# A Family Leave Length Trade-off?

## Women's Labour Force Status in Comparative Perspective

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**Abstract:** A frequently cited aim of parental leave policies is to provide parents with the opportunity to combine work and family. The availability of additional childcare leaves prolongs mothers' time out of the labour market, however, and thus may counteract women's labour market participation. This study is the first to differentiate between the whole range of labour force status outcomes: employment, unemployment and inactivity. Using data for 20 countries from the Luxembourg Income Study, this study examines the relationship between paid family leave length and mothers' labour market status. Calling on multinomial logistic regression with country fixed effects, this study finds that the provision of comparatively long paid family leave is associated with increased unemployment risks among mothers of 0 to 15-year olds. A slight peak when children are 4 to 6 years old and when leave is longer than two years suggests that mothers are most vulnerable when they re-enter the labour market after a longer leave. These results are in line with prominent theories of human capital depreciation, signalling or statistical discrimination. Leaves of over one year, on the other hand, are associated with reduced inactivity amongst mothers. Hence, results indicate a trade-off when it comes to leave length. Shorter leaves are associated with mothers dropping out of the labour market, especially when children are young, while longer family leaves are associated with increased unemployment risks.

Keywords: Parental leave, family leave, leave length, mothers, labour force status, unemployment, inactivity

**INTRODUCTION**

Leave policies have a wide range of objectives, such as supporting the combination of work and family, child development, reducing poverty or gender equality (Del Boca, Pasqua, & Pronzato, 2009; Ellingsæter, 2009; Moss, Duvander, & Koslowski, 2019; Thévenon & Gauthier, 2011). These policies have their origin in maternity leave, which aimed at protecting the health and wellbeing of mother and child (Kamerman & Moss, 2009). The provision of parental leave later intended to help parents reconcile work and family life (Kamerman & Moss, 2009), while childcare leave[1] is an extension to parental leave and argued to provide parents with the freedom to choose a type of childcare (Hiilamo & Kangas, 2009). The combination of maternity-, parental- and childcare leave will hereafter be referred to as family leave. While aims of family leave may vary across time and contexts, the EU directive on parental leave defines the overarching objective as the improvement of the reconciliation of work, private and family life for working parents as well as gender quality on the labour market (Council Directive, 2010). Nevertheless, extended parental or childcare leaves may contradict these aims (Duvander & Ellingsæter, 2016).

While some research finds that family leave and job protected leave has positive effects on mother's employment (Pronzato, 2009; Ruhm, 1998), others contend that effects of family leave depend on the leave length. Indeed, most micro- and macro-level studies find that longer family leaves lead to negative labour market outcomes: they lower the likelihood of returning to work (Rønsen & Sundström, 2002), reduce upward occupational mobility (Aisenbrey, Evertsson, & Grunow, 2009; Evertsson & Duvander, 2011), lead to lower wages (Drange & Rege, 2013; Evertsson, 2016; Ruhm, 1998) and increase occupational gender segregation (Mandel & Semyonov, 2005).

No research to date has distinguished between the alternative outcomes to employment: unemployment and inactivity. Although connected, these outcomes have different implications for women's life courses and employment patterns. Countries differ in their norms and attitudes towards working mothers, and thus in mother's labour market participation itself. When participating in the labour market, however, mothers may be more or less successful and face different unemployment risks across economies and labour market structures. Family policies, such as family leave, are one such institutional aspect that structures women's labour market patterns (Stier, Lewin-Epstein, & Braun, 2001). Within that, some policies may support dual-earning, while others reinforce a gendered division of labour (Korpi, Ferrarini, & Englund, 2013).

If long family leave is detrimental to mothers' employment and careers, does this mean that these women drop out of the labour market or do they face repercussions in the labour market? Long paid family leave is expected to increase unemployment due to either a loss of human capital (Mincer & Polachek, 1974), signalling, or statistical discrimination (Mandel & Semyonov, 2005; Stier et al., 2001). No or short paid family leave, on the other hand, is expected to increase inactivity. This study analyses data for 20 countries from the Luxembourg Income Study (LIS) to assess whether the length of paid family leave is associated with mothers' labour force status. In a second step, mothers with children in different ages are

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[1] also called cash-for-care or home care allowance

compared, which enables the analysis of short- and long-term associations between paid family leave length and mothers' labour force status. What exactly can be defined as a long or short leave is unclear and may be dependent on country context and time. Ruhm (1998), for example, defined short leaves as three months, and longer leaves as nine months, while Ray et al. (2010) consider a leave of one year or more as relatively long leaves. I refer to leave lengths of under four months as short, more than four months and up to a year as medium, and divide longer leave length into up to two years and more than two years. Results indicate that longer paid family leave is associated with increased unemployment, but decreased inactivity among mothers.

The contribution of this study is threefold: (1) first, this paper differentiates between unemployment and inactivity, whereas most research focuses on employment versus non-employment; (2) secondly, long-term macro-data on family leave are combined with micro-data on women's labour force participation, allowing for the analysis of an extended number of countries; (3) finally, this paper shows unemployment and inactivity patterns across leave schemes by age of the youngest child and thus considers whether women face career repercussions in the short- or in the long-run.

### FAMILY LEAVE ACROSS COUNTRY CONTEXTS

There are three types of leave that form family leave in this study: maternity -, parental - and childcare leave. To date, most high-income countries offer at least paid maternity leave. The first country to introduce maternity leave rights in 1883 was Germany; gradually most industrialised countries followed suit (Kamerman & Moss, 2009). Introduced in the 1970s in Sweden, parental leave was the first gender-neutral leave. The general importance of such family leaves was acknowledged when an EU Directive in 2010 set minimum standards for its member states (Deven & Moss, 2002).

Countries vary in their family leave provision, length, flexibility and replacement rates (Blum, Koslowski, Macht, & Moss, 2018); further, leave policies change over time. All 20 countries included in this study, except the United States, provide paid maternity leave today. Two countries implemented paid maternity leave comparatively late; Switzerland in 2006, and Australia in 2012. The total paid leave length in 2016 ranged from 0 to 38 months (Table 1). Among the countries with the longest paid family leaves are the Eastern European countries, Finland and France. While the Czech Republic provides low-paid parental leave throughout, Finland and Estonia provide a shorter highly-paid parental leave and subsequent low-paid childcare leave (Karu & Pall, 2009; Kocourková, 2009; Lammi-Taskula & Takala, 2009).

France implemented a more complex system dependent on the number of children: six months paid leave for the first child, and three years for the second or additional children (Fagnani & Math, 2009). Germany and Austria provide the second longest paid family leaves with two years respectively. At the other end of the spectrum, five countries provide less than 6 months of paid family leave: Spain, Australia, Greece, Switzerland and the US. Switzerland is the only country to merely offer maternity leave. The remaining eight countries provide more than six months but less than two years of paid family leave. Taking length, flexibility and replacement rate into account, Sweden is seen as one of the most generous systems (Duvander

& Haas, 2018). The United Kingdom and Ireland provide nine- and six-months paid maternity leave respectively; parental leave is only available unpaid. Canada provides both, however, paid maternity and parental leave, adding up to one year of paid family leave.

**Table 1.** Cross-country variation in total paid family leave length and selected country indicators, 2016.

| | Total paid leave available (months) | Women employment rate (% of working age population) | Maternal employment rate youngest child aged 0-14 years | Women Unem-ployment rate | GDP (US dollar / capita) | Net childcare costs (% household income)[2] |
|---|---|---|---|---|---|---|
| Finland | 38.1 | 67.6 | 73.6 | 8.6 | 43,730 | 21.6 |
| Estonia | 36.5 | 68.6 | 64.6 | 6.1 | 30,895 | 3.7 |
| France | 36.5 | 60.9 | 72.4 | 9.9 | 42,067 | 10.8 |
| Poland | 36.5 | 58.1 | 65.8 | 6.2 | 27,406 | 19.9 |
| Czech Rep. | 36 | 64.4 | 60.6 | 4.7 | 35,234 | 5.0 |
| Austria | 24 | 67.7 | 76.2 | 5.5 | 51,637 | 2.6 |
| Germany | 24 | 70.8 | 69.0 | 3.7 | 49,921 | 4.9 |
| Sweden | 16.0 | 74.8 | 81 | 6.6 | 49,084 | 4.0 |
| Netherlands | 14.8 | 70.1 | 76.4 | 6.5 | 51,340 | 27.3 |
| Italy | 14.7 | 48.1 | 55.3 | 12.8 | 39,045 | 4.4 |
| Denmark | 14.4 | 72.0 | 82.0 | 6.6 | 50,685 | 10.0 |
| Luxembourg | 13.9 | 60.4 | 72.1 | 6.6 | 104,702 | 19.4 |
| Canada | 12.8 | 69.7 | 74.2 | 6.2 | 45,109 | 26.7 |
| UK | 9.5 | 68.8 | 66.3 | 4.7 | 42,943 | 68.8 |
| Ireland | 6 | 61.2 | 55.9 | 7.6 | 71,020 | 28.4 |
| Spain | 5.1 | 54.3 | 57.5 | 21.4 | 36,743 | 4.7 |
| Australia | 4.7 | 67.4 | 62.9 | 5.8 | 50,263 | 24.7 |
| Greece | 4 | 43.3 | 51 | 28.1 | 27,274 | 4.8 |
| Switzerland | 3.3 | 75.4 | 76.1 | 5.0 | 64,216 | 36.0 |
| US | 0 | 64.0 | 65.7 | 4.8 | 57,797 | 29.3 |

Note: All data 2016, except column 4: 2014 & column 7: 2015
Sources*:* Column 1: Koslowski, Blum, & Moss (2016), 2: OECD (2017), 3: OECD (2019a), 4: OECD (2019d), 5: OECD (2019e), 6: OECD (2019b), 7: OECD (2019c).

