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Career-breaks and Maternal Employment in CEE Countries*

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Abstract

Post-birth career breaks and their impact on mothers' labor market outcomes have received considerable attention in the literature. However, existing evidence comes mostly from Western Europe and the US, where career breaks tend to be short. In contrast, Central and Eastern European (CEE) countries, where post-birth career interruptions by mothers are typically much longer, have rarely been studied. In the first part of this study, we place CEE countries into the EU context by providing key empirical facts related to the labor market outcomes of mothers and the most important factors that may affect them. Besides substantial differences between CEE countries and the rest of the EU, there is also large heterogeneity within CEE itself, which we explore next. In the second part, we review the main family leave and formal childcare policies and reforms that have occurred in CEE countries since the end of Communism and provide a comprehensive survey of the existing scientific evidence of their impact on maternal employment. While research on the causal impacts of these policies is scarce, several important studies have recently been published in high-impact journals. We are the first to provide an overview of these causal studies from CEE countries, which offer an insightful extension to the existing knowledge from Western Europe and the US.

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1. Introduction

The impact of career breaks after childbirth on mothers' labor market outcomes has been widely studied in the literature. Central and Eastern European (CEE) and other post-Communist countries, however, have received little attention in this strand of research. Yet, these countries offer an interesting institutional and social norm setting that brings additional insights into this research area. In particular, high female labor force participation inherited from the Communist regimes combined with generous paid family leave policies, lasting several years in some countries, result in one of the largest employment impact of motherhood in the entire EU.

The aim of this chapter is to complement the existing knowledge with an overview of empirical facts and findings from the scarce research on post-birth career interruptions and maternal employment in CEE countries. We first define and classify CEE countries and summarize their EU accession status (Section 2). We then provide a historical overview, place CEE countries into the EU context, and present key descriptive statistics related to the labor market outcomes of mothers, emphasizing the distinct features of CEE countries as a group (Section 3). We then zoom in on the within-country heterogeneity among CEE countries and discuss maternal employment and its potential determinants (with a special focus on family leave policies and formal childcare provision) based on detailed country-specific empirical evidence (Section 4).

Subsequently (Section 5), we review the main family leave and formal childcare reforms that have occurred in CEE countries since the end of Communism, whose evaluation could be used to explore the actual leave-taking by mothers and its impact on their subsequent employment. We then present a comprehensive survey of research estimating the impact of changes in family leave policies and formal childcare availability on mothers' post-birth labor market outcomes. In this part of Section 5, we extend the surveys by Olivetti and Petrongolo (2017) and Morrissey (2017), which focus on the US and Western EU countries, by providing an overview of existing evidence from CEE countries.

Finally, we summarize our key findings about CEE countries and discuss the main patterns we identify (Section 6). We conclude with a review of key policy implications and suggestions for future research (Section 7).

2. Definition and Classification of CEE Countries

The term "CEE countries" has been officially used to refer to different subsets of post-Communist states, with the narrower definition including only the EU Member states and the broader definition encompassing also the EU Candidate states. As the EU membership of CEE countries has evolved, the narrower definition has changed accordingly. There are currently 11 CEE countries that belong to the EU (Czech Republic,² Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia became EU members on 1 May 2004, Bulgaria and Romania joined the EU on 1 January 2007, and Croatia on 1 July 2013).

² In accordance with the formal EU naming convention, we sometimes refer to the Czech Republic as Czechia. The two names are officially interchangeable.

In this study, we use the broader concept and define CEE countries as European post-Communist countries that either belong to the EU or are EU Candidate states. See Table 1 for an overview, with the EU-related status as of January 2021. Using the standard definitions, we further divide CEE countries into three groups: Visegrad Countries, South-East European Countries, and Baltic States.

Table 1. Classification of CEE Countries

Visegrad Countries		South-East European Countries		Baltic States	
Czech Republic	EU Member	Albania	EU Candidate	Estonia	EU Member
Hungary	EU Member	Bulgaria	EU Member	Latvia	EU Member
Poland	EU Member	Croatia	EU Member	Lithuania	EU Member
Slovakia	EU Member	Montenegro	EU Candidate		
		North Macedonia	EU Candidate		
		Romania	EU Member		
		Serbia	EU Candidate		
		Slovenia	EU Member		

3. CEE Countries in the EU Context

3.1. Historical Overview

To better understand the current economic activity rates of women in CEE countries, it is important to know the historical context – the impact of the Communist regimes and the evolution since the end of Communism. In the predominantly state-owned Communist economies, standards of living were quite low, and income artificially equalized across jobs with very different human capital requirements. While state-planned allocation of resources was typically highly inefficient compared to market-clearing mechanisms, there was officially zero unemployment under the Communist regimes, which claimed to provide vacancies for anybody who wanted to work (UNICEF 1999).³

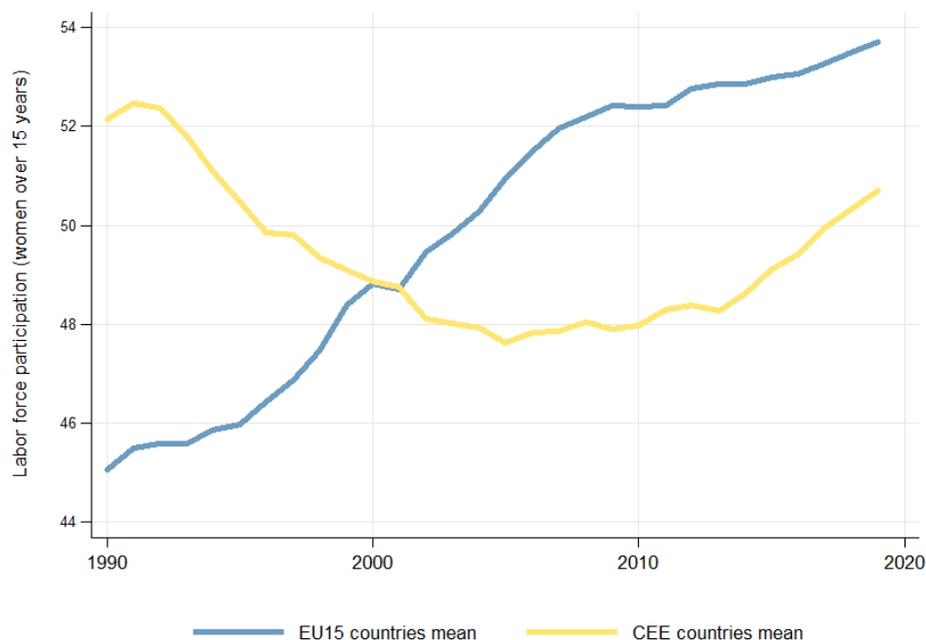
Gender equality was part of Communist propaganda, imposing a strong social norm of the working woman. To support women at work, large-scale nurseries and kindergartens with high children-to-teacher ratios were established and available to working women.⁴ Informal childcare provided by relatives, especially in widespread multi-generational households, also helped women to return to their jobs soon after childbirth. Female labor force participation after the end of Communism was thus unusually high in many CEE countries, with labor force participation among prime-age women of 81.7%

³ Note that there were also substantial differences among CEE countries in terms of ownership structure: In countries like Czechoslovakia and East Germany, almost all enterprises were state-owned, whereas in Poland and Hungary, the privatization process started as early as the 1980s, with a non-negligible share of the private sector comprised of small businesses and entrepreneurs (EBRD 1995).

⁴ There was a large expansion of nurseries and kindergartens in the 1970s and 1980s in CEE countries, which resulted in high levels of attendance of pre-school children before 1990. This contrasted with most OECD countries where these levels were still relatively low. In 1989, four in five pre-school children were enrolled in kindergartens in Central Europe. The quality of public childcare, however, varied substantially (UNICEF 1999). Priority was given to families in which both parents worked so as to encourage female employment (Kocourková 2002).

on average (ranging from 55.9% in Romania to 94% in Latvia). The corresponding EU15 average was 77.1% in 1990.⁵

Figure 1. Evolution of labor force participation of women over 15 years during the 1990-2019 period



Source: World Bank, SL.TLF.CACT.FE.ZS (<https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS>), own calculations of the EU15 and CEE means.

Note: EU15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom. CEE countries: Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovak Republic, Slovenia.

Figure 1 confirms that many CEE countries had very high overall female labor force participation in 1990 relative to the EU15. In many CEE countries, the labor force participation of women over the age of 15 was as high as 60% in 1990 (Slovakia, Romania, Albania – see Appendix Figure A. 1).

The contrast in the evolution of the economic activity of women older than 15 in the CEE countries and in EU15 over the 1990s, documented by Figure 1, is striking: While the secular trend of rising female labor force participation has continued in EU15 as in many other Western countries, the CEE countries actually saw a *decline* in female labor force participation after the end of the Communism, only later followed by a subsequent rise. The decrease in the overall economic activity of women that followed the collapse of Communism suggests that the norm of the working woman gradually weakened in CEE countries. This decline was partly driven by introductions and extensions of family leave policies, which we discuss in detail below, as well as by a gradual increase in the enrollment of women in tertiary education (UNICEF 1999). At the same time, there was also a decline in economic activity at the other

⁵ Source: UNECE, https://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT_30-GE_03-WorkAndeconomy/001_en_GEWELabourActivity_r.px/table/tableViewLayout1/ We often use EU15 as a comparison group to CEE countries, because EU15 offers a clearly defined group of EU countries without the Communist past.

end of the working age profile caused by labor force withdrawal or early retirement of women who could not easily adjust to the new job requirements (given the obsolete skills acquired over one's whole working life spent in Communism) or were needed as informal caregivers for their grandchildren (UNICEF 1999). While individual countries differed both in their starting position in 1990 and in the extent of the decline in female labor force participation (with Poland, Hungary, Romania, Albania, and Bulgaria experiencing the largest drop and Baltic countries the smallest, see Appendix Figure A. 1), almost all CEE countries experienced some decrease in women's economic activity in the 1990s and early 2000s.

Although much of the temporary decline in female labor force participation among prime-age women in CEE countries can be attributed to longer family leaves and lower subsequent maternal employment, induced by the introduction of generous family leave policies, the decrease in women's economic activity immediately following the end of Communism may have simply reflected women's revealed preferences. In particular, in countries such as Latvia, Czechia, and Slovakia where female labor force participation among prime-age women reached as much as 94%, 93%, and 90% in 1990, respectively,⁶ the strongly prevailing norm of working woman may have been imposed by the Communist regime, rather than reflecting women's real preferences. During the post-Communist period of economic growth and rising wages, some women may have preferred to stay at home, supported by their husbands' increased incomes in exchange for home production – an option some of the Communist regimes had not allowed.

3.2. Fertility, Family Leave Policies and Maternal Employment

The end of Communism and the new freedom provided many alternatives to starting a family and led to a substantial drop in fertility in all CEE countries in the 1990s.⁷ While this drop started several years later in some countries (Macedonia, Albania) and was pronounced in some countries (e.g. Czechia, Romania or Bulgaria) more than in others, it affected all CEE countries without exception (Appendix Figure A. 2). This fertility decline, however, was mostly driven by child-birth postponement rather than a decline in childbearing (Sobotka 2003). The postponed births eventually took place before women came out of their childbearing age, and the fertility rate gradually returned to or above the EU averages (Appendix Figure A. 2). On average, fertility rates in CEE countries do not substantially differ from the rest of the EU today, ranging from countries with relatively low fertility (Albania and North Macedonia) – but not as low as some EU15 Mediterranean countries (Malta, Spain, Italy, Cyprus or Greece) – to countries with very high fertility (Romania, Montenegro, Czechia, Estonia or Lithuania) in 2018 (see Figure 2).

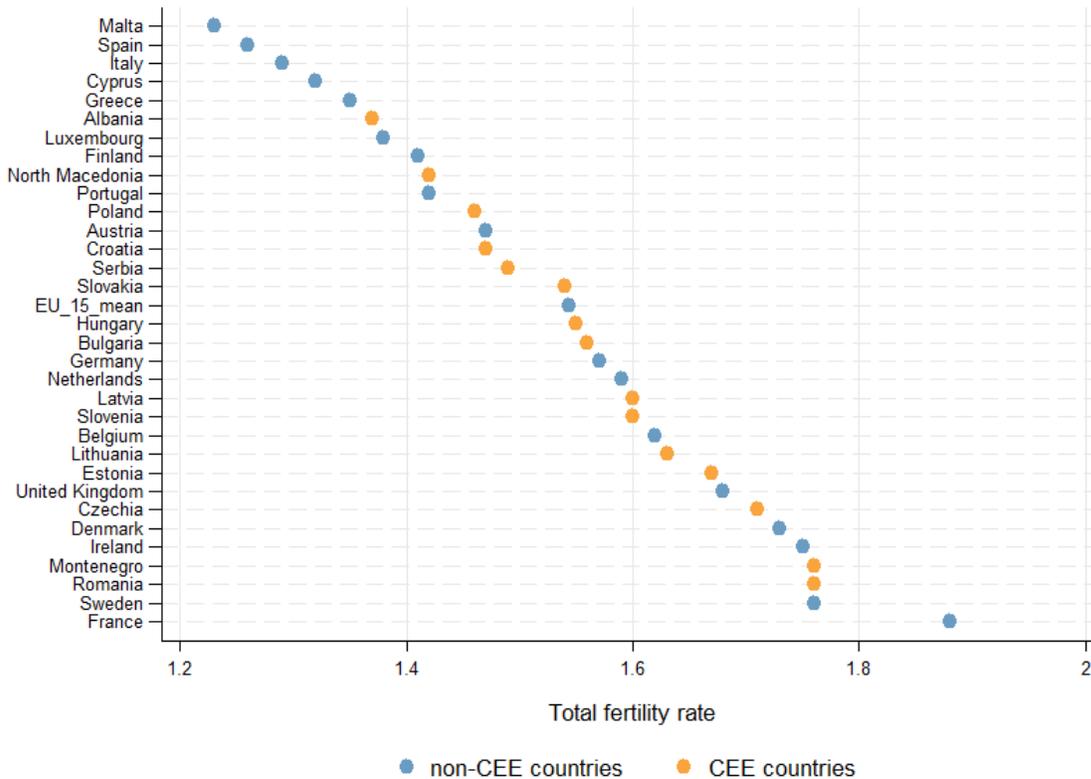
To a substantial extent, the impact of fertility on maternal employment is affected by family leave policies. In most countries, family leave policies consist of job protection and financial support. In this study, we are mostly interested in how these policies affect the career breaks women take after childbirth. Thus, we will primarily look at the length of *paid family leave* (sometimes also referred to as the length of *family leave benefits*), which captures the maximum statutory duration of financial support

⁶ Source: UNECE, https://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__30-GE__03-WorkAndeconomy/001_en_GEWELabourActivity_r.px/table/tableViewLayout1/

⁷ Starting one's own business, travelling or studying abroad in non-Communist countries would be among the most popular activities that were not possible during Communism.

available to women after childbirth.⁸ When relevant, we also describe the length of a *job protection* period, which is the time when a parent has a guaranteed return to pre-birth job. Finally, we are also interested in fathers' leave-taking, which is mostly incentivized through paternity leave and/or parental leave reserved for fathers. We will refer to the combination of the two as the length of *paid family leave available to fathers*.

