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Native-Immigrant Differences in the Effect of Children on the Gender Pay Gap

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Adrián Nieto*

Abstract

This paper explores gender differences in the career paths of immigrant and native parents before and after childbirth using Spanish administrative data and an event study specification. I find an important gender pay gap emerging after childbirth for both immigrants and natives, but immigrants suffer from a higher loss in earnings than natives. I show important native-immigrant differences in potential drivers behind the gender pay gap. After childbirth, mothers reduce their labour participation and are more often unemployed, part-time and temporary employed than fathers. The gender gaps in labour participation and part-time work are higher for natives, while the gender gaps in unemployment and permanent employment for immigrants. Finally, I investigate whether the deterioration of mothers' career originates from workers' or employers' decisions. After childbirth, mothers quit their job less, but temporarily stop working and are dismissed more than fathers. The gender gap in temporary leaves is higher for natives, while the gender gap in dismissals for immigrants.

Keywords: immigrant, native, gender gap, inequality, children

JEL classification: J13, J15, J16, J31, J61, J70.

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1 Introduction

In the last decades, academics have given a lot of attention to gender inequality in the labour market and its possible explanations (Altonji and Blank, 1999; Bertrand, 2011; Olivetti and Petrongolo, 2016; Blau and Kahn, 2017). The birth of children not only generates an important gender gap in income (Loughran and Zissimopoulos, 2009; Bertrand et al., 2010; Angelov et al., 2016; Wilner, 2016; Kleven and Landais, 2017; Kleven et al., 2019a), but has also increasingly become the main driver behind gender inequality in the labour market (Kleven et al., 2019a). A possible question, much less explored in the economic literature, is whether the effect of childbirth on the gender gap in earnings depends on socio-demographic characteristics other than gender. The nativity of parents may be an important factor to take into account, as immigrants may differ from natives in the number of family members available for informal care, the extent of childcare services they can access, preferences, and the degree of labour protection they are exposed to.

This paper examines immigrant-native differences in the effect of the birth of children on gender gaps in the labour market. I use a panel administrative dataset of 4 million of observations containing yearly information on the labour outcomes of parents during the period of 1997–2016, and implement the event study introduced by Kleven et al. (2019a) to explore the dynamic effect of children on the labour market. The empirical strategy allows to show gender differences in the career paths of parents before and after childbirth, and I explore these separately by parents' nativity.

I show that mothers and fathers have very similar earnings in the years prior to the occurrence of the first birth, but that the earnings path of mothers falls below the earnings path of fathers right after childbirth. This generates a gender gap in earnings that increases over time. The estimates presented are consistent with the results shown in Kleven et al. (2019a) and Kleven et al. (2019b), but depart from these in their dynamics: the gender gap in Spain is lower than in Austria, Denmark, Germany, Sweden, the UK and US in the short-run after childbirth, but increases more than in any other country over time. I examine immigrant-native differences in this effect, showing that having a child generates an important gender gap in earnings for both immigrants and natives, and that immigrants suffer from a higher loss in earnings than natives after

childbirth.

The gender pay gap emerging after childbirth may be driven by mothers being less attached to the labour market or looking for types of employment that allow them to balance work and family relative to fathers. I explore these possibilities and find that after childbirth, mothers participate less frequently in the labour market, are more likely to be unemployed, and hold more often part-time, temporary and private sector contracts relative to fathers. The gender gaps in labour market participation, part-time and private sector employment are higher for native parents. In contrast, the gender gaps in unemployment and permanent employment emerging after childbirth are considerably larger for immigrant parents.

The deterioration of mothers' career in the years after childbirth may originate from workers' or employers' decisions. First, I show that having a child decreases the probability of mothers quitting their job but increases their likelihood of temporarily leaving their position to take care of family compared to fathers. Second, I show that the birth of a child increases the probability of mothers being dismissed relative to fathers. While the gender gap in the probability of quitting is similar for natives and immigrants, the gender gap in temporary leaves to take care of family is greater for natives and the gender gap in dismissal probabilities is higher for immigrants.

This paper primarily contributes to the literature on the relationship between children and gender inequality in the labour market. Previous evidence has shown that the earnings of mothers fall below the earnings of fathers right after childbirth (Loughran and Zissimopoulos, 2009; Bertrand et al., 2010; Angelov et al., 2016; Wilner, 2016; Kleven and Landais, 2017; Kleven et al., 2019a), which is likely to be because children reduce labour market participation (Rosenzweig and Wolpin, 1980; Angrist and Evans, 1998; Jacobsen et al., 1999; Kleven et al., 2019a; Sieppi and Pehkonen, 2019), employment probabilities (Gutiérrez-Domènech, 2005; Cristia, 2008; Michaud and Tatsiramos, 2011; Fitzenberger et al., 2013), working hours (Lundberg and Rose, 2000; Bridges, S. and K. Mumford, 2001; Sasser, 2005; Miller, 2011; Kleven et al., 2019a), experience (Klepinger et al., 1999; Daniel et al., 2013), occupational status (Cools et al., 2017; Kleven et al., 2019a), full-time employment (Paull, 2008; Daniel et al., 2013), and the likelihoods of working in high-paid and private sector jobs for

mothers relative to fathers (Daniel et al., 2013; Lundborg et al., 2017; Kleven et al., 2019a). One may argue that the impact of children on gender inequality in the labour market may emerge from biological differences between mothers and fathers, but recent evidence has shown that this is not the case (Kleven et al., 2020). Besides, a number of studies have shown that the impact of children on the gender gap in earnings varies across countries (Gustafsson et al., 1996; Sigle-Rushton and Waldfogel, 2007; Gangl and Ziefle, 2009; Agüero and Marks, 2011; Kleven et al., 2019b; Cukrowska-Torzewska and Lovasz, 2020), and that the educational level (Angrist and Evans, 1998; Anderson et al., 2002, 2003; Wilde et al., 2010; Cools and Strøm, 2016), ethnicity (Anderson et al., 2002, 2003), marital status (Bronars and Grogger, 1994), and economic background of parents matter for this effect too (Budig and Hodges, 2010). This paper contributes to this literature by showing the importance of parents being native within the country of residence for the impact of children on the gender gap in earnings. Moreover, I examine a number of drivers behind the gender gap in earnings that have not been explored before, and investigate whether the gender and nativity differences in the impact of children on the labour market originate from workers' or employers' decisions.

From a policy point of view, it may be relevant to consider the nativity of parents when implementing labour market policies aiming at reducing the gender pay gap. Previous literature has studied the effect of public policies such as parental leave (Waldfogel, 1998; Farré and González, 2019; Kleven et al., 2019c), allowances (González, 2008, 2013), childcare services (Del Boca, 2002; Nollenberger and Rodríguez-Planas, 2015; Huffman et al., 2017; Kleven et al., 2019c), anti-discrimination legislation (Mukhopadhyay, 2012) and in-work benefits on gender inequality in the labour market (Sánchez-Mangas and Sánchez-Marcos, 2008; Azmat and González, 2010; Olivetti and Petrongolo, 2017). Studying whether these public policies help reducing both the gender and nativity gaps in earnings emerging after childbirth may be a relevant direction for future research.

The remainder of the paper proceeds as follows. Section 2 describes the Spanish labour market and provides evidence on the evolution of the gender wage gap in Spain. Section 3 presents the data and some descriptive statistics. Section 4 describes the empirical strategy, Section 5 shows the results, and Section 6 concludes.

2 Spanish Labour Market Context

This section examines general trends in the labour market participation and gender wage gap during the last decade in Spain. I also compare Spain with other countries in terms of gender inequality in the labour market. As shown in panel A of Figure 1, there has been a gradual increase in the labour market participation of women relative to men during the last decade in Spain. In particular, female labour market participation was 17.4% lower than male labour market participation in 2008, but this difference was 10.9% in 2018. This may contribute towards reducing the gender wage gap. I explore this possibility in panel B of Figure 1, where I show that the gender wage gap increased during the financial crisis of 2008 but fell after it. Overall, the gender wage gap fell during the last decade in Spain, being 14.3% lower in 2018 than in 2008. Yet, the gender wage gap was still higher than 13% in 2018. According to Eurostat and OECD data, this level is slightly lower than the average gender wage gap in European and North American countries, which is shown in Figure 2.