Table 1 further displays cross-country variation in women's labour force participation in 2016. Employment rates are based on the working-age population, yet are affected by economic cycles, the educational system and income support policies (OECD, 2019a). On average, 52% of women in working ages are employed across countries. The highest female

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[2] Definition of Net childcare costs: "This indicator measures the net childcare costs for parents using full-time centre-based childcare, after any benefits designed to reduce the gross childcare fees. Childcare benefits can be received in the form of childcare allowances, tax concessions, fee rebates and increases in other benefit entitlements. Net childcare costs are calculated for couples assuming two children aged 2 and 3. For couples, one parent earns 67% of the average wage whereas the other earns 100% of the average wage" (OECD, 2019c).

employment rates can be found in the Nordic countries, the Netherlands, Germany and Switzerland. Mediterranean countries hold the lowest female employment rates, where slightly higher unemployment rates of over 10% can be found with two outliers being Greece and Spain. Across all countries, women's unemployment rates lie around 7% on average, while Germany shows the lowest unemployment rates. Over all countries, GDP per capita is on average $39.000, but this study comprises less-affluent countries, such as Poland or Greece, and some high-income countries such as Switzerland and Luxembourg.

Family leave policies do not stand in isolation; affordable childcare and availability are key measures which allow parents into the labour market. The final column in Table 1 reports data on childcare costs net of benefits which are designed to reduce the gross childcare fees. This implies that the lower the net childcare costs the higher subsidised childcare is, and vice versa. On average, parents pay 15% of their household income for childcare. Countries with the lowest net costs are Austria and Estonia. A large number of countries display net childcare costs of more than 10%. Implying no to very little government subsidies, some countries even exceed 30% of an average couple's household income.

## INDIVIDUAL & STRUCTURAL EXPLANATIONS OF CROSS-COUNTRY VARIATION IN UNEMPLOYMENT AND INACTIVITY

One limitation of the literature on family leave consequences is that hitherto no research has distinguished between the alternative outcomes to employment: unemployment and inactivity. On an individual level, theories on women's labour force participation posit that women decide rationally based on costs and benefits of paid versus domestic labour (Pettit & Hook, 2005). Whether a mother is in the labour market or not, therefore, depends on their age, educational attainment, the number or age of the children, and the income of a partner. Pronzato (2009), for instance, finds that higher human capital leads to quicker return to the labour market, whereas women with high household income show much slower rates. Thus, based upon an economic framework, women would drop out of the labour market if the costs outweigh the benefits.

In contrast, mothers may be in the labour market, but less successful. Individuals are defined as unemployed (according to the ILO definition) if they are not gainfully employed but are currently seeking work. In general, long-term unemployment risks are higher for men, older-, lower educated- or disabled workers and ethnic minorities (Machin & Manning, 1999). Further, low-skilled workers are disproportionately affected by unemployment in OECD countries (Oesch, 2010). In addition, micro-level determinants of unemployment vary over time and across countries. Gender gaps in unemployment rates have also been found to vary across countries (Azmat, Güell, & Manning, 2006). This variation can be attributed to individual level differences in human capital accumulation, yet differences in unemployment remain.

Despite the importance of individual level determinants, these alone are unable to fully explain unemployment or inactivity. Therefore, social institutions matter and need to be considered when cross-national variation in women's labour force participation is explored. Scholars specifically highlight the role of the market and the welfare state in relation to employment (Stier et al., 2001). In turn, unemployment is seen as a product of labour market structures, the economy, benefit systems, unionisation as well as wage and tax structures

(Layard, Layard, Nickell, & Jackman, 2005; Nickell, 1997). Pettit & Hook (2005) suggest, for example, that service sector growth is positively related to women's employment and negatively to unemployment rates. Theoretical models of labour supply and job search discuss that higher wages increase labour supply, while higher non-work incomes, such as welfare benefits, decrease labour supply. Whether individuals take up work, therefore, depends on the reservation wage: the minimum wage at which an individual is willing to work (Brown & Taylor, 2009). This reservation wage, in turn, depends on previous wages and benefits, and is thus context dependent (Feldstein & Poterba, 1984).

While preference theory assumes that inactivity is a choice (Hakim, 2000), this choice rhetoric has been widely criticised (McRae, 2003; Stone & Lovejoy, 2004), as the structural and institutional constraints on women's choice vary greatly according to societal context (Vinkenburg, 2015). Family policies interact with labour market structures as well as cultural norms (Olson, 2002), which implies that countries support "certain choices over others" (Ellingsæter, 2009). Hence, mother's decisions on labour force participation are a reflection of opportunity and constraints (Ellingsæter, 2009; McDonald, Bradley, & Guthrie, 2006). Additionally, Deven and Moss (2002) argue that some parental leave schemes encourage mothers to stay at home, while others support mothers' employment by promoting gender equality.

Women's labour force participation, further, reflects countries' norms and attitudes towards working women and mothers (Albrecht, Edin, & Vroman, 2000; Stier et al., 2001). While Gornick et al. (1998) show greater child penalties in countries with the least policy support for mothers of young children, Stier et al. (2001) and Budig et al. (2012) find that mothers' employment continuity or earnings profit more from work-family policies in countries that culturally support working mothers. Thus, next to the combination of work-family policies within a country, policy effects differ according to culture and norms (Pfau-Effinger, 2017). To explain cross-national variation, therefore, individuals and structures need to be considered.

## THEORY & HYPOTHESES

The family leave length is a widely researched aspect of family policy, where most results suggest a paradox of family policy (Mandel & Semyonov, 2006). It has been argued that a provision of job-protected generous leave increases women's employment (Jaumotte, 2003). Important non-linearities have been found, however, indicating that leave length has an inverted u-shaped relationship with the employment of mothers with young children (Pettit & Hook, 2005). This is in line with research which shows that longer leaves adversely affect employment (Akgunduz & Plantenga, 2013; Jaumotte, 2003). In addition, longer leave leads to lower wages for (high-skilled) women (Akgunduz & Plantenga, 2013; Mandel & Semyonov, 2005) and increases the motherhood penalty (Budig, Misra, & Boeckmann, 2016). Overall, higher women's labour force participation seems to come at the cost of occupational segregation (Mandel & Semyonov, 2005). Taken together, this literature suggests that policies which support working mothers, such as family leave, are required, yet their precise effects depend on the provided leave length.

This section discusses if and how unemployment and inactivity may vary due to (1) the length of the provided paid family leave, and (2) whether these effects may be short- or long-term. It should be kept in mind that the presented pathways are not mutually exclusive, as unemployment and inactivity are interrelated. Nevertheless, I will only refer to the mechanisms that are associated most with each outcome directly following family leave.

UNEMPLOYMENT

Despite the job-protection that comes with most family leave schemes, labour market consequences following family leave often arise. A government report in the United Kingdom indicated that three in four mothers experienced negative consequences during pregnancy, maternity leave, or on return from maternity leave, with around 11% claiming they felt forced to leave their job (Adams et al., 2016). Indeed, longer leaves have been shown to increase annual unemployment days for partnered and single mothers (Morosow & Jalovaara, 2019). Family leave length may affect unemployment risks through two pathways: human capital depreciation and statistical discrimination.

The human capital theory (Mincer & Polachek, 1974), or skill depreciation theory, argues that education, job training and work experience lead to an accumulation of human capital. Disruptions of employment through family leave results in atrophy and reduced human capital (Aisenbrey et al., 2009; Gangl & Ziefle, 2009; Stier et al., 2001), which implies that the longer the disruption the higher the human capital loss. This means that mothers in countries with no leave provision would show the lowest unemployment risk, while unemployment risk should increase linearly with longer leaves. Nevertheless, human capital can again be accumulated if mothers (re)enter into the labour market. Therefore, one would assume the effect of long family leave to be highest shortly after the interruption and become less prevalent over time. This means that women with young children should be most affected by skill deterioration, and recover over time once they returned to work (Buligescu, Crombrugghe, Menteşoğlu, & Montizaan, 2008).