Figure 2. Fertility rate in 2018



Source: Eurostat / DEMO_FRATE (https://ec.europa.eu/eurostat/databrowser/view/DEMO_FRATE_custom_411366)

Note: Fertility rate is defined as the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the fertility rates by age of a given year, and surviving (Eurostat).

We next focus on family leave policies in CEE countries and compare them to the rest of the EU. In contrast to the EU15, generous and unusually long paid family leaves were introduced in many CEE countries in the 1980s and further extended in the 1990s.⁹ The aim of these policies was to increase fertility and address the potential scarcity of vacancies in order to ensure the declared zero unemployment during Communism.¹⁰ Mothers were expected to stay at home with children for several

⁸ In most countries, the length of paid family leave is a combination of the length of maternity leave and the length of paid parental leave available to mothers.

⁹ In many CEE countries, this process of re-familization of family policies, which included extending paid parental leaves and cuts in nursery school places, started in the 1980s and intensified during the transition period (see Section 5.1 and Table 8 for an overview of changes in the duration of paid parental leave in CEE countries).

¹⁰ Evidence of the impact of family leave policies on fertility in CEE countries is mixed. While Hiriscau (2020) shows that extending maternity leave increases fertility in Romania, Šťastná et al. (2019) argue that longer leaves lead to

years after childbirth but then return full-time to their jobs (in line with the working woman norm). This trend in family policies was further strengthened after the end of the Communism by the return to traditional family values and gender role attitudes that had been suppressed by the Communist norms. During the transition in the 1990s, extended paid family leaves also served as a tool to mitigate the sharp fertility decline and to help reduce rising unemployment (Dobrotic and Stropnik 2020).

Acceptance of the norm of mother as the primary caregiver and the take-up of long family leaves was substantial and widespread, even among highly educated mothers. In some countries, pro-family campaigns accompanied the family leave extensions, emphasizing the benefits of maternal care for several years after childbirth. Mothers' own experience with the large-scale formal childcare they (sometimes involuntarily) had to attend during Communism (so that their mothers could return to work) may also have contributed to the general inclination to stay at home with their children. Interestingly, the long family leaves did not drive women from employment altogether, even during the transition years, as the vast majority returned to the labor force once the youngest child started attending school or earlier, as attested by steadily high employment rates of prime-age women, ranging from 63.6% in Hungary to 79.6% in Czechia, with the CEE country average of 72.3% in 1995.¹¹

Since family leave benefits were not regularly adjusted for inflation and wage increases in many countries (especially in the transition years), their real values have gradually decreased to very low levels (Dobrotic and Stropnik 2020). This has reduced the incentives, especially for high-income women, to take up these leaves, given the forgone earnings and human capital loss resulting from career breaks lasting several years (Karu and Pall 2009; Spéder and Kamarás 2008). Over time, policy-makers have also recognized economic inefficiencies from the prolonged absence of high-skilled female workers from the labor market.¹² Since the late 2000s, some countries (the Baltic countries, Czechia and Poland) have therefore introduced flexible family leave programs that allow (and encourage) at least highly educated women to choose shorter leave periods with higher levels of allowance, or they have started providing earnings-related family leave benefits (see Section 5.1 for a detailed description of the evolution of family policies). Since the introduction of these programs, the employment rate of women with pre-school children has increased in many CEE countries, especially Czechia, Poland, Hungary, Latvia, and Lithuania (see Appendix Figure A. 3).

The traditional family model with mothers as primary caregivers has started to weaken gradually (following a substantial rise in women's education and income, and also under the influence of an inflow of international non-profit organizations advocating equal rights for women and men) and fathers' participation in caregiving has started to increase, even if very slowly. Gender-equality in family leave policies has further strengthened due to EU accession, as the new EU member states have had to adhere to the 1996 EU Parental Leave Directive stipulating each parent's individual right to at least three months of parental leave. In the early 2000s, some CEE countries (Slovenia, Hungary, Romania, Baltic countries) introduced the first paternity leaves and father quotas, providing fathers with an exclusive right to a part of paid family leave (Dobrotic and Stropnik 2020).

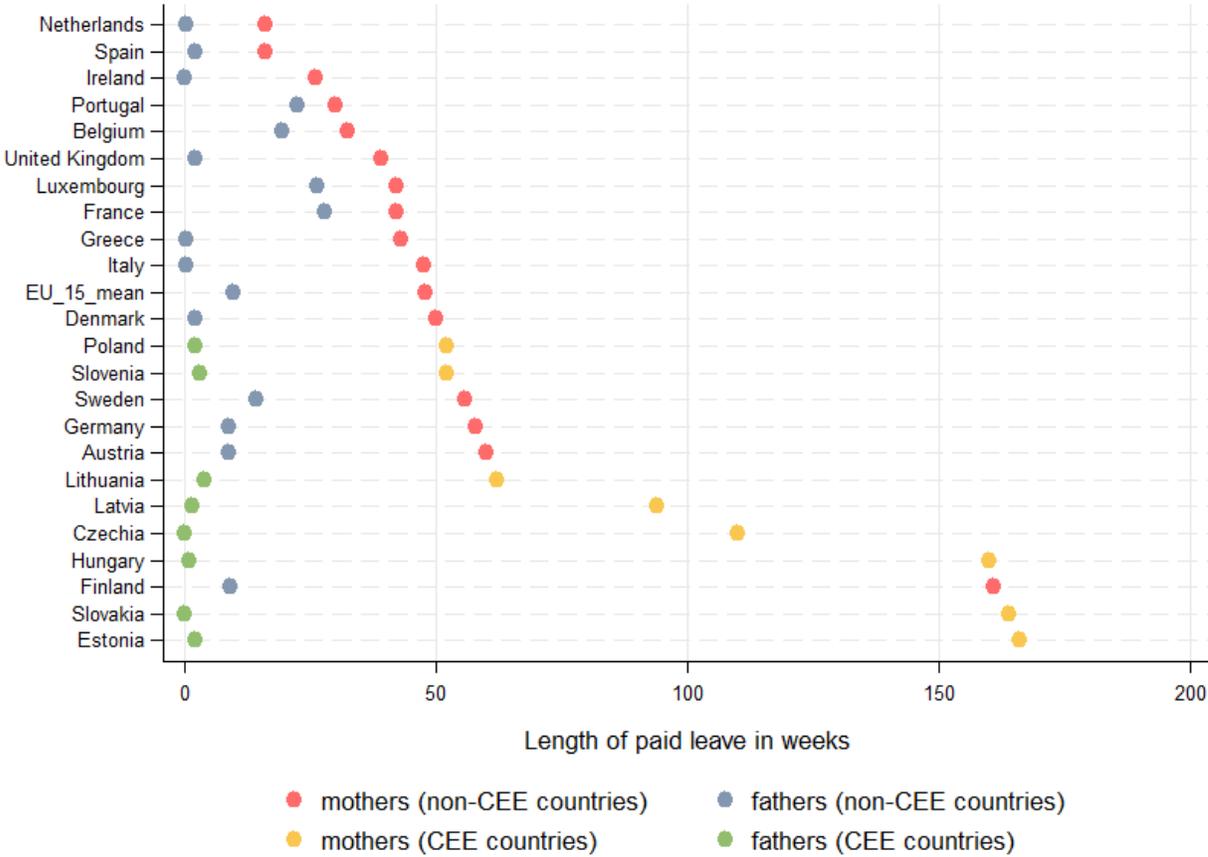
a longer interval between the first and second child, and lower probability of having two children within 10 years of the first birth in Czechia.

¹¹ Source: OECD (https://stats.oecd.org/Index.aspx?DataSetCode=LFS_SEXAGE_I_R)

¹² The long career breaks of highly educated women also represent a non-negligible cost to the economy by, e.g., lowering returns to women's human capital investments.

Despite this reversal, Figure 3 shows that, in 2016, mothers in some CEE countries (such as Estonia, Slovakia, Hungary, Latvia, Czechia) can still take long paid family leaves, especially compared to the EU15.¹³ In contrast, paternity leaves and parental leaves reserved for fathers, which are now widespread in EU15 countries, have much shorter duration in the majority of CEE countries, suggesting that fathers' participation in caregiving and gender equality in family policies in these countries are still behind the EU trend.

Figure 3. Paid family leave available to mothers and fathers, 2016



Source: OECD / Family Database (<https://stats.oecd.org/Index.aspx?DataSetCode=FAMILY>)

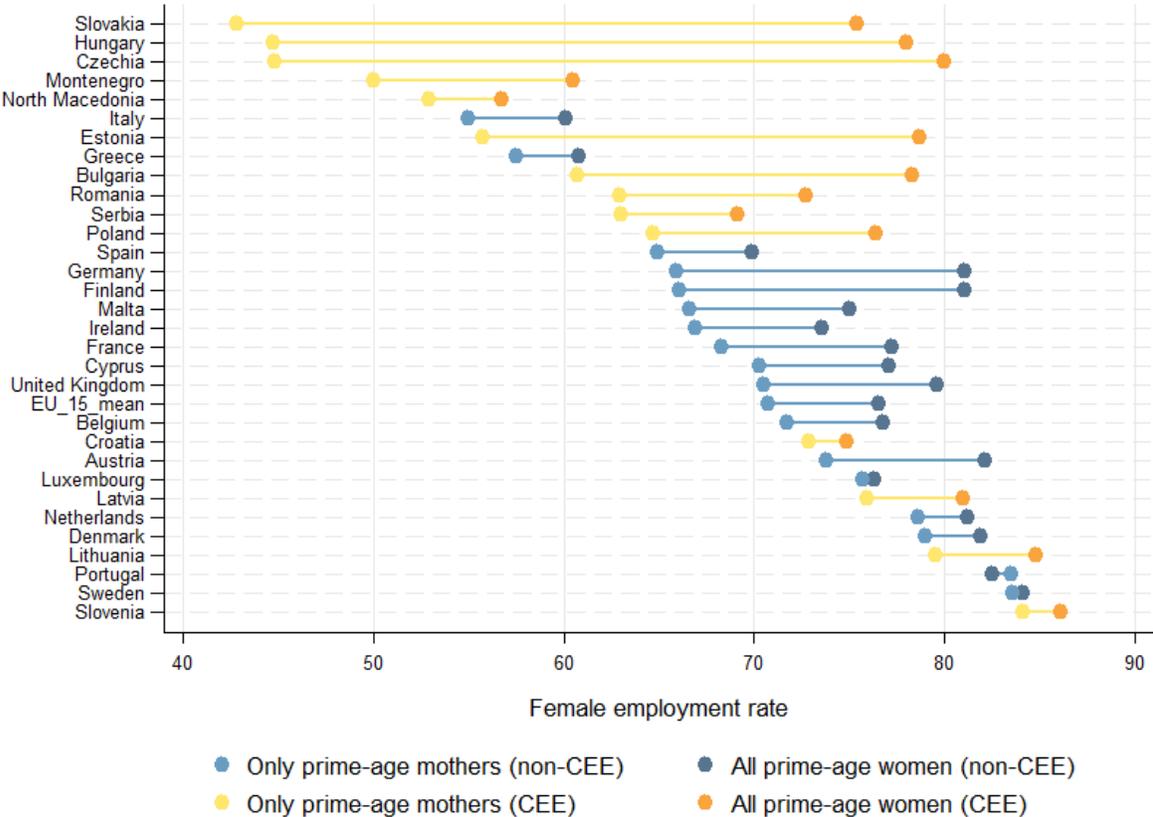
Note: The Figure shows the length of paid maternity and parental leave available to mothers in weeks and the length of paid paternity and parental leave reserved for fathers. Fathers' leave refers to entitlements to paternity leave, 'father quotas' or periods of parental leave that can be used only by the father and cannot be transferred to the mother, and any weeks of sharable leave that must be taken by the father in order for the family to qualify for 'bonus' weeks of parental leave.

¹³ Unfortunately, data on the length of paid family leaves available to mothers and fathers are not available for all CEE countries. The discussion here is thus limited only to the countries with non-missing information. However, in Figure 7 below, we show duration of work interruptions for childcare for women in all CEE EU member states in 2018. As we focus on maternal employment in 2019 (the most recent data available), we report the family leave policies as of 2016. The 3-year long family leaves would have still been ongoing or just completed, which is more relevant for the maternal employment in 2019 than any of the more recent policy changes (which we discuss later in Section 5.1).

The gradual reversal of the trend in family policies and traditional gender attitudes has improved maternal employment rates in many CEE countries over the last two decades (see Appendix Figure A. 3). However, given the persistence of the availability of long paid family leaves, as shown in

Figure 3, mothers’ career-breaks after childbirth still last several years in some CEE countries, resulting in very low employment rates of mothers with young children. The overall employment rates of prime-age women, however, are still quite high and above many of the EU15 countries in 2019, as shown in Figure 4.¹⁴ The difference between the overall employment of women and that of mothers in CEE countries contrasts with EU15 countries: While the majority of CEE countries have an overall female employment rate of prime-age women at least as high as those in the EU15, their employment rate among mothers with pre-school children is much lower. The gap between the two rates is much wider in CEE countries (especially in Slovakia, Hungary, Czechia, and Estonia) than in any other EU country.

Figure 4. Female employment rate of all prime-age women and of mothers with young children, 2019



Source: Eurostat / LFST_HHEREDCH (https://ec.europa.eu/eurostat/databrowser/view/LFST_HHEREDCH/)
 Note: Prime-age women are women aged 25 to 54 years old. Mothers are women with a youngest child aged less than 6 years.