3 Data

I use data from the 2005–2016 waves of the Muestra Continua de Vidas Laborales (MCVL). Each of these waves is based on a random sample of 1.1 million individuals selected from the Spanish Social Security records, which represents 4% of the total number of workers, unemployed and retired individuals in Spain. I can identify individuals across waves, which allows me to construct a large panel dataset. The data contains information on the labour history of individuals and their sociodemographic characteristics. Regarding labour outcomes, I have data on whether individuals participate in the labour market, have a job, are employed, and work for the private sector. I also have information on their earnings, type of contract (e.g. full-time vs part-time and permanent vs temporary), occupational status, and sector of activity, among other variables. Regarding sociodemographic information, I have data on the age, nativity, gender, region of residence and region of work of individuals. Importantly, I also have information on the date of birth and gender of the members of the household where the sampled individuals live. Using this data, I construct time-varying information on

the fertility history of individuals over the period of analysis.

The aim of this paper is to examine whether the impact children on the gender gap in earnings is heterogeneous in the nativity of parents. Therefore, the analysis is based on the sample of individuals aged 16 or older who become parents during the period of analysis. Given that there is no information on the family relationship between the sampled individuals and the members of their households, I ensure correctly assigning children to their parents by using adults living with one or no adult of a similar age. Overall, I use a large panel dataset of 4 million of observations that contains yearly information on the labour and fertility outcomes of more than 215,000 parents that I follow over the period of 1997–2016.

Table 1 presents some descriptive statistics of the sample separately by gender and nativity. As shown, fathers have higher earnings, participate more frequently in the labour market and are more likely to have a job than mothers. Fathers are also more likely to be self-employed, private sector workers, full-time and permanent employees but are less qualified than mothers. Regarding socio-demographic characteristics, fathers are older, live more frequently in rural areas and pertain to households with a lower number of members than mothers. It is also important to examine differences in labour and socio-demographic characteristics by nativity. Native parents earn more, have higher employment probabilities, are more likely to be white-collar workers, and hold more frequently full-time and permanent positions than immigrant parents. Native parents are also older, live more frequently in rural areas, and have less children than immigrant parents.

4 Empirical Strategy

This paper studies the dynamic effect of children on the gender gap in earnings for native and immigrant parents, as well as potential mechanisms. To allow for a greater comparability of the estimates with prior literature, I estimate an event study that was introduced by Kleven et al. (2019a) but separately by gender and nativity:

$$Y_{i,t}^{g,n} = \alpha + \sum_{j \neq -1} \beta_j I[Event = j]_{i,t} + \sum_{a} \delta_a I[Age = a]_{i,t} + \sum_{t} \zeta_t Year_t + \varepsilon_{i,t}, \qquad (1)$$

where $Y_{i,t}^{g,n}$ is the annual earnings of parent i, whose gender is g and nativity n, at year t. Superscript g can be male and female, n can be native and immigrant, and subscript t is a year between 1997 and 2016. $\sum_{j \neq -1} I[Event = j]_{i,t}$ is a set of dummies that indicate the number of years that have passed or are left relative to the year when adult i has the first child. For example, the indicator $I[Event = 1]_{i,t}$ takes a value of 1 when, at year t, one year has passed since the birth of the first child and 0 otherwise. Similarly, the dummy $I[Event = -2]_{i,t}$ equals 1 two years prior to the birth of the first child and 0 otherwise. In the analysis, I control for event dummies where j is between -5 and 10, and use the year prior to the occurrence of the first child as reference group. $\sum_{a} I[Age = a]_{i,t}$ is a set of age dummies that controls for changes in the labour status of adults over the life cycle. For example, the dummy $I[Age = 25]_{i,t}$ takes a value of 1 when, at year t, individual i is 25 years old and 0 otherwise. $\sum_{t} Year_t$ is a set of year dummies that allows for flexible trends in the labour outcomes of individuals during the period of analysis. Despite controlling for year and age dummies, it is possible to estimate the effects of the event dummies because different individuals become parents at different years and ages. $\varepsilon_{i,t}$ is a time-varying error at the individual level.

The coefficients of interest are the ones of the event dummies because they show the dynamic effect of children on the earnings of fathers and mothers separately by parents' nativity. After estimating the baseline specification for parents whose gender is g and nativity n, I divide the event dummies' estimates by the average earnings of this subsample in the year prior to the occurrence of the first child.[1] By doing so, I evaluate which are the groups of parents that lose a higher proportion of their initial earnings after childbirth.

Estimating specification 1 allows to examine the career paths of parents before and after having a child, and so, whether there is variation in their labour outcomes due

[1] Appendix A presents the estimates of the event dummies without dividing them by the average earnings of the subsamples of parents in the year prior to childbirth. This shows the absolute impact of children on the gender gap in earnings rather than the relative effect.

to the occurrence of children. It is plausible to argue that this variation is exogenous because the labour outcomes of parents should evolve steadily over time if the birth never occurred.

5 Results

5.1 Native-Immigrant Differences in the Gender Pay Gap

This section studies the impact of the birth of the first child on the gender pay gap as well as immigrant-native differences in this effect. Panel A of Figure 3 presents the estimates of the baseline specification without separating the sample by the nativity of parents. As shown, the earnings of mothers and fathers evolve very closely in the years prior to the birth of the first child. However, right after childbirth, the earnings of mothers fall relative to the earnings of fathers, which generates a gender gap in earnings which gets higher over the years. Ten years after childbirth, the gender gap in earnings is higher than 50%. The estimates presented are consistent with the results provided by previous literature showing that children generate an important gender pay gap in Austria, Denmark, Germany, Sweden, the UK and US (Kleven et al., 2019a,b). Yet, the dynamics of the effect that I find differ from the results provided by Kleven et al. (2019a) and Kleven et al. (2019b) for the countries they study: the gender pay gap in Spain is lower than in Austria, Denmark, Germany, Sweden, the UK and US in the short-run after childbirth, but increases more than in these countries over the years.

Panels B and C of Figure 3 present the estimates of the baseline specification separately by parents' gender and nativity to explore native-immigrant differences in the impact of children on the gender pay gap. As shown, the earnings of native mothers and fathers, as well as the earnings of immigrant mothers and fathers, evolve very closely in the years prior to the occurrence of the first child. The earnings of mothers fall below the earnings of fathers in the years after childbirth independently of nativity. However, immigrant parents suffer from a higher loss in earnings after childbirth than natives.[2]

[2] A possible explanation for immigrants suffering from a higher loss in earnings than natives is that immigrants may have a higher number of children following the first birth. Appendix B explores this possibility by estimating the baseline specification on a sample of parents that only have one child

5.2 Native-Immigrant Differences in Potential Drivers

This section explores potential channels as to why the occurrence of the first child generates a gender pay gap, as well as immigrant-native differences in these drivers.[3] To do so, I estimate the baseline specification separately by gender and nativity and use as dependent variable the probabilities of parents (i) participating in the labour market (ii) being unemployed, (iii) holding a part-time contract, (iv) having a permanent contract, and (v) working for the private sector, respectively. As shown in panels A–J of Figure 4, native mothers and fathers, as well as immigrant mothers and fathers, have very similar labour outcomes in the years prior to the occurrence of the first child. After childbirth, mothers participate less in the labour market, have higher unemployment probabilities, and hold more frequently part-time, temporary, and private sector contracts than fathers. The gender differences in labour market participation, part-time and private sector employment are higher for natives than for immigrants. In contrast, the gender gaps in unemployment and permanent employment are greater for immigrants. Overall, the estimates suggest that the drivers behind the impact of children on the gender gap in earnings strongly differ for native and immigrant parents. Subsequently, it may be important to take into account sociodemographic characteristics other than gender when implementing labour market policies aimed at reducing the gender gap in earnings.

5.3 Workers' or Employers' Decisions

This section explores whether the gender and nativity differences in the effect of children on labour outcomes originate from workers' or employers' decisions. Panels A–F of Figure 5 present the estimates of the baseline specification separately by gender and nativity and using as dependent variable the probabilities of parents (i) quitting their job, (ii) temporarily leaving their position due to family or health reasons, and (iii) being dismissed, respectively.[4] As shown in panels A–B, mothers are less likely

during the period of study. As shown, the estimates are very similar to the ones presented in Figure 3 for both native and immigrant parents.

[3] Appendix C explores whether the impact of children on labour outcomes differs for immigrant and native parents, without taking into account gender differences.

