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**Fathers' involvement in the family, fertility
and maternal employment:
Evidence from Central and Eastern Europe**

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Fathers' involvement in the family, fertility and maternal employment:

Evidence from Central and Eastern Europe [*]

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Abstract

For a sample of Central and Eastern European countries, characterized by historically high female labor force participation and currently low fertility rates, we analyze whether fathers' increased involvement in the family (housework and childcare) has the potential of increasing both fertility and

maternal employment. Using two waves of the Generations and Gender Survey, we show that a higher fathers' involvement in the family increases the subsequent likelihood that the mother has a second child and works full-time. Men's fertility and work decisions are instead unrelated to mothers' housework and childcare. We also show that fathers' involvement in housework plays a more important role than involvement in childcare. The role of fathers' involvement in housework is confirmed when we consider women who initially wanted or intended to have a child, women whose partner also wanted a child or women who intended to continue working.

Keywords: gender revolution, demographic trends, working mothers, gender roles, fertility.

1 Introduction

Central and Eastern European countries are currently experiencing low levels of fertility that, combined with migration losses and low mortality, are leading to population ageing and decline (Lutz, 2010; Cekota and Trentini, 2012). In these countries with traditionally high female employment, can a more balanced allocation of household chores and childcare within the couple - the so-called second half of the gender revolution (Goldscheider et al., 2010) - drive an increase in fertility? What are the effects on maternal employment?

This paper uses panel data of the Generations and Gender Survey (GGS) on

five countries in Central and Eastern Europe (Bulgaria, Czech Republic, Hungary, Poland and Russia) to analyse the effect of fathers' involvement in housework and childcare on the likelihood of both the transition to a second child and full-time maternal employment. Each individual is interviewed in two subsequent waves.

The involvement of the father at home in housework and childcare is expected to have a positive impact on fertility decisions and full-time employment of the mother, as it helps to alleviate possible work-family trade-off, to balance work and family and support her decision to have an additional child, to continue working and pursue her career ambitions. Housework and childcare involvement of fathers may also have a different impact, as housework is less directly related to fertility choices, but it is also perceived as more onerous and less enjoyable.

To test these hypotheses, we separately estimate the individual likelihood to have a second child with the same cohabiting partner between the two waves, to work full-time at the time of the second interview and to both have a second child and work full-time during the second interview. We perform the analysis independently for female and male respondents. Taking into account a large set of individual characteristics of both the mother and the father, we show that a higher fathers' involvement in housework at the time of the first interview is associated with a higher likelihood that the mother has a second child, works full-time and both has a second child and works full-time during the second interview. Father's involvement in childcare is instead not consistently significant. Our results are confirmed if we

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only consider women who initially wanted or intended to have a second child, women whose partner also wanted a child or women who intended to continue working. Mother's involvement in housework and childcare is instead never significant for fathers' fertility and work decisions.

Interestingly, we also analyze heterogeneous effects within the group of women and we find that fathers' involvement helps supporting the decision of more career-oriented women to have a second child, and the decision of less career-oriented women to work full-time.

On the methodological side, our paper contributes to a careful identification of the consequences of fathers' involvement. To exclude potential confounding effects coming from differences across countries, we include country fixed effects and cluster the standard errors at the country level. We are aware of potential endogeneity concerns: reverse causality implies that fathers participate more to housework because there is a second child or because the mother works full-time. To avoid this concern, we measure the level of involvement of fathers in the first wave and fertility and employment outcomes only in the second wave. Moreover, it may be the case that fathers who want more children may ex ante decide to be more involved in domestic and childcare activities and, similarly, mothers who want to work full-time or want more children may choose a more collaborative partner. To limit these concerns, we perform a sensitivity analysis considering the fertility and employment intentions of the respondents: more specifically, we restrict the analysis to those individuals

who declare that they want or they intend to have a child within three years, to those who declare that also their partner wants a child and to those who intend to continue working. Overall, our results suggest that a greater involvement of fathers in domestic activities in Central and Eastern Europe may push fertility up, while allowing women to work full-time: fathers' involvement at home helps to overcome women's trade-off between having a second child and working full-time, in countries characterised by traditionally high female employment but currently experiencing low fertility rates. A context which favours equality at home - for example through public policies, work arrangements and culture - has positive effects on fertility rates, without reducing maternal employment.