Another explanation is based on the argument that the provision of long family leave may lead to employer discrimination (Mandel & Semyonov, 2005). Due to a lack of full information, employers' hiring decisions are based on assumed average abilities of groups (England, 2017); in this case, employers would assume women or mothers to be statistically more likely to take family leave. Hence, employers may hesitate to employ or promote women in childbearing ages due to the anticipation of family breaks (Gangl & Ziefle, 2009; Stafford & Sundström, 1996). On top of that, signalling theory suggests that employers perceive time out of work as a signal of lower work commitment and productivity (Albrecht, Edin, Sundström, & Vroman, 1999). This also implies that mothers of young children are affected most. The older the children, the less employers may fear further childbearing or productivity loss. This notion of discrimination and signalling was supported by a survey commissioned by a London Law firm which reported that 1 in 3 employers admitted they would, or have, rejected female applicants, because they might start a family (Slater & Gordon, 2018). A UK government report brought similar findings forward: 27% of employers felt that maternity puts an unreasonable burden on the workplace, 17% claimed that mothers were less interested in career progression,

and 7% believed that following maternity leave mothers were less committed to their work (Adams et al., 2016). Therefore, the job protection that comes with family leave provision might not resolve career repercussions of longer leaves if employers practice discrimination (Bisom-Rapp & Sargeant, 2016). *Both perspectives, human capital depreciation and statistical discrimination, lead to the assumption that unemployment risks increase the longer the paid family leave. Further, one would expect long leave provision to be stronger associated with unemployment risks in the short- than in the long-run, hence when children are younger.*

<center>INACTIVITY</center>

Societies' norms and attitudes towards working mothers affect mothers' likelihood of dropping out of the labour market, and these attitudes vary considerably across countries (Albrecht et al., 2000). These are also intertwined with family policy as policies shape, as well as reflect, the cultural norms in a society (Hook, 2010; Padamsee, 2009; Pfau-Effinger, 1998). Hence, policies signal how employment and family should be organised whilst also being influenced by a country's gender ideology (Budig et al., 2012; Kremer, 2007). In line with this, female employment has been hypothesised to be higher in societies that support working women (Pettit & Hook, 2005), which would imply that mothers are more likely to stay-at-home in countries that do not provide such support. Next to labour market structures, the resources provided by the state to combine work and family are, thus, connected to women's labour force participation.

Consequently, one would expect that countries without family leave provision or very short provision, where the costs of child rearing are much more individualised (Pettit & Hook, 2005), show higher inactivity. Here, the likelihood of exiting the labour market might be greater, especially when childcare is inaccessible or expensive (Hegewisch & Gornick, 2011). It is less clear how long paid family leave may be associated with mothers' economic inactivity, however. On the one hand, inactivity may decrease with long leave provision, as women that wish to stay home with young children opt to do so by using the paid family leave, but not beyond. The provided leave length may be seen as an institutional signal for acceptable lengths of breaks following a birth. *This perspective would suggest that the longer the leave the less likely it is for a mother to stay at home outside the system. In general, a higher likelihood of inactivity is assumed for mothers of young children.*

On the other hand, longer leave was argued to support a gendered division of labour in the home, given that it is mainly women who take the leave (Morgan & Zippel, 2003). This could reinforce the traditional breadwinner-homemaker model, and make a re-entry into the labour market unattractive for mothers. Further, the loss of human capital during longer leaves may decrease women's attachment to the labour market. *This would imply a u-shaped relationship between paid family leave length and mothers' inactivity status. No provision of leave as well as a long leave could lead to women dropping-out of the labour market when children are young, and potentially also in the long run.*

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Although unemployment and inactivity are distinct categories of non-employment, they are also interrelated. Individuals might drop out of the labour market due to the prospect of unemployment, especially in countries with very short or very long leaves. In countries that provide no or short leave and depend on market-based solutions, for example, mothers who cannot afford childcare, who face lower wages or even unemployment are assumed to drop out of the labour market (Stier et al., 2001). Longer leaves, on the other hand, may offer an alternative to unemployment (Sipilä & Korpinen, 1998). In addition, long periods of inactivity should lower individuals' chances on the labour market in the same way that family leave does, especially in contexts that have high female labour force participation. In that sense, short leaves may increase unemployment risks indirectly by increasing inactivity and thus triggering human capital loss.

## METHODS

### DATA

To investigate the association between paid family leave length and unemployment and inactivity of mothers, data for 20 countries are used from multiple sources. The individual-level data come from the Luxembourg Income Study (LIS), a collection of cross-national survey data on households, income and employment. This study utilises waves VI to X, which translates to periods between 2004 and 2015/2016. The countries included are Australia (AUS), Austria (AUT), Canada (CAN), Czech Republic (CZE), Denmark (DNK), Estonia (EST), Finland (FIN), France (FRA), Germany (DEU), Greece (GRE), Ireland (IRL), Italy (ITL), Luxembourg (LUX), Netherlands (NDL), Poland (POL), Spain (ESP), Sweden (SWD), Switzerland (CHE), the United Kingdom (GBR), and the United States (USA). The sample includes mothers between the ages 25 and 54, who are either the head of the household or the spouse/cohabiting partner, with the youngest child born after 1990 and in the age range of 0 to 15 years at the survey year. These restrictions were made so that policy information could be matched to the youngest child's year of birth.

The country-level data on leave provision comes from two data sources. First, the Comparative Family Policy Database (CFPD) was used for leave data from 1990 to 2010 (Gauthier, 2011). As the database includes separate measures for maternity-, parental- and childcare leave lengths, a total was calculated for those family leaves that were reported to pay cash benefits. Secondly, data from the International Network on Leave Policies & Research were used for 2011 to 2016. The Leave Network produces annual country reports of leave policies, the data for total post-natal statutory leave including additional childcare leaves were matched from these annual reviews to the Comparative Family Policy Database (Koslowski et al., 2016; Moss, 2011; Moss, 2012; Moss, 2013; Moss, 2014; Moss, 2015). While these two data sources are highly compatible, it needs to be clarified that they are not perfect matches. While the CFPD includes maternity-, parental- and childcare leave, the Leave Network additionally includes paternity leave as well as reserved months for fathers. Nevertheless, the latter dataset only includes post-natal leave, whereas the former also includes pre-natal leave. Paternity leave provision usually covers a couple of weeks, while – if available – reserved father

months cover a maximum of two months. The inclusion of paternity leaves, thus, seems to counterbalance the exclusion of pre-natal leave in the Leave Network.[3]

The total length of provided paid family leave in each country was matched to the birth year of the youngest child in the household. The paid family leave is categorised as 0-3 months, 4-12 months, 13-24 months and more than 24 months. Further, included macro-level variables came from the OECD database. This includes the net childcare costs as percent of the household income of an average-earning couple (OECD, 2019c), the overall unemployment rate (OECD, 2019e) and the gross domestic product (GDP) (OECD, 2019b); all were matched to the survey year.[4]

The main dependent variable is labour force status, and is categorised as employed, unemployed and inactive[5]. This variable is based on the self-assessed main activity at the point of interview. Inactive mothers are those who characterise their main activity as not in the labour force, in education or homemakers. Retired and disabled mothers were excluded. It was not possible to identify mothers on family leave for most survey years and countries; the implications of this are discussed below.

Additional individual-level covariates are age, age squared and the year of interview. Further, the number of children is included coded as 1, 2, 3 and 4 or more children, as well as age of the youngest child. This was coded as under 4, 4-6, 7-9 and 10-15 years old. Individual education is included as the highest completed level of education. This is measured according to the LIS definition: low education equals less than secondary education[6], medium refers to secondary education completed[7] and high means tertiary education completed[8]. As the inactive category includes students, educational enrolment is controlled for as well. Finally, a covariate for co-residential partnership status is included to differentiate between partnered and unpartnered mothers, irrespective of civil status.

MISCLASSIFICATION

Labour force status differentiates between employed, unemployed and inactive. How are individuals classified, however, that are currently on leave? In survey research, individuals that are currently on parental leave may be coded as either employed or inactive. Using the European

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[3] One adjustment has been made for Germany in agreement with the author of the country note, as the total paid leave reported following 2015 included bonus months that were not included before. Germany offers a maximum paid leave length of 2 years (Reimer, Erler, & Blum, 2018).

[4] Public spending on early childhood education and care (% GDP) was included previously, but did not improve the models.

[5] LIS "labour force status" definition: "Main current activity status as self-assessed by the respondent. It distinguishes between the employed, unemployed and not in labour force. The employed are those for whom work is the main activity, while for all the others, the main activity should attempt to distinguish at least between unemployed and those not in labour force. Among those not in labour force we distinguish between those retired from a job or business, disabled, those enrolled in education and homemakers." (LIS Database, 2019)

[6] never attended, no completed education or education completed at the ISCED levels 0, 1 or 2

[7] completed ISCED levels 3 or 4

[8] completed ISCED levels 5 or 6

Labor Force Survey, Mikucka and Valentova (2013) find that this classification differs across countries, which may bias cross-national comparisons of employment rates. LIS does provide an indication on whether a person is on maternity-, paternity- or parental leave; however, this is not available for all countries or survey years, and if available has a large share of missing values. The LIS countries for which this indicator is available do show variation in whether these mothers are categorised as employed, unemployed or inactive as well. Although one would hope that the labour force status measures the main economic activity apart from family leave, mothers are often classified as inactive even though they are only on leave from an employment. Thus, I may be misclassifying women with children in the eligible ages for family leave. It is women in medium and long leave countries, however, that are much more likely to be misclassified compared to women in countries with short or no leave, which means that differences between long and short leave may be hidden. This should be kept in mind, especially when interpreting the relationship for mothers with children under the age of 4 in countries with long leaves.

## ANALYTICAL STRATEGY

The analysis proceeds in two stages. First, multinomial logistic models are calculated, comparing the outcomes of employment, unemployment and inactivity. To account for cross-country differences, country dummies are included in the models. Only the final model including all covariates is presented as changes across models cannot be interpreted without predictive margins (Mood, 2010). Secondly, whether the association between paid family leave length and mothers' labour force status is short- or long-term was estimated by using an interaction term between leave length and age of the youngest child. The full model including all controls is presented in margin plots, while the final model can be found in the Appendix.