[4] The probability of dismissal does not include cases where the worker is dismissed collectively.

than fathers to quit their job right after childbirth, but equally likely in the medium and long-term. This holds independently of parents' nativity albeit it is important to note that immigrants quit their job less frequently than natives. Panels C–D show that mothers are more likely than fathers to temporarily leave their job due to family or health reasons in the years following childbirth. The gender gap in temporary leaves is higher for immigrants right after childbirth but considerably greater for natives in the medium and long-term. Finally, panels E–F show that, right after childbirth, there are no differences in dismissal probabilities between immigrant fathers and mothers, and that native mothers are less likely to be dismissed than native fathers. This may be due to mothers being on maternity leave right after childbirth. However, dismissal probabilities grow faster for mothers than for fathers in the years after childbirth, and mothers are considerably more likely to be dismissed in the long-term relative to fathers independently of parents' nativity. The gender gap in dismissal probabilities is higher for immigrants than for natives. Overall, the gender differences in the impact of children on labour outcomes seem to be driven by family-related decisions for natives and employers' decisions for immigrants.

5.4 Further Heterogeneity in the Nativity of Parents

I next investigate further whether the impact of children on the gender gap in earnings is heterogeneous in the nativity of parents. To do so, I split the sample into six different groups according to their country of origin: (i) Spanish, (ii) European but not Spanish, (iii) African, (iv) Asian, (v) South American, and (iv) North American. Afterwards, I estimate the baseline specification on each of these groups separately by gender. I do not examine the impact of children on the gender gap in earnings for additional countries of origin due to small sample sizes. As shown in Figure 6, the earnings of fathers and mothers of each country of origin evolve very closely in the years prior to childbirth. However, the earnings of mothers fall below the earnings of fathers in the years after childbirth for every subsample. In the short-term, having a child generates the highest gender gap in earnings for African and South-American parents. In the long-term, the gender gap in earnings is the highest for Asian and North American parents.

5.5 Second and Third Child

This section investigates whether the effects of having a second and third child on the gender gap in earnings are heterogeneous in the nativity of parents. Panels A–B of Figure 7 present the estimates of a specification similar to the baseline model but that controls for a set of dummies that indicate the number of years that have passed or are left relative to the occurrence of the second child. I present the estimates separately for native and immigrant parents who have a second child during the period of analysis. Panels C–D display the estimates of a model similar to the one I estimate in panels A–B, but that also includes a set of dummies indicating the number of years that are left or have passed relative to the occurrence of the third child. I present the estimates separately for native and immigrant parents who have a third child during the period of analysis. As shown, the earnings of parents evolve very closely in the years prior to the occurrence of the second and third child, independently of parents' gender and nativity. However, the earnings paths of mothers fall below the earnings paths of fathers in the years after the occurrence of the second and third child. The gender gaps in earnings generated by the second and third child are higher for immigrants.

6 Conclusions

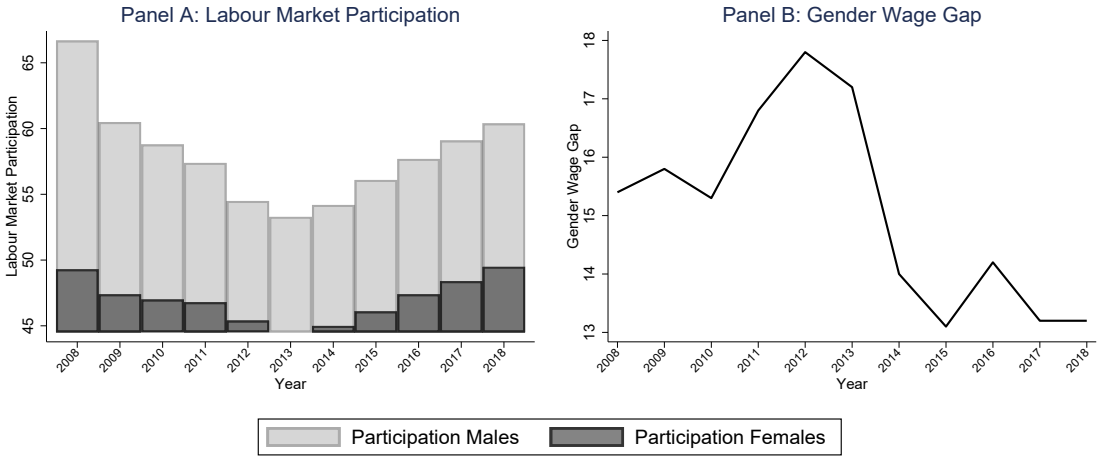
This paper examines whether the impact of children on the gender gap in earnings differs for immigrant and native parents. Using a Spanish panel administrative dataset of 4 million of observations that provides yearly information on the labour and fertility outcomes of parents during the period of 1997–2016, I estimate the event study specification introduced by Kleven et al. (2019a). This model allows to compare the career paths of mothers and fathers in the years before and after childbirth, which I examine separately for immigrant and native parents. I show that the earnings of native mothers and fathers, as well as the earnings of immigrant mothers and fathers, evolve very closely in the years prior to the birth of the first child. However, having a child generates an important gender pay gap for both immigrants and natives, and immigrant mothers suffer from the highest loss in earnings after childbirth. The drivers behind the impact of children on the gender gap in earnings strongly vary with the na-

tivity of parents. After childbirth, mothers participate less in the labour market, have higher unemployment probabilities, and hold more frequently part-time, temporary and private sector contracts compared to fathers. The gender gaps in labour participation, part-time and private sector employment are higher for natives. In contrast, the gender gaps in unemployment and permanent employment are higher for immigrants.

The paper explores whether the aforementioned gender and nativity differences originate from workers' or employers' decisions. First, I find that after childbirth, mothers quit their job less but temporarily leave their position more due to family and health reasons compared to fathers. Second, I show that children increase the frequency of mothers being dismissed relative to fathers. Although the gender gap in the probability of quitting is similar for immigrants and natives, the gender gap in temporary leaves is higher for natives, and the gender gap in dismissal probabilities for immigrants. Overall, the findings suggest that it may be important to take into account socio-demographic characteristics other than gender when implementing labour market policies aimed at reducing the gender gap in earnings.