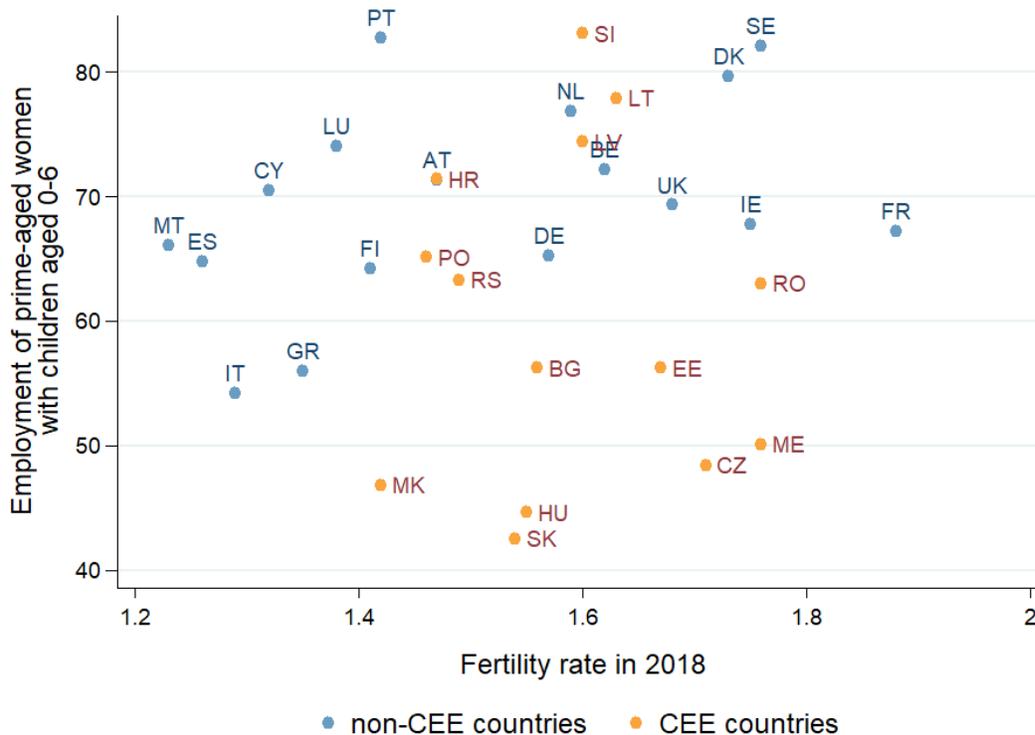
¹⁴ We attribute the high female participation rates to the still-prevailing norm of the working woman inherited from Communism and the fact that the majority of mothers return to the labor market even after taking long leaves.

3.3. CEE vs EU15 Countries: Key Relationships

We have briefly compared CEE with the EU15 countries in terms of fertility rates, family leave entitlements, and female and maternal employment. We now look at the potential relationships between these three characteristics, as documented for the EU15 countries (Adsera 2004), and identify whether the same patterns are also observed among CEE states.

Figure 5 relates the employment rate of mothers of pre-school children with the fertility rate in 2018. Comparing the two sets of countries, we see that there is less heterogeneity in the fertility rate among CEE countries than among the EU15, with CEE countries being close to or slightly above the EU15 average. However, employment of mothers of pre-school children is much lower among CEE countries than in the EU15 at any level of fertility rate. Focusing on the relationship between fertility and maternal employment, the two groups of countries show a very different pattern: While there seems to be a rather clear positive correlation between fertility and maternal employment among the EU15, no such relationship is detectable among CEE countries.¹⁵

Figure 5. Fertility rates and employment of prime-age mothers with young children, 2018



Source: Eurostat / DEMO_FRATE, LFST_HHEREDCH
https://ec.europa.eu/eurostat/databrowser/view/DEMO_FRATE_custom_411366,
https://ec.europa.eu/eurostat/databrowser/view/LFST_HHEREDCH

¹⁵ For EU15 countries, the coefficient from a simple regression of fertility on maternal employment is 19.37 with a p-value = 0.104. For CEE countries, the corresponding coefficient is -1.81 with p-value = 0.959.

A positive correlation between fertility and overall female employment has already been established in Adsera (2004) using 23 non-CEE OECD countries. She suggests the positive relationship indicates that fertility decisions are affected by women's employment prospects, attributing the low fertility and postponed childbearing in South European countries to high unemployment and the prevalence of unstable contracts, and the high fertility in Scandinavian countries to the large share of the public sector offering stable family-friendly employment. There is also evidence of a positive relationship between employment prospects and fertility in CEE countries, with a still large public employment sector and relatively good overall female employment prospects (as reflected by the female employment rate of prime-age women in Figure 4 above) and high fertility rates vis-à-vis the EU15.

Why, then, do we observe no such relationship between the employment prospects of mothers of pre-school children and fertility among the CEE countries in Figure 5? While all these countries have relatively high fertility rates, the employment rates of mothers of pre-school children vary substantially, suggesting that fertility is likely driven by other factors. What seems clear, however, is that the employment prospects of mothers with pre-school children in some CEE countries are affected by the duration of career breaks following the fertility decision and childbirth, as driven by the family leave entitlements discussed above.

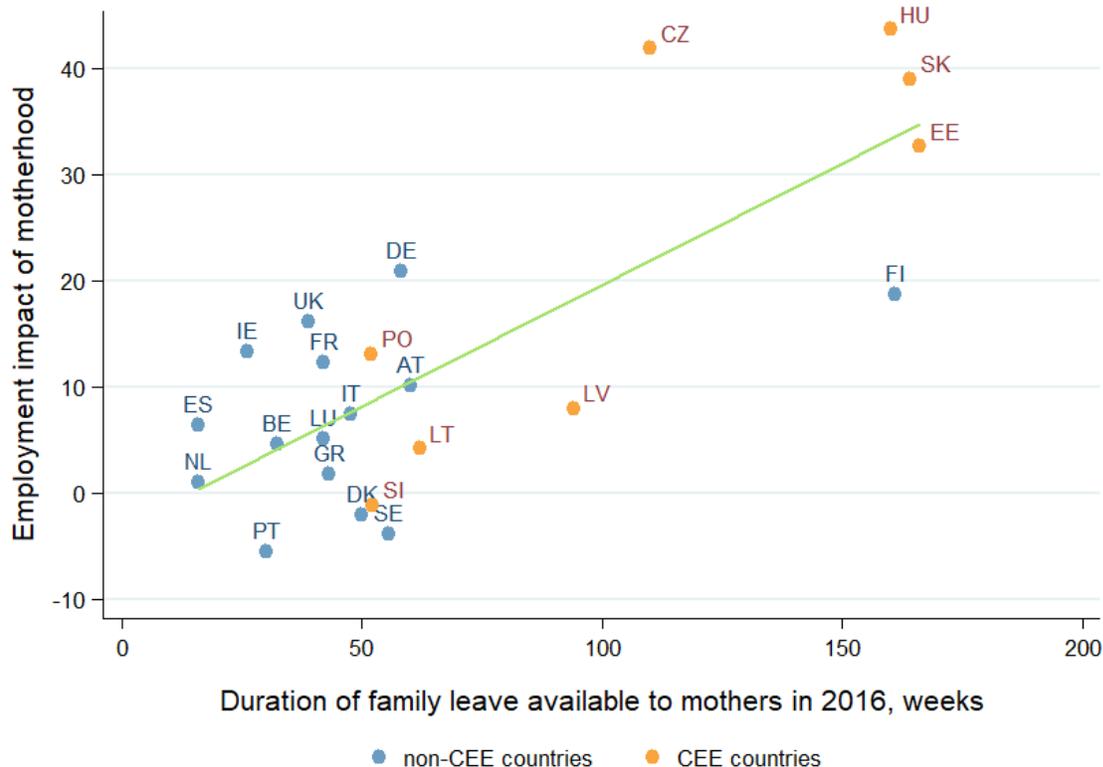
This is further confirmed by Figure 6, which shows the relationship between family leave entitlements and the employment impact of motherhood.¹⁶ There is a strong positive relationship between these two indicators.¹⁷ Several CEE countries (Hungary, Slovakia, Estonia, Czechia) stand out with both very long family leaves and the largest motherhood impact. Clearly, the positive relationship between these two variables is driven by the absence of mothers of pre-school children from the labor force owing to several years spent at home after childbirth, resulting from the availability of long family leaves. In addition, the possible adverse impact of a career break lasting several years on human capital depreciation and job loss is likely to further reduce the share of mothers with pre-school children who are employed (Bičáková and Kalíšková 2019).

So far, we have discussed CEE countries mostly as a group and contrasted their distinct features with the EU15. Figure 6 reveals that there is substantial variation in the duration of paid family leaves and in maternal employment across CEE countries. In the next section, we zoom in on the individual countries, document the cross-country differences within this group, and consider the potential sources of the documented heterogeneity.

¹⁶ Employment impact of motherhood is calculated as the difference between the employment rate of childless women and women with at least one child below 6 years of age (in percentage points). The EU definition of the employment impact of parenthood is slightly different, as it compares individuals with and without children below 6 (see EU social indicators' definitions: <https://ec.europa.eu/social/main.jsp?catId=818&langId=en&id=176>). Including women with children older than 6 in the comparison group (following the Eurostat definition) could underestimate the employment impact of motherhood, as child-birth related career breaks of several years in some of the CEE countries are likely to have a long-term impact on maternal employment even beyond a child's sixth birthday. Nevertheless, the employment impacts of motherhood are quite similar using both our and the Eurostat definition.

¹⁷ The coefficient from a simple regression of the employment impact of motherhood on the duration of paid family leave is 0.2286 with p-value = 0.000.

Figure 6. Family leave entitlements and the employment impact of motherhood, 2016



Source: Eurostat / LFST_HHEREDCH & OECD / Family Database

Note: Family leave is the length of paid maternity and parental leave available to mothers in weeks. The employment impact of motherhood is calculated as the difference between the employment rate of childless women aged 25-54 and women aged 25-54 with at least one child below 6 years of age (in percentage points).

4. Zooming in on CEE Countries: Empirical Facts and Main Patterns

As our focus is on post-birth career breaks and maternal employment, we start with a detailed cross-country comparison of labor force participation and employment of mothers with young children. We explore the relationship between the duration of family leaves and mothers' post-leave labor market outcomes, and then consider and review other relevant factors that may be driving the observed motherhood penalty.

4.1. Female and Maternal Employment within the CEE Group

In terms of the overall female employment rate, the economic activity of women is the highest in Slovenia, Lithuania, Latvia, and the Czech Republic, with 80% and above in 2019. It is also relatively high in Estonia, Bulgaria, and Hungary (above 75%). On the other side of the spectrum, in three South-Eastern countries (North Macedonia, Montenegro, and Serbia), the female employment rate is below 70% (see Table 2). For several countries, these patterns contrast with the ranking we obtain when

focusing on the female employment rate among mothers of pre-school children (less than 6 years old). While North Macedonia (50%) and Montenegro (52.9 %) again rank at the bottom with the lowest maternal employment rates, they are accompanied by several countries (Slovakia, Hungary, Czech Republic and Estonia) that rank at the top in terms of the overall female employment rate but have very low economic activity of mothers with pre-school children. In particular, the share of women with pre-school children who are employed is very small in Slovakia (42.8 %), Hungary (44.7 %), the Czech Republic (44.8%), and Estonia (55.7%).

Table 2. Female and maternal employment in CEE countries

	Employment rate, all prime-age women (%), 2019	Employment rate, prime-age mothers with pre-school children (%), 2019	Employment rate, childless prime-age women (%), 2019	Employment impact of motherhood (p.p.), 2019	Total fertility rate, 2018
Albania	.	.	.	.	1.37
Bulgaria	78.3	60.7	81.6	20.90	1.56
Croatia	74.9	72.9	72.9	0.00	1.47
Czechia	80	44.8	89.8	45.00	1.71
Estonia	78.7	55.7	85.1	29.40	1.67
Hungary	78	44.7	86.8	42.10	1.55
Latvia	81	75.9	81.9	6.00	1.6
Lithuania	84.8	79.5	86.6	7.10	1.63
Montenegro	60.5	50	63.7	13.70	1.76
North Macedonia	56.7	52.9	58.6	5.70	1.42
Poland	76.4	64.7	81.7	17.00	1.46
Romania	72.7	62.9	77.5	14.60	1.76
Serbia	69.1	63	68.1	5.10	1.49
Slovakia	75.4	42.8	84.7	41.90	1.54
Slovenia	86.1	84.1	83.8	-0.30	1.6
CEE (mean)	75.19	61.04	78.77	17.73	1.57
EU15 (mean)	76.55	70.73	78.35	8.28	1.54

Source: Eurostat, LFST_HHEREDCH (https://ec.europa.eu/eurostat/databrowser/view/LFST_HHEREDCH/), DEMO_FRATE (https://ec.europa.eu/eurostat/databrowser/view/DEMO_FRATE__custom_411366/), own calculations (of the means and the motherhood penalty)

Note: Pre-school children are those younger than 6 years. Childless women are defined by Eurostat as women with no children in the household. Motherhood penalty – the employment impact of motherhood - is calculated as the difference between the employment rate of childless women and women with at least one child below 6 years of age (in percentage points).

In terms of the overall comparison of CEE countries with the EU15, the table quantifies what was already apparent in Figure 4: that the maternal employment rate in the former group (61%) is 10 p.p. lower than that in the latter group (71%).

The contrast between the overall female employment rate and the economic activity of mothers with young children is pronounced even more when we exclude women with small children from the aggregate indicator and focus solely on the employment rate of women without young children. The employment rate of childless prime-age women is above 80% for 9 of the CEE countries, including those with very low maternal employment. Consequently, it is these countries that suffer from the most sizeable employment impact of motherhood, which exceeds 40 p.p. in the Czech Republic, Hungary, and Slovakia, and is close to 30 p.p. in Estonia. In countries that rank similarly in terms of the employment rates of mothers of pre-school children and of childless women, whether at the top (Slovenia, Lithuania,

Latvia), middle (Croatia), or at the bottom (North Macedonia or Serbia), the employment impact of motherhood is naturally much smaller (below 10 p.p.).