The paper is organized as follows: next section describes the context of Central and Eastern Europe, section 3 describes the literature review and introduces our hypotheses, section 4 presents the data, section 5 shows the results and section 6 concludes.

2 Fertility and maternal employment in Central and Eastern Europe

The five countries of our analysis (Bulgaria, Czech Republic, Hungary, Poland and Russia) share a past history of state socialism. The socialist regime, with its strong gender equity rhetoric, greatly expanded women's access to education and reproduc-

tive rights, and established extensive state infant and childcare provisions. Thanks to these policies, female employment in the communist countries of Central and Eastern Europe was higher than in any other part of the world (UN, 1991). Following the collapse of the socialist system in 1989, these countries underwent significant economic transformations, shifting from the security of generous welfare states to the instability of free market economies. The policies which had been critical in favouring women's participation into paid employment were dismantled, and maternity leave and subsidies for childcare were substantially reduced (Mishtal, 2009). As a consequence, formerly communist countries experienced a fall in women's labour-force participation, with the balance between work and family becoming harder to manage (UNIFEM, 2006). Fertility rates also declined starting in the early 1990s (Caldwell and Schindlmayr, 2003). Meanwhile, Western Europe was experiencing a rise in female employment, a shift towards a more gender egalitarian culture and an increase in policies encouraging this change (Esping-Andersen, 2009).

We are aware that our five post-socialist countries differ in some aspects. A first important difference regards the culture: in Bulgaria, Hungary and Russia, people still hold conservative views concerning gender roles, while in Czech Republic and Poland people generally share a more liberal and modern ideology (Fodor and Balogh, 2010). As detailed in Appendix A, this is reflected in a slightly different evolution of female employment after the end of the communist regime which delivers today's higher level of female employment and fertility rates in these last countries.

While being aware of the differences, we argue that many existing commonalities make this set of countries quite homogeneous. They are all currently experiencing a total fertility rate below replacement level and, despite the decrease occurred after the end of the socialist system, they all still have fairly high levels of female employment. Given migration losses and moderate mortality, the low birth rate has become a crucial concern, leading to a rapid population ageing and decline (Lutz, 2010). To this regard, the most debated demographic issue relates to the transition to the second child (Van Bavel and Rozanska-Putek, 2010): biological, psychological and social incentives remain indeed strong enough to have at least one child (Kohler et al., 2006; Morgan and Taylor, 2006) and, despite the below-replacement levels of fertility, studies reveal that the proportion of women who intend to have two children is dominant in most developed countries (Bongaarts, 2002). Moreover, recent microlevel research shows that employed women are at least as likely to give birth to the first child as the non-employed in post-socialist countries (Kantorova, 2004; Robert and Bukodi, 2005; Matysiak, 2009). A meta-analysis conducted by Matysiak and Vignoli (2008) confirms this result, showing that women's employment seems to depress fertility less in the post-socialist welfare regime than in Western european countries. These findings could be explained by the prevalence of the social norm that demands women to enter motherhood before age 30 (Perelli-Harris, 2005; Potancokova, 2009; Mynarska, 2010) or by the fact that the role of women as income providers is well established in Central and Eastern European societies as a result

of the longer periods of women's integration in the labor market than in Western Europe (Matysiak and Vignoli, 2013). Fodor and Balogh (2010) argue indeed that in Central and Eastern Europe women would still opt to work for wages and share domestic work with their husbands and, also, many women need to work because of economic reasons (UNIFEM, 2006). However, the absence of adequate policies makes it difficult for them to balance work and family and the impact of motherhood is still high: in Czech Republic and Bulgaria for example, the employment rate of women with children under the age of 6 is more than 20 percentage points lower than the employment rate of childless women (EC, 2017).