The main robustness check used a random effects multilevel approach. The reason this analysis was not the main strategy is that, firstly, 20 countries may be too few to estimate country-level fixed parameters correctly when using logit models (Bryan & Jenkins, 2015). Secondly, this specification functioned only with a dichotomised outcome for labour force status. The results of the full models, with and without interaction, are reported in the appendix (Table A2). Random-effects models were chosen over fixed-effects models because not enough within-country variation in leave length is recorded over the time periods that the data cover. Although fixed-effects models provide the best opportunity for identifying causal relationships, because they rely only on within-country variation, random-effects models still allow for an important part of country-level unobserved heterogeneity to be modelled (Bell & Jones, 2015). The use of random effects or country controls provide the means by which the relationship between family leave length and labour market experiences can be estimated net of country-level differences. The results were robust using either method, although standard errors increased in the multilevel approach. Further, results are also robust when excluding Spain and Greece due to their high unemployment rates during the economic crisis. Both the multinomial and the multilevel models were run using country clustered standard errors.

If family leave improves mothers' ability to combine work and family by keeping mothers attached to the labour market, then women's labour market status should not be affected by children. More precisely, mothers with children over three years of age – when in most countries family leave has ended – should not face labour market repercussions.

A descriptive overview of all individual level variables by countries can be found in the appendix (Table A1). While in all countries the majority of mothers are employed, there is still cross-national variation in mother's employment, unemployment and inactivity. Figure 1 presents the proportion of mothers that are unemployed or inactive by the age of the youngest child for all 20 countries separately. These are averages across the pooled survey years for each country. The proportion of inactive mothers varies greatly across countries and across the age of the youngest child. The countries with the highest proportion of inactive mothers overall are Switzerland and the Czech Republic with over 40%. The lowest proportion of inactivity can be found in Sweden and Denmark with just over 10%. In most countries, the proportion of inactive mothers declines with the age of the youngest child, such as in Australia, Austria, the Czech Republic, the United Kingdom or the United States. The Mediterranean countries show rather constant levels of inactivity across children's ages. In Italy, as much as 40% of mothers stay at home, independent of the child's age, and in Spain it is around 25-30% of mothers. Unemployment, however, is rather low across all countries and shows a different pattern. The lowest levels of unemployed mothers (less than 3%) are found in Denmark, Ireland, the Netherlands, Switzerland and the US, while Spain and Greece show the highest overall unemployment. Some countries show a small peak of unemployment when the youngest child is between 4 and 6, such as France, Greece and Finland. In Canada and Sweden, by contrast, the proportion of unemployed mothers declines with the age of the youngest child and the highest proportion is found for mothers of under 4-year olds. Finally, some countries do not show a variation in unemployment by the age of the youngest child at all, such as Ireland, Switzerland and the United States.

This cross-country variation in unemployment and inactivity by age of the youngest child could suggest that there are cultural or institutional differences that lead to different employment patterns. As one such factor may be the provision of family leave, figures 2 and 3 plot the unemployment and inactivity rates of mothers against the paid family leave available in a country at each available survey year. Again, cross-country variation in unemployment and inactivity can be seen, as well as that the 20 countries cover a spectrum of different leave lengths.

**Figure 1.** Mothers unemployed and inactive by the age of the youngest child in 20 countries averaged over LIS waves VI to X, in %.
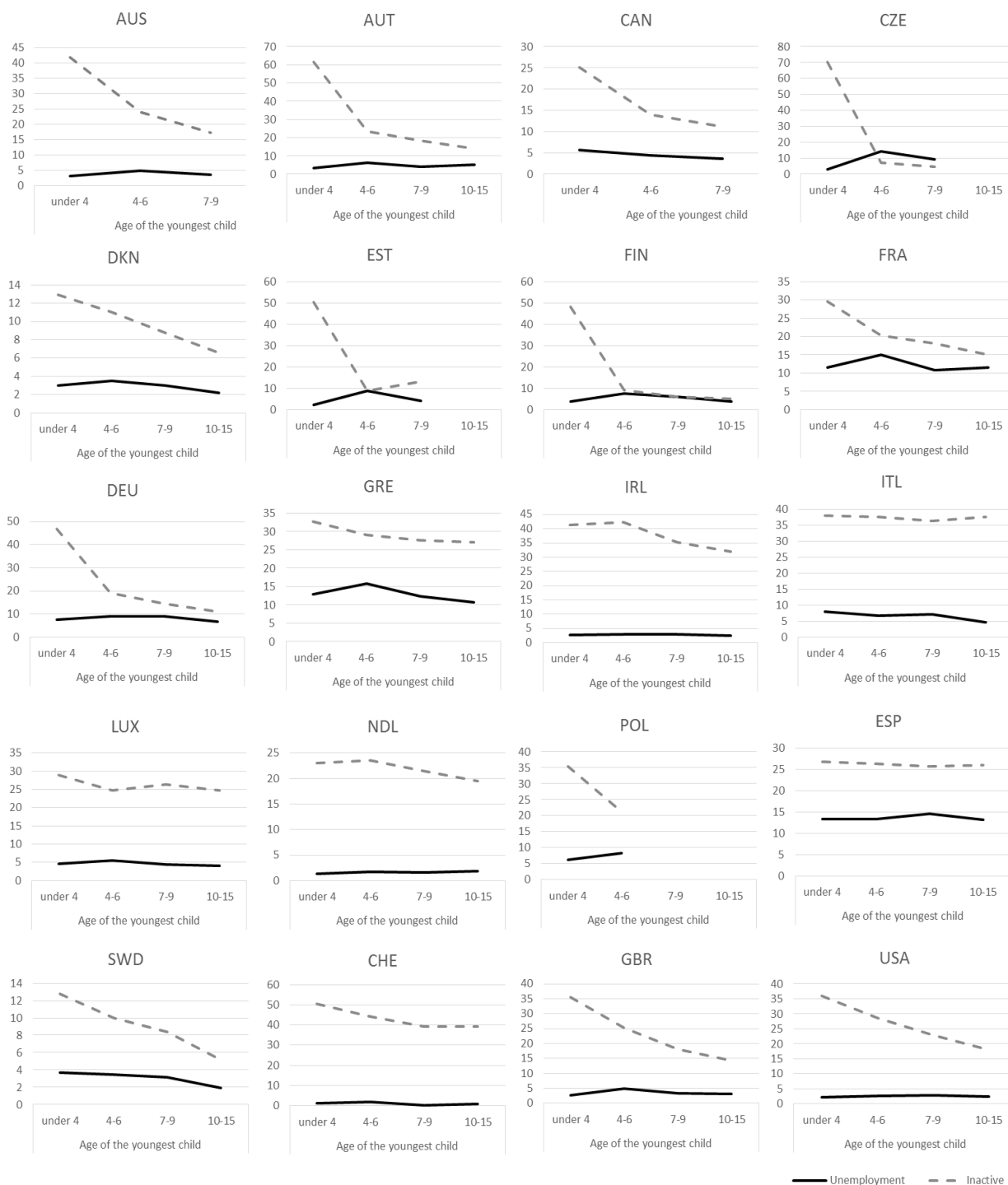


Source: LIS data, own calculations.

Figure 2 illustrates a trend of increasing unemployment levels the longer the family leave, with a correlation of 0.20. In contrast, the inactivity seems to decrease the longer the leave provision (Figure 3). Leave length seems stronger correlated with unemployment than inactivity: 0.014. Nevertheless, these correlations support the idea that family leave is

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associated with mother's labour market patterns across countries for both unemployment and inactivity. A systematic multivariate analysis that allows for careful matching of women's childbirth timing and leave length is necessary, however, to assess this association.

**Figure 2.** Mothers unemployed (in %) by paid family leave provision in months, LIS waves VI to X across 20 countries.



$y = 0.061x + 4.6379$

Source: LIS data, own calculations & International Network on Leave Policies & Research (2019)

**Figure 3.** Mothers inactive (in %) by paid family leave provision in months, LIS waves VI to X for across 20 countries.



$y = -0.0463x + 28.503$

Source: LIS data, own calculations & International Network on Leave Policies & Research (2019)

Table 2 presents the results from the multinomial logistic models as relative risk ratios for unemployment and inactivity compared to employment (full model in appendix Table A2). It displays the relationship between the provided family leave length and mothers' labour force status, net of all controls. The model shows no significant difference in unemployment risk for paid family leave of 4 to 12 months or less than 4 months. Compared to a paid family leave of 4 to 12 months, longer leaves, however, are associated with significantly increased unemployment risks. The relative risk of unemployment increases by a factor of 1.60, when 13 to 24 months of paid family leave are provided. This factor, and therefore unemployment risk, more than doubles for mothers in countries with paid family leave length of more than two years. While GDP, unemployment rate and net childcare costs improve the model fit, the latter is the only significant macro variable. Childcare costs are measured net of any country benefits designed to reduce the gross childcare cost and, therefore, indirectly account for the level of subsidised childcare. Using a multilevel approach with random effects indicates the same direction of effects, although the relationship is not statistically significant (Table A3).