On average, the employment impact of motherhood in CEE countries of 17.7 p.p. is more than twice as high as in the EU15 (about 8.3 p.p.). The facts described above, however, reveal important differences within the CEE group: While low maternal employment in some countries (such as North Macedonia or Montenegro) mostly reflects the overall extent of women's economic activity, possibly driven by traditional social norms and gender role attitudes related to the overall position of women in the society, in other countries (such as Slovakia, Hungary, Czech Republic, and Estonia), it is only a temporary phenomenon directly linked to childbirth. It is natural to expect that the employment impact of motherhood in these countries is, to some extent at least, driven by family leave policies and other tools/conditions/factors that help balance work and family.

4.2. Family Leave Policies in CEE Countries

Table 3 compares the length and generosity of family leave entitlements across CEE countries.¹⁸ On average, CEE countries provide much longer paid family leaves to mothers than EU15 countries – the mean length of paid leave for mothers in CEE countries is more than double that available in the EU15. The job protection period is also substantially longer (again almost twice as long). In contrast, paid family leaves reserved for fathers are – still in line with traditional gender norms – much shorter in CEE countries (on average, less than 2 weeks, compared to almost 10 weeks in the EU15).

There is, however, quite substantial variation in these policies within CEE. For example, Hungary, Slovakia, and Estonia offer 3-year paid family leaves for mothers, while Poland, Slovenia, and Lithuania offer 1-year paid family leaves. Some CEE countries now also offer flexible family leave policies allowing (some) parents to choose the total length of paid leave and the corresponding level of monthly benefit. For countries with these systems, the cross-country comparisons (Table 3) typically report the shortest option, which is, however, rarely available to (and used by) all women, and often not even available to all previously-working women.¹⁹ Moreover, some countries with shorter paid family leaves have long job protection periods (Poland, Lithuania), which, along with the limited availability of formal childcare, may also result in low maternal employment.

Annual expenditures on parental leave benefits in CEE countries are correspondingly much larger than in the EU15 (almost twice as large expenditures per inhabitant). However, given that these expenditures

¹⁸ We report family leave policies as of 2016, given data constraints (regarding job protection) as well as relevance. As we focus on maternal employment (of women with children 0-6) in 2019 (the available most recent values), we consider the 2016 family leave policies the most relevant because the impact of paid family leaves of several years and long job protection duration are still likely to be reflected in the observed cross-country differences in the 2019 maternal employment.

¹⁹ For example, the Czech parental leave system allows parents to choose from various lengths of benefit collection and the corresponding size of the monthly benefit. However, the size of the monthly benefit has a ceiling at 70% of previous earnings. Therefore, most women cannot collect benefit within the shortest possible time because they do not have high enough earnings. In 2016, the shortest duration of parental leave benefit was until the child's 2nd birthday, but only women with earnings above 77% of the median female wage were eligible for this shortest track. Women who did not work prior to childbirth were only eligible for the longest family leave of 4 years with a correspondingly low monthly benefit.

are distributed among a much larger pool of mothers taking longer parental leaves in CEE countries, it seems that the average monthly level of parental leave benefit is not higher in CEE countries compared to the EU15.

Table 3. Family policies in CEE countries

	Length of family leave available to mothers (weeks), 2016	Length of family leave reserved for fathers (weeks), 2016	Length of job protection period, (weeks), 2016	Expenditures on periodic parental leave benefit (EUR per inhabitant (at 2010 prices), 2016	Expenditures on income benefit at childbirth (EUR per inhabitant (at 2010 prices), 2016
Albania	.	.	.	.	.
Bulgaria	.	.	.	11.80	23.67
Croatia	.	.	.	32.91	26.44
Czechia	110	0	134	79.48	28.79
Estonia	166	2	146	8.94	162.83
Hungary	160	1	136	66.12	15.99
Latvia	94	1.4	78	70.80	21.32
Lithuania	62	4	148	60.14	22.92
Montenegro	.	.	.	0.00	17.29
North Macedonia	.	.	.	0.00	15.58
Poland	52	2	183.7	54.19	7.50
Romania	.	.	.	23.85	6.43
Serbia	.	.	.	24.80	7.43
Slovakia	164	0	130	59.82	25.88
Slovenia	52	2.9	37.1	91.49	22.85
CEE (mean)	107.51	1.66	124.1	41.74	28.92
EU15 (mean)	47.92	9.60	69.91	25.87	87.21

Source: Eurostat/SPR_EXP_FFA (https://ec.europa.eu/eurostat/databrowser/view/SPR_EXP_FFA_custom_416306) & OECD / Family Database (<https://stats.oecd.org/Index.aspx?DataSetCode=FAMILY>)

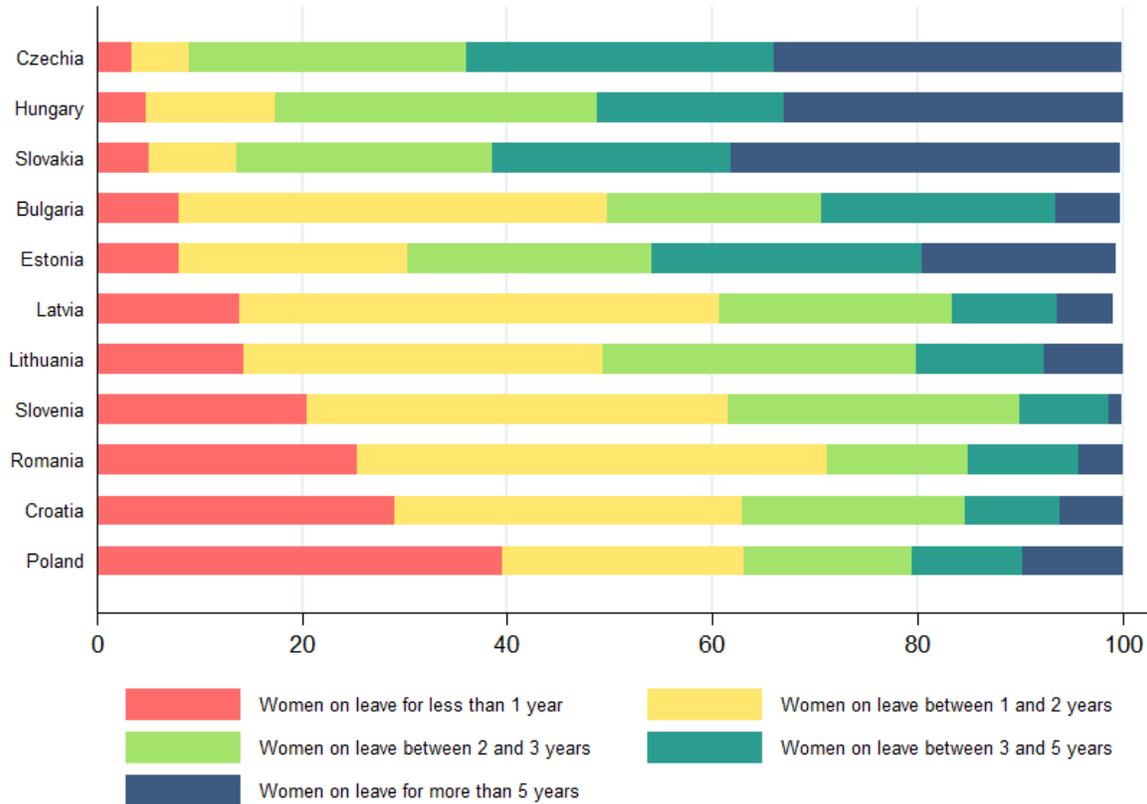
Note: The expenditures on periodic parental leave benefit and income benefit at childbirth report the total annual expenditures on these benefits (in euro at constant 2010 prices) divided by the number of inhabitants.

While Table 3 describes the statutory family leave entitlements in CEE countries, what is even more important to consider when studying maternal employment is the take-up of the (often very long) leaves and mothers' decision to stay on leave even after the statutory (paid) leave ends. Figure 7 shows that both the take-up of long statutory family leaves and the share of women who take longer than the statutory paid family leaves are high in many CEE countries. Women on leave for less than 1 year are very rare in countries like Czechia, Hungary, Slovakia, Bulgaria, and Estonia, where available paid leaves are long, but also in countries like Latvia, Lithuania and Slovenia, where paid leaves are much shorter. The majority of mothers in Czechia, Slovakia, and Hungary are on leave for 3 or more years, while in Bulgaria, Estonia, and Lithuania they are mostly on leave longer than 2 years. The long paid family leaves, which are used by many mothers and often extended even beyond the statutory maximum duration, directly account for the low maternal employment and high employment impact of motherhood that we observe in Czechia, Slovakia, Hungary, and Estonia.

The impact of long paid family leaves on maternal employment depends on leave take-up, which is likely to be affected by the availability of alternative forms of childcare to substitute maternal care. Even in countries where only short paid family leaves are available, women will return to the labor force earlier after childbirth only if they find affordable childcare. Next, we discuss the availability and usage of

alternative forms of childcare as a potential substitute for a mother’s presence at home (and absence from the labor market) across CEE countries.

Figure 7. Distribution of the duration of work interruptions for childcare, women



Source: Eurostat / LFSO_18STLENED (https://ec.europa.eu/eurostat/databrowser/view/LFSO_18STLENED_custom_706632/)

Note: Women aged 25-49 years with work interruption for childcare by duration of interruption (% of total women with nonzero work interruption for childcare), 2018.

4.3. Available Forms of Childcare for Pre-School Children

As we are interested in potential barriers to maternal employment, we focus on the availability (and use of) various forms of childcare for at least 30 hours a week.²⁰ The difference between the use of formal childcare for very young children in the EU15 and CEE is remarkable, with almost 30% of children younger than 3 enrolled in formal childcare in the EU15 and 16% in CEE countries (see in

²⁰ The data only distinguish between the use of childcare of less or more than 30 hours per week. As we want to filter out any occasional childcare of several hours per week that mothers may report but that would not enable them to work even part-time, we look at childcare usage greater than 30 hours per week. The overall use of childcare of any duration is presented in Table A. 1 in the Appendix and is referred to in the text whenever there are substantial differences between the two measures.

Table 4). The enrollment of pre-school children (3-6) is similar in the two regions, with CEE (59%) slightly higher than that in the EU15 (58%). There is again substantial heterogeneity across CEE countries in the use of formal childcare, which seems closely related to the observed levels of maternal employment. The enrollment of children 0-2 in formal childcare is 44% and that of 3-6 children is 90% in Slovenia, a country with by far the highest maternal employment rate. The use of formal childcare for children 0-2 ranges from 27% and 23% in Latvia and Lithuania, respectively, to 5% or less in Romania, Slovakia, and the Czech Republic, which mirrors these countries' rankings by the economic activity of mothers of very young children. The enrollment of children 0-2 in formal childcare of any kind, including one with duration of less than 30 hours a week (presented in Table A. 1 in the Appendix), is only somewhat higher and more or less mimics the same pattern, suggesting that the use of part-time formal childcare is fairly limited and probably without any substantial additional implications for maternal employment. The only difference is Romania, where the overall use of formal childcare of children 0-2 is 14%.²¹

Some countries deviate from the positive relationship between maternal employment and formal childcare availability (and usage), e.g. Estonia, with its low maternal employment rate (and large employment impact of motherhood) despite having the third highest share of children 0-2 in formal childcare (24%), and the third highest in terms of formal childcare of any duration (32%, see Table A. 1 in the Appendix). Hungary, with the second highest employment impact of motherhood, also has relatively high formal childcare enrollment (14%) of children 0-2 when compared to other countries. On the other hand, Croatia has a relatively high maternal employment rate, but only 15% of children 0-2 in formal childcare. Three other countries (Poland, Serbia, and Romania) have a relatively high maternal employment rate, but even lower formal childcare enrollment of children 0-2. While the relatively high use of formal childcare in Estonia (and Hungary) – countries with low maternal employment rates – remains a puzzle, the reversed situation in the other four countries can be partly explained by the use of informal childcare that seems to substitute the limited availability of formal childcare in these countries.

The informal childcare usage reported in Table 4 refers to either informal care by relatives or by a private child-minder. Unfortunately, the two cannot be separated in the data. The use of informal childcare for children 0-2 is between 10-12% in the four countries mentioned above (Croatia, Poland, Serbia, and Romania), suggesting that the relatively high maternal employment rates there are achieved thanks to informal childcare supplementing the limited availability and use of formal childcare. Informal childcare (of 7%) also complements the use of formal childcare in Slovenia, further accounting for the high maternal employment rates there. Interestingly, the use of informal childcare is the highest (almost 20%) in North Macedonia, a country with a very low maternal employment rate but also the lowest employment rate of women overall.

Finally, we also explore the overall use of informal childcare, including childcare with duration shorter than 30 hours a week (see Table A. 1 in the Appendix). While the use of regular, even if shorter, informal childcare may be exploited by working mothers with lower than full-time arrangements, the data does not allow us to distinguish this form of childcare from only occasional use. As expected, the use of informal childcare of any duration is much higher almost everywhere, but it is about 33% among children 0-2 and 37% among children 3-6 in CEE countries (compared to about 26% in both these

²¹ As discussed in Section 4.4, the use of part-time employment in Romania by mothers of young children is, however, limited, suggesting that the part-time use of formal childcare seems not to be driven by the demand of mothers with only partial employment.

categories in the EU15), suggesting that informal childcare does at least partly make up for the lower availability and use of formal childcare in CEE.

The difference in the extent of informal childcare usage when childcare with any duration is considered is striking, especially in countries with low maternal employment rates and low use of formal and informal childcare exceeding 30 hours per week. About 43% of children 0-2 are exposed to some informal childcare in Hungary, 40% in the Czech Republic, 36% in Poland, and 33% in Slovakia. The use of any childcare is, however, the highest in Romania (53%) and is also high in North Macedonia (43%). Except for the Baltic States, Bulgaria and Croatia, the use of any informal childcare is widespread in CEE countries, exceeding 30% among children 0-2.

