

The Effect of Childcare Use on Gender Equality in European Labor Markets

Sikirić, Ana Marija

Veröffentlichungsversion / Published Version

Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Sikirić, A. M. (2021). The Effect of Childcare Use on Gender Equality in European Labor Markets. *Feminist Economics*, 27(4), 90-113. <https://doi.org/10.1080/13545701.2021.1933560>

Nutzungsbedingungen:

Dieser Text wird unter einer CC BY-NC-ND Lizenz (Namensnennung-Nicht-kommerziell-Keine Bearbeitung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:

<https://creativecommons.org/licenses/by-nc-nd/4.0/deed.de>

Terms of use:

This document is made available under a CC BY-NC-ND Licence (Attribution-Non Commercial-NoDerivatives). For more information see:

<https://creativecommons.org/licenses/by-nc-nd/4.0>



The Effect of Childcare Use on Gender Equality in European Labor Markets

Ana Marija Sikirić

To cite this article: Ana Marija Sikirić (2021) The Effect of Childcare Use on Gender Equality in European Labor Markets, *Feminist Economics*, 27:4, 90-113, DOI: [10.1080/13545701.2021.1933560](https://doi.org/10.1080/13545701.2021.1933560)

To link to this article: <https://doi.org/10.1080/13545701.2021.1933560>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 30 Jun 2021.



Submit your article to this journal [↗](#)



Article views: 818



View related articles [↗](#)



View Crossmark data [↗](#)



THE EFFECT OF CHILDCARE USE ON GENDER EQUALITY IN EUROPEAN LABOR MARKETS

Ana Marija Sikirić

ABSTRACT

Parenthood necessarily increases the scope of unpaid work in households and tends to depress women's employment rates relative to men's. This paper examines the relationship between the use of full-time childcare for children under 3 years of age and employment rates for men and women with one, two, or three or more children under 6 years of age in European households. Panel data from a sample of the (then) twenty-eight European Union member states for the 2005–15 period were analyzed. The results indicate that smaller differences between employment rates of men and women with one, two, or three or more children under 6 years of age are associated with greater use of full-time childcare arrangements for children under the age of 3.

KEYWORDS

Gender equality, gender roles, parenthood, childcare arrangements, employment rates of men and women, EU

JEL: Codes: J12, J16, C23

HIGHLIGHTS

- Traditional gender roles impose a greater burden of unpaid work on women than men.
- Parenthood widens the gap between women's and men's employment rates.
- The use of childcare reduces gender inequality in the labor market.
- Part-time work arrangements help women combine parenthood and employment.
- Long leaves have a negative impact on women's employment.

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

INTRODUCTION

Despite major progress in women's educational attainments, with women now constituting a majority of university graduates in all European Union member states, their representation in the labor market is still lower than that of men's, and women's talents are still underutilized. In this paper unequal participation of men and women in the labor market is linked to their gender roles in society. According to these gender roles, men's participation in the paid labor market is an expected fact, whereas women are expected to do the majority of unpaid work. The results of the Gender Equality Index from 2017 in the domain of time reveal that women are still disproportionately burdened by household work and childcare (EIGE 2017). Burdening women with unpaid work eliminates equal opportunities in paid work, leaving women unable to reconcile family and professional life. This unequal position and exclusion from the labor market make women more financially dependent on men, which in turn restricts their ability to control their own lives, creating a hierarchical relationship of subordination between equally valuable social groups.

Unpaid work includes a variety of activities, which makes it difficult to properly measure and determine its broad impact on women's employment. Accordingly, the focus of this research is on activities relating to parenthood and childcare. Parenthood, by increasing the scope for unpaid work, further aggravates the problem for women of reconciling family and professional responsibilities. According to the European Union Labour Force Survey (EU-LFS [lfst_hheredch] n.d.) parenthood, in general, reduces employment possibilities for women, while the opposite is true for men. Only in Denmark and Slovenia is parenthood associated with a small increase in employment for women. In all other countries, parenthood decreases women's employment. This effect is greatest in the Czech Republic, Hungary, and Slovakia, with only small negative effects for men (Melhusih 2016). Consequently, the differences between employment rates for women and men increase. In the case of no children, the difference in employment rates of men and women ages 20–49 in the EU-28 in 2015 is 1.8 percentage points (pp), increasing to 22.8 pp in the case of one child under the age of 6, to 26 pp in the case of two children under the age of 6, and to 37.1 pp in the case of three or more children under the age of 6.¹ These results confirm the assumption that the burden of unpaid work on women is a key cause of women's disadvantaged position in the labor market (EU-LFS [lfst_hheredch] n.d.).

Economic development is unsustainable without more intensive participation of women in the labor market, which often highlights the problem of gender inequality in macroeconomic policies (UN 2014; European Parliament 2016). Among macroeconomic policies, due to its allocation and redistribution function, fiscal policy presents a good

tool for achieving greater gender equality. Assuming that the financial independence of women, that is, a more intensive inclusion of women in the labor market, is the main precondition for greater gender equality, governments should finance measures and public policies to facilitate reconciling women's professional and family lives. There are many mechanisms and measures in the area of public finance and social policy that are characterized by systematic efforts to establish gender equality. These mechanisms primarily depend on economic and political structures, as public finance supports structures in each country. In view of reconciling obligations in terms of paid and unpaid work, the function of childcare becomes especially significant. Childcare arrangements have two major functions: to support parent participation in the labor market and to foster children's cognitive development. Providing affordable and good-quality childcare services frees parents from all-day care for children. This, consequently, reduces the scope of unpaid work and helps reconcile work and family life, which improves women's labor force participation and ultimately gender equality.

The goal of this paper is to examine, using panel data analysis, whether the cross-country differences in employment rates of men and women in the EU-28 are associated with cross-country differences in the use of formal childcare arrangements for children under the age of 3.

THEORETICAL AND EMPIRICAL BACKGROUND

The impact of childcare on women's employment is assessed in two different dimensions: price and availability. In countries such as Australia, Canada, the UK, and the US, given that childcare services are private, supply and prices are adjusted to the market demand. In these countries, the prices have a significant impact on demand and the potential use of services. Researchers from these countries are mostly focused on the price of childcare services. They used different scientific methods to estimate the sensitivity of women's employment to changes in the price of childcare services (Connelly 1992; Powell 1997; Anderson and Levine 1999; Baker, Gruber, and Milligan 2005; Viitanen 2005).