**Table 2.** Results from multinomial logistic models, women aged 25-54 with children aged 0-15 years, relative risk ratios, weighted.

|  | Unemployed |  | Inactive |  |
| --- | --- | --- | --- | --- |
| **Paid leave** |  |  |  |  |
| 0-3 months | 1.16 |  | 1.31 |  |
| 4-12 months | 1 |  | 1 |  |
| 13-24 months | 1.60 | *** | 0.59 | *** |
| 24+ months | 3.40 | *** | 1.10 |  |
| BIC |  |  | 4.58E+08 |  |
| Nr of Observations |  |  | 348,226 |  |

* p<0.1; ** p<0.05; *** p<0.001

Controlled for country, age, age squared, year of interview, number of children, age of the youngest child, education, in education, partnership status, GDP, net childcare costs, unemployment.
Note: clustered standard errors
Source: LIS data, own calculations

The right panel of Table 2 shows the results for mothers' inactivity. The full model suggests that no provision of paid family leave or a short provision is positively associated with mothers' increased relative risk of staying at home; however, the relationship is not statistically significant. While a family leave length of one to two years is significantly associated with decreasing risks of staying at home, inactivity risk seems to slightly increase again when paid family leave is longer than two years. This might point towards a u-shaped association between the length of paid family leave and inactivity risks of mothers with children between zero and fifteen, in which shorter and longer leaves increase women's likelihood of staying at home. This relationship is not significant, however. Longer leaves of up to two years display a significant relative risk of 0.59 for inactivity. Leave lengths of more than one year, therefore, significantly reduce the risk of inactivity compared to leaves of up to one year. Again, results

of the multilevel approach with random effects point in the same direction, but lack statistical significance (Table A3).

SHORT- OR LONG-TERM EFFECTS?

As the relationships described above are not likely to be constant over a mother's lifetime, the age of the youngest child is utilised to estimate the short- and long-term associations. An interaction effect allows for an analysis of whether longer leaves are more detrimental to women's labour force status when children are younger or older. The same multinomial logistic model is applied, including a cross-level interaction between paid family leave length and the age of the youngest child. The full models as well as the random effects multilevel logistic regression models can be found in the appendix (Table A3 & A4).

Figure 4 depicts the predictive margins for mothers' risk of unemployment by age of the youngest child and paid family leave length. This graph is based on the full model including all covariates as well as the interaction effect. In line with the results from table 2, the general unemployment risk seems to increase the longer the paid family leave. Countries that provide between 0 to 3 and 4 to 12 months of paid family leave show the lowest unemployment risks. The only difference between those two leave provisions can be found when children are 4 to 6 years old. In contrast, countries that provide more than two years of leave depict the highest unemployment risks across all age groups.

Further, the figure shows that the association between age of the youngest child and mothers' unemployment risk differs somewhat by paid family leave length. Most of the differences across age groups are not significant; nevertheless, the model fit improves when the interaction effect is included (LR test = 2089.20; df = 18; p = 0.0000). Countries with no or very short paid family leave show no variation by the age of the youngest child. Hence, mothers' unemployment risk seems to be independent of the age of the youngest child in these countries; in other words, constant over the years after having a child. As mothers in these countries have to re-enter the labour market following the birth of a child (unless they drop out), their unemployment risk does not change as children get older. Paid family leave lengths of up to one year and up to two years start to show minimal variation across the age of the youngest child; mainly with a slight drop when the children get older. The highest unemployment risk can be observed for a paid family leave length of more than two years. Although the unemployment risks do not differ significantly across age groups when leave is longer than two years, a peak can be identified when children are aged 4 to 6. Longer paid family leave, hence, shows a trend towards increased unemployment risks for mothers in general and for mothers of 4 to 6-year olds in particular.

**Figure 4.** Predictive margins for mothers' unemployment risk. Interaction effect between paid family leave length and age of the youngest child in a multinomial logistic regression, 95% Cis.
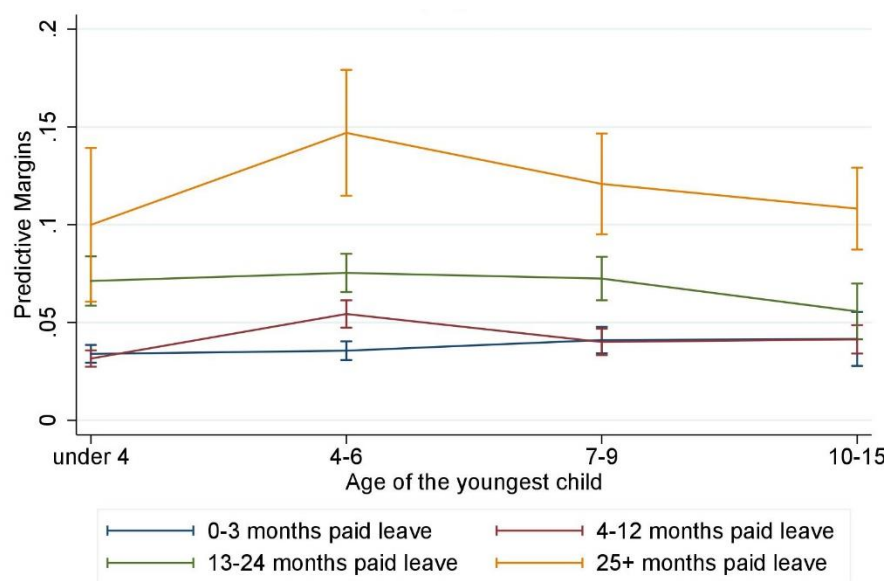


Controlled for country, age, age squared, year, Nr of children, Education, in education, partnership status, GDP, net childcare costs and overall unemployment rate.
Source: LIS data, Gauthier (2011) & International Network on Leave Policies & Research (2019), own calculations.

Figure 5 shows the predictive margins for mothers' risk of inactivity by age of the youngest child and paid family leave length – based on the full model including all independent variables and the interaction effect. As shown above, shorter leave lengths are associated with higher inactivity risks for mothers. Across all paid family leave lengths, mothers of under 4-year olds are the most likely to drop out of the labour market. Indeed, a gradient can be observed as the children get older. Countries that provide leave of less than 4 months show the highest probability of being inactive throughout. The longer the paid family leave, the lower the inactivity risk across the age of the youngest child. Mothers of 4 to 6-year olds in particular are significantly more likely to be inactive when no or very short leave is provided compared to longer leave. Otherwise, the different leave schemes show no further differences as their decline proceeds rather parallel. This interaction thus illustrates that the indicated u-shaped association between paid leave length and inactivity risk was driven by under 4-year olds. Mothers of under 4-year olds in countries with long leave provision, however, would not have necessarily dropped out of the labour market, but would have been on family leave instead. The u-shaped association, hence, seems to be a remnant of the misclassification of mothers on family leave across countries.

**Figure 5.** Predictive margins for mothers' inactivity risk. Interaction effect between paid family leave length and age of the youngest child in a multinomial logistic regression, 95% Cis.
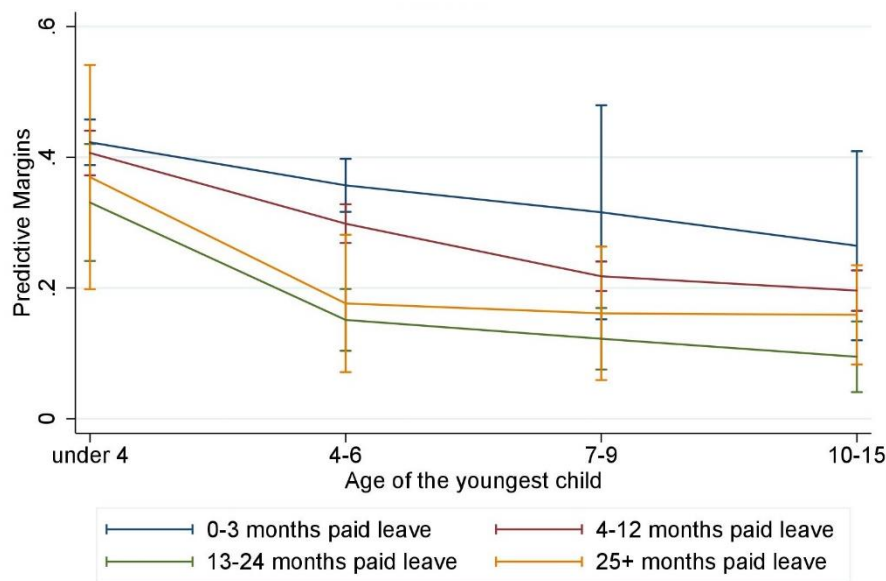


Controlled for country, age, age squared, year, Nr of children, Education, in education, partnership status, GDP, net childcare costs and overall unemployment rate.
Source: LIS data, Gauthier (2011) & International Network on Leave Policies & Research (2019), own calculations.

## DISCUSSION

In this study, the association between mothers' labour force status and paid family leave length was analysed across 20 countries. Previous research has focused mainly on the employment side of the equation, and neglected the alternative outcomes of non-employment. The main research questions are: how is the provided paid family leave length associated with mothers' unemployment and inactivity risks, and do these relationships hold only in the short- or even long-run.

In terms of unemployment, a positive association between paid family leave length and increasing unemployment risk was hypothesised, due to an increased loss in human capital or employer discrimination. The results supported this hypothesis. The relationship between unemployment risk and paid family leave length is as low for a leave length of less than 4 months as for a paid leave length of 4 to 12 months. Since mothers in countries with very short or no leave provision have to re-enter the labour market right after the birth of a child – unless they drop out – no human capital loss should occur, nor should employers fear a loss of productivity. In general, this suggests that a provision of paid family leave of up to one year seems to affect mothers' unemployment risks the least. Countries that provide more than one year of paid leave, on the other hand, show a positive association, with the strongest unemployment risk found for a paid leave length of more than two years. It was further assumed that this association should be stronger when children are young – hence, in the short-run – (cf. Pronzato, 2009) as human capital can be re-accumulated following the leave, and employers are expected to fear a loss in productivity less when children are older and mothers have returned to the labour market. The overall trend suggests that a very short or no paid family

leave shows no variation in unemployment risks across children's age groups. The longer the paid leave, however, the more variation across the age of the youngest child can be seen, with a peak emerging when the youngest child is 4 to 6 years old. This pattern of increased unemployment when the youngest child is 4 to 6 years old and when leave is longer than two years corresponds to when these women would return to work. This could indicate that women are most vulnerable directly after a long leave ends.