Table 4. Use of formal and informal childcare for at least 30 hours a week in 2019

	Children in formal childcare (below 3 years), % over the population of the same age group	Children in formal childcare (from 3 to 6 years), % over the population of the same age group	Proportion (%) of children using informal childcare arrangements during a typical week, 0- to 2-year-olds	Proportion (%) of children using informal childcare arrangements during a typical week, 3- to 6-years-olds
Albania	.	.	.	.
Bulgaria	18.7	82.7	6.1	4.6
Croatia	14.6	47.4	10.2	12.3
Czechia	2.9	52.4	1.7	2.5
Estonia	23.8	83.9	2.1	2.5
Hungary	13.6	83.8	2.7	3.2
Latvia	27.2	75.3	7.2	4.4
Lithuania	22.9	73.2	7.1	3.8
Montenegro	.	.	.	.
North Macedonia	10.3	.	19.5	:
Poland	8.3	49.6	11.3	8.6
Romania	1	11.5	11.4	5
Serbia	14.8	.	11.7	:
Slovakia	5	68.1	3.6	1.1
Slovenia	44.4	90.3	7.2	2.4
CEE (mean)	15.96	59.29	7.83	4.58
EU15 (mean)	28.71	57.44	6.78	2.63

Source: Eurostat, ILC_CAINDFORMAL (https://ec.europa.eu/eurostat/databrowser/view/ILC_CAINDFORMAL__custom_420079) & ILC_CAINDOTHER (https://ec.europa.eu/eurostat/databrowser/view/ILC_CAINDOTHER__custom_667644), own calculations (of the CEE and EU15 means). Note: Only childcare with duration of 30 hours a week or longer is considered. Informal childcare consists of childcare by a professional child-minder at the child's home or at the child-minder's home and the childcare by grand-parents, other household members (outside parents), other relatives, friends or neighbors. For EU15 means, UK data are missing.

4.4. Flexible Forms of Work

Even if pre-school children are enrolled in formal childcare, it is usually difficult for their mothers to work, especially full-time, as formal care is typically available for a shorter daily duration than the full-time working hours. As pre-school children are often sick, someone must stay at home with them frequently, which is also often incompatible with full-time employment. Flexible forms of work, on the other hand, can help mothers return to the labor market earlier after childbirth and better balance their work and family commitments. We next focus on the availability and usage of flexible forms of work in CEE countries, such as part-time employment or work-from-home options. We also investigate whether

mothers after childbirth may enter self-employment as a way to solve the family-work balance or as a result of an unsuccessful job search following a period of family leave when not entitled to return to previous job thanks to job protection.

Part-time Work

Table 5 shows that the availability and use of part-time employment in CEE countries is well below the EU15, with the share in overall employment of less than 7% (3%) in CEE compared to over 30% (7%) in the EU15 among women (men). As expected, the share of part-time employment is substantially higher among mothers with pre-school children in both CEE countries and the EU15, but it is used almost 4 times more in the latter (almost 40% of total employment) than in the former group (12%). Fathers of pre-school children, on the other hand, are less likely to work part-time, either due to selection into marriage and fatherhood or higher needs for income, reflecting larger household size.

Table 5. Part-time employment (by presence of pre-school children) in 2019

	Part-time employment, all prime-age women (% of total employment), 2019	Part-time employment, prime-age mothers with pre-school children (% of total employment), 2019	Part-time employment, childless prime-age women (% of total employment), 2019	Part-time employment, all prime-age men (% of total employment), 2019	Part-time employment, prime-age fathers with pre-school children (% of total employment), 2019	Part-time employment, childless prime-age men (% of total employment), 2019
Albania	.	.	.	.	.	.
Bulgaria	1.8	.	1.8	1.3	.	1.2
Croatia	5.8	6.4	6	2.4	1.6	3.3
Czechia	9.5	24.6	5.7	1.8	0.9	2.7
Estonia	13.4	24.2	10	5.1	3.9	6.9
Hungary	5	12.5	3.8	2	1.1	2.6
Latvia	9.1	12.2	9.5	3.4	4.4*	4.2
Lithuania	6.6	5.8	6.4	3.4	2.3	4.1
Montenegro	3.9	.	.	4.1	.	4.5
North Macedonia	3.5	4.7	2.9	3.7	4	4.1
Poland	7.8	9.6	5.5	2.3	1.4	3.1
Romania	4.9	6.5	4.2	4.8	4.8	5.2
Serbia	8.4	7.7	8.8	7.3	6.4	8.4
Slovakia	5.9	11.3	4.3	2.4	2.3	2.5
Slovenia	9.9	16.1	9.1	2.8	3.3	3
CEE (mean)	6.82	11.80	6.00	3.34	3.03	3.99
EU15 (mean)	31.11	39.22	23.02	7.39	6.29	9.06

Source: Eurostat, LFST_HHPTECHI (https://ec.europa.eu/eurostat/databrowser/view/LFST_HHPTECHI__custom_701205/), own calculations (of the CEE and EU15 means)

Note: * Latvia - data for 2018

Comparing Table 5 with the maternal employment rates in Table 2, we conclude that part-time employment (over 10%) seems to be one of the tools that help boost maternal employment in Slovenia and Latvia, and perhaps also Serbia. However, the highest usage of part-time jobs is among the countries from the other end of the maternal employment spectrum: the Czech Republic and Estonia with almost 25% of mothers working part-time, and also Hungary and Slovakia with over 12%. Except for Estonia, the high share of part-time jobs in these countries relative to the CEE average is observed only

among mothers of pre-school children, but not among childless women. The high share of part-time employment among mothers with pre-school children in these countries suggests that not only do these mothers return to employment after childbirth much later than elsewhere, but when they return, it is only on a part-time basis. This fact reveals that the already high employment impact of motherhood in these countries would have been even larger if expressed in terms of full-time employment rates or when hours of work would have been considered instead of employment rates.

Work-from-home

When we focus on the prevalence of work-from-home in the CEE countries, we again see that they lag behind the EU15 average, with a 9% share in total employment in the former group versus 23% in the latter (Table 6). Interestingly, the averages are very similar for prime-age women and prime-age men. Work-from-home is used, on average, somewhat more frequently by mothers (and fathers) with pre-school children than by childless women (men), but the difference is quite small and even zero or negative in some countries.

Table 6. Use of work-from-home (by presence of pre-school children) in 2019

	Percentage of all employed prime-age women working at home (% of total employment)	Percentage employed prime-age mothers with pre-school children working at home (% of total employment)	Percentage employed childless prime-age women working at home (% of total employment)	Percentage of all employed prime-age men working at home (% of total employment)	Percentage employed prime-age fathers with pre-school children working at home (% of total employment)	Percentage employed childless prime-age men working at home (% of total employment)
Albania	.	.	.	.	.	.
Bulgaria	1	.	.	1.1	.	1.3
Croatia	7.7	8.4	6.8	7	7.3	6.4
Czechia	10.3	13.5	9.1	10.4	11.3	9.1
Estonia	24.3	27.6	23.9	22	25.8	20
Hungary	4.7	6	4.3	4.9	6	4.7
Latvia	5.5	2.5	7.4	4.9	4.4	4.8
Lithuania	4.5	4.7	4.1	4.8	4.1	5.1
Montenegro	5	.	3.9	7.8	8.6	8.4
North Macedonia	3.2	3.3	2.7	2.7	2.5	2.9
Poland	15.5	14.3	14.8	14.5	14.8	13.9
Romania	1.7	1.9	1.4	1.2	1.4	1.3
Serbia	7.8	6.8	8.5	6.5	7.4	7.1
Slovakia	10.2	11.4	11	9.9	11	9.3
Slovenia	20.3	21.7	18.3	16.9	16.9	14.7
CEE (mean)	8.69	10.18	8.94	8.19	9.35	7.79
EU15 (mean)	23.02	23.51	21.58	23.90	25.41	21.37

Source: Eurostat, LFST_HHWAHCHI (https://ec.europa.eu/eurostat/databrowser/view/LFST_HHWAHCHI__custom_701240/), own calculations (of the CEE and EU15 means)

Note: The table reports a percentage of employed individuals who usually or sometimes work at home.

Again, from the perspective of the observed level of maternal employment, it appears that work-from-home may be another tool that allows a high-share of mothers of pre-school children in Slovenia (and to some extent Croatia) to be employed. At the same time, similar to the case of part-time employment, work-from-home is mostly used by mothers (and fathers) of pre-school children (as opposed to childless individuals) in countries with relatively low maternal employment, particularly in Estonia (28%) and the

Czech Republic (14%). These rates suggest that the relatively high share of mothers of pre-school children who (first) return to employment after childbirth in these countries are those who can work from home. Work-from-home is also prevalent in Poland (14%) and Slovakia (11%), but among both mothers with pre-school children and childless women.

Self-employment

Finally, we explore whether and to what extent mothers become entrepreneurs to be able to return to the labor market after childbirth and as a tool to help them balance work and family (Table 7).

Table 7. Self-employment (by presence of pre/school children) in 2019

	Self-employed all prime-age women (% of total employment), 2019	Self-employed prime-age mothers with pre-school children (% of total employment, 2019)	Self-employed childless prime-age women (% of total employment), 2019	Self-employed all prime-age men (% of total employment), 2019	Self-employed prime-age fathers with pre-school children (% of total employment), 2019	Self-employed childless prime-age men (% of total employment), 2019
Albania	.	.	.	.	.	.
Bulgaria	7.2	6.9	6.6	13.1	14.2	11.2
Croatia	6.6	6.5	6.4	12.7	12	10.2
Czechia	11	12.2	10.5	19.7	18	18.1
Estonia	7.3	9.2	7.1	15.4	18.1	12.6
Hungary	7.5	6.7	7.5	12.2	12.2	11
Latvia	9.9	11.1	10	12.7	13.4	11.3
Lithuania	8.4	7.9	8	15.2	14.5	15.1
Montenegro	9.5	8.3 *	7.5	23.5	25.9	21.1
North Macedonia	9	6.7	8.9	19.4	16.3	18
Poland	12.6	12.6	10.8	21.8	22.2	19.3
Romania	8.3	8.6	7.4	18.4	20.3	17.3
Serbia	12	9.9	12.8	22.6	22.1	21.4
Slovakia	9.2	7.6	9.5	19.4	21.8	16.4
Slovenia	8.2	6.7	8.8	14.8	13.4	14.4
CEE (mean)	9.05	8.64	8.70	17.21	17.46	15.53
EU15 (mean)	9.49	8.93	8.96	15.90	15.78	14.27

Source: Eurostat, LFST_HHSECHI (https://ec.europa.eu/eurostat/databrowser/view/LFST_HHSECHI__custom_701192/), own calculations (of the CEE and EU15 means)

Note: * Montenegro – data for 2016

The average share of self-employed (higher for men than for women) is comparable in CEE and EU15 countries, with women being slightly more likely to have their own business in EU15 than in CEE and the opposite for men. The variation across CEE countries ranges from the share of self-employed among men exceeding 20% in Montenegro, Serbia, and Poland to less than 13% in Hungary, Croatia, and Latvia, and from only 6% in Croatia to twice as much in Poland among women (Table 7). When we focus on maternal employment and compare childless women with mothers of pre-school children, the hypothesis that mothers of young children use self-employment as a flexible form of work to better balance work and family has some support only in the Czech Republic, Estonia, and Poland (where there

is at least a 1.5 p.p. difference between the two rates).²² In fact, the share of self-employed among childless women is actually higher than among mothers with pre-school children in 6 of the countries and is basically the same among others.

The fact that mothers of pre-school children are more likely to be self-employed than childless women in the Czech Republic and Estonia – two countries with some of the lowest maternal employment and long family leaves – may suggest that self-employment is one of the options mothers use to be able to return to the labor market at all. After career breaks of several years, especially once the job protection period has already expired, their employment chances may be low (Bičáková and Kalíšková 2019). Thus, entrepreneurship may be the best or only option to enter the labor market and gradually regain the skills and work habits lost while out of work. As mothers who take long family leaves are more likely to have stronger pro-family preferences, they may also choose self-employment as a way to balance work and family when other flexible forms of work are unavailable (Matysiak and Mynarska 2020). Self-employment is, however, not a tool enabling mothers to return to the labor market earlier in these countries (after a shorter leave that would increase the maternal employment rate), but rather as a way to focus more on the family when long leaves end. Finally, the high share of self-employed in these countries is also in line with the conjecture of Gottlieb et al. (2016) that long family leaves provide women with extra time to set up their own business.

5. Policy Reforms and Critical Review of Existing Research

This section first reviews reforms to family leave and childcare policies in CEE countries over the last three decades and then explores their impact on female employment by looking at causal evidence from previous research. To the best of our knowledge, we are the first to present a comprehensive overview of such findings from CEE countries and to provide their comparison, where the results are comparable, with relevant evidence from Western Europe as surveyed, for example, in Olivetti and Petrongolo (2017), Rossin-Slater (2017) and Morrissey (2017).²³

5.1. Family Leave Reforms in CEE Countries and Their Impact on Maternal Labor Supply

In the 1980s and 1990s, many CEE countries introduced and/or extended the length of paid family leaves: Slovenia in 1986, Slovakia in 1990, Czechia in 1990 and 1995, Poland in 1990, Romania in 1990 and 1997, Estonia in 1992, and Lithuania in 1996 (see Panel A of Table 8 for details).²⁴ While the reforms were plentiful, evidence about their causal impact on maternal employment is quite scarce (see Table 9 for an overview of studies on the employment impact of family leave policies in CEE countries).

Two studies analyze the causal impact of the 1995 reform in Czechia that extended the duration of paid parental leave from the third to the fourth birthday of a child (Bičáková and Kalíšková 2019; Mullerová 2017). Both studies conclude that the employment impact of the reform was substantial: the inactivity

²² Interestingly, fathers of pre-school children are also more likely to be self-employed than childless men in Estonia and Poland.

²³ The comparison of findings from CEE countries with evidence from Western Europe, US, or Canada is complicated by the fact that the length of post-birth career breaks tends to be much longer in CEE countries (see Section 3.2).

²⁴ The factors that induced these policy changes and their motivation were discussed in Section 3.2.

of mothers of 3-year-old children increased by 38 p.p. and employment decreased by 27 p.p. The take-up of the 4th year of paid family leave was unexpectedly high, especially given that the duration of job protection remained unaltered at 3 years. These estimates are in stark contrast with studies from Western Europe (Austria and Germany) that found a much smaller impact of similar reforms (Schönberg and Ludsteck 2014; Lalive et al. 2014).²⁵ This may reflect a very high acceptance of Czech mothers with the widely-advocated social norm of mother as the primary caregiver that accompanied the new policy, or it may question the strength of job protection in the Czech Republic in the transition period of the 1990s.