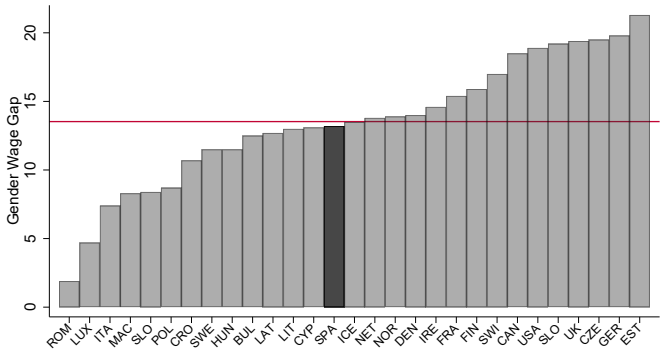
7 Figures

Figure 1: Labour Market Participation and the Gender Wage Gap



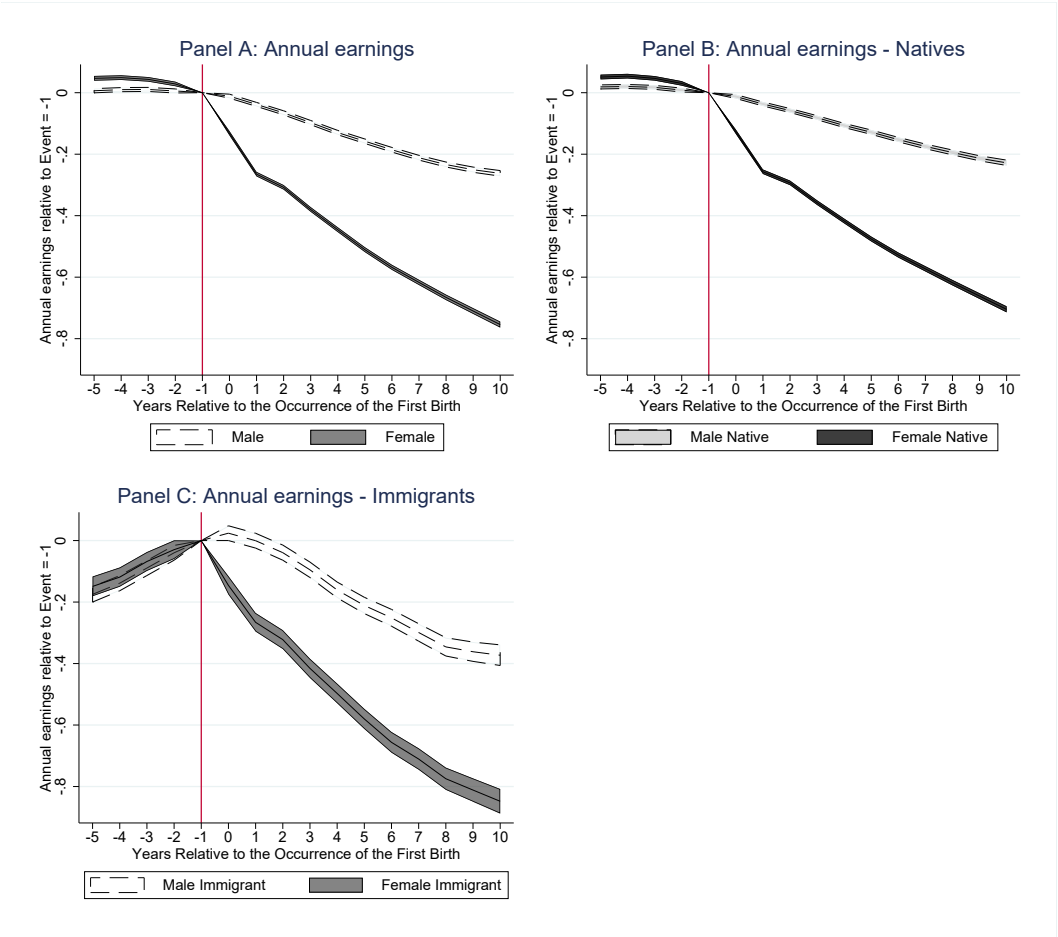
Panel A shows the labour market participation of males and females in Spain during the last decade. Panel B shows the evolution of the gender wage gap in Spain during the last decade. The data comes from Eurostat, https://ec.europa.eu/eurostat/data/database.

Figure 2: The Gender Wage Gap across Countries



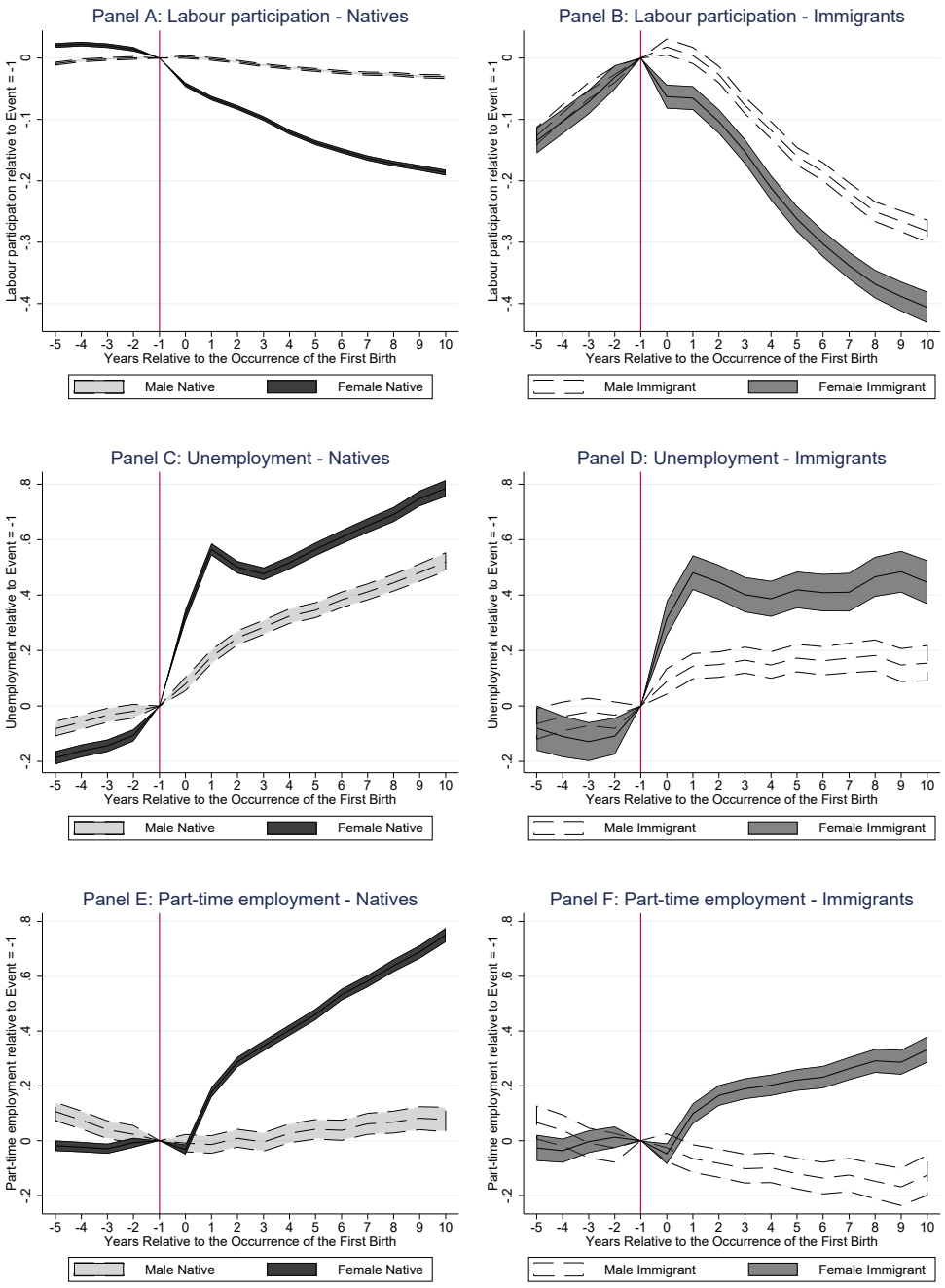
The figure shows the gender wage gaps of different countries in Europe and North America in 2018. When there is no data available about the gender wage gap in a country in 2018, I select the most recent gender wage gap information available. The earliest gender wage gap I show in the graph is for Italy, in 2014. The data comes from the OECD, https://stats.oecd.org/index.aspx?queryid=54751, and Eurostat, https://ec.europa.eu/eurostat/data/database.

Figure 3: Immigrant-Native Differences in the Gender Gap in Earnings



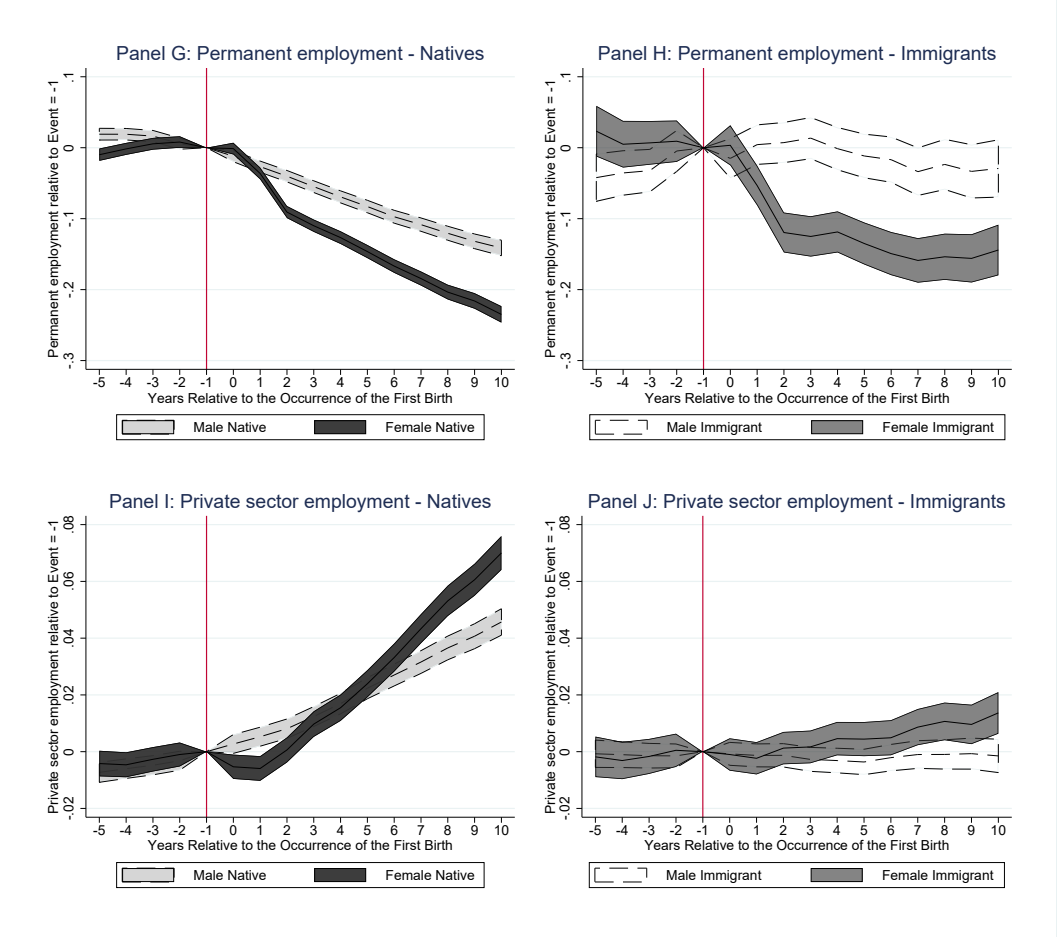
Panel A presents the estimates of the baseline specification separately for mothers and fathers. Panels B–C present the estimates of the baseline specification separately for native mothers, immigrant mothers, native fathers and immigrant fathers. In all panels, I use as dependent variable the annual earnings of parents. I divide the estimates of interest by the average earnings of the subsample of interest in the year prior to the birth of the first child.

