759)	16.911** (7.683)	18.714** (7.642)	9.488 (7.779)	15.256* (7.623)
Financial activities	21.791*** (4.968)	21.662*** (4.987)	23.863*** (5.227)	8.678 (8.204)	20.111*** (5.100)
Professional and business	18.087*** (5.166)	18.110*** (5.139)	20.619*** (5.355)	16.234*** (4.718)	16.763*** (5.745)
Educational, Health and Social Services	7.839 (4.734)	7.953* (4.692)	9.978* (4.993)	2.599 (4.152)	6.827 (5.352)
Arts, Entertainment, Recreation, Accommodation and Food Services Other Services	0.147 (4.524) 11.526* (5.842)	0.322 (4.486) 11.483* (5.838)	2.361 (4.564) 13.843** (6.297)	-2.631 (4.742) 5.909 (5.056)	-0.596 (4.910) 10.658* (6.240)
Public Administration	9.682* (5.558)	9.666* (5.566)	12.122** (5.574)	3.939 (4.616)	8.392 (6.390)

Geographic characteristics

Metropolitan area	-4.084 (4.428)				-4.453 (4.053)
Metropolitan area x Female	7.588 (4.532)				6.825 (5.018)
Metropolitan (center)			-9.606** (4.413)		
Metropolitan (center) x Female			9.497 (5.966)		
Metropolitan (fringe)			-1.384 (5.021)		
Metropolitan (fringe) x Female			5.754 (4.503)		
MSA size: 100,000–249,999					0.441 (3.870)
MSA size: 250,000–499,999					3.535 (4.809)

Table A3 continued

MSA size: 500,000–999,999						-0.916 (3.135)
MSA size: 1,000,000–2,499,999						-4.928 (3.177)
MSA size: 2,500,000–4,999,999						5.100 (6.036)
MSA size: 5000,000 +						4.406 (5.024)
<i>Mode of transport</i>						
Active commuting						-10.105* (5.708)
Active commuting x Female						-4.484 (13.103)
Public transport						50.086*** (9.863)
Public transport x Female						-6.464 (15.249)
Private vehicle						10.263** (5.060)
Private vehicle x Female						-6.431 (9.707)
Other transport						232.797* (121.130)
Other transport x Female						296.303** (120.811)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country of ancestry FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE x Female	Yes	Yes	Yes	No	Yes	Yes
State FE x Female	Yes	Yes	Yes	No	Yes	Yes
MSA FE	No	No	No	Yes	No	No
MSA FE x Female	No	No	No	Yes	No	No
Observations	1,589	1,589	1,589	1,545	1,589	1,589
R-squared	0.173	0.173	0.177	0.177	0.177	0.278
D.V. Mean	44.44	44.44	44.44	44.59	44.44	44.44
D.V. Std. Dev.	49.45	49.45	49.45	50.25	49.45	49.45
GGI Std. Dev.	0.05	0.05	0.05	0.05	0.05	0.05

Notes: This table shows all estimated coefficients in Table 4. Notes: The sample in all columns includes workers between 16 to 65 years old who commute on the day of the survey and have children under the age of 18 living in the household. The sample is restricted to those providing information on their weekly work hours and their occupation. We estimate Equation (1). All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment, whether the respondent lives with a married or unmarried partner, respondent partner's labor status, the number of children in the household, family size, whether the respondent is a fulltime worker, whether the respondent is self-employed, the logarithm of the weekly work hours and the occupation and industry of workers. Specifications in columns (1) and (2) also include a dummy variable taking value 1 when the respondent lives in a metropolitan area, as a control or geographic characteristics. Specification in column (2) includes the GDP per capita (in constant 2010 US \$) of the country of ancestry. Geographic characteristics have been controlled by including two dummy variables capturing whether respondents live in the central city within a metropolitan area or on the fringe of a metropolitan area (ref: non-metropolitan area), MSA fixed effects and the size of the MSA of residence in columns (3), (4) and (5) respectively. All controls have been also interacted with the female indicator. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