3 Background and hypotheses

Demographers have widely analyzed the relationship between the increasing role of women in the economy and society in Western countries, known as the gender revolution (Goldscheider, 2000), and the decline of fertility, which have characterized the last century. During the first half of the gender revolution, characterised by the marked increase in women's higher education and the subsequent strengthening of their labour market role, working women bear the burden of working while continuing being the primary housemaker and caregiver. This double burden is difficult to sustain (Hochschild and Machung, 1990; Torr and Short, 2004) in absence of grandparents' support and appropriate public policies (formal childcare for example). In this phase, fertility and female employment are a trade-off: women choose whether

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they work full-time or they have children and, as a consequence, in countries where women work more, fertility rates decrease. This first stage of the gender revolution is problematic (Goldscheider et al., 2015): a situation in which women have to deal with both market work and family without the involvement of the partner into domestic activities is not a societal equilibrium, thus the emergence of a new equilibrium with couples choosing the duality of work and family is expected (Esping-Andersen and Billari, 2015). As the second half of the gender revolution slowly emerges - with men joining women in the private sphere of the household - gender equality may even strengthen the families and have positive effects on fertility (McDonald, 2000b,a; Goldscheider et al., 2010, 2015). As a macro-level evidence of this assumption, recent studies show that the most developed and gender equal countries are now experiencing a reversal in fertility rates (Myrskyla et al., 2009; Goldstein et al., 2009).

In the Central and Eastern European countries of our sample, female employment has been traditionally high. The process of the gender revolution has thus been slightly different, but the transition from socialist welfare systems to free market economies has made it more difficult for women to balance work and family, producing the same unsustainable situation characterising the first half of the gender revolution: in this context, men's help in domestic activities is relevant for both women with career ambitions and women who need a paid job because of economic reasons.

To analyze the consequences of the second phase of the gender revolution in Central and Eastern Europe we consider three hypotheses, which are meant to understand what is the effect of fathers' involvement in housework and childcare on the transition to the second child, on maternal employment and on the joint decision of fertility and maternal employment.

H1: The involvement of fathers in household and childcare duties today supports the decision of having a second child and thus increases the probability that we observe a new child in the next survey. Moreover, the involvement of fathers in household is expected to be more effective than their involvement in childcare duties.

To appropriately test this hypothesis, we analyse the actual fertility of respondents, taking their fertility intentions into account. For the same individual, we observe fathers' involvement ex ante and the fertility outcome ex post, i.e. after an interval of time. The idea that fathers' involvement in rearing children and housekeeping is important for fertility decisions is not new (McDonald, 2000b,a; Goldscheider et al., 2010, 2015; Tazi-Preve et al., 2004; Pinnelli and Fiori, 2008; Mills et al., 2008; Olàh, 2003; Mencarini and Tanturri, 2004; Torr and Short, 2004; Cooke, 2004, 2008). However, most of the existing microlevel studies focus on fertility intentions rather than on actual behavior, or on retrospective analysis, which are based on ex post information about fathers' involvement. While it is true that intentions are a good proxy of actual decisions, there may still be differences between plans

and behavior (Régnier-Loilier and Vignoli, 2011; Riederer et al., 2019), depending for example on the components of intentions being measured - over a shorter or longer period of time - or on age and family status (Hayford, 2009). Similarly, retrospective analyses are not able to identify the causal effect of ex ante fathers' involvement on ex post fertility. The general result of these studies is the emergence of a positive association between gender equality and both fertility intentions (Tazi-Preve et al., 2004; Pinnelli and Fiori, 2008; Mills et al., 2008) and actual observed fertility (Olàh, 2003; Mencarini and Tanturri, 2004; Torr and Short, 2004; Cooke, 2004, 2008). More specifically, in the Austrian context, Tazi-Preve et al. (2004) find that men who share household chores and childcare duties have stronger desires for children compared to men living in more traditional households. A similar result is obtained by Pinnelli and Fiori (2008) for Italy: highly involved partners have a significant and positive effect on the intention of working Italian women to have a second child. Comparing Italy and the Netherlands, Mills et al. (2008) find that engaging in a large share of household labour (more than 75%) decreases the fertility intentions of women who also work a high number of hours in paid employment or already have one or more children and that the effect is stronger in Italy, where women face higher institutional and family constraints. Olàh (2003) finds that the likelihood of second births is greater when couples share family responsibilities both in Sweden and Hungary. Mencarini and Tanturri (2004) use survey data of 2002 to study the determinants of differences in fertility behaviour of women coming from

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five Italian cities. They find that fathers' involvement in domestic tasks during the first period of cohabitation is a positive determinant of subsequent higher order fertility decisions.