Figure 4: Immigrant-Native Differences in Potential Divers



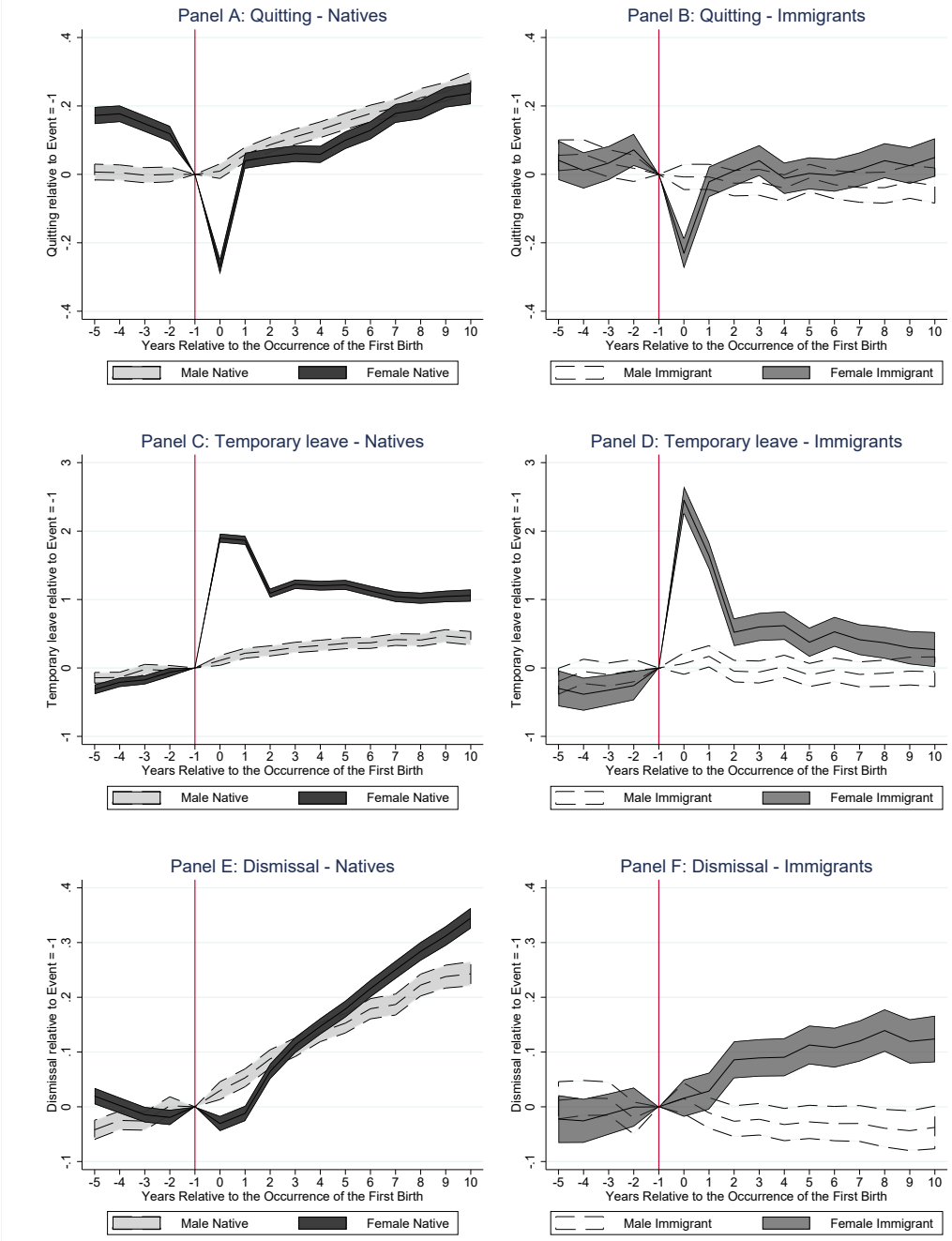
The figure presents the estimates of the baseline specification separately for native mothers, immigrant mothers, native fathers and immigrant fathers. Panels A–J use as dependent variable the probabilities of parents (i) participating in the labour market, (ii) being unemployed, (iii) holding part-time contracts, (iv) being permanent employees, and (v) working for the private sector, respectively. In each panel, I divide the estimates of interest by the average level of each of the previous dependent variables for the subsample of interest in the year prior to the birth of the first child, respectively.

Figure 4: Immigrant-Native Differences in Potential Divers (Continued)



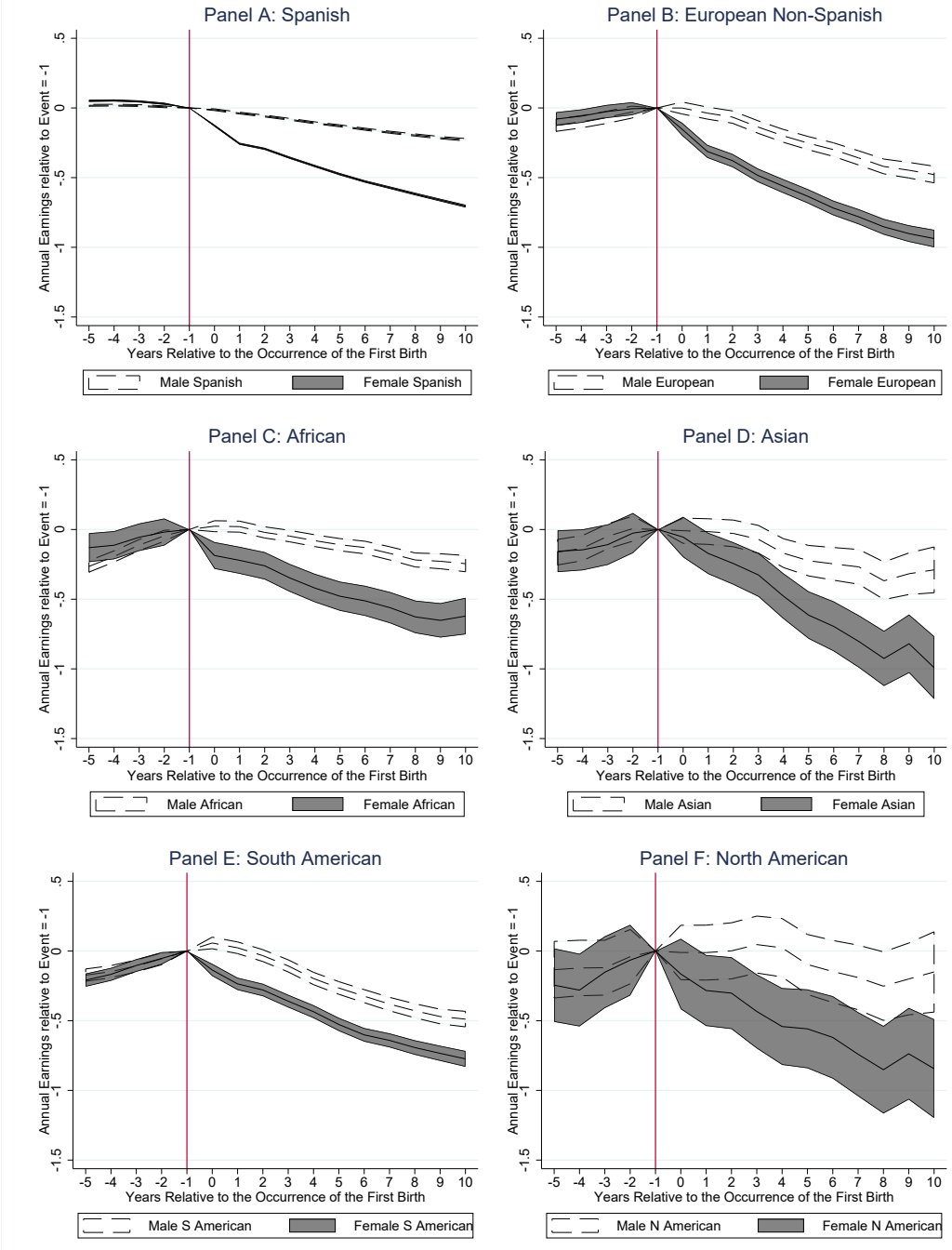
The figure presents the estimates of the baseline specification separately for native mothers, immigrant mothers, native fathers and immigrant fathers. Panels A–J use as dependent variable the probabilities of parents (i) participating in the labour market, (ii) being unemployed, (iii) holding part-time contracts, (iv) being permanent employees, and (v) working for the private sector, respectively. In each panel, I divide the estimates of interest by the average level of each of the previous dependent variables for the subsample of interest in the year prior to the birth of the first child, respectively.