In most EU countries, childcare services are mainly public and, due to lack of supply, prices often have almost no effect on employment decisions and the use of childcare services (Del Boca and Vuri 2006). Therefore, researchers are mainly focused on the impact of availability of childcare services on women's employment (Kreynfeld and Hank 1999). Increased availability of childcare services liberates women from all day childcare and reduces the extent of unpaid work, resulting in greater equality between men and women in terms of time spent in unpaid work (Sikirić and Čičak 2016). In this regard, the EU set the so-called Barcelona targets in 2002. These suggested that member states should remove disincentives that could

possibly affect women's labor force participation and strive to provide childcare by 2010 to at least 90 percent of children between 3 years of age and the mandatory school age, and at least 33 percent of children younger than 3 years of age. Since 2010, only six member states have met both criteria.² In March of 2011, member states again expressed their commitment to reach the Barcelona targets in terms of the European Pact for Gender Equality (2011–20). The desired employment rate of 75 percent cannot be achieved without increasing the involvement of women in the labor market, while more intensive inclusion of women in the labor market is not possible without measures that will help them reconcile their family and professional lives (European Commission 2013).

Most authors analyze the availability of childcare services as one of the socioeconomic determinants contributing to the probability of women's employment in a particular country. The impact of availability of childcare services or use of childcare services on women's employment in more than one country was analyzed by Janet C. Gornick, Marcia K. Meyers, and Katherin E. Ross (1998), Malgorzata Mikucka (2008), Jérôme De Henau, Danièle Meulders, and Síle O'Dorchai (2010), Joya Misra, Michelle Budig, and Irene Boeckmann (2011), and Irena Spansenoska and Merale Fetahu-Vehapi (2011). Most of this research, except for the research by Gornick, Meyers, and Ross (1998) and De Henau, Meulders, and O'Dorchai (2010), analyzed the impact of the percentage of children in formal childcare arrangements on the employment rate of women as a group, regardless of whether they are women with children or not. In their research, Gornick, Meyers, and Ross (1998) and De Henau, Meulders, and O'Dorchai (2010) compared differences in the employment status of mothers and non-mothers using a wide range of self-constructed indicators of child policies, such as childcare provision, parental leave, and tax-cash benefits. The research in this paper tests the assumption that using childcare services to reduce the scope of unpaid work results in higher employment of women with young children, which consequently creates fewer differences between the employment rates of men and women with young children and greater gender equality on the labor market.

There is no data on the availability of childcare services in the EU; therefore, data on the use of formal childcare services will be used. A high correlation can be expected between availability and use of formal childcare arrangements due to the fact that unused capacity would not be maintained over the longer term. The problem of lack of formal childcare services was already recognized by the EU, which means there is a lack of supply in comparison with demand. The European Commission, in collaboration with member states (Employment Committee), has developed a methodology and collected data to measure progress toward reaching these targets on the basis of an EU-harmonized source. The following indicators were agreed on: children cared for (formal

arrangements other than by the family)³ up to 30 hours per usual week (part-time) / 30 hours or more per usual week (full-time) as a proportion of all children in the same age group. Furthermore, children are grouped into two groups according to age: children under 3 years of age (0–2 years) and children between 3 years of age and the mandatory school age.

The defined indicator concerning full-time arrangements for children under 3 years of age is used in this paper to explore the association between childcare arrangements and differences between employment rates of men and women with children under 6 years of age in EU member states.

The research described in this paper contributes to existing papers in a number of ways. First, a substantial amount of existing research explores the impact of childcare services on women’s employment, but the focus in this paper is on differences between employment rates of men and women with children under 6 years of age as an indicator of gender equality in the labor market. Second, to the author’s current knowledge, this research is the only up-to-date comparative study on how the use of full-time childcare for children under 3 years of age is associated with differences between employment rates of men and women with children under the age of 6 in the EU–28. Third, as a very important contribution, this empirical study substantiates that progress toward reaching the Barcelona target concerning children under the age of 3 helps women reconcile professional and family life, resulting in greater gender equality in the labor market. Fourth, in comparison to other studies, this study also includes other variables that contribute to reconciling private and professional life, such as informal forms of childcare and part-time work opportunities.

EMPIRICAL MODELS

To determine the impact of utilizing full-time childcare arrangements for children under the age of 3 on differences between employment rates of men and women ages 20–49 years with one, two, or three or more children under the age of 6 in the EU–28 in the period from 2005 to 2015, the following three functions will be tested using panel data analysis:

$$Gap1_{it} = f(FCC_{it}, ICC_{it}, PEM_{it}, PaidL_{ij}, GPG_{it}, EDU_{it});$$

$$i = 1 \dots 28; t = 1 \dots 11$$

$$Gap2_{it} = f(FCC_{it}, ICC_{it}, PEM_{it}, PaidL_{ij}, GPG_{it}, EDU_{it});$$

$$i = 1 \dots 28; t = 1 \dots 11$$

$$Gap3_{it} = f(FCC_{it}, ICC_{it}, PEM_{it}, PaidL_{ij}, GPG_{it}, EDU_{it});$$

$$i = 1 \dots 28; t = 1 \dots 11$$

Variables

The left side of the equations indicates dependent variables. Dependent variables are differences between employment rates of men and women ages 20–49 with one (Gap1), two (Gap2), and three or more children (Gap3) under the age of 6. The focus in the paper is on the use of childcare for children under the age of 3. Unfortunately, there are no data on employment rates of men and women with children under the age of 3. Furthermore, the probability of having more than one child under the age of 3 is rather low because of health and psychological reasons. Therefore, to analyze the influence of utilizing full-time childcare arrangements for children under the age of 3 on differences between employment rates of men and women for cases of different numbers of young children, the employment rates of men and women with children under the age of 6 had to be included in the model.

Values of the dependent variables are expressed as percentage points in the author's calculations based on data on employment rates of men and women with children under the age of 6 from the European Union Labor Force Survey (EU-LFS [fst_hheredch] [n.d.](#)). The selected age of men and women from ages 20–49 is the age group marked by numerous changes in the lives of men and women, which are important for the research. For example, these changes include completing studies and gaining work experience, getting married, starting a family, taking maternity and parental leave, as well as leaving and returning to the labor market. (Gelo, Smolić, and Strmota 2010; Misra, Budig, and Boeckmann 2011). High values for dependent variables indicate lower employment rates of women compared to employment rates of men with children under the age of 6, and vice versa. In all EU member states, women's employment rates are lower than men's employment rates, despite equal economic conditions. In some countries, these differences are more prominent. The aim of this research is to analyze whether existing differences between countries are partly due to different levels of use of childcare.