Table 8. Overview of changes in paid family leave duration in CEE countries

<i>Country</i>	<i>Year</i>	<i>Description</i>
Panel A. Introductions and Extensions of Paid Family Leaves		
Slovenia	1986	Extension of paid family leave from 246 days to 365 days (105 days of maternity leave, 260 days of parental leave)
Czechia	1990	Introduction of a 3-year paid parental leave with flat rate benefit
Slovakia	1990	Introduction of a 3-year paid parental leave with flat rate benefit
Poland	1990	Extension of maternity leave from 16/18 weeks (18 for second and further children) to 26 weeks
Romania	1990	Introduction of paid parental leave until child's 1 st birthday (paid at 65% of previous earnings, only for working women)
Estonia	1992	Extension of paid parental leave (called the "child-care leave") from 1 to 3 years (flat rate benefit)
Czechia	1995	Extension of paid parental leave from 3 to 4 years, job protection remained for 3 years
Lithuania	1996	Introduction of paid parental leave until child's 1 st birthday (paying 100% of previous earnings)
Romania	1997	Extension of paid parental leave from 1 to 2 years of a child
Estonia	2006, 2008	Extension of paid parental leave from 365 days to 575 days (paying 100% of previous earnings)
Poland	2007	Extension of paid maternity leave from 16 to 18 weeks for first births
Lithuania	2008	Extension of paid parental leave from 1 to 2 years of a child (100% of previous earnings)
Poland	2009	Extension of paid maternity leave from 18 weeks to 20 weeks for all children
Poland	2010-2012	Introduction of paid parental leave (called the "additional maternity leave"), the length of which was 2 weeks in 2010–2011, 4 weeks in 2012–2013, and 6 weeks from mid-2013
Poland	2013	Extension of paid family leave from 24 to 54 weeks
Romania	2016	Flexible system abolished, returning to a 2-year paid leave system
Panel B. Shortening of Paid Family Leaves and Introducing Flexible Systems		
Poland	2002	Shortening of paid maternity leave from 26 weeks to 16/18 weeks (for first/second and further children, respectively)
Estonia	2004	Replacing 3-year paid parental leave (flat-rate benefit) with a 1-year paid parental leave (benefit of 100% of previous earnings for previously employed, and a flat rate benefit for previously inactive and unemployed)

²⁵ Similarly to the reform in Czechia, the reforms in Austria and Germany also involved extensions of paid leave beyond the period of job protection but extended the paid leaves only to 1.5 and 2 years in Schönberg and Ludsteck (2014) and Lalive et al. (2014), respectively.

Czechia	2008	Flexible system introduced: instead of 4-year paid parental leave, parents can choose if they want to collect the parental leave benefit in 2, 3, or 4 years (choice restricted by pre-birth earnings)
Lithuania	2011	Flexible system introduced with two parental leave benefit options: 100% of net earnings until the child is 12 months or 70% of net earnings until the child is 12 months, and 40% net earnings until the child is 24 months
Romania	2011	Flexible system introduced: a possibility to choose between 1- and 2-year-long paid family leave (with a back-to-work bonus for the 1-year-long option)
Czechia	2012	Flexibility further increased: parents can choose any length of paid parental leave between 2 and 4 years (more flexibility, but still restricted by previous earnings)
Czechia	2018	Flexibility further increased: parents can choose any length of paid parental leave between 1 and 4 years (shortest length only available to high income women), uninsured women newly eligible also for the 3-year-long option

Source: Ainsaar (2001); Brazienė & Vyšniauskienė (2021); Dobrotic (2018); Dobrotic & Stropnik (2020); Dohotariu (2018); Fratzcak, Kulik & Malinowski (2003); Hiriscau (2020); ILO (2014); Korintus & Stropnik (2009); Karu (2012); LP&R (2010-2019); Saxenberg & Sirovátka (2006); Zajkowska (2019).

Bičáková and Kalíšková (2019) also show that the Czech reform increased the likelihood of post-leave unemployment among mothers of 4- and 5-year-olds. As women returned to the labor force after a longer career break, they experienced a higher risk of post-leave unemployment but at a later time after childbirth. Furthermore, the results suggest that after the reform, high-educated women extended their inactivity even beyond the 4 years of paid family leave, while some low-educated women shortened their leaves from more than 6 to less than 6 years. These unintended effects of paid family leave changes are novel in the literature, as they had not been explored and documented previously, even in the research focusing on EU15 countries or the US. The only exception is Lalive et al. (2014), who considered mothers' post-leave unemployment and found that mothers eligible for longer paid family leaves in Austria accumulate fewer months of unemployment in the first 3 years after childbirth.

Hiriscau (2020) estimates the employment impact of another paid family leave reform that took place in Romania in the 1990s, but both the design of the reform and the results differ substantially from the findings of the impact of the paid family leave extension in Czechia. Romania introduced an unexpected extension of paid maternity leave from 2 months to 1 year in January 1990. Hiriscau (2020) uses a regression discontinuity design to show that the reform had no impact on maternal employment 2 years after childbirth. These estimates are in line with the findings of some studies from the US that also conclude that there are no medium- or long-term employment impacts of short paid family leaves (Waldfogel 1999).

As discussed in Section 3.2, a reversal in the trend of family leave extensions occurred in some CEE countries in the 2000s. A number of countries began to introduce shorter paid family leaves with a higher replacement rate or flexible leave programs that allowed parents to choose between a longer paid family leave with a smaller monthly benefit and a shorter paid family leave with a higher monthly benefit. As one of the first, Estonia replaced a flat-rate 3-year paid parental leave (called the child-care leave) with a 1-year fully paid (100% of previous earnings) parental leave program in 2004.²⁶ Czechia, Lithuania, and Romania introduced flexible programs that allowed (eligible) parents to choose between

²⁶ Interestingly, after this substantial reduction in paid leave in 2004, the leave was extended again to 1.5 years in 2008.

longer leaves with a lower monthly benefit and shorter leaves with a higher monthly benefit in 2008, 2011, and 2011, respectively (see Panel B in Table 8 for details).²⁷ The flexibility was sometimes strengthened over time (see the Czech reforms of 2012 and 2018 in Table 8).

Table 9. Effect of family leave policies on maternal employment in CEE countries

<i>Study</i>	<i>Country</i>	<i>Effect of</i>	<i>On outcomes</i>	<i>Method</i>	<i>Main findings</i>
Bičáková & Kalíšková (2019)	Czechia	Extension of (job unprotected) paid parental leave from 3 to 4 years in 1995	Maternal employment, unemployment, and inactivity	Combination of RDD and DID design	38 p.p. increase in inactivity among mothers of 3-year-olds. Unemployment among mothers of 3-year-old children decreased (by 11 p.p.), while that among mothers of 4 and 5 years old increased by 6 and 4.4 p.p.
Bičáková & Kalíšková (2019)	Czechia	Introduction of a flexible system of paid parental leave in 2008 (allowing some women to shorten the paid leave from 4 to 3 or 2 years)	Maternal employment, unemployment, and inactivity	Combination of RDD and DID design	24% of women shortened their leave from 4 to 3 years. The unemployment and inactivity of mothers of 4-year-old children decreased by 3 and 4 p.p., respectively.
Mullerová (2017)	Czechia	Extension of (job unprotected) paid parental leave from 3 to 4 years in 1995	Maternal employment	Combination of RDD and DID design	23 p.p. decrease in the probability of employment at the end of parental leave for mothers of 3-year-old children.
Pertold-Gebická (2020)	Czechia	Introduction of a flexible system of paid parental leave in 2008 (allowing some women to shorten the paid leave from 4 to 3 or 2 years)	Maternal employment and occupation	DID	Medium-educated mothers of 7- and 8-year-olds have 4 and 7 p.p. higher probability of being employed in a high-skilled occupation than before the reform, respectively.
Hiriscău (2020)	Romania	Extension of paid maternity leave from 2 months to 1 year in 1990	Fertility and mothers' employment	Combination of RDD and DID design	Eligible mothers are 3p.p. more likely to have an additional child. No significant effect on mothers' employment 2 years after childbirth.

As discussed in Section 3.2, a reversal in the trend of family leave extensions occurred in some CEE countries in the 2000s. A number of countries began to introduce shorter paid family leaves with a higher replacement rate or flexible leave programs that allowed parents to choose between a longer paid family leave with a smaller monthly benefit and a shorter paid family leave with a higher monthly benefit. As one of the first, Estonia replaced a flat-rate 3-year paid parental leave (called the child-care leave) with a 1-year fully paid (100% of previous earnings) parental leave program in 2004.²⁸ Czechia, Lithuania, and Romania introduced flexible programs that allowed (eligible) parents to choose between

²⁷ In Romania, the flexible program was abolished five years later in 2016. Czechia and Lithuania kept these programs.

²⁸ Interestingly, after this substantial reduction in paid leave in 2004, the leave was extended again to 1.5 years in 2008.

longer leaves with a lower monthly benefit and shorter leaves with a higher monthly benefit in 2008, 2011, and 2011, respectively (see Panel B in Table 8 for details).²⁹ The flexibility was sometimes strengthened over time (see the Czech reforms of 2012 and 2018 in Table 8).

To the best of our knowledge, the only evidence on the effects of these reforms starting in the 2000s comes from Bičáková and Kalíšková (2019) and Pertold-Gebicka (2020), who study the impact of the introduction of the flexible program in Czechia in 2008 (see Table 9). Both studies conclude that this reform, which allowed (eligible) parents to shorten the paid family leave from 4 to 2 or 3 years, had quite large employment impacts: 24% of women shortened their leave from 4 to 3 years and the employment among mothers of 3-year-old children increased by 17-19 p.p. Bičáková and Kalíšková (2019) also document the unintended impacts of the reform on post-leave unemployment and inactivity among mothers of 4-year-old children, which decreased by 3 and 4 p.p., respectively. Pertold-Gebicka (2020) also studies the impact of this reform on post-leave occupational sorting, focusing on the share of women in high-skilled occupations. She estimates that the flexible paid parental leave program increased the probability of being employed in a high-skilled occupation among medium-educated mothers with 7- and 8-year-old children by 4 and 7 p.p., respectively. Similar effects of the length of paid parental leave on occupation choice have not been documented in previous studies from Western countries, which only focused on the impact on wages, finding either zero or minor medium-run effects (Lalive and Zweimüller 2009; Schonberg and Ludsteck 2014; Dahl et al. 2016).³⁰

While most CEE countries followed the development of family leave policies described in Section 3.2 and above, several countries have undergone a different evolution. Lithuania started paid family leave extensions much later (2008) when paid leave was extended from 1 to 2 years of a child's age. However, three years later, the country introduced a flexible program. Poland started the 2000s with a relatively short paid leave (26 weeks of maternity leave followed by a 2-year means-tested parental leave). In a series of leave extensions starting in 2007, they extended the length of paid family leave up to 54 weeks in 2013 (see Table 8 for details).

Despite the fact that the reforms in Poland were plentiful, or perhaps because they were so frequent, there is no research that attempts to evaluate the reforms' causal impact on maternal employment. However, there is some evidence (although not using quasi-experimental methods) that shorter paid family leave in Poland encourages women to return to the labor market sooner (often immediately after the end of maternity leave) than in Hungary, where paid family leaves are longer (Matysiak and Szalma 2014). Zajkowska (2019) shows that the largest increase in the length of paid family leave in Poland, which took place in 2013, had a positive impact on leave take-up. Unfortunately, for Baltic countries there is also only descriptive evidence about parental leaves and maternal employment. Kurowska (2017) compares the parental leave systems in Estonia and Lithuania and concludes that the unconditional paid parental leave in Estonia explains why the employment rate of mothers of toddlers is disproportionately lower than in Lithuania. Karu (2012) finds that the impact of fathers' leave-taking on maternal employment in Estonia depends on mothers' pre-birth employment status. Three-quarters of

²⁹ In Romania, the flexible program was abolished five years later in 2016. Czechia and Lithuania kept these programs.

³⁰ Nevertheless, there is some evidence from Denmark that women change occupations after childbirth, often reallocating from the private sector to the family-friendly public sector (Pertold-Gebicka et al. 2016).

previously-unemployed mothers remain unemployed when the father takes up the benefit, while 76% of mothers who were previously employed return to work.

Apart from changes in the duration of paid maternity and parental leaves, CEE countries have also undergone several changes related to the generosity of family leave benefits (Table 10).

Table 10. Overview of changes in benefit generosity and conditions for paid family leaves in CEE countries

Panel A. Changing the Generosity of Family Leave Benefits		
Hungary	1995	The universal parental leave benefit (GYES) became means tested and the insurance-based parental leave benefit (GYED) was phased out
Romania	1997	Parental leave benefit (called the “child-care benefit”) increased from 65 to 85% of previous earnings
Hungary	1998	Changes from 1995 reversed
Romania	2007	Parental leave benefit changed from an earnings-related to a flat rate, but with a very high level of benefit (almost equal to the average net salary in the economy)
Romania	2009	Reversal of the 2007 change, parental leave benefit became earnings-related again (85% of previous earnings, but with a ceiling)
Bulgaria	2009	Extension of well-paid leave: extension of the length of (well-paid) maternity leave by 107 days and shortening the length of (flat-rate) parental leave by 3 months
Croatia	2009	Parental leave benefit changed from a flat rate to earnings-related (at 100% of previous earnings, but with a low ceiling)
Lithuania	2009, 2010	Reduction in the parental leave benefit (from 100% to 100% in the first year and 80% in the second year in 2009, and then to 90% in the first year and 75% in the second year in 2010)
Latvia	2011	Maternity leave benefit cut from 100% to 80% of previous earnings, ceiling on parental leave benefit introduced, amount of benefit cut from 50% to 0 for working parents
Panel B. Changing Return-to-Work Restrictions and Introducing Back-to-Work Bonuses		
Czechia	2004	Parent collecting parental leave benefit is allowed to work (ceiling on work income abolished)
Hungary	2005	Parent collecting parental leave benefit is allowed to work after the 1 st birthday of a child (can work unlimited hours)
Romania	2007	Introduced “back-to-work” bonus for parents who gave up the paid parental leave and returned to work
Hungary	2010	2005 reform was reversed (30 working hours per week limit re-introduced)
Slovakia	2011	Parent collecting parental leave benefit is allowed to work
Hungary	2014	Parent collecting parental leave benefit is allowed to work after the 1 st birthday of a child
Bulgaria	2017	If the mother decides not to use the paid parental leave fully or in part after the 135 th day, she is entitled to receive partial financial compensation

Source: Ainsaar (2001); Brazienė & Vyšniauskienė (2021); Dobrotic (2018); Dobrotic & Stropnik (2020); Dohotariu (2018); Fratzczak, Kulik & Malinowski (2003); Hiriscau (2020); ILO (2014); Korintus & Stropnik (2009); Karu (2012); LP&R (2010-2019); Saxonberg & Sirovátka (2006); Zajkowska (2019).