Figure 5: Workers' or Employers' Decisions



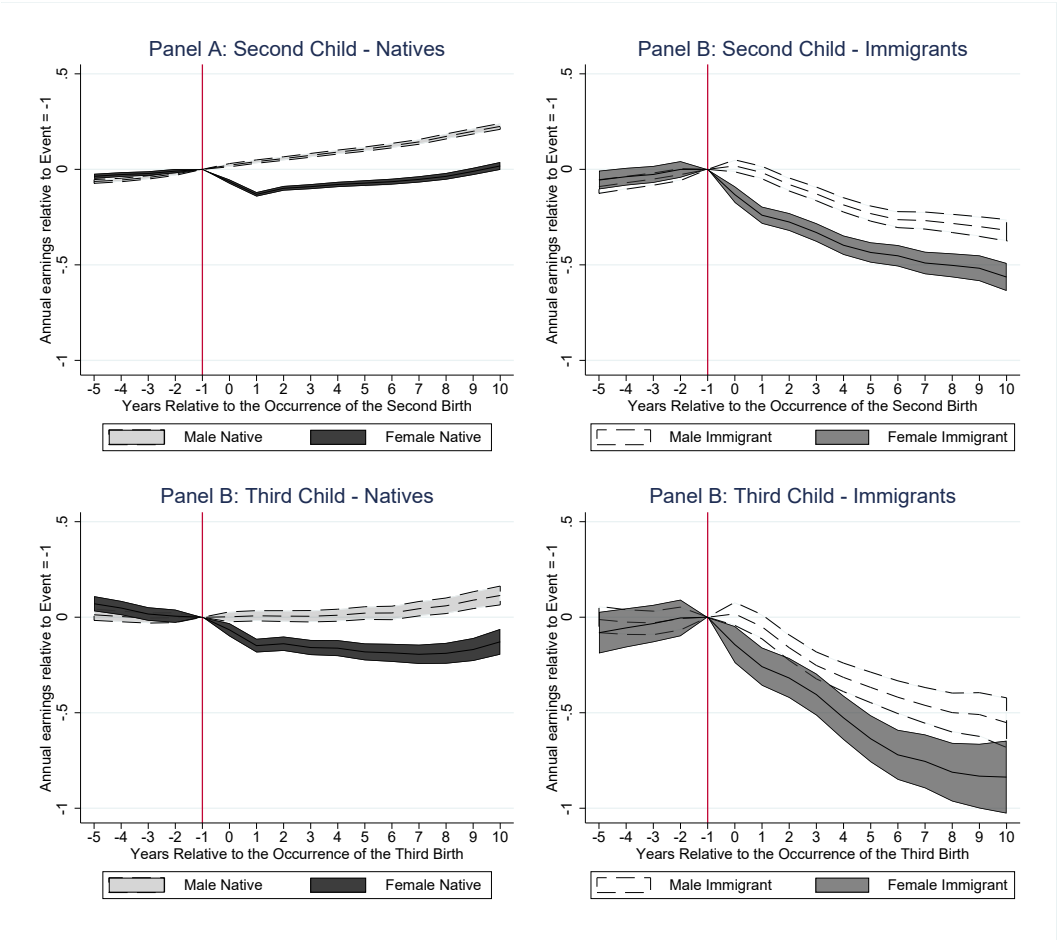
The figure presents the estimates of the baseline specification separately for native mothers, immigrant mothers, native fathers and immigrant fathers. Panels A–F use as dependent variable the probabilities of parents (i) quitting their job, (ii) temporarily leaving their job due to family or health reasons, and (iii) being dismissed, respectively. In each panel, I divide the estimates of interest by the average level of each of the previous dependent variables for the subsample of interest in the year prior to the birth of the first child, respectively.

Figure 6: Heterogeneity by Country of Origin



The figure presents the estimates of the baseline specification separately for mothers and fathers of the following places of origin: (i) Spain, (ii) Europe but not Spain, (iii) Africa, (iv) Asia, (v) South America, and (vi) North America. I use as dependent variable the annual earnings of parents. I divide the estimates of interest by the average annual earnings of the subsample of interest in the year prior to the birth of the first child.

Figure 7: The Impacts of the Second and Third Child by Parents' Nativity



The figure examines whether the effects of the occurrence of a second and third child on the annual earnings of mothers and fathers are heterogeneous in parents' nativity. I use as dependent variable the annual earnings of parents. I divide the estimates of interest by the average annual earnings of the subsample of interest in the year prior to the birth of the second and third child, respectively.

8 Tables

Table 1: Descriptive Statistics

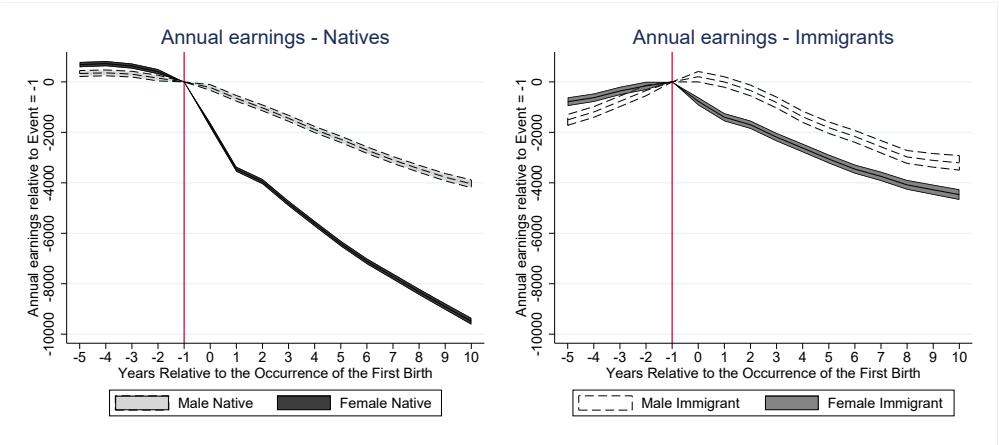
	Fathers		Mothers	
	Immigrant	Native	Immigrant	Native
Monthly Wage	561.18	1315.79	335.98	886.13
	(778.58)	(992.04)	(613.15)	(889.43)
Labour Participation	0.56	0.90	0.43	0.80
	(0.50)	(0.30)	(0.50)	(0.40)
Unemployment	0.27	0.17	0.25	0.22
	(0.44)	(0.38)	(0.44)	(0.42)
Part-time Employment	0.22	0.14	0.47	0.34
	(0.41)	(0.34)	(0.50)	(0.48)
Permanent Employment	0.49	0.61	0.53	0.57
	(0.50)	(0.49)	(0.50)	(0.49)
Private Sector	0.98	0.92	0.96	0.87
	(0.15)	(0.27)	(0.19)	(0.34)
Self-employment	0.13	0.18	0.09	0.09
	(0.34)	(0.38)	(0.28)	(0.29)
White-collar Worker	0.07	0.14	0.08	0.18
	(0.25)	(0.35)	(0.28)	(0.39)
Age	30.75	32.38	29.34	31.03
	(7.58)	(7.59)	(7.40)	(7.49)
Urban Area	0.57	0.51	0.61	0.53
	(0.50)	(0.50)	(0.49)	(0.50)
Prob Having Child	0.12	0.10	0.12	0.10
	(0.33)	(0.30)	(0.32)	(0.30)
Number of Members	3.11	3.30	3.27	3.34
	(1.33)	(1.19)	(1.27)	(1.20)
N	341,589	1,626,576	361,890	1,725,841