Few existing studies have linked ex ante fathers' involvement to ex post fertility: Torr and Short (2004) study a sample of US couples and find that both the most modern and the most traditional housework arrangements are positively associated with fertility. Cooke (2004) analyses the effect of men's participation in housework and childcare in Germany and he finds that the father's greater relative child-care time increases couple-odds of a second birth, while husband's relative housework time is insignificant. Cooke (2008) compares the effect of fathers' share of childcare on the likelihood of having a second child in Italy and Spain: the impact is null in Spain, while in Italy it countervails the negative effect of mothers' working hours, varying according to mother's employment intensity.[1]

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[1]Some scholars (McDonald, 2000a,b, 2006; Goldscheider et al., 2013; Aassve et al., 2015) argue that what matters for fertility is the mismatch between gender attitudes and behaviour, more than the division of tasks *per se*. Goldscheider et al. (2013) find that inconsistency between ideals and reality significantly delays childbearing, particularly second births, in Sweden; inconsistency over sharing housework is found to have a greater impact than inconsistency over sharing childcare. Aassve et al. (2015) use the two-wave panel data of the Generations and Gender Surveys for five European countries to find that couples who are not consistently egalitarian in terms of attitude and behaviour are less likely to transition to a second child with respect to consistently egalitarian couples.

As stated by Hypothesis 1, we expect fathers' involvement in housework to play a more important role than childcare. Many previous studies about the effect of the domestic division of tasks on fertility focus either on the division of housework or on the division of childcare tasks. Those studies that do analyse the effect of both groups of activities find contradictory results about whether housework or childcare matters more for fertility decisions. In a recent paper, Riederer et al. (2019) use data from the Generations and Gender Survey for four European countries (Austria, Hungary, France, and Poland) and find that the division of household labor clearly influences childbearing intentions and that the effect of the division is at least partially dependent on the satisfaction with it; they find instead that the division of childcare is less relevant and they do not find any significant effect on fertility realisations. Since childcare is generally considered to be more enjoyable than housework (Sullivan, 1996; Gershuny, 2013; Poortman and Van der Lippe, 2009), help and collaboration in household labor is more likely to be perceived as a relief from an unpleasant burden and thus positively affect the decision to have further children. In a traditional gender approach, doing housework is at the basis of women's role. However, even within household chores, some tasks can be considered as more female-typed or routine tasks (such as cooking, cleaning, laundry, dishes, and shopping), while others can be considered as more male-typed or non-routine tasks (such as car repair, home and yard maintenance, bill paying, and trash removal) (Carlson et al., 2018; Schneider, 2012). Despite the evidence that

during the last decades men have increased and women have decreased their time in housework (Bianchi et al., 2012), we still lack information about the domains in which these changes have occurred. Our hypothesis is that the greatest impact on childbearing decisions will come from the involvement of men in exactly those tasks that are more typically female-typed tasks. In this direction, Carlson et al. (2018) find that the sharing of dishwashing responsibilities has become increasingly important for relationship quality, especially for women.

H2: The involvement of fathers in household and childcare duties today increases the probability that the mother works full-time after child birth. Moreover, the involvement of fathers in household is expected to be more effective than their involvement in childcare duties.