For inactivity, a positive association between very short or no paid family leave and inactivity was assumed. Assumptions about long paid leave and inactivity were ambiguous, however. On the one hand, it was hypothesised that a long provision of paid leave could increase inactivity due to a reinforcement of the breadwinner-homemaker model (Morgan & Zippel, 2003) – hence, indicating a u-shaped association. On the other hand, one could expect that a mother's inactivity risk decreases with longer leave, as any desire of staying home can be fulfilled within the provided leave. Results for no or very short provision of paid leave were not significant, nevertheless the direction of the trend supports the assumption that these countries show a higher level of inactivity than countries that provide up to one year of leave. This is in line with the idea that mothers in these countries increasingly have to choose between a career or staying at home with a child, and are inactive through a lack of alternatives or support (Gornick et al., 1998). While the model without the interaction effect loosely supports the u-shaped hypothesis, the interaction effect shows a declining likelihood of inactivity the longer the leave – indicating that the u-shaped association was driven by under 4-year olds. Compared to leaves longer than one year, therefore, shorter leaves reveal significantly higher levels of inactivity.

Most research on the economic consequences of parental and family leave claim that shorter leaves show the fewest repercussions (Evertsson & Duvander, 2011; Rønsen & Sundström, 2002; Ruhm, 1998). Additionally, considering biomedical research, Galtry and Callister (2005) argue that the postnatal leave period should be at least 6 months to facilitate mothers' and children's health and wellbeing. This study's results are in line with these suggestions. Countries that do provide little or no paid family leave may show low consequences for mothers' in terms of unemployment, but they show high levels of inactivity. Paid family leaves of up to two years do show lower levels of inactivity, but tend to increase mothers' unemployment risks. Hence, a general finding seems to be that shorter leaves increase inactivity, while longer family leaves increase unemployment. Consequently, if the aim of family policy is assumed to be an increase in mothers' labour market participation, a moderate leave length – perhaps around one year – (and assuming the availability of childcare) suggests lower risks of unemployment and inactivity, and hence, seems to lead to the least negative consequences.

As with most cross-national & cross-sectional analysis, there are limitations. First, as aforementioned, mothers on leave may be misclassified as inactive even though they may be employed. Thus, results for women with children in the eligible ages for family leave should be taken with caution. This misclassification of mothers in countries with medium and long leave may also hide existing differences between these and short leave countries. Relatedly, the second point is that individual longitudinal data are needed to causally analyse women's labour market consequences over the life course, especially information for how long mothers were

on leave is necessary. Nevertheless, there is value in cross-sectional analysis, as policy effects depend on culture and labour market structures. Here the institutional settings and the provided opportunities in societies are assessed. Hence, it is analysed to what extent institutions seem to help or hinder women's employment. As family and employment policies across countries are very complex, further macro indicators, such as availability of childcare, would have supported this analysis.

This research contributes to the knowledge on family leave consequences, as this paper focused on outcomes that have been neglected in previous research. It is not only of importance to understand the consequences of family leave length on employment, earnings and occupational segregation, but also on women's inactivity or unemployment. Hence, analysing all facets of the labour force status provides a bigger picture of the association between family leave, mothers' employment patterns and the trade-off set up institutionally.

It is important to minimise the negative consequences that leave schemes may bring about. The trade-off between consequences for women's careers and labour force participation can have significant effects on both their and their children's lives, especially when earnings or employment repercussions result in poverty. While this study indicates that a leave length of about one year could minimise negative effect on mothers' career, the aim of future research should be to find a clearer cut-off point and a combination of family leave setups that provides the greatest amount of benefits with the least amount of repercussions in order to provide everyone with the most beneficial opportunities. With the introduction of father quotas and months as well as increasing take-up by fathers, further research ought to extend the focus to fathers as well. Further, it opens an avenue to researching mothers' labour market outcomes when fathers continue to take on further familial and care-giving responsibilities.

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**Table A1.** Distribution of individual variables for mothers age 25-54 with youngest child aged 0-15 years by country, in %, weighted.

| | AUS | AUT | CAN | CZE | DKN | EST | FIN | FRA | DEU | GRE | IRL | ITL | LUX | NDL | POL | ESP | SWD | CHE | GBR | USA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Labour Force Status** | | | | | | | | | | | | | | | | | | | | |
| employed | 65.7 | 61.6 | 72.4 | 43.7 | 86.9 | 62.3 | 70.6 | 73.1 | 67.7 | 58.6 | 59.2 | 56.8 | 69.9 | 71.9 | 61.0 | 60.3 | 82.3 | 65.7 | 70.9 | 68.9 |
| unemployed | 3.4 | 5.1 | 6.0 | 8.2 | 2.9 | 4.4 | 6.0 | 9.2 | 7.2 | 13.0 | 2.9 | 7.4 | 4.0 | 2.0 | 6.6 | 14.7 | 4.6 | 1.4 | 3.4 | 2.7 |
| inactive | 30.8 | 33.4 | 21.6 | 48.1 | 10.2 | 33.4 | 23.4 | 17.7 | 25.2 | 28.4 | 38.0 | 35.8 | 26.1 | 26.1 | 32.4 | 25.0 | 13.1 | 32.9 | 25.8 | 28.4 |
| **Age (mean)** | 36.0 | 37.3 | 36.2 | 33.7 | 38.1 | 33.0 | 38.3 | 37.7 | 38.7 | 37.6 | 38.6 | 39.2 | 37.9 | 38.4 | 32.7 | 38.5 | 38.0 | 39.1 | 37.7 | 37.4 |
| **Nr Children** | | | | | | | | | | | | | | | | | | | | |
| 1 | 25.6 | 33.7 | 25.0 | 37.7 | 29.0 | 38.9 | 30.1 | 30.9 | 37.5 | 29.8 | 27.5 | 34.2 | 31.1 | 25.9 | 33.8 | 37.7 | 27.7 | 31.7 | 33.1 | 28.2 |
| 2 | 45.5 | 44.2 | 46.9 | 46.6 | 49.9 | 43.0 | 43.4 | 43.9 | 45.2 | 62.3 | 39.4 | 48.9 | 48.3 | 49.2 | 42.5 | 51.4 | 47.8 | 48.0 | 45.5 | 42.5 |
| 3 | 20.8 | 16.9 | 21.0 | 12.1 | 17.2 | 13.5 | 19.1 | 18.3 | 13.6 | 6.6 | 22.8 | 13.5 | 16.6 | 18.8 | 14.6 | 8.7 | 19.6 | 15.8 | 15.8 | 20.2 |
| 4+ | 8.1 | 5.3 | 7.2 | 3.6 | 3.8 | 4.6 | 7.7 | 7.6 | 3.8 | 1.3 | 10.4 | 3.3 | 4.0 | 6.1 | 9.1 | 2.1 | 4.9 | 4.6 | 5.6 | 9.2 |
| **Age of youngest child** | | | | | | | | | | | | | | | | | | | | |
| under 3 | 42.8 | 34.1 | 48.3 | 66.0 | 35.1 | 59.6 | 35.7 | 36.8 | 27.9 | 31.5 | 36.7 | 29.0 | 36.7 | 38.4 | 76.5 | 34.7 | 36.5 | 33.1 | 36.5 | 33.1 |
| 4-6 | 27.3 | 18.3 | 21.6 | 29.0 | 18.8 | 33.9 | 17.9 | 17.8 | 19.1 | 20.5 | 16.9 | 20.6 | 19.1 | 16.9 | 23.5 | 20.1 | 15.8 | 17.8 | 18.7 | 19.7 |
| 7-9 | 0.0 | 16.0 | 0.0 | 5.0 | 16.8 | 6.6 | 16.2 | 16.0 | 17.9 | 17.7 | 15.1 | 17.9 | 15.9 | 15.8 | 0.0 | 16.4 | 14.6 | 17.0 | 16.0 | 17.6 |
| 10-15 | 29.9 | 31.6 | 30.2 | 0.0 | 29.4 | 0.0 | 30.3 | 29.4 | 35.1 | 30.3 | 31.3 | 32.5 | 28.4 | 29.0 | 0.0 | 28.9 | 33.1 | 32.2 | 28.9 | 29.7 |
| **Education** | | | | | | | | | | | | | | | | | | | | |
| low | 27.6 | 17.9 | 6.0 | 27.2 | 15.0 | 7.6 | 9.1 | 24.3 | 12.0 | 21.4 | 24.6 | 48.0 | 34.4 | 18.3 | 5.9 | 40.1 | 36.4 | 16.2 | 12.0 | 10.2 |
| medium | 31.6 | 63.2 | 54.4 | 44.4 | 43.3 | 40.9 | 39.0 | 42.1 | 61.1 | 47.4 | 36.3 | 36.6 | 41.1 | 45.8 | 52.0 | 22.9 | 26.9 | 53.9 | 51.0 | 41.0 |
| high | 40.8 | 19.0 | 39.7 | 28.4 | 41.7 | 51.5 | 52.0 | 33.6 | 26.9 | 31.3 | 39.1 | 15.4 | 24.5 | 35.9 | 42.1 | 37.0 | 36.7 | 29.9 | 37.0 | 48.8 |
| **In education/Enrolled** | | | | | | | | | | | | | | | | | | | | |
| not in education | 89.0 | 97.6 | 90.7 | 97.9 | 95.1 | 91.2 | 96.4 | 98.3 | 96.1 | 99.5 | 93.4 | 99.7 | 99.2 | 94.6 | 96.7 | 96.5 | 92.6 | 96.5 | 92.1 | 96.9 |
| in education | 11.1 | 2.4 | 9.3 | 2.1 | 4.9 | 8.8 | 3.6 | 1.7 | 3.9 | 0.5 | 6.7 | 0.4 | 0.8 | 5.4 | 3.3 | 3.6 | 7.5 | 3.4 | 7.9 | 3.1 |
| **Partnered** | | | | | | | | | | | | | | | | | | | | |
| no | 16.3 | 12.0 | 12.3 | 8.1 | 17.3 | 9.4 | 12.2 | 14.2 | 16.9 | 4.1 | 19.9 | 7.6 | 9.3 | 10.5 | 5.0 | 6.5 | 17.1 | 9.64 | 19.7 | 18.6 |
| yes | 83.7 | 88.0 | 87.8 | 91.9 | 82.7 | 90.6 | 87.8 | 85.8 | 83.1 | 95.9 | 80.1 | 92.4 | 90.7 | 89.5 | 95.0 | 93.5 | 82.9 | 90.4 | 80.4 | 81.4 |