The table presents the summary statistics of some socio-demographic and labour characteristics for the following subsamples: (i) immigrant fathers, (ii) native fathers, (iii) immigrant mothers, and (iv) native mothers.

Appendices

A Baseline Estimates in Absolute Terms

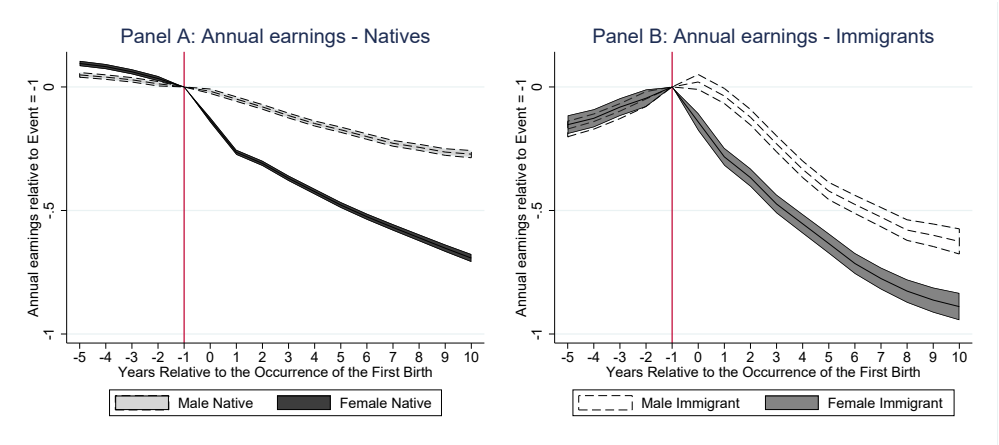
Figure A1: Baseline Estimates in Absolute Terms by Parents' Nativity



The figure presents the estimates of the baseline specification separately for native mothers, immigrant mothers, native fathers and immigrant fathers. I use as dependent variable the annual earnings of parents.

B Parents of One Child

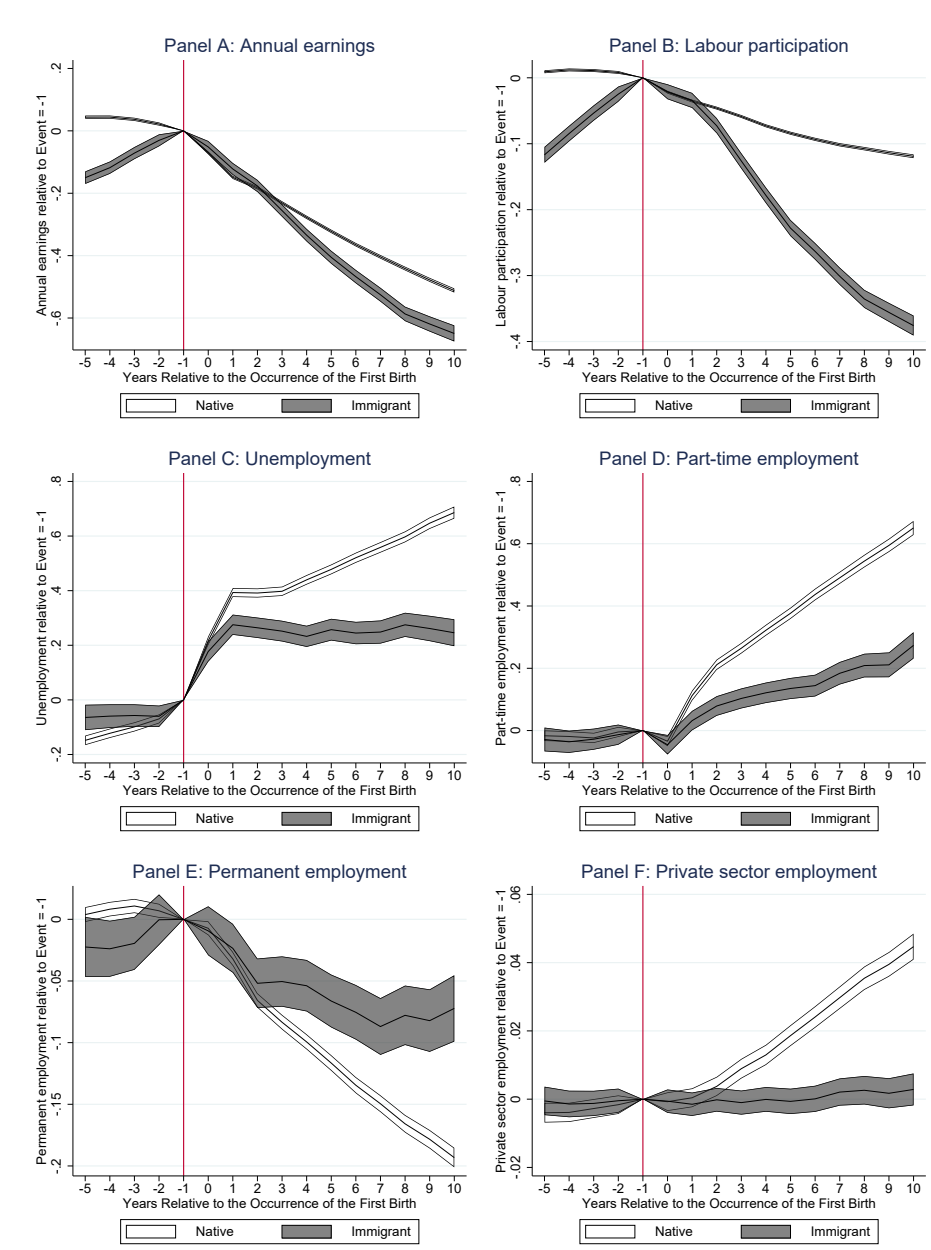
Figure A2: Parents of One Child



The figure presents the estimates of the baseline specification separately for native mothers, native fathers, immigrant mothers and immigrant fathers of one child. I use as dependent variable the annual earnings of parents. I divide the estimates of interest by the average earnings of the subsample of interest in the year prior to the birth of the first child.

C Heterogeneity in the Effect by Parents' Nativity

Figure A3: Overall Immigrant-Native Differences in Pay



The figure presents the estimates of the baseline specification separately for native and immigrant parents. Panel A uses as dependent variable the annual earnings of parents. Panels B–F use as dependent variable the probabilities of parents (i) participating in the labour market, (ii) being unemployed, (iii) holding part-time contracts, (iv) being permanent employees, and (v) working for the private sector, respectively. In panels A–F, I divide the estimates of interest by the average level of each of the previous dependent variables for the subsample of interest in the year prior to the birth of the first child, respectively.

References

Agüero, J. M. and Marks, M. S. (2011). Motherhood and female labor supply in the developing world evidence from infertility shocks. *Journal of Human Resources*, 46(4):800–826.

Altonji, J. and Blank, R. (1999). Race and gender in the labor market. In Ashenfelter, O. and Card, D., editors, *Handbook of Labor Economics*, volume 3, Part C, chapter 48, pages 3143–3259. Elsevier, 1 edition.

Anderson, D. J., Binder, M., and Krause, K. (2002). The motherhood wage penalty: Which mothers pay it and why? *American Economic Review*, 92(2):354–358.