The main independent variable is use of full-time formal childcare arrangements for children under the age of 3, that is, the percentage of children cared for (formal arrangements other than by the family) up to 30 hours or more per usual week as a proportion of all children in the same age group (FCC3F). On average, use of childcare for children under the age of 3 in the EU for the period 2005–15 is only 13.5 percent. According to the Barcelona target, childcare services should be provided only to 33 percent of children under the age of 3. This target is low in comparison to the target of 90 percent for children ages between 3 and the mandatory school age. It seems that childcare services for children under the age of 3 have been systematically neglected, in part probably due to cultural reasons. The view is that a young child should be taken care of

by its mother or parent, and there is no need for other types of childcare. One of the objectives of this research is also to emphasize the importance of childcare services for reconciling the private and professional life of mothers with young children and, consequently, gender equality in the labor market. In addition, the working hours of childcare facilities must be aligned with full-time working hours of parents. For this reason, only childcare arrangements providing childcare for more than 30 hours per week are taken into account. The data source is the European Union Statistics on Income and Living Conditions (EU-SILC [ilc_caindformal] n.d.).

Another important factor requiring consideration is that the use of childcare facilities does not directly answer the question of whether demand is fully met. The actual demand for childcare is partially affected by so-called informal arrangements. This implies childcare provided by a professional babysitter at the child's or babysitter's home and childcare by grandparents, other household members (except parents), other relatives, friends, or neighbors. It remains unknown whether parents prefer these informal types of childcare or use them only because the supply of formal childcare arrangements is lacking. However, there are surely situations in which parents have to rely on informal childcare arrangements because of limited or inflexible working hours, or even lack of formal ones. Since these informal types of childcare also relieve day-to-day parental care for children, they may likely increase employment of mothers. For this reason, the percentage of children under 3 years of age in informal childcare arrangements (ICC3) is included in the models as an independent variable. The data source is the European Union Statistics on Income and Living Conditions (EU-SILC [ilc_caindothor] n.d.).

According to Haya Stier, Noah Lewin-Epstein, and Michael Braun (2001), part-time work possibilities make reconciliation of family and work life easier even when the supply of formal childcare services is lacking. Flexible employment helps parents, particularly mothers, combine parenthood with employment. Over three million Europeans ages 15–34 switched from full-time to part-time employment because of childcare or family issues (Molinuevo et al. 2013). However, while mothers working part time is common in countries such as the Netherlands, Germany, Austria, and the UK, in countries such as Bulgaria, Poland, Portugal, and Romania, part-time work even among mothers is relatively rare. In those countries there is little difference in hours of work for women with and without children (Melhusih 2016). Thus, differences in the employment rates of men and women with young children between countries can be partially explained with differences in the percentage of women working part-time. There are no data on the percentage of employed women ages 20–49 working part time, hence the percentage of employed women ages 20–64 working part time is included in the model as the independent variable

PEM. This variable is included to reflect the trends of working part time in each country. The data source is the European Union Labor Force Survey (EU-LFS [lfsa_eppgan] n.d.).

The variable paid total leave (PaidL) refers to maternity and parental leave incorporating benefits of at least two-thirds of the person's salary. Maternity leave is typically provided for preserving the health of the mother and newborn child and takes place immediately before, during, and following childbirth. Parental leave is for both parents, but mostly used by mothers, often as an alternative to childcare (Melhusih 2016). Maternity and parental leaves affect the employment of mothers because they enable parents to temporarily leave their jobs to take care of children without losing their jobs. A number of studies have shown that a too-short or too-long leave has a negative impact on women's employment. Without any leave, mothers would have to leave the labor market to take care of children, but a too-long leave reduces a woman's continuity of employment, salary, and the probability of returning to the labor market (Gornick, Meyers, and Ross 1996; Mikucka 2008; De Henau, Meulders, and O'Dorchai 2010; Misra, Budig, and Boeckmann 2011; Spansenoska and Fetahu-Vehapi 2011). During these leaves, parents usually receive some amount of financial compensation based on their salaries. In some countries, parents can take longer leaves but without any financial compensation. In this research, only leaves incorporating benefits of at least two-thirds of the person's salary, expressed in the number of months, are included in the model. Leaves without any financial compensation decrease household income; hence the presumption is that employed mothers are more motivated to return to work when using these types of leaves. Considering the above points, the relationship between paid leaves and the difference between employment rates of men and women with children is nonlinear; hence a quadric total paid leave variable is included (PaidL^2) in the model. The data source is the European Union Statistics on Income and Living Conditions (EU-SILC [ilc_ca] n.d.).

Since dependent variables are differences in the employment rates of men and women with children under the age of 6, including a large number of variables that usually affect employment is not necessary because these variables affect both the employment of men and women. However, existing differences between employment rates of men and women with children are affected by cultural characteristics that reflect societal attitudes toward the issue of whether mothers should have a professional career or not, as well as the willingness of women to oppose or adapt to social stereotypes. Women will be willing to be working mothers if it is socially acceptable (Blau and Ferber 1992; Gornick, Meyers, and Ross 1996). Since women's social expectations are difficult to quantify, variables GPG and EDU will partially reflect the

position of women in the labor market and their willingness to oppose stereotypes.

The EDU variable refers to the percentage of women ages 25–64 with a completed tertiary education.⁴ Highly educated women are more likely to use formal childcare services and ignore stereotypes; therefore, they are more likely to return to the labor market after giving birth (Kreynefeld and Hank 1999; Del Boca 2002). Also, highly educated women earn more than less-educated women and have a higher opportunity cost of being economically inactive (Anderson and Levine 1999; Del Boca and Vuri 2006). Therefore, the assumption is that countries with higher percentages of highly educated women have lower differences between men's and women's employment rates. The data source is European Union Statistics ([*edat_lfs_9903*] n.d.).

The variable GPG refers to gender pay gap expressed as the difference between average gross hourly earnings of men and women paid employees, which, in turn, is expressed as a percentage of average gross hourly earnings of women in comparison with men. Women in all EU member states have lower average gross hourly earnings than men. Countries with a higher gender pay gap might also be expected to have higher differences in men's and women's employment rates. This is because in countries with a higher gender pay gap, the position of women in the labor market may be worse than in countries with a lower gender pay gap. The assumption is that male workers are more valued in these countries. Besides, if men are earning significantly more, women may be expected to bear most of the burden of unpaid work and be less motivated to return to the labor market. However data show that countries with higher women's employment rates may instead have a higher gender pay gap, for example, Austria, the UK, and even Finland, while in countries with lower women's employment rates, such as Romania and Poland, the gender pay gap is much lower. The reason is that in countries with a low women's employment rate, it is mostly highly educated women who are employed. The average salary of highly educated women is relatively high compared to the average salary of men. But as the employment of women increases, women with lower educations enter the labor market, which lowers the average wage of women and thus the gender pay gap becomes more pronounced (Olivetti and Petrongolo 2008). The data source is the European Union Statistics ([*earn_gr_gpgr2*] n.d.).