Table A4: Commuting time with children using a sample of parents with children under 13 years old

	(1)	(2)	(3)	(4)
Dependent variable:	Commuting time to/from work accompanied by children		Commuting time to/from work accompanied by children and commuting time during childcare activities	
Female	25.847*** (5.479)	-70.763*** (0.829)	14.806*** (1.138)	67.213*** (0.238)
GGI x Female		-375.471*** (1.165)		-80.267*** (0.339)
Year FE	Yes	Yes	Yes	Yes
Country of ancestry FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State FE x Female	No	Yes	No	Yes
Observations	1,352	1,252	3,030	3,030
D.V. Mean	1.79	1.79	4.23	4.23
D.V. Std. Dev.	12.87	12.87	12.36	12.36
GGI Std. Dev.	0.05	0.05	0.06	0.06

Notes: We estimate a Tobit model in all columns. Sample in columns (1) and (2) is workers between 16 to 65 years old who commute on the day of the survey and have children under the age of 13 living in the household. The dependent variable is redefined as the time devoted to commuting (minutes per day) accompanied by a child reported by worker i of cultural origin j living in state k in year t . Those reporting no time in commuting to work with a child have not been excluded from the sample. The sample in columns (3) and (4) includes workers between 16 to 65 years old who have children under the age of 13 living in the household. The dependent variable measures the time devoted to commute to/from work accompanied by a child, to pick up or drop off household children, and to travel related to household children's education. Those reporting no time in such activities have not been excluded from the sample. All regressions include a constant, as well as demographic and geographic controls for age, race, educational attainment and a dummy variable controlling for whether respondents live in a metropolitan area or not. Estimates are weighted using ATUS weights. Robust standard errors are clustered at the state level and reported in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

APPENDIX B

Table B1: Gender Equality Measures

Name	Definition	Source
Gender Gap Index (GGI)	Measures the gap between men and women in four fundamental categories: economic opportunities, economic participation, educational attainment, political achievements, health and survival. The highest possible score is 1 (equality) and the lowest possible score is 0 (inequality).	World Economic Forum, 2018 Report
Economic Participation and Opportunity Subindex	Index based upon gender differences in the participation in labor markets, wage equality and the gap between the advancement of women and men captured through the ratio of women to men among legislators, senior officials and managers, and the ratio of women to men among technical and professional workers. The highest possible score is 1 (equality) and the lowest possible score is 0 (inequality). This index is also elaborated for the World Economic Forum as part of the Gender Gap Index.	World Economic Forum, 2018 Report
Educational Attainment Subindex	Index based upon the gap between women's and men's current access to education through ratios of women to men in primary, secondary and tertiary level of education. The highest possible score is 1 (equality) and the lowest possible score is 0 (inequality). This index is also elaborated for the World Economic Forum as part of the Gender Gap Index.	World Economic Forum, 2018 Report
Health and Survival Subindex	Index based upon the differences between women's and men's health through the use of the sex ratio at birth and the gap between women's and men's healthy life expectancy. The highest possible score is 1 (equality) and the lowest possible score is 0 (inequality). This index is also elaborated for the World Economic Forum as part of the Gender Gap Index.	World Economic Forum, 2018 Report
Political Empowerment Subindex	Index based upon the gap between men and women at the highest level of political decision-making by using the ratio of women to men in positions of minister and the ratio of women to men in parliamentary positions. The highest possible score is 1 (equality) and the lowest possible score is 0 (inequality). This index is also elaborated for the World Economic Forum as part of the Gender Gap Index.	World Economic Forum, 2018 Report