| | AUS | AUT | CAN | CZE | DKN | EST | FIN | FRA | DEU | GRE | IRL | ITL | LUX | NDL | POL | ESP | SWD | CHE | GBR | USA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | | | | | | | | | | | | | | | | | | | | |
| 2004 | 23.2 | 25.1 | | | 24.4 | | 23.7 | | 9.4 | 25.2 | 29.3 | 24.1 | 22.7 | 24.4 | | 22.1 | | | 17.3 | 19.8 |
| 2005 | | | | | | | | 48.3 | 9.7 | | | | | | | | 100 | | | |
| 2006 | | | | | | | | | 9.5 | | | | | | | | | | | |
| 2007 | | 25.5 | | | 26.2 | | 25.9 | | 9.2 | 24.6 | 33.5 | | 26.0 | 25.2 | 6.5 | 25.9 | | | 19.3 | 20.4 |
| 2008 | 24.7 | | | | | | | | 8.6 | | | 25.3 | | | | | | | | |
| 2009 | | | | | | | | | 8.2 | | | | | | | | | | | |
| 2010 | 25.5 | 24.6 | | 43.0 | 25.2 | 40.1 | 25.4 | 51.7 | 8.1 | 25.8 | 37.3 | 25.8 | 26.2 | 25.2 | 33.9 | 26.1 | | 49.7 | 20.5 | 20.1 |
| 2011 | | | | | | | | | 8.0 | | | | | | | | | | | |
| 2012 | | | | | | | | | 6.6 | | | | | | | | | | | |
| 2013 | | 24.9 | 100 | 57.0 | 24.3 | 59.9 | 25.1 | | 7.7 | 24.5 | | | 25.1 | 25.1 | 59.6 | 25.9 | | 50.3 | 20.9 | 20.0 |
| 2014 | 26.7 | | | | | | | | 7.4 | | | 24.7 | | | | | | | | |
| 2015 | | | | | | | | | 7.8 | | | | | | | | | | | |
| 2016 | | | | | | | | | | | | | | | | | | | 22.0 | 19.8 |
| **Observations** | 13,581 | 5,340 | 4,756 | 1,728 | 71,246 | 1,079 | 10,365 | 7,726 | 44,232 | 5,444 | 3,901 | 6,007 | 5,218 | 11,224 | 9,193 | 12,624 | 2,587 | 3,163 | 26,796 | 102,016 |

Source: LIS database, own calculations

**Table A2.** Results from multinomial logistic models, women aged 25-54 with children aged 0-15 years, relative risk ratios, weighted.

| | | Unemployed | | Inactive | |
|---|---|---|---|---|---|
| **Paid leave** | 0-3 months | 1.10 | | 1.30 | |
| | 4-12 months | 1 | | 1 | |
| | 13-24 months | 1.52 | *** | 0.58 | *** |
| | 24+ months | 3.23 | *** | 1.08 | |
| **Age** | | 0.85 | *** | 0.84 | *** |
| **Age squared** | | 1.00 | *** | 1.00 | *** |
| **Period** | 2004 | 1 | | 1 | |
| | 2005 | 1.43 | ** | 1.20 | ** |
| | 2006 | 1.73 | ** | 1.19 | * |
| | 2007 | 1.34 | | 0.97 | |
| | 2008 | 1.76 | ** | 0.99 | |
| | 2009 | 1.52 | * | 0.93 | |
| | 2010 | 2.27 | ** | 1.02 | |
| | 2011 | 2.02 | ** | 1.00 | |
| | 2012 | 1.87 | * | 0.97 | |
| | 2013 | 2.67 | ** | 1.14 | |
| | 2014 | 2.88 | ** | 1.26 | |
| | 2015 | 3.07 | ** | 0.97 | |
| | 2016 | 2.01 | | 1.28 | |
| **Number of children** | 1 | 1 | | 1 | |
| | 2 | 1.00 | | 1.41 | *** |
| | 3 | 1.26 | ** | 1.89 | *** |
| | 4 and more | 1.89 | ** | 2.75 | *** |
| **Age youngest child** | under 3 | 1.02 | | 1.85 | ** |
| | 4-6 | 1 | | 1 | |
| | 7-9 | 0.93 | | 0.78 | *** |
| | 10-15 | 0.77 | ** | 0.59 | *** |
| **Education** | low | 1 | | 1 | |
| | medium | 0.46 | *** | 0.41 | *** |
| | high | 0.27 | *** | 0.26 | *** |
| **In education** | | 1.52 | *** | 2.31 | *** |
| **Partnered** | | 0.36 | ** | 1.95 | ** |
| **Country** | Australia | 1 | | 1 | |
| | Austria | 1.25 | | 3.03 | *** |
| | Canada | 2.09 | *** | 0.96 | |
| | Czech Republic | 0.39 | | 1.66 | |
| | Denmark | 0.64 | ** | 0.46 | *** |
| | Estonia | 0.10 | ** | 0.82 | |
| | Finland | 0.68 | * | 1.08 | |
| | France | 0.50 | ** | 0.50 | * |
| | Germany | 1.41 | * | 2.31 | *** |
| | Greece | 1.77 | | 0.89 | |
| | Ireland | 1.37 | | 2.17 | *** |
| | Italy | 0.95 | | 1.91 | ** |
| | Luxembourg | 15.75 | * | 3.01 | |
| | Netherlands | 0.81 | * | 1.10 | |
| | Poland | 0.20 | ** | 0.71 | |
| | Spain | 2.02 | *** | 0.69 | * |
| | Sweden | 0.51 | ** | 0.48 | ** |
| | Switzerland | 1.46 | | 2.25 | ** |
| | United Kingdom | 1.65 | ** | 1.48 | ** |
| | United States | 1.87 | * | 1.67 | ** |
| **GDP** | | 1.00 | | 1.00 | |
| **Net Childcare Costs** | | 0.99 | ** | 0.99 | ** |
| **Unemployment rate** | | 1.03 | | 1.00 | |
| Constant | | 43.04 | ** | 19.36 | ** |
| BIC | | | | 4.58E+08 | |
| ll | | | | -2.29E+08 | |
| Nr of Observations | | | | 348,226 | |

\* p<0.1; ** p<0.05; *** p<0.001

**Table A3 - 1.** Results of the random effects multilevel logistic models for women aged 25-54 with children aged 0-15 years, odds ratios, dichotomised outcomes: unemployment vs employment.