Model

In this paper, the impact of use of full-time formal childcare arrangements on differences between employment rates of men and women with children under age 6 is analyzed by evaluating three different models for each of the three previously mentioned dependent variables (Gap1, Gap2, Gap3). The first model includes variables representing measures that enable women

to reconcile family and professional obligations including the use of full-time formal childcare for children under the age of 3 (FCC3F), use of informal forms of childcare for children under the age of 3 (ICC3), and the percentage of women working part-time (PEM). The model also includes a variable referring to the duration of maternity and parental leave with financial compensation (PaidL). However, it is important to emphasize that leaves do not really reconcile family and professional obligations but rather enable parents to temporarily leave their professional careers in order to devote their time to family life. Model 1 is presented below:

$$\begin{aligned} Gap1_{it}/Gap2_{it}/Gap3_{it} = & \alpha + \beta_1 FCC3F_{it} + \beta_2 ICC3_{it} + \beta_3 PEM_{it} \\ & + \beta_4 PaidL_{it} + \varepsilon_{it}; \quad i = 1 \dots 28; \quad t = 1 \dots 11 \end{aligned}$$

Assuming that highly educated women are more inclined to use childcare services and ignore social stereotypes, Model 2 analyzes whether differences in employment rates of men and women with children under 6 years of age are lower in countries with a higher percentage of highly educated women. Model 2 is presented below:

$$\begin{aligned} Gap1_{it}/Gap2_{it}/Gap3_{it} = & \alpha + \beta_1 FCC3F_{it} + \beta_2 ICC3_{it} + \beta_3 PEM_{it} + \beta_4 PaidL_{it} \\ & + \beta_8 EDU_{it} + \varepsilon_{it}; \quad i = 1 \dots 28; \quad t = 1 \dots 11 \end{aligned}$$

Model 3 tests the assumption that in countries with a lower gender pay gap, women have a better position in the labor market than in those countries with a higher gender pay gap and, consequently, differences in employment rates of men and women are lower in these countries. Model 3 is presented below:

$$\begin{aligned} Gap1_{it}/Gap2_{it}/Gap3_{it} = & \alpha + \beta_1 FCC3F_{it} + \beta_2 ICC3_{it} + \beta_3 PEM_{it} + \beta_4 PaidL_{it} \\ & + \beta_8 GPG_{it} + \varepsilon_{it}; \quad i = 1 \dots 28; \quad t = 1 \dots 11 \end{aligned}$$

Descriptive statistics

In describing the basic features of the data, the first step of the analysis is descriptive statistics. Table 1 below shows panel data descriptive statistics for each observed variable at the global level (overall), between the observed units (between), and at the level of the observed unit (within).

The presented data show that at the level of 284 observed units in the EU-28 in the period from 2005 to 2015, the employment rate of men ages 20–49 in the case of one child under the age of 6 is, on average, 26 pp higher than the employment rate of women, more than 28 pp higher in the case of two children under the age of 6, and more than 35 pp in the case of three or more children under the age of 6. However, there are significant differences between countries. For example, in the Czech

Table 1 Descriptive statistics for all dependent and independent variables

Variable		Mean	Std. Dev.	Min	Max	Observations	
100	Difference between employment rates of men and women with 1 child (Gap 1)	overall	26.24014	13.11974	7.2	66.7	N = 284
		between		12.41344	13.28182	59.83636	N = 28
		within		3.773299	13.8765	40.61287	T-bar = 10.1429
	Difference between employment rates of men and women with 2 children (Gap 2)	overall	28.9169	13.05273	6.6	73	N = 284
		between		12.5021	11.71818	54.57273	N = 28
		within		4.424545	16.47145	50.87145	T-bar = 10.1429
	Difference between employment rates of men and women with 3 or more children (Gap 3)	overall	35.94155	12.00863	8.9	74.6	N = 284
		between		11.69112	14.74286	58.64545	N = 28
		within		4.675808	20.31428	51.89609	T-bar = 10.1429
	Use of full-time formal childcare arrangements for children under 3 (FCC3F)	overall	13.57113	10.90276	0	69.6	N = 284
		between		13.89368	0.6818182	66.6	N = 28
		within		3.30428	0.9620358	27.86204	T-bar = 10.1429
Use of informal types of childcare (ICC3)	overall	31.00246	15.01591	0	65.7	N = 284	
	between		15.29623	0.15	58.21818	N = 28	
	within		4.904816	14.84792	49.80246	T-bar = 10.1429	

THE EFFECT OF CHILDCARE USE

(Continued).

Table 1 Continued.

<i>Variable</i>		<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>	<i>Observations</i>
Total paid leave in months (PaidL)	overall	9.183099	7.119991	1.5	26.5	N = 284
	between within		6.714725 2.427503	1.5 − 3.539124	25.77273 14.86492	N = 28 T-bar = 10.1429
Percentage of women working part time (PEM)	overall	22.76338	16.88031	1.9	75.6	N = 284
	between within		16.85869 1.364287	2.4375 17.79065	74.44545 26.79065	N = 28 T-bar = 10.1429
Percentage of women with tertiary education (EDU)	overall	28.69648	9.78065	10	49.6	N = 284
	between within		9.347885 3.802642	14.64444 18.5783	44.37273 40.2783	N = 28 T-bar = 10.1429
Gender pay gap (GPG)	overall	15.17382	6.482563	− 0.9	30.9	N = 275
	between within		6.039465 2.225377	4.936364 6.533818	28.14545 22.38291	N = 28 T-bar = 9.82143

Sources: Author's calculations using STATE/SE 13. 0. EU-LFS ([lfst_hheredch] [n.d.](#)); EU-SILC ([ilc_caindformal] [n.d.](#)); EU-SILC ([ilc_caindothor] [n.d.](#)); EU-SILC ([ilc_ca] [2019](#)); EU-LFS ([lfsa_eppgan] [n.d.](#)); European Union Statistics ([edat_lfs_9903] [n.d.](#)); European Union Statistics ([earn_gr_gpgr2] [n.d.](#))

Republic in 2008, the employment rate of men was more than 66 pp higher than the employment rate of women with one child under the age of 6, while at the same time, the difference was only 9 pp in Slovenia. The standard deviation values also indicate that values of the observed variables notably vary between countries but do not vary significantly within the countries over the observed period.

Similarly, variation of the values of independent variables is higher between countries than within them. Thus, some countries have a very high percentage of children under the age of 3 attending formal childcare arrangements, while other countries have a rather low percentage. For example, in Denmark, more than 60 percent of children under the age of 3 are in some type of formal childcare, compared to less than 2 percent in the Czech Republic.