Table B2: Sum stats and definitions of ATUS variables

Name	CPS variable	Definition	Mean	S.D.
Commuting time to/from work	DURATION reports the length of the activity in minutes. The sum of duration for all activities results in one 24-hour period (1440 minutes).	The sum of all minutes per day reported by a respondent in the activity “commuting to/from work”, with the activity code “180501”	44.33	48.84
Age	AGE gives each person's age at last birthday	Years	35.87	10.79
Female	SEX gives each person's sex. Values of this variable: Male 1 Female 2	Dummy variable equal to 1 if SEX==2	0.51	0.50
More college	EDUC reports the respondent's highest completed level of education Less than 1st grade 10 1st, 2nd, 3rd, or 4th grade 11 5th or 6th grade 12 7th or 8th grade 13 9th grade 14 10th grade 15 11th grade 16 12th grade - no diploma 17 <i>HS diploma, no college</i> High school graduate - GED 20 High school graduate diploma 21 <i>Some college</i> Some college but no degree 30 Associate degree occupational vocational 31 Associate degree - academic program 32 <i>College degree +</i> Bachelor's degree (BA, AB, BS, etc.) 40 Master's degree (MA, MS, MEng, MEd, MSW, etc.) 41 Professional school degree (MD, DDS, DVM, etc.) 42 Doctoral degree (PhD, EdD, etc.) 43	Dummy variable equal to 1 if EDUC>=40	0.38	0.48

	RACE reports the racial category of all household members			
White	White only	100	Dummy variable equal to 1 if race=100	0.81
	Black only	110		
	American Indian, Alaskan Native	120		
	Asian or Pacific Islander	130		
	Asian only	131		
	Hawaiian Pacific Islander only	132		
	Two or more races	>132		
Family size	HH_ SIZE reports the number of people living in the respondent's household		4.11	1.26
	RELATE reports the relationship of each household member to the ATUS respondent			
Married or unmarried partner	Self	10	Dummy variable equal to 1 if any of the members in the household reports relate=20 or relate=21	0.66
	Spouse	20		
	Unmarried Partner	21		
	Own household child	22		
	Grandchild	23		
	Parent	24		
	Brother/Sister	25		
	Other relative	26		
	Foster child	27		
	Housemate/roommate	28		
	Roomer/boarder	29		
	Other nonrelative	30		
	Own non-household child lt 18	40		
Number of children	HH_NUMKIDS reports the number of children under the age of 18 who live in the household		1.83	0.91
Log (weekly work hours)	UHRSWORKT reports the total number of hours the respondent usually works per week at all jobs		Logarithm of usually hours worked per week	3.64
Fulltime worker	FULLPART indicates whether the individual usually works full time or part time. Full time employment is considered to be 35 or more hours per week		Dummy variable equal to 1 if FULLPART=100	0.80
	Full time	1		
	Part time	2		

Partner working	SPEMPNOT reports whether the respondent's spouse or unmarried partner is employed		Dummy variable equal to 1 if SPEMPNOT=1	0.50	0.50
	Not employed	0			
	Employed	1			
Self-employed	CLWKR reports the worker classification for the respondent's main job.				
	Government, federal	1			
	Government, state	2			
	Government, local	3	Dummy variable equal to 1 if CLWKR=6 or CLWKR=7	0.08	0.27
	Private, for profit	4			
	Private, nonprofit	5			
	Self-employed, incorporated	6			
	Self-employed, unincorporated	7			
Occupation	OCC reports the four-digit Census occupational code for the respondent's main job. "occupation" relates to the worker's specific technical function. IND reports the four-digit Census industry code. More than 250 industries are represented.				
	Management, Science, and Occupations	Business, Arts 0010-3540	Dummy variable equal to 1 if OCC>=0010 and OCC<=3540	0.42	0.49
	Service Occupations	3600-4650	Dummy variable equal to 1 if OCC>=3600 and OCC<=4650	0.16	0.37
	Sales and Occupations	Office 4700-5940	Dummy variable equal to 1 if OCC>=4700 and OCC<=5940	0.25	0.43
	Natural Construction, and Maintenance Occupations	Resources, and 6005-7630	Dummy variable equal to 1 if OCC>=6005 and OCC<=7630	0.08	0.27
	Production, Transportation, and Material Moving Occupations	7700-9750	Dummy variable equal to 1 if OCC>=7700 and OCC<=9750	0.09	0.28
Industry	IND reports the type of industry in which the person performed his or her primary occupation. "Industry" refers to the work setting and economic sector.				
	Agriculture, Fishing, and Mining	Forestry, Hunting, and 0170-0490	Dummy variable equal to 1 if IND>=0170 and IND<=0490	0.02	0.12
	Construction	770	Dummy variable equal to 1 if IND=770	0.06	0.23