Anderson, D. J., Binder, M., and Krause, K. (2003). The motherhood wage penalty revisited: Experience, heterogeneity, work effort, and work-schedule flexibility. *ILR Review*, 56(2):273–294.

Angelov, N., Johansson, P., and Lindahl, E. (2016). Parenthood and the gender gap in pay. *Journal of Labor Economics*, 34(3):545–579.

Angrist, J. D. and Evans, W. N. (1998). Children and their parents' labor supply: Evidence from exogenous variation in family size. *The American Economic Review*, 88(3):450–477.

Azmat, G. and González, L. (2010). Targeting fertility and female participation through the income tax. *Labour Economics*, 17(3):487–502.

Bertrand, M. (2011). "New perspectives on gender" in O. Ashenfelter and D. Card eds. *Handbook of Labor Economics*, 4B:1543–1590.

Bertrand, M., Goldin, C., and Katz, L. F. (2010). Dynamics of the gender gap for young professionals in the financial and corporate sectors. *American Economic Journal: Applied Economics*, 2(3):228–55.

Blau, F. D. and Kahn, L. M. (2017). The gender wage gap: Extent, trends, and explanations. *Journal of Economic Literature*, 55(3):789–865.

Bridges, S. and K. Mumford (2001). Absenteeism in the UK: A comparison across genders. *The Manchester School*, 69(3):276–284.

Bronars, S. G. and Grogger, J. (1994). The economic consequences of unwed motherhood: Using twin births as a natural experiment. *The American Economic Review*, pages 1141–1156.

Budig, M. J. and Hodges, M. J. (2010). Differences in disadvantage: Variation in the motherhood penalty across white women's earnings distribution. *American Sociological Review*, 75(5):705–728.

Cools, S., Markussen, S., and Strøm, M. (2017). Children and careers: How family size affects parents' labor market outcomes in the long run. *Demography*, 54(5):1773–1793.

Cools, S. and Strøm, M. (2016). Parenthood wage penalties in a double income society. *Review of Economics of the Household*, 14(2):391–416.

Cristia, J. P. (2008). The effect of a first child on female labor supply evidence from women seeking fertility services. *Journal of Human Resources*, 43(3):487–510.

Cukrowska-Torzewska, E. and Lovasz, A. (2020). The role of parenthood in shaping the gender wage gap–A comparative analysis of 26 European countries. *Social Science Research*, 85:102355.

Daniel, F.-K., Lacuesta, A., and Rodríguez-Planas, N. (2013). The motherhood earnings dip: Evidence from administrative records. *Journal of Human Resources*, 48(1):169–197.

Del Boca, D. (2002). The effect of child care and part time opportunities on participation and fertility decisions in Italy. *Journal of Population Economics*, 15(3):549–573.

Farré, L. and González, L. (2019). Does paternity leave reduce fertility? *Journal of Public Economics*, 172:52 – 66.

Fitzenberger, B., Sommerfeld, K., and Steffes, S. (2013). Causal effects on employment after first birth—A dynamic treatment approach. *Labour Economics*, 25:49–62.

Gangl, M. and Ziefle, A. (2009). Motherhood, labor force behavior, and women's careers: An empirical assessment of the wage penalty for motherhood in Britain, Germany, and the United States. *Demography*, 46(2):341–369.

González, L. (2008). Single mothers, welfare, and incentives to work. *LABOUR*, 22(3):447–468.

González, L. (2013). The effect of a universal child benefit on conceptions, abortions, and early maternal labor supply. *American Economic Journal: Economic Policy*, 5(3):160–88.

Gustafsson, S. S., Wetzels, C. M., Vlasblom, J. D., and Dex, S. (1996). Women's labor force transitions in connection with childbirth: A panel data comparison between Germany, Sweden and Great Britain. *Journal of Population Economics*, 9(3):223–246.

Gutiérrez-Domènech, M. (2005). Employment transitions after motherhood in Spain. *Labour*, 19:123–148.

Huffman, M. L., King, J., and Reichelt, M. (2017). Equality for whom? Organizational policies and the gender gap across the German earnings distribution. *ILR Review*, 70(1):16–41.

Jacobsen, J. P., Pearce III, J. W., and Rosenbloom, J. L. (1999). The effects of childbearing on married women's labor supply and earnings: using twin births as a natural experiment. *Journal of Human Resources*, pages 449–474.

Klepinger, D., Lundberg, S., and Plotnick, R. (1999). How does adolescent fertility affect the human capital and wages of young women? *Journal of Human Resources*, pages 421–448.

Kleven, H. and Landais, C. (2017). Gender inequality and economic development: fertility, education and norms. *Economica*, 84(334):180–209.

Kleven, H., Landais, C., and Søgaard, J. E. (2019a). Children and gender inequality: Evidence from Denmark. *American Economic Journal: Applied Economics*, 11(4):181–209.

Kleven, H., Landais, C., Posch, J., Steinhauer, A., and Zweimuller, J. (2019b). Child penalties across countries: Evidence and explanations. 109:122–26.

Kleven, H., Landais, C., Posch, J., Steinhauer, A., and Zweimüller, J. (2019c). The impact of family policies on the dynamics of gender inequality. Mimeo.

Kleven, H., Landais, C., and Søgaard, J. E. (2020). Does biology drive child penalties? Evidence from biological and adoptive families. *National Bureau of Economic Research*.

Loughran, D. S. and Zissimopoulos, J. M. (2009). Why wait? The effect of marriage and childbearing on the wages of men and women. *Journal of Human Resources*, 44(2):326–349.

Lundberg, S. and Rose, E. (2000). Parenthood and the earnings of married men and women. *Labour Economics*, 7(6):689–710.

Lundborg, P., Plug, E., and Rasmussen, A. W. (2017). Can women have children and a career? IV evidence from IVF treatments. *American Economic Review*, 107(6):1611–37.

Michaud, P.-C. and Tatsiramos, K. (2011). Fertility and female employment dynamics in Europe: the effect of using alternative econometric modeling assumptions. *Journal of Applied Econometrics*, 26(4):641–668.

Miller, A. R. (2011). The effects of motherhood timing on career path. *Journal of Population Economics*, 24(3):1071–1100.

Mukhopadhyay, S. (2012). The effects of the 1978 Pregnancy Discrimination Act on female labor supply. *International Economic Review*, 53(4):1133–1153.

Nollenberger, N. and Rodríguez-Planas, N. (2015). Full-time universal childcare in a context of low maternal employment: Quasi-experimental evidence from Spain. *Labour Economics*, 36:124–136.

Olivetti, C. and Petrongolo, B. (2016). The evolution of gender gaps in industrialized countries. *Annual Review of Economics*, 8:405–434.

Olivetti, C. and Petrongolo, B. (2017). The economic consequences of family policies: lessons from a century of legislation in high-income countries. *Journal of Economic Perspectives*, 31(1):205–30.

Paull, G. (2008). Children and women's hours of work. *The Economic Journal*, 118(526):F8–F27.

Rosenzweig, M. R. and Wolpin, K. I. (1980). Life-cycle labor supply and fertility: Causal inferences from household models. *Journal of Political economy*, 88(2):328–348.

Sánchez-Mangas, R. and Sánchez-Marcos, V. (2008). Balancing family and work: The effect of cash benefits for working mothers. *Labour Economics*, 15(6):1127–1142.

Sasser, A. C. (2005). Gender differences in physician pay tradeoffs between career and family. *Journal of Human Resources*, 40(2):477–504.

Sieppi, A. and Pehkonen, J. (2019). Parenthood and gender inequality: Population-based evidence on the child penalty in Finland. *Economics Letters*, 182:5–9.

Sigle-Rushton, W. and Waldfogel, J. (2007). Motherhood and women's earnings in Anglo-American, Continental European, and Nordic countries. *Feminist Economics*, 13(2):55–91.

Waldfogel, J. (1998). Understanding the "family gap" in pay for women with children. *Journal of Economic Perspectives*, 12(1):137–156.

Wilde, E. T., Batchelder, L., and Ellwood, D. T. (2010). The mommy track divides: The impact of childbearing on wages of women of differing skill levels. Technical report, National Bureau of Economic Research.

Wilner, L. (2016). Worker-firm matching and the parenthood pay gap: Evidence from linked employer-employee data. *Journal of Population Economics*, 29(4):991–1023.

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