More than half of children in the Netherlands, Greece, and Cyprus receive informal care for a high number of hours per week. By contrast, in Denmark, Finland, and Sweden, only a small proportion of children are cared for in an informal setting. In the Netherlands, working part time is the most common way that women reconcile unpaid and paid work. More than 70 percent of employed women work part time. By contrast, in the Czech Republic, Slovakia, Hungary, and Croatia, the possibilities for working part time are scarce; thus, fewer than 10 percent of employed women work part time.

In the UK, total paid leave (with at least two-thirds of salary) lasts only one-and-a-half months, while in Romania up to twenty-six-and-a-half months. Women nowadays comprise a larger proportion of university graduates in every EU member state, but the percentage of highly educated women between countries varies from 10 percent in Malta to almost 50 percent in Finland. In Slovenia in 2009, women earned one pp more than men; while in countries like the Czech Republic, Greece, and Austria, gross hourly earnings of men are more than 20 pp higher than women's gross earnings.

Methodology

Estimating independent variable coefficients in each of the models was conducted by applying three basic panel models: pooled OLS, fixed effects, and random effects model. One of the strongest advantages of panel data is the ability to control unobserved heterogeneity, a factor that is expected in this research because of the cultural differences between countries. The likelihood of employment of women with children largely depends on society's opinion as to whether a mother should develop a professional career along with her family life. This cultural aspect of each country is hard to quantify, and there is a high likelihood that independent variables will not include this cultural specificity of each observed country. This affects the variation of dependent variables, which can result in inconsistency of

the results obtained using the pooled OLS model. In that case, the fixed effect model or random effect model is more appropriate, as they can control unobserved heterogeneity. The results of the F-test and Breusch and Pagan Lagrangian multiplier test confirm the existence of unobserved heterogeneity, indicating that the pooled OLS model is inappropriate for use.⁵

Assuming that unobserved heterogeneity (cultural aspects, socially created gender roles, and stereotypes) is not random, but rather constant over time, theoretically, the fixed effect model is more appropriate. However, descriptive statistics shows a high variation of dependent and independent variables between countries and a relatively small variation over time within each country that does not advocate the use of a fixed effect model. Nevertheless, if unobserved heterogeneity is correlated with any of the independent variables, the random effect model estimator is inconsistent, and in that case, it is better to use the fixed effect model, which will be consistent.

The Hausman test was conducted to test whether unobserved heterogeneity is correlated with the regressors. The null hypothesis is that both fixed and random effects are consistent, but random effects model is efficient; hence, the preferred model is random effects. The alternative hypothesis is that there is a correlation between unique errors and regressors, and random effects is inconsistent while fixed effects is consistent, that is, the preferred model is fixed effects. If the p -value is small (less than 0.05), the null hypothesis is rejected. It is important to emphasize that the Hausman test is ingenious but has a number of shortcomings because it requires some strong assumptions (Clark and Linzer 2015). Thus, there is no hard and simple rule for deciding on which model is more appropriate to use, so it is common to present both fixed and random effects estimators.

The modified Wald test confirms the presence of heteroscedasticity (Baum 2001), while Wooldridge test rejecting the null hypothesis confirms the presence of a serial correlation (Drukker 2003) in all of the models. Therefore, robust standard errors are calculated using the cluster[6] option.

RESULTS

Four models were tested for each of the three dependent variables. Although based on the results of the Hausman test, the preferred model is the fixed effects model (except in the case of Model 2a), the results of both the fixed (FE) and random effects (RE) model are presented for the above-mentioned reasons. Results of the estimated parameters together with clustered standard errors (listed in the brackets) are presented in Tables 2, 3, and 4.

Table 2 Results of panel data analysis for Model 1

Model:	(1a)		(1b)		(1c)	
	FE	RE	FE	RE	FE	RE
VARIABLES	<i>Difference between employment rates of men and women with 1 child (Gap 1)</i>		<i>Difference between employment rates of men and women with 2 children (Gap 2)</i>		<i>Difference between employment rates of men and women with 3 or more children (Gap 3)</i>	
Use of full time formal childcare arrangements for children under 3	- 0.179 (0.118)	- 0.207** (0.096)	- 0.378** (0.164)	- 0.414*** (0.119)	- 0.358* (0.185)	- 0.404*** (0.113)
Use of informal types of childcare	- 0.020 (0.065)	- 0.040 (0.066)	- 0.012 (0.098)	- 0.045 (0.102)	0.096 (0.098)	0.050 (0.097)
Percentage of women working part time	- 0.966*** (0.294)	- 0.603*** (0.172)	- 1.352*** (0.433)	- 0.590*** (0.120)	- 1.348*** (0.366)	- 0.316** (0.150)
Total paid leave in months	- 1.485*** (0.378)	- 1.501*** (0.397)	- 1.066*** (0.352)	- 1.212*** (0.429)	- 0.162 (0.333)	- 0.506 (0.459)
Total paid leave in months x total paid leave in months	0.044*** (0.012)	0.044*** (0.120)	0.031*** (0.009)	0.034*** (0.012)	0.004 (0.009)	0.013 (0.013)
Constant	58.957*** (8.015)	51.915*** (6.655)	70.810*** (12.227)	55.772*** (9.066)	69.431*** (9.037)	49.665*** (7.576)
Observations		284		284		284
Number of countryid		28		28		28
F test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman test		0.0249		0.000		0.000

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Source: For data sources see Table 1.

Table 3 Results of panel data analysis for Model 2

Model:	(2a)		(2b)		(2c)	
	FE	RE	FE	RE	FE	RE
VARIABLES	<i>Difference between employment rates of men and women with 1 child (Gap 1)</i>		<i>Difference between employment rates of men and women with 2 children (Gap 2)</i>		<i>Difference between employment rates of men and women with 3 or more children (Gap 3)</i>	
Use of full-time formal childcare arrangements for children under 3	-0.042 (0.113)	-0.058 -0.091	-0.088 (0.101)	-0.119 (0.075)	-0.147 (0.151)	-0.178* (0.101)
Use of informal types of childcare	-0.027 (0.065)	-0.047 (0.063)	-0.027 (0.086)	-0.057 (0.086)	0.085 -0.094	0.037 (0.087)
Percentage of women working part time	-0.702** (0.261)	-0.450*** (0.135)	-0.792* (0.407)	-0.331** (0.145)	-0.941** (0.385)	-0.139 (0.116)
Total paid leave in months	-1.260*** (0.332)	-1.222*** (0.342)	-0.588* (0.317)	-0.649* (0.339)	0.185 (0.317)	-0.062 (0.382)
Total paid leave in months x total paid leave in months	0.040*** (0.010)	0.038*** (0.011)	0.020** (0.008)	0.222** (0.009)	-0.003 (0.008)	0.003 (0.011)
Percentage of women with tertiary education	-0.273*** (0.084)	-0.309*** (0.093)	-0.578*** (0.121)	-0.623*** (0.118)***	-0.420*** (0.152)	-0.498*** (0.141)
Constant	57.705*** (7.719)	53.547*** (6.310)	68.155*** (11.324)	60.252*** (8.195)	67.502*** (8.536)	54.150*** (7.066)
Observations		284		284		284
Number of countryid		28		28		28
F test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman test		0.209		0.0053		0.000

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Source: For data sources see Table 1.