While most CEE countries did not change family leave benefit levels during the transition years,³¹ Romania increased the parental leave benefit from 65 to 85% of previous earnings in 1997. In 2007, Romania then changed this benefit from an earnings-related rate to a flat rate, but with a very high level of monthly allowance almost equal to the average net salary in the economy. In 2009, this change was reversed (Panel A in Table 10). Other countries switched from a flat rate to an earnings-related program or extended the duration of the earnings-related family leave benefit while shortening the duration of the flat-rate benefit (Bulgaria and Croatia in 2009, see Panel A in Table 10). The Baltic countries, on the other hand, responded to the financial crisis of 2008 with reductions in family leave benefit levels (Lithuania in 2009 and 2010, Latvia in 2011, see Table 10 for details).

While there is no direct evidence of the impact of these changes in the generosity of family leave benefits on maternal employment, there is some evidence of a negative employment effect from the introduction of a large child benefit in Poland. In 2006, Poland introduced a new child benefit (“Family 500+”) that was means-tested for the first child but universal for the second and every additional child. The benefit reduced work incentives especially among single parents and secondary earners with one child (Bargu and Morgandi 2018) and had a negative impact on the labor supply of mothers of 2-3 p.p. (Magda et al. 2018).

In many CEE countries, the 2000s and 2010s were also marked by reforms that abolished restrictions on the return to work for parents collecting parental leave benefits. In most countries, parental leave benefits started in the 1980s and 1990s as benefits that allowed parents to leave the labor market and care for their child. As such, there were often restrictions on working hours or earnings for parents collecting these benefits. In the 2000s, some countries changed their systems to allow parents collecting benefits to take up paid work (Czechia in 2004, Slovakia in 2011, Hungary in 2014³²), while other countries introduced “back-to-work” benefits for parents who stop collecting the family leave benefit and return to work to partially compensate the forgone benefits and encourage active labor market participation (Romania in 2007, Bulgaria in 2017, see Panel B in Table 10 for details). Although these reforms were directly aimed at increasing the employment of parents on parental leave, to the best of our knowledge, there is no evidence of their actual employment effects.

5.2. Childcare Policies in CEE Countries and Their Impact on Maternal Labor Supply

As documented in Section 4.4, an important determinant of maternal employment across CEE countries, in addition to family leave policies, seems to be formal childcare availability and usage. This section reviews studies estimating the causal impact of formal childcare on maternal employment in CEE countries (see Table 11 for an overview) and compares their results with related studies from Western Europe and the US.

Lovász and Szabó-Morvai (2017) provide a comparison of the impact of childcare availability on maternal employment in selected CEE countries, Western and Southern Europe. They conclude that the impact of

³¹ Some countries even sought to introduce cuts to benefits during the 1990s. Hungary introduced means-testing for the previously universal parental leave benefit (GYES) and phased out the insurance-based GYED in 1995. However, these changes were reversed three years later in 1998.

³² Hungary first abolished the restriction on paid work for parents collecting parental leave benefits in 2005, but this was reversed in 2010 when a working hours limit of 30 hours per week was introduced. Since 2014, there has been no further restriction on working hours for parents of children after their first birthday.

eligibility for subsidized childcare when the child is around age 3 on maternal employment is the largest in CEE countries (Hungary, Czechia, and Slovakia), while it is smaller and not long-lasting in Western EU countries (represented by Austria and France), and it is insignificant in Southern Europe (Greece and Italy). They explain this by the fact that, in CEE countries, maternal participation around children's third birthdays is still relatively low compared to that of mothers with older children. As the job protection periods in these countries expire when the child is about 3, being eligible for subsidized childcare is crucial for mothers to be able to return to their jobs. In Western and Southern EU countries, family leaves end at a much earlier age, and maternal employment is either already high (in Western countries) or it is low but remains low even when children grow older (in Southern Europe).

These conclusions are confirmed by two other studies that evaluate the impact of access to subsidized childcare on maternal employment in Hungary and Poland. Using a birthday cut-off for public childcare eligibility in Hungary, Lovász and Szabó-Morvai (2018) estimate that increasing childcare coverage by 10 p.p. would increase maternal labor force participation by 1.17 percentage points. An even greater sizeable effect is found by Akgündüz, et al. (2020), who investigate the impact of a Polish educational reform in 2009 that caused differential changes in regional availability of childcare places for 3-5 year-olds. They find that a 10-p.p. increase in the ratio of pre-school places to pre-school-aged children increases maternal employment by around 4.2 p.p.

This evidence from Hungary and Poland points to a much larger effect than was found in previous studies from Western European countries or the US, where pre-reform maternal employment rates were already high (Bettendorf et al. 2015; Blanden et al. 2016; Cascio and Schanzenbach 2013; Havnes and Mogstad 2011; Lundin et al. 2008). However, the available estimates from CEE countries are also larger than those measured in mostly Southern European countries where the baseline maternal participation rates were low but employment remained low among mothers of older children too (e.g. Spain, see Nollenberger and Rodríguez-Planas 2015). This may not, however, be the case for all CEE countries. As pointed out in Section 4.1, there are Southern CEE countries, such as North Macedonia or Montenegro, that also have low employment among mothers of young and older children as well as low female employment in general. Unfortunately, no estimates exist for these countries to be compared with the evidence from their Southern EU15 counterparts.

The only comparable estimates to those from Poland and Hungary were found in settings where maternal activity was low for pre-school children but markedly higher for mothers of older children. The two examples are Germany around 1996 and present-day Russia. Taking advantage of a 1996 introduction of a legal claim to a place in kindergarten in Germany, Bauernschuster and Schlotter (2015) find that a 10-p.p. increase in public childcare attendance rates increases mothers' employment by 3.7 p.p. Kazakova (2019), on the other hand, exploits regional variation in the expansion of childcare places in Russia between 2000 and 2015 and concludes that 10 p.p. growth in childcare availability increases the probability to participate in the labor force by 3 p.p. and the probability to be (full-time) employed by 2.5 (2.2) p.p. among mothers whose youngest child is under 6.

Finally, there is some evidence that maternal employment in CEE countries is more responsive not only to changes in childcare availability, but also to changes in childcare prices than was previously found for Western countries. Lokshin and Fong (2006) estimate that the elasticity of maternal labor force participation with respect to childcare cost in Romania is -0.46, while previous studies from Canada, the

US, and Russia report elasticities in the range of -0.2 to -0.39 (Cleveland et al. 1996; Connelly 1992; Blau and Robins 1988; Lokshin 2004).

Table 11. Effect of childcare availability and prices on maternal employment in CEE countries

<i>Study</i>	<i>Country</i>	<i>Effect of</i>	<i>On outcomes</i>	<i>Method</i>	<i>Main findings</i>
Lovász & Szabó-Morvai (2017)	Czechia, Slovakia, Hungary (AU, FR, GR, IT)	Access to subsidized public childcare based on birthday cut-off	Maternal employment	RDD+DID	Being eligible for subsidized childcare has the largest impact on maternal employment in CEE countries (0.07-0.11 p.p.). For Western EU, estimates are smaller and not long-lasting (0.05-0.08); for Southern EU, the results are mostly insignificant.
Lovász & Szabó-Morvai (2018)	Hungary	Access to subsidized public childcare based on birthday cut-off	Maternal labor supply	RDD+DID	Increasing childcare coverage by 10 p.p. would increase maternal labor force participation by 1.17 percentage points (or 2.4%).
Akgündüz, van Huizen & Plantenga (2020)	Poland	Education reform that increased availability of pre-school places for 3-5 year-olds, 2009	Maternal employment	DID based on regional variation	A 10-p.p. increase in the ratio of pre-school seats to pre-school-aged children increases maternal employment by around 4.2 p.p.
Lokshin & Fong (2006)	Romania	Increase in childcare prices (variation coming from post-transition changes)	Maternal employment	Semi-Parametric Full Information Maximum Likelihood	Estimated elasticity of maternal labor force participation with respect to childcare cost is -0.46, which is higher elasticity than in previous studies.

6. Summary of the Main Findings

When we focus on maternal employment levels and how they relate to the overall female employment rate, CEE countries form several typical groups: First, on one side of the spectrum, there are countries (mainly Slovenia, Lithuania, Latvia, and to a lesser extent Croatia) with a high (above 70%) maternal employment rate, as well as female employment rate. On the other side of the spectrum, there is the second group of countries (Montenegro, North Macedonia) with a very low (below 55%) maternal employment rate but also very low (60% or less) employment of women in general. Countries in the third group (Czech Republic, Slovakia, Hungary, and Estonia, and to some extent Bulgaria³³) have a relatively high female employment rate (between 75 to 80%) but very low (55% or less) maternal employment. Finally, there are countries where neither female, nor maternal employment rates are distinctly large or small (Romania, Serbia, and Poland).

³³ With a 78% prime-age female employment rate and 61% maternal employment rate.

While countries in these groups are not always geographically close (in line with the geographical classification presented in Section 2), they often share similar institutional settings, which, to some extent, can explain the observed patterns. The first group of countries with high female employment and a small employment impact of motherhood (Slovenia, Lithuania, Latvia) are those that combine the shortest family leave entitlements with the highest enrollment of children 0-2 in formal childcare. High use of part-time employment is probably another tool that helps boost the maternal employment in these countries, especially in Slovenia and Latvia. Research on EU15 countries that have similarly high maternal and overall female employment shows that the introduction of, or small changes in, the short family leaves that are prevalent in these countries have a very small effect on maternal employment. Unfortunately, we are not aware of any study from these CEE countries that estimates the impact of (short) career breaks after childbirth and their determinants on maternal employment.

Countries with low maternal as well as overall female employment rates (Montenegro, North Macedonia) resemble Southern EU15 countries, for which changes in paid family leaves (typically short) or changes in formal childcare availability (typically low) were also found to have little effect on maternal employment. The low economic activity of mothers and women in general in these countries appears to be related to the still-prevailing traditional social norms and gender role attitudes (Cipollone et al. 2014).³⁴ While we are, again, not aware of any research-based evidence on the determinants of maternal employment in Montenegro or North Macedonia, we can refer to evidence from other CEE countries with short family leaves. In particular, Hiriscu (2020) confirms no medium- or long-term employment impacts of short family leaves on mothers in Romania.

The third group of countries (Czech Republic, Slovakia, Hungary, Estonia, Bulgaria), where low maternal employment contrasts with high overall economic activity of women, is probably the most interesting and unusual group to study the impact of career interruptions on mothers' labor market outcomes. These countries have the longest paid family leaves available to mothers (ranging from 2 to over 3 years) and a relatively low share of children below age 3 in formal childcare (especially Czechia and Slovakia), suggesting that generous family leave policies and limited availability of formal childcare for very young children account for the low maternal employment rates and sizable employment impact of motherhood in these countries.

Previous research on these countries (Bičáková and Kalíšková 2019; Mullerová 2017) finds a much larger impact of extensions to (the already long) paid family leaves than ever estimated for the EU15 countries and the US. There is also evidence of the unintended effects of paid family leave extensions on post-leave unemployment and inactivity of mothers (Bičáková and Kalíšková 2019) that further lowers maternal employment³⁵, and of the negative impact of the length of paid family leave on occupational choice (Pertold-Gebická 2020). However, the introduction of flexible programs, with the option to shorten the family leave duration, have been shown to increase maternal employment by much more in this group of countries (Bičáková and Kalíšková 2019) than documented before.

³⁴ There is also some evidence that the low official female employment rates may mask the fact that some women work in the informal sector (Cousins 2000).

³⁵ In contrast with Lalive et al. (2014), who conclude that longer leaves in Austria lead to less unemployment in the first 3 years of the child, the only other study that explores the impact of family leaves on maternal unemployment.

The existing research on the impact of subsidized childcare availability on maternal employment for this third group of CEE countries arrives at a similar conclusion as studies evaluating family leave reforms: The impact of an increase in formal childcare availability for children around the age of three on mothers' employment is much larger in these countries with long family leaves lasting several years than in EU15 countries or the US, where women return to the labor force either much earlier than after 2-3 years, or in Southern EU15 countries, where they return much later or remain engaged in home production.

7. Policy Implications, Suggestions for Future Research, and Conclusion

We conclude with policy recommendations and thoughts on future research. Empirical evidence and the research we reviewed suggest that family leave policies and formal childcare availability have a substantial impact on maternal employment in a subgroup of CEE countries with a high overall female employment rate but long career breaks after childbirth. Excessively long paid family leaves and the limited availability of formal childcare in these countries lead to one of the largest employment impacts of motherhood within EU. In contrast, flexible family leave programs, affordable childcare or financial incentives for an earlier return to the labor force increase maternal employment. These policies are, however, unlikely to be effective in Southern CEE countries, where low maternal employment solely reflects the low overall female employment rate. Changing the social norms and traditional gender role attitudes that probably stand behind the low economic activity of women in Southern CEE countries is much more difficult than changing family leave policies or formal childcare availability.

Low levels of maternal employment have implications for gender inequality in the labor market. While sizeable gender employment gaps in countries with a low overall female employment rate (whether CEE or EU15) are given by the overall position of women in the labor market reflecting the traditional social norms and gender role attitudes, gender gaps in unemployment or pay in CEE countries with high economic activity of women in general but a low maternal employment rate are likely to be directly linked to childbirth and family leave policies (Bičáková 2016; Cukrowska and Lovasz 2016).

While many maternity and parental leave reforms have taken place in CEE countries, causal evidence of their impact on maternal employment is scarce. Similarly, studies investigating the effects of childcare availability and prices in CEE countries are minimal. One reason why research from CEE countries still lags behind the West may be the insufficient support for an evidence-based approach to policy-making that still persists in many post-communist countries today. This also explains the lack of available data suitable for research purposes and the lack of incentives to conduct research that evaluates the efficiency of public policies. The few papers that do estimate the impact of family policies on maternal employment in CEE countries (all quite recent and published in high-impact journals)³⁶ prove that evidence from these countries can considerably extend the knowledge we have from EU15 countries and the US and offer unique insights from interesting institutional settings.

³⁶ Namely, Akgündüz et al. (2020); Bičáková & Kalíšková (2019); Lovász & Szabó-Morvai (2018); Mullerová (2017); Pertold-Gebická (2020).