The literature about the effects of partner's support on maternal employment, actual or intentional, is still quite limited. Most studies focus on the effects of partner's attitudes and ideologies rather than on the effects of his actual behaviour. For what concerns the intentions of maternal employment, Werbel (1998) finds that the perceived spouse preference for maternal employment is positively related to the woman's intention to work prior to childbirth in the US. As related to actual maternal employment, Almeida et al. (1993) study a sample of Canadian dual-earner families and find that wives' longer employment hours are linked to their lower proportional share of childcare and lower absolute levels of household chores. Seiger and Wiese (2011) analyse a sample of 288 Swiss women and find that partner's

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support is associated with the mother's affective wellbeing during her return to employment after maternity leave. Finally, Stertz et al. (2017) study longitudinal data about Germany, Austria and Switzerland and find that women with more egalitarian partners take shorter leaves and decrease their working hours less. In contrast, mothers' attitudes do not influence their husbands' behaviour.

H3: The involvement of fathers in housework and childcare duties today increases the joint probability of transitioning to a second child and working full-time after child birth. Moreover, the involvement of fathers in household is expected to be more effective than their involvement in childcare duties.

Our third hypothesis combines the previous two. It is important to analyze together the two decisions - on fertility and on employment - in relation to the partner's contribution and support: indeed, previous research that considers fertility and maternal employment together only takes into account the reciprocity between them (Kantorova, 2004; Robert and Bukodi, 2005; Matysiak, 2009; Matysiak and Vignoli, 2013), thus missing the potential impact of partner's behaviour on both decisions.

4   Data and Methods

We use data from the Generations and Gender Survey (GGS) conducted by the Generations and Gender Programme (GGP), which is a social science infrastructure

for research on family dynamics and relationships. The survey provides interesting micro and macro-level data, mainly about partnerships, fertility, attitudes of nationally representative samples of the 18-79-year-old resident population in a large set of countries. The essential feature of the GGS for this study is that it interviews the same individual in two subsequent waves: this panel design allows us to analyse the effect of the domestic division of tasks during the first interview on the likelihood of a second birth before the second interview.

We use information on two subsequent waves for the following Central and Eastern European countries: Bulgaria, Czech Republic, Hungary, Poland and Russia.[2] The first interview was conducted in a different year in each country: 2004 in Russia and Bulgaria, 2004-2005 in Hungary, 2005 in Czech Republic, 2010-2011 in Poland. The second wave was collected after three years in Bulgaria, Czech Republic and Russia and after three or four years in Hungary and Poland. We assume that the small differences among countries and individuals in the time passed from one wave to the other and in the year of the interview do not affect the results. Previous studies (Aassve et al., 2015; Riederer et al., 2019) already used GGS pooled samples of individuals coming from different countries to analyse fertility outcomes. To ensure

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[2]Information was also available for France, but we decided to restrict the sample to a group of countries geograhically close, homogeneous in terms of past history and particularly interesting for their demographic characteristics. Other three countries (Austria, Italy and Netherlands) had to be excluded because of missing information about the division of household tasks and Germany because of a different design of the survey answers.

that results are not driven by a particular country, we also perform the analysis by excluding one country at a time and we find consistently significant results, which are available upon request. Despite the limited time frame, the advantage of using panel data is that information is collected for each year and not retrospectively. Moreover, the GGS provides a large set of useful information about household characteristics, education, employment and other socio-economic variables. GGS interviews men and women separately and not as a couple. We consider separately female and male respondents, which are 4684 and 3427 respectively.

We restrict our sample to individuals cohabiting with the same partner in the two waves, with one biological child younger than 3 years old in the first wave[3] whose mother/father is the current partner in the second wave. Women are restricted to be under the age of 45 years old. These restrictions deliver a sample of 731 women and 536 men, and they guarantee that we consider individuals in their fertile age and with children in need of care. We will present results only for respondents who are working during the first interview, which are the most interesting ones: working women are those facing the trade-off between work and family duties and thus the

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[3]This restriction aims at excluding those individuals with an older child who are likely to have reached their intended fertility, signaled by the fact that they didn't have a second child before. However, for robustness, we also perform the analysis on the larger sample of individuals with one child younger than 14 years old. The results, which are available upon request, confirm our hypothesis, although the effect of father's involvement in childcare is more difficult to interpret given that many childcare tasks are not relevant for older children.