Table 4 Results of panel data analysis for Model 3

Model:	(3a)		(3b)		(3c)	
	FE	RE	FE	RE	FE	RE
	Difference between employment rates of men and women with 1 child (Gap 1)		Difference between employment rates of men and women with 2 children (Gap 2)		Difference between employment rates of men and women with 3 or more children (Gap 3)	
VARIABLES						
Use of full-time formal childcare arrangements for children under 3	-0.157 (0.116)	-0.185** (0.093)	-0.361** (0.157)	-0.392*** (0.111)	-0.337* (0.184)	-0.378*** (0.109)
Use of informal types of childcare	-0.008 (0.065)	-0.026 (0.066)	0.004 (0.099)	-0.024 (0.103)	0.111 (0.099)	0.071 (0.098)
Percentage of women working part time	-0.838*** (0.290)	-0.543*** (0.156)	-1.265*** (0.447)	-0.557*** (0.187)	-1.254*** (0.380)	-0.297** (0.143)
Total paid leave in months	-1.512*** (0.374)	-1.517*** (0.392)	-1.097*** (0.347)	-1.239*** (0.416)	-0.191 (0.335)	-0.053 (0.451)
Total paid leave in months x total paid leave in months	0.045*** (0.012)	0.045*** (0.012)	0.032*** (0.009)	0.351*** (0.011)	0.005 (0.009)	0.014 (0.012)
Gender pay gap	0.091 (0.109)	0.148 (0.104)	0.216 (0.185)	0.262 (0.178)	0.134 (0.158)	0.190 (0.154)
Constant	54.357*** (8.710)	47.834*** (7.001)	65.344*** (14.596)	50.450*** (10.942)	65.034*** (10.870)	45.641*** (8.898)
Observations		275		275		275
Number of countryid		28		28		28
F test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman test		0.061		0.0002		0.000

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Source: For data sources see Table 1.

According to the results presented in Table 2, greater use of full-time childcare arrangements for children under the age of 3 decreases the difference between employment rates of men and women with children under the age of 6. In other words, a 1 pp higher use of full-time childcare arrangements for children under the age of 3, controlling for other factors, is associated with a 0.18 (0.216) pp lower difference between the employment rate of men and women in the case of one child under the age of 6, a 0.38 (0.41) pp lower difference in the case of two children, and a 0.36 (0.4) pp lower difference in the case of three or more children under the age of 6.

Estimated coefficients at the highest level of statistical significance are largest in the case of two children under the age of 3. Coefficients are slightly lower in the case of three or more children under the age of 6, probably because having three or more children under the age of 6 makes reconciliation of private and professional life harder, not only for women, but men, too. Employment rates of men with three or more children under 6 are lower than employment rates of men with one or two children under 6. Thus, by financing and providing adequate full-time childcare arrangements for children under the age of 3, the government can contribute to lowering the difference between employment rates of men and women with children under the age of 6 and increase gender equality. Consequently, this will result in more gender responsive public spending.

Use of informal types of childcare arrangements is associated with lower differences between employment rates of men and women with one or two children under the age of 6. Interestingly, in the case of three children, it is associated with slightly higher differences. However, in neither case does the use of informal childcare arrangements have a notable economic or statistical significance. Typically, informal childcare is used by parents on a part-time basis. Therefore, it is questionable whether informal childcare can support women's full-time labor force participation (Mills et al. 2014).

Working part time, as a way of reconciling paid and unpaid work, is also associated with lower differences between the employment rates of men and women with children younger than 6. A 1 pp increase of women ages 20–64 working part time, controlling for other factors, is associated with 0.97 (0.6) pp lower difference between employment rates of men and women with children in the case of one child under the age of 6, a 1.35 (0.6 and 0.32) pp in the cases of a) two and b) three or more children under the age of 6. Although working part-time results in greater gender equality in the labor market, permanent acceptance of such jobs exacerbates the position of women in the labor market and should, therefore, only be considered a temporary steppingstone to full employment in a woman's later life.

Estimated coefficients of variables PaidL and PaidL² indicate that the possibility of not working to take care of young children without leaving the labor market decreases differences in employment rates of men and women with children. However, long leaves reduce women's continuity of employment, their salaries, and the probability of returning to the labor market. Paid leaves longer than 16.9⁷ months in the case of one child, 17.2 months in the case of two children, and twenty months in the case of three or more children under the age of 6 are associated with higher difference in employment rates of men and women with children under the age of 6.

Except for the above variables, Model 2 also includes the EDU variable (percentage of highly educated women ages between 25 and 64). Education affects women's employment decisions. Highly educated women are more likely to ignore society's opinion about working mothers and are inclined to use childcare services. They earn more and have a higher opportunity cost of unemployment. Therefore, countries with a higher percentage of highly educated women have a lower difference between employment rates of men and women with children younger than 6. An increase in the percentage of women with a tertiary education by 1 pp is associated with 0.27 (0.31) pp lower difference between employment rates of men and women in the case of one child under 6 years age, a 0.58 (0.62) pp lower difference in the case of two children, and a 0.42 (0.5) pp lower difference in case of three or more children under 6 years of age, *ceteris paribus*.

Introducing the EDU variable has decreased economic and statistical significance of all other variables. This can be explained by the fact that the EDU variable is not only correlated with the dependent variable but also with the independent variable FCC3F. Highly educated women earn more and are more inclined to use childcare services, if they are available.

Besides variables from Model 1, Model 3 includes the variable referring to gender pay gap (GPG). The number of observations in this model is 275, not 284 as in the previous two models because data on gender pay gap are scarce. Gender pay gap does not have a statistically significant impact on differences between employment rates of men and women with children younger than 6 years. Statistical insignificance is explained by the above-mentioned issue relating to changes of the composition of women in employment, that is, where employment rates are low, gender pay gap may also be low because mostly highly educated women with higher pay are employed. However, even a statistically insignificant positive impact confirms the hypothesis that women are less motivated to return to the labor market in countries with a higher gender pay gap because their opportunity cost of unemployment is lower than in countries with a lower gender pay gap. Consequently, this results in greater differences between employment rates of men and women with children under the age of 6.

The obtained values of constants in the models indicates that if the values of all independent variables were equal to zero, the men's employment rate, across all 28 EU member states, would on average be around 50 pp higher than the employment rate of women in the case of one child, around 65 pp higher in the case of two children, and around 60 pp in the case of three or more children under 6 years of age.