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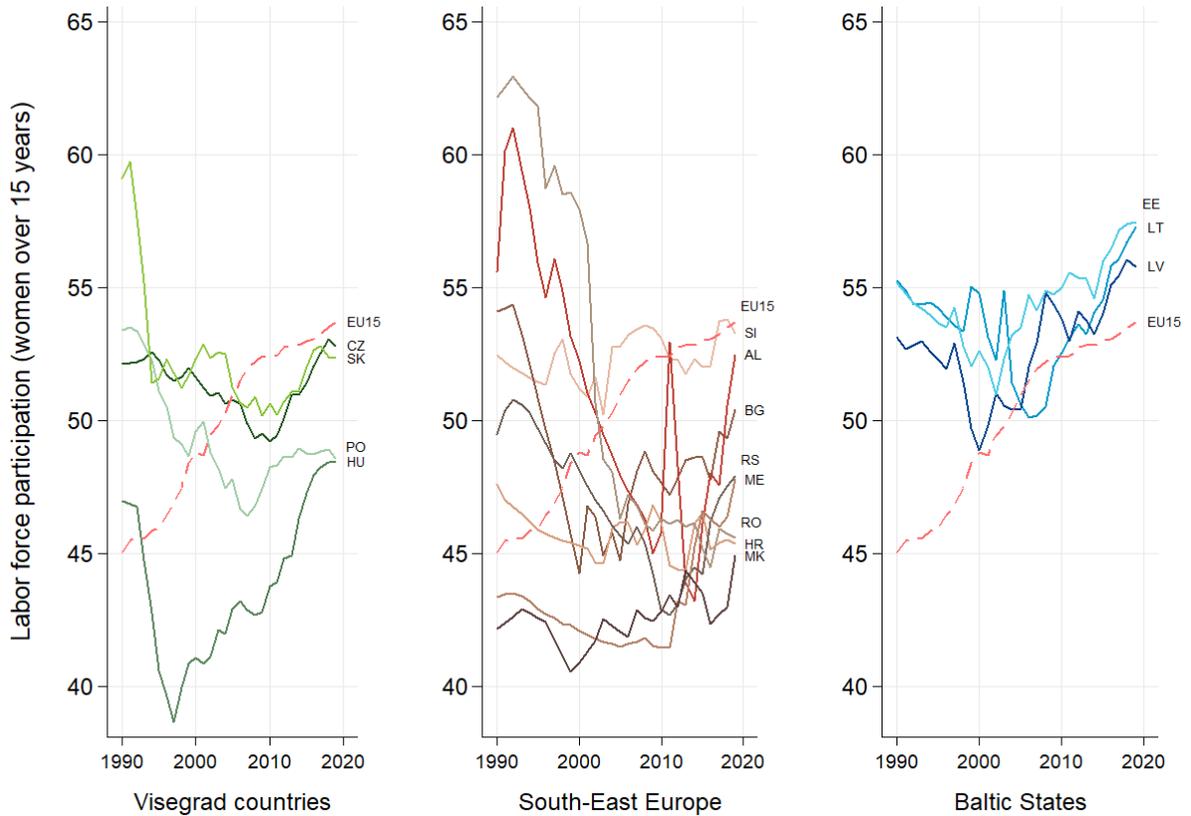
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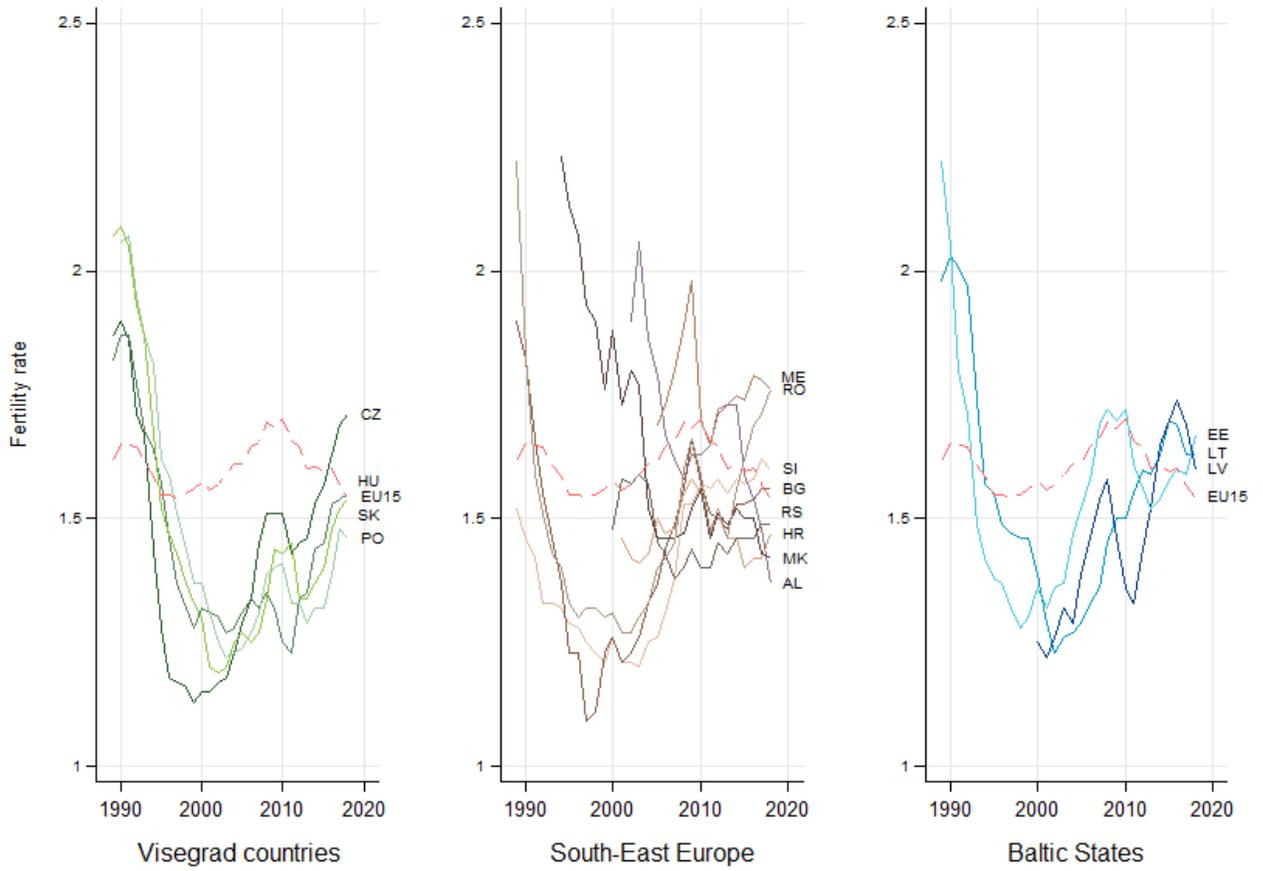
Appendix

Figure A. 1. Evolution of labor force participation of women over 15 years during the 1990-2019 period



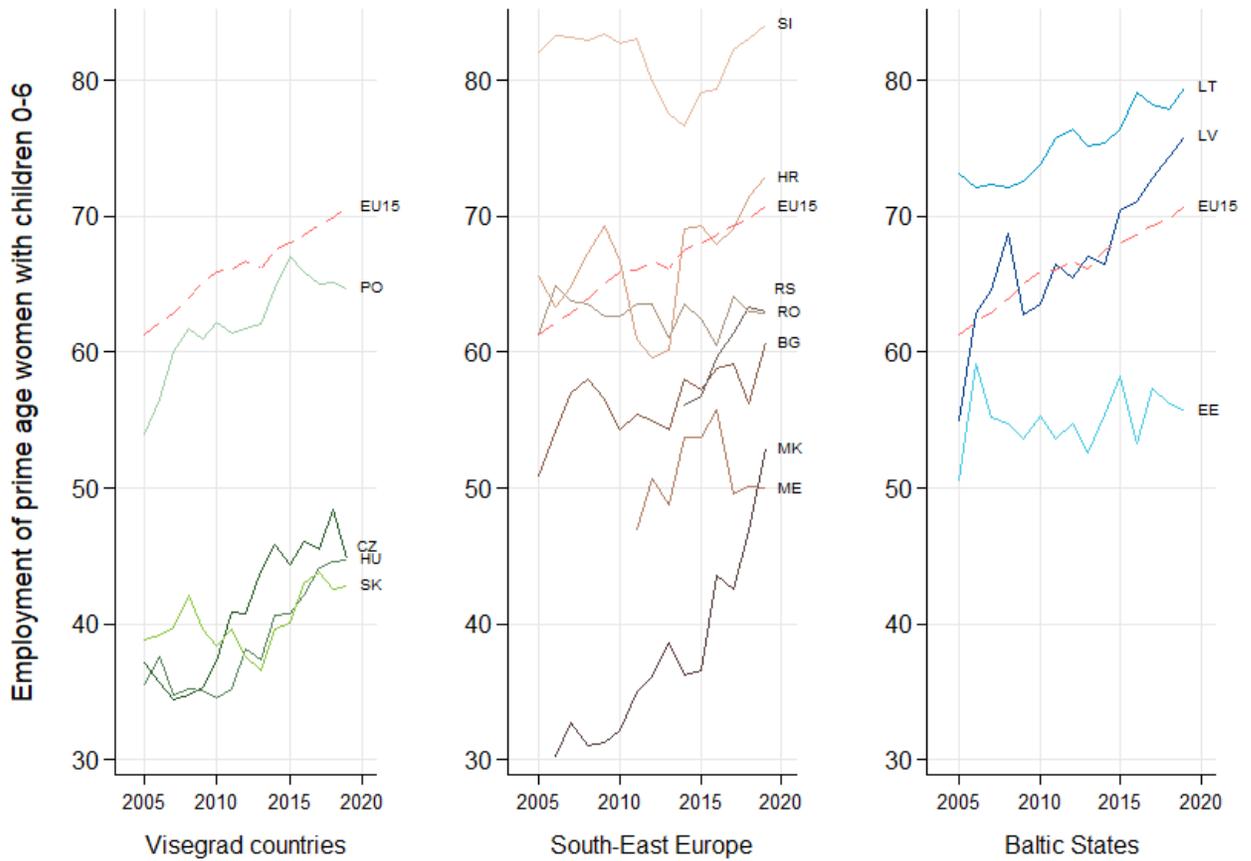
Source: World Bank / SL.TLF.CACT.FE.ZS (<https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS>), own calculations of the EU15 mean.

Figure A. 2. Evolution of the fertility rate during the 1989-2019 period



Source: Eurostat / DEMO_FRATE (https://ec.europa.eu/eurostat/databrowser/view/DEMO_FRATE_custom_411366/)

Figure A. 3. Evolution of employment rate of prime-age mothers with young children during the 2005-2019 period



Source: Eurostat / LFST_HHEREDCH – (https://ec.europa.eu/eurostat/databrowser/view/LFST_HHEREDCH/)

Note: Prime-aged women are women from 25 to 54 years old. Young children are children of age less than 6 years.

Table A. 1. Use of any formal and informal childcare in 2019

	Children in formal childcare (below 3 years), % over the population of the same age group, 2019	Children in formal childcare (from 3 to 6 years), % over the population of the same age group, 2019	Proportion (%) of children using informal childcare arrangements during a typical week, 0- to 2-year-olds, 2019	Proportion (%) of children using informal childcare arrangements during a typical week, 3- to 6-years-olds, 2019
Albania	.	.	.	.
Bulgaria	19.7	88.5	13.1	19.9
Croatia	15.7	56.9	27.5	40.2
Czechia	6.3	79.4	40.3	48.1
Estonia	31.8	94.2	27.9	34.1
Hungary	16.9	91.4	43.3	39.8
Latvia	28.3	83.1	11.5	13.3
Lithuania	26.6	82.2	25.2	26.5
Montenegro	.	.	.	.
North Macedonia	13	.	42.7	.
Poland	10.2	61.3	36.1	40.5
Romania	14.1	74.8	53.4	56.4
Serbia	17.2	.	35.5	.
Slovakia	6.6	82.8	33.2	36.0
Slovenia	46.9	95.7	39.8	49.8
CEE (mean)	19.46	80.94	33	36.8
EU15 (mean)	46.59	92.89	25.5	25.8

Source: Eurostat, ILC_CAINDFORMAL (https://ec.europa.eu/eurostat/databrowser/view/ILC_CAINDFORMAL__custom_420079) own calculations (of the CEE and EU15 means)

Note: Data refers to formal childcare of all durations (less than 30 hours in a usual week and 30 hours or more in a usual week) Informal childcare consists of childcare by a professional child-minder at a child's home or at a child-minder's home and the childcare by grand-parents, other household members (outside parents), other relatives, friends or neighbors. The EU15 mean does not include the value for the UK, as it was missing in the source data.

Abstrakt

Přerušování kariéry po porodu a jeho dopad na postavení žen-matek na trhu práce se dostalo v literatuře již velké pozornosti. Existující studie však pocházejí většinou ze západní Evropy a USA, kde jsou přestávky v kariéře po narození dítěte jen poměrně krátké. Země střední a východní Evropy (CEE), kde matky povzbuzené rodičovskými dovolenými trvajících několik let typicky přerušují po porodu svoji kariéru na mnohem delší dobu, byly, na druhou stranu, studovány jen zřídka. V této studii nejprve zařazujeme země střední a východní Evropy do kontextu EU poskytnutím klíčových empirických faktů týkajících se výsledků matek na trhu práce a nejdůležitějších faktorů, které je mohou ovlivňovat. Kromě podstatných rozdílů mezi zeměmi střední a východní Evropy a zbytkem EU existuje také v rámci zemí CEE mnoho odlišností, které zkoumáme následně. Druhá část studie představuje hlavní reformy rodičovských dovolených a formální péče o děti, které proběhly v zemích střední a východní Evropy od konce komunismu, a poskytuje komplexní přehled stávajících vědeckých faktů o jejich dopadu na zaměstnanost matek. Přestože výzkum kauzálních dopadů těchto politik není početný, existuje několik nedávných významných studií, které byly publikovány v časopisech s vysokým impakt faktorem. Jako první zde nabízíme přehled těchto kauzálních studií ze zemí střední a východní Evropy, které významně doplňují současný stav poznání pocházejícího ze západní Evropy a USA.

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