	Manufacturing	1070-3990	Dummy variable equal to 1 if IND \geq 1070 and IND \leq 3990	0.08	0.27
	Wholesale Trade	4070-4590	Dummy variable equal to 1 if IND \geq 4070 and IND \leq 4590	0.03	0.17
	Retail Trade	4670-5790	Dummy variable equal to 1 if IND \geq 4670 and IND \leq 5790	0.12	0.33
	Transportation	6070-6390, 0570-0690	Dummy variable equal to 1 if (IND \geq 6070 and IND \leq 6390) or (IND \geq 0570 and IND \leq 0690)	0.04	0.20
	Information	6470-6780	Dummy variable equal to 1 if IND \geq 6470 and IND \leq 6780	0.03	0.17
	Financial activities	6870-7190	Dummy variable equal to 1 if IND \geq 6870 and IND \leq 7190	0.07	0.26
	Professional and business	7270-7790	Dummy variable equal to 1 if IND \geq 7270 and IND \leq 7790	0.11	0.31
	Educational, Health and Social Assistance	7860-8470	Dummy variable equal to 1 if IND \geq 7860 and IND \leq 8470	0.26	0.44
	Arts, Entertainment, Recreation, Accommodation and Food Services	8560-8690	Dummy variable equal to 1 if IND \geq 8560 and IND \leq 8690	0.10	0.31
	Other Services	8770-9290	Dummy variable equal to 1 if IND \geq 8770 and IND \leq 9290	0.04	0.19
	Public Administration	9370-9590	Dummy variable equal to 1 if IND \geq 9370 and IND \leq 9590	0.05	0.21
METRO reports whether a household was located in a metropolitan area					
Metropolitan area	Metropolitan, central city	1	Dummy variable equal to 1 if METRO=1 or METRO=2	0.94	0.24
	Metropolitan, balance of MSA	2			
	Metropolitan, not identified	3			
	Nonmetropolitan	4			
	Not identified	5			

Metropolitan (center)	See variable METRO defined above		Dummy variable equal to 1 if METRO=1	0.30	0.46
Metropolitan (fringe)	See variable METRO defined above		Dummy variable equal to 1 if METRO=2 or METRO=3	0.63	0.48
Non- metropolitan area	See variable METRO defined above		Dummy variable equal to 1 if METRO=4 or METRO=5	0.06	0.24
MSASIZE reports the population size of the metropolitan area in which a household is located, if applicable					
MSA size	MSA size: < 1000–000/no MSA	0	Dummy variable equal to 1 if MSASIZE=0	0.09	0.29
	MSA size: 100,000–249,999	2	Dummy variable equal to 1 if MSASIZE=2	0.06	0.24
	MSA size: 250,000–499,999	3	Dummy variable equal to 1 if MSASIZE=3	0.09	0.28
	MSA size: 500,000–999,999	4	Dummy variable equal to 1 if MSASIZE=4	0.12	0.32
	MSA size: 1,000,000– 2,499,999	5	Dummy variable equal to 1 if MSASIZE=5	0.17	0.38
	MSA size: 2,500,000– 4,999,999	6	Dummy variable equal to 1 if MSASIZE=6	0.21	0.40
	MSA size: 5000,000 +	7	Dummy variable equal to 1 if MSASIZE=7	0.26	0.44