The estimated coefficients and constants are highest in the case of two children under the age of 6. Having two children younger than 6 years makes reconciling private and professional life more difficult than having only one child younger than 6 years. However, having three or more children under the age of 6 makes it even more difficult, not only for women but also for men. Consequently, the estimated coefficients are lower in the case of three or more children under the age of 6 than in the case of two children under the age of 6.

It is evident from the results of all models that the PEM variable has a higher economic and statistical significance in the fixed effect model than in the random effect model, while all other variables have a higher economic and statistical significance in the random effects model. It seems that the difference between employment rates of men and women with children under the age of 6 in a specific country can be mostly explained by changes in the percentage of women working part time, while differences between countries can be explained in combination with other variables from the model.

CONCLUSION

Socially defined gender roles impose a greater burden of unpaid work on women than on men. Parenthood significantly increases the amount of inevitable unpaid work, which makes reconciliation of unpaid and paid work even harder for women. Therefore, an increase in the number of children under the age of 6 in the household results in higher differences between employment rates of men and women. The research in this paper does not question whether the existing distribution of unpaid work is appropriate, but instead points out that neglecting these differences between women and men is one of the main causes of current gender inequality in the labor market. The main objective in this paper is to explain cross-country differences between employment rates of men and women with children under the age of 6 throughout the EU. Differences between employment rates of men and women with children vary significantly between countries. In some countries, the differences are less than 10 pp, while in others more than 70 pp.

Results of the panel data analysis on a sample of the (then) EU-28 for the period from 2005 to 2015 lead to four main conclusions. First, smaller differences between employment rates of men and women with one, two, or

three or more children younger than 6 years are associated with greater use of formal childcare arrangements for children under the age of 3 available for longer than 30 hours per week. On the other hand, the use of informal types of childcare as an alternative to a lack of formal forms of childcare does not have a significant statistical or economic impact on differences in the employment rates of men and women.

The second conclusion refers to part-time work arrangements that help some women combine parenthood and employment. In countries with a higher percentage of women working part time, the differences between employment rates of men and women with children under the age of 6 are lower. It should be emphasized that working part time still places women in financially subordinate positions in relation to men, weakens women's negotiating power in the household, affects their future pensions, and prevents them from fully using their work and intellectual capacities. Therefore, part-time work arrangements should only be considered a short-term alternative to termination of employment caused by more unpaid work.

Third, maternity and parental leaves are necessary for keeping mothers in the labor market, but long leaves have a negative impact on women's employment and are also one of the reasons why women are usually discriminated against in the employment process. As long as mainly mothers take leave (including parts that are transferable between mother and father), women will find it difficult to pursue promising careers along with motherhood, regardless of whether they are highly educated or not. Therefore, large differences between employment rates of men and women with children under the age of 6 in some countries can be explained by over-long maternal leaves.

Fourth, the results of this research can be used as an argument for more gender-sensitive public spending. Financing measures that help women reconcile their professional and family life lead to more intensive inclusion of women in the labor market. In this way, by directing expenditure of public resources, the government can significantly contribute to greater gender equality. A budget aiming to reduce gender inequality is in theory called a gender responsive budget, or a gender budget that, unlike the usual budget, validates and takes into account both paid and unpaid work in the household and care for the family and the community.

The conducted research has certain limitations as well. First, the research is based on the assumption that childcare services, by reducing the extent of women's unpaid work, create a basic precondition for more intensive involvement of women in the labor market. However, the assumption is that there is also a correlation in the opposite direction, that is, in their desire to return to the labor market after maternity leaves, women aspire to reduce unpaid work, which increases the demand for and use of childcare services. Second, the main independent variable in the use of full-time formal

childcare arrangements for children under the age of 3 does not directly answer the question of whether demand for childcare services is fully met and whether availability of the services is scarce or optimal in comparison with the demand. Third, women are willing to reduce their unpaid work as a result of having paid work only if it is socially acceptable. In future research, it would be interesting to analyze whether low use of childcare services in some countries is the result of low supply or low demand.

Ana Marija Sikirić
University of Rijeka
Faculty of Economics and Business, Rijeka, Croatia
email: ana.marija.sikiric@efri.hr

NOTES ON CONTRIBUTOR

Ana Marija Sikirić, PhD, is currently Assistant Professor at Faculty of Economics and Business at University of Rijeka, Croatia. In May 2017, she successfully defended her doctoral dissertation, “A Gender Perspective of Budget Process.” During her eight years of scientific research, she published (as author or co-author) thirteen scientific papers, seven professional papers, and one scientific monograph. The main research objects of the published papers are: budget, gender equality, gender inequalities, gender budgeting, and gender-sensitive budget analysis.

FUNDING

This paper was fully supported by the University of Rijeka under project number uniri-drustv-18-77-1210.

NOTES

- ¹ Data utilized for the this paper were compiled and accessed prior to the UK's departure from the EU on January 31, 2020. The study therefore includes the UK as a then-member of the EU, and references the “EU-28” countries throughout.
- ² Belgium, France, Sweden, Slovenia, Denmark, and the UK.
- ³ Formal childcare refers to the four EU-SILC survey variables: education at preschool or equivalent education at compulsory education; childcare at center-based services outside school hours; childcare at a day-care center organized/controlled by a public or private structure.
- ⁴ Tertiary education covers ISCED 2011 levels 5, 6, 7, and 8 (vocational and university studies).
- ⁵ The F-test is used to test between pooled OLS and fixed effects model. The Lagrange Multiplier test is used to test between pooled OLS and random effects model.
- ⁶ Cluster option assumes independence between clusters, in this case countries, but not between observations within a particular country.
- ⁷ $X = -b/2a$ in this case $X = -\text{PaidL}/(2*\text{PaidL}^2)$