| | | Unemployed | | | |
|---|---|---|---|---|---|
| | | **Main Model** | | **Interaction Model** | |
| **paid leave** | 0-3 months | 1.07 | | 0.86 | |
| | 4-12 months | 1 | | 1 | |
| | 13-24 months | 1.27 | | 1.18 | |
| | 24+ months | 1.57 | | 1.68 | |
| **Age youngest child** | under 3 | 1.01 | | 0.89 | |
| | 4-6 | 1 | | 1 | |
| | 7-9 | 0.88 | * | 0.78 | |
| | 10-15 | 0.72 | ** | 0.73 | |
| **paid leave &** | 0#under 3 | | | 1.13 | |
| **age youngest child** | 0#7-9 | | | 1.28 | |
| | 0#10-15 | | | 1.26 | |
| | 12#under 3 | | | 1.37 | |
| | 12#7-9 | | | 1.13 | |
| | 12#10-15 | | | 0.84 | |
| | 24#under 3 | | | 0.97 | |
| | 24#7-9 | | | 0.96 | |
| | 24#10-15 | | | 0.86 | |
| **age** | | 0.84 | *** | 0.84 | *** |
| **age squared** | | 1 | ** | 1 | *** |
| **period** | 2004 | 1 | | 1 | |
| | 2005 | 0.88 | | 0.9 | |
| | 2006 | 1.15 | | 1.17 | |
| | 2007 | 1.07 | | 1.11 | |
| | 2008 | 1.28 | | 1.31 | |
| | 2009 | 1.55 | | 1.56 | |
| | 2010 | 1.67 | | 1.73 | |
| | 2011 | 1.78 | | 1.87 | |
| | 2012 | 1.67 | | 1.77 | |
| | 2013 | 1.94 | | 1.98 | |
| | 2014 | 2.35 | * | 2.5 | |
| | 2015 | 2.61 | | 2.79 | |
| | 2016 | 1.61 | | 1.7 | |
| **Number of children** | 1 | 1 | | 1 | |
| | 2 | 0.99 | | 0.99 | |
| | 3 | 1.19 | ** | 1.19 | * |
| | 4 and more | 1.75 | ** | 1.75 | ** |
| **Education** | low | 1 | | 1 | |
| | medium | 0.43 | *** | 0.44 | *** |
| | high | 0.22 | *** | 0.22 | *** |
| **In education** | | 1.36 | ** | 1.36 | ** |
| **Partnered** | | 0.39 | **** | 0.38 | *** |
| **GDP** | | 1 | | 1 | |
| **Net Childcare Costs** | | 1 | | 1 | |
| **Unemployment rate** | | 1.04 | | 1.04 | |
| Constant | | 48.16 | * | 64.03 | * |
| rho | | 0.12 | | 0.13 | |
| BIC | | 104563 | | 104526 | |
| ll | | -52082 | | -52007 | |
| Nr of Observations | | 266,199 | | 266,199 | |

* p<0.1; ** p<0.05; *** p<0.001

**Table A3 - 2.** Results of the random effects multilevel logistic models for women aged 25-54 with children aged 0-15 years, odds ratios, dichotomised outcomes: inactive vs employment.

| | | Inactive | | | |
|---|---|---|---|---|---|
| | | **Main Model** | | **Interaction Model** | |
| **paid leave** | 0-3 months | 1.45 | | 1.26 | |
| | 4-12 months | 1 | | 1 | |
| | 13-24 months | 0.96 | | 0.68 | |
| | 24+ months | 1.47 | | 0.57 | |
| **Age youngest child** | under 3 | 1.87 | *** | 1.42 | *** |
| | 4-6 | 1 | | 1 | |
| | 7-9 | 0.8 | *** | 0.74 | ** |
| | 10-15 | 0.62 | *** | 0.57 | ** |
| **paid leave &** | 0#under 3 | | | 1.03 | |
| **age youngest child** | 0#7-9 | | | 1.12 | |
| | 0#10-15 | | | 1.14 | |
| | 12#under 3 | | | 2.12 | ** |
| | 12#7-9 | | | 1.06 | |
| | 12#10-15 | | | 1.04 | |
| | 24#under 3 | | | 2.88 | ** |
| | 24#7-9 | | | 0.87 | |
| | 24#10-15 | | | 0.94 | |
| **age** | | 0.8 | *** | 0.8 | *** |
| **age squared** | | 1 | *** | 1 | *** |
| **period** | 2004 | 1 | | 1 | |
| | 2005 | 0.97 | | 0.99 | |
| | 2006 | 1.03 | | 1.07 | |
| | 2007 | 0.9 | | 0.95 | |
| | 2008 | 0.97 | | 1.03 | |
| | 2009 | 1.3 | | 1.29 | |
| | 2010 | 1 | | 1.07 | |
| | 2011 | 0.94 | | 1.05 | |
| | 2012 | 0.93 | | 1.08 | |
| | 2013 | 1.07 | | 1.18 | |
| | 2014 | 1.07 | | 1.23 | |
| | 2015 | 0.94 | | 1.1 | |
| | 2016 | 1.24 | | 1.44 | |
| **Number of children** | 1 | 1 | | 1 | |
| | 2 | 1.3 | *** | 1.3 | *** |
| | 3 | 1.79 | *** | 1.8 | *** |
| | 4 and more | 2.85 | *** | 2.86 | *** |
| **Education** | low | 1 | | 1 | |
| | medium | 0.38 | *** | 0.38 | *** |
| | high | 0.23 | *** | 0.23 | *** |
| **In education** | | 3.22 | *** | 3.19 | *** |
| **Partnered** | | 1.36 | | 1.36 | |
| **GDP** | | 1 | | 1 | |
| **Net Childcare Costs** | | 0.99 | | 0.99 | |
| **Unemployment rate** | | 1 | | 1 | |
| Constant | | 70.41 | ** | 156.13 | ** |
| rho | | 0.09 | | 0.11 | |
| BIC | | 322770 | | 320913 | |
| ll | | -161182 | | -160196 | |
| Nr of Observations | | 332,335 | | 332,335 | |

* p<0.1; ** p<0.05; *** p<0.001

**Table A4.** Interaction effect results from multinomial logistic models for women aged 25-54 with children aged 0-15 years, relative risk ratios, weighted.

| | | Unemployed | | Inactive | |
|---|---|---|---|---|---|
| **Paid leave** | 0-3 months | 0.69 | ** | 1.31 | * |
| | 4-12 months | 1 | | 1 | |
| | 13-24 months | 1.15 | | 0.39 | *** |
| | 24+ months | 2.82 | *** | 0.54 | |
| **Age youngest child** | under 3 | 0.66 | *** | 1.66 | *** |
| | 4-6 | 1 | | 1 | |
| | 7-9 | 0.61 | *** | 0.60 | **** |
| | 10-15 | 0.61 | *** | 0.52 | *** |
| **Paid leave &** | 0#under 3 | 1.63 | *** | 0.83 | *** |
| **Age youngest child** | 0#7-9 | 1.77 | *** | 1.35 | *** |
| | 0#10-15 | 1.64 | *** | 1.18 | |
| | 12#under 3 | 1.93 | *** | 1.91 | * |
| | 12#7-9 | 1.48 | *** | 1.26 | *** |
| | 12#10-15 | 1.04 | | 1.05 | |
| | 24#under 3 | 1.31 | ** | 1.79 | |
| | 24#7-9 | 1.22 | ** | 1.40 | ** |
| | 24#10-15 | 1.05 | | 1.56 | * |
| **Age** | | 0.85 | *** | 0.83 | *** |
| **Age squared** | | 1.00 | *** | 1.00 | *** |
| **Period** | 2004 | 1 | | 1 | |
| | 2005 | 1.47 | ** | 1.27 | ** |
| | 2006 | 1.82 | ** | 1.30 | ** |
| | 2007 | 1.44 | ** | 1.09 | |
| | 2008 | 1.93 | ** | 1.14 | |
| | 2009 | 1.67 | ** | 1.07 | |
| | 2010 | 2.54 | ** | 1.20 | |
| | 2011 | 2.36 | ** | 1.28 | |
| | 2012 | 2.20 | ** | 1.25 | |
| | 2013 | 3.13 | ** | 1.45 | |
| | 2014 | 3.54 | ** | 1.68 | |
| | 2015 | 3.79 | ** | 1.30 | |
| | 2016 | 2.47 | * | 1.75 | |
| **Number of children** | 1 | 1 | | 1 | |
| | 2 | 1.00 | | 1.42 | *** |
| | 3 | 1.27 | * | 1.92 | *** |
| | 4 and more | 1.91 | ** | 2.80 | *** |
| **Education** | low | 1 | | 1 | |
| | medium | 0.46 | *** | 0.40 | *** |
| | high | 0.27 | *** | 0.26 | *** |
| **In education** | | 1.52 | ** | 2.31 | *** |
| **Partnered** | | 0.35 | ** | 1.95 | ** |
| **Country** | Australia | 1 | | 1 | |
| | Austria | 1.14 | | 3.35 | *** |
| | Canada | 1.80 | *** | 0.94 | |
| | Czech Republic | 0.28 | ** | 1.59 | |
| | Denmark | 0.59 | *** | 0.47 | *** |
| | Estonia | 0.07 | *** | 0.75 | |
| | Finland | 0.60 | ** | 1.40 | |
| | France | 0.43 | ** | 0.59 | ** |
| | Germany | 1.28 | | 2.54 | *** |
| | Greece | 1.49 | | 0.69 | |
| | Ireland | 1.33 | | 2.31 | *** |
| | Italy | 0.75 | | 1.74 | ** |
| | Luxembourg | 24.23 | ** | 6.53 | |
| | Netherlands | 0.77 | ** | 1.10 | |
| | Poland | 0.14 | ** | 0.59 | |
| | Spain | 1.83 | *** | 0.59 | * |
| | Sweden | 0.44 | *** | 0.46 | *** |
| | Switzerland | 1.72 | | 2.96 | ** |
| | United Kingdom | 1.40 | ** | 1.46 | ** |
| | United States | 2.09 | ** | 2.02 | ** |

| | Unemployed | | Inactive | |
|---|---|---|---|---|
| **GDP** | 1.00 | ** | 1.00 | |
| **Net Childcare Costs** | 0.98 | *** | 0.99 | ** |
| **Unemployment rate** | 1.03 | | 0.99 | |
| Constant | 131.66 | ** | 59.13 | ** |
| BIC | | | 4.56E+08 | |
| | | | - | |
| ll | | | 2.28E+08 | |
| Nr of Observations | | | 348,226 | |

* p<0.1; ** p<0.05; *** p<0.001