division of domestic tasks within the couple is expected to play an important role for their fertility and employment decisions. This additionally restricts our sample to 586 women and 484 men.[4]

GGS also provides information on the individual's intention and both the individual's and the partner's desire to have a child. We use this information to conduct the analysis on some restricted samples: first, we consider individuals who declare that they want or intend to have a child, then those who declare that they intend to have a child and both they and their partner want a child. Fertility intentions are captured by the question "Do you intend to have a child in the following three years?", of which we consider both "Probably yes" and "Definitely yes" as positive answers, thus excluding "Probably not" and "Definitely not" answers. Fertility desires come from the questions "Do you want a child?" and "Does your partner want a child?": we keep those respondents who answered both "Yes" and "Not sure", thus excluding only those who were sure about not wanting a child ("No") and those who declared they couldn't have a child ("Physically impossible to have a child").[5] The mismatch that we find for some, very few, respondents between fertility intentions

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[4]We also perform the analysis on all respondents, including not working individuals. The results, available upon request, confirm the positive and significant effect of fathers' involvement in housework.

[5]We conduct the analysis also on the more restricted samples of individuals who answered only "Yes", thus excluding those who were uncertain, and on the samples of individuals whose partner only wants a child. Results, available upon request, are only slightly less significant.

and desires has been well explained in the literature by the conceptual difference between wanting and intending to have children. In general, fertility intentions are supposed to be more predictive than fertility desires because they include a component of commitment in the wish for a child (Freitas and Testa, 2017). Moreover, intentions can be viewed as the joint couple's plan, while desires are individual feelings about which spouses may differ (Thomson, 1997). We decide to consider together individuals who either want or intend to have a child because, even if intentions are generally considered more directly linked to subsequent behaviour, there is some evidence that desires may bypass intentionality and act directly on behaviour to influence fertility outcomes (Miller, 2011).

For what concerns employment intentions, we consider the question "Do you intend to give up your paid work in the next three years?" and restrict the sample to those who do not intend to give up their job and who therefore intend to continue working, keeping only those who answered "Probably not" and "Definitively not".

These sample restrictions aim at solving the selection bias of women who choose more collaborative partners because they have high fertility intentions (or desires) or high employment attachment and men who are collaborative because they want another child. To summarize, we analyze the following sub-samples of female and male respondents (all working during the first interview) according to the combination of their fertility and employment intentions (N_w indicates the numerosity of each sub-sample of women, N_m indicates that of men):

– who want/intend to have a child in the following three years (N_w=398; N_m=329)

– who want/intend to have a child and whose partner wants a child (N_w=265; N_m=205)

– who intend to continue working in the following three years (N_w=555 ; N_m=477)

– who intend to continue working and want/intend to have a child (N_w=378 ; N_m=325)

– who intend to continue working, want/intend to have a child and whose partner wants a child (N_w=250 ; N_m=202).

GGS provides information on the number of children and on the working status of both the respondent and the partner, from which we derive our three dependent variables. The first one is a dummy that takes value 1 if the respondent has a second child between the two interviews. We attribute value 1 if two conditions are verified: the age of the youngest child in the second wave is lower than the period passed from nine months between the first and the second interview (in order to avoid the possibility that the mother was already pregnant of the new born when interviewed the first time) and, at the same time, the total number of biological children declared during the second interview is higher than the one declared during the first interview. We attribute value 1 also if the respondent declares being pregnant (or his partner being pregnant) at the time of the second interview.

The second dependent variable is a dummy that takes value 1 if the respondent works full-time (at least 40 hours per week) during the second interview.[6] Finally,

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[6]We also perform an additional analysis considering as dependent variable a dummy indicating

we construct a third binary variable that takes value 1 if the respondent has both a second child and works full-time during the second interview.

To measure fathers' involvement in household and childcare activities, we consider the following question contained in GGS: "Please tell me who in your household does the following tasks" where there are four tasks related to housework (preparing meals, washing the dishes, shopping for food and vacuum-cleaning the house)[7] and four to childcare (dressing the children, putting the children to bed, staying at home with