REFERENCES

- Anderson, Patricia M. and Phillip B. Levine. 1999. "Child Care and Mothers' Employment Decisions." Working Paper 7058, National Bureau of Economic Research, Cambridge, MA.
- Baker, Michael, Jonathan Gruber, and Kevin Milligan. 2005. "Universal Child Care, Maternal Labour Supply and Family Well-Being." Working Paper 11832, National Bureau of Economic Research, Cambridge, MA.
- Baum, Christopher F. 2001. "Residual Diagnostics for Cross-Section Time Series Regression Models." *Stata Journal* 1(1): 101–4.
- Blau, Francine D. and Marianne A. Ferber. 1992. *The Economics of Women, Men, and Work*. Englewood Cliffs, NJ: Prentice-Hall.
- Clark, Tom S. and Drew A. Linzer. 2015. "Should I Use Fixed or Random Effects?" *Political Science Research and Methods* 3(2): 399–408.
- Connelly, Rachel. 1992. "The Effect of Child Care Costs on Married Women's Labor Force Participation." *Review of Economics and Statistics* 74(1): 83–90.
- De Henau, Jérôme, Danièle Meulders, and Sïle O'Dorchai. 2010. "Maybe Baby: Comparing Partnered Women's Employment and Child Policies in the EU-15." *Feminist Economics* 16(1): 43–77.
- Del Boca, Daniela. 2002. "The Effect of Child Care and Part Time Opportunities on Participation and Fertility Decisions in Italy." IZA Discussion Paper Series No. 427, Institute for the Study of Labor (IZA), Bonn.
- Del Boca, Daniela and Daniela Vuri. 2006. "The Mismatch Between Employment and Child Care in Italy: The Impact of Rationing." Working Paper 31, Centre for Household Income, Labour and Demographic Economics, Collegio Carlo Alberto.
- Drukker, David M. 2003. "Testing for Serial Correlation in Linear Panel -Data Models." *Stata Journal* 3(2): 168–77.
- EIGE. 2017. "Gender Equality Index 2017." European Institute for Gender Equality.
- European Commission. 2013. "Report on Progress on Equality Between Women and Men in 2012." European Commission. http://ec.europa.eu/justice/gender-equality/files/swd_2013_171_en.pdf.
- European Parliament. 2016. "Women's Empowerment and Its Links to Sustainable Development." European Parliament, Directorate-General for Internal Policy, Brussels.
- European Union Labor Force Survey (EU-LFS). n.d. "Employment Rate of Adults by Sex, Age Groups, Educational Attainment Level, Number of Children, and Age of Youngest Child (%)" [lfsst_hheredch]. <http://appsso.eurostat.ec.europa.eu/nui/show.do> (accessed December 2017).
- _____. n.d. "Part-Time Employment as Percentage of the Total Employment, by Sex, Age and Citizenship (%)" [lfsa_eppgan]. http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_eppgan&lang=en (accessed December 2017).
- European Union Statistics. n.d. "Gender Pay Gap in Unadjusted Form by NACE Rev. 2 Activity – Structure of Earnings Survey Methodology [earn_gr_gpgr2]." http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=earn_gr_gpgr2&lang=en (accessed December 2017).
- _____. n.d. "Population by Educational Attainment Level, Sex and Age (%)" [edat_lfs_9903]. http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=edat_lfs_9903&lang=en (accessed December 2017).
- European Union Statistics on Income and Living Conditions (EU-SILC). 2019. "Childcare Arrangements [ilc_ca]." https://ec.europa.eu/eurostat/cache/metadata/en/ilc_ca_esms.htm#unit_measure1470211887382.

- _____. n.d. "Children in Formal Childcare or Education by Age Group and Duration – % over the Population of Each Age Group [ilc_caindformall]." <http://appsso.eurostat.ec.europa.eu/nui/show.do> (accessed December 2017).
- _____. n.d. "Other Types of Childcare by Age Group and Duration – % Over the Population of Each Age Group, [ilc_caindothor]." http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_caindothor&lang=en (accessed December 2017).
- Gelo, Jakov, Šime Smolić, and Marin Strmota. 2010. "Sociodemografske odrednice zaposlenosti žena u Hrvatskoj." [Sociodemographic determinants of women's employment in Croatia]. *Društvena Istraživanja* 20(1): 69–88.
- Gornick, Janet C., Marcia K. Meyers, and Katherin E. Ross. 1996. "Supporting the Employment of Mothers: Policy Variation Across Fourteen Welfare States." Working Paper 139, Luxembourg Income Study, *Sociology* 1.
- _____. 1998. "Public Policies and the Employment of Mothers: A Cross-National Study." *Social Science Quarterly* 79(1): 35–54.
- Kreynefeld, Michaela and Karsten Hank. 1999. "The Availability of Child Care and Mother's Employment in West Germany." DIW Discussion Paper No. 191, Berlin, German Institute for Economic Research.
- Melhusih, Edward. 2016. *Provision of Quality Early Childcare Services*. European Commission, Brussels.
- Mikucka, Malgorzata. 2008. "Variation in Women's Employment Across European Countries: The Impact of Child Care Policy Solutions." *International Journal of Sociology* 38(1): 12–37.
- Mills, Melinda, Patrick Präg, Flavia Tsang, Katia Begall, James Derbyshire, Laura Kohle, Celine Miani, and Stijin Hoorens. 2014. "Use of Childcare Services in the EU Member States and Progress Towards the Barcelona Targets." Short Statistical Report No. 1, European Commission Directorate-General for Justice.
- Misra, Joya, Michelle Budig, and Irene Boeckmann. 2011. "Work-Family Policies and the Effects of Children on Women's Employment Hours and Wages." *Community, Work & Family* 14(2): 139–57.
- Molinuevo, Daniel, Daphne Ahrendt, Robert Anderson, Jean-Marie Jungblut, Eszter Sándor, Adi Buxbaum, and Sybille Pirklbauer. 2013. "Caring for Children and Dependents: Effect on Careers of Young Workers." Background Paper, Eurofound.
- Olivetti, Claudia and Barbara Petrongolo. 2008. "Unequal Pay or Unequal Employment? A Cross-Country Analysis of Gender Gaps." *Journal of Labor Economics* 26(4): 621–54.
- Powell, Lisa M. 1997. "The Impact of Child Care Costs on Labour Supply of Married Mothers: Evidence from Canada." *Canadian Journal of Economics* 30(3): 577–94.
- Sikirić, Ana Marija and Josip Čičak. 2016. "Public Spending on Childcare as an Indicator of Gender Sensitivity of a Budget." *Mednarodna Revija za Javno Upravo* 2016(14): 95–119.
- Spansenoska, Irena and Merale Fetahu-Vehapi. 2011. "Determinants of Female Employment Rate in the European Union." *Chinese Business Review* 10(11): 1076–90.
- Stier, Haya, Noah Lewin-Epstein, and Michael Braun. 2001. "Welfare Regimes, Family-Supportive Policies, and Women's Employment Along the Life-Course Source." *American Journal of Sociology* 106(6): 1731–60.
- UN Women. 2014. "The World Survey on the Role of Women in Development 2014: Gender Equality and Sustainable Development." United Nations. <https://www.unwomen.org/-/media/headquarters/attachments/sections/library/publications/2014/world-survey-on-the-role-of-women-in-development-2014-en.pdf?la=en&vs=3045>.
- Viitanen, Tarja. 2005. "Costs of Child Care and Female Employment in England." *Labour (committee. on Canadian Labour History)* 19: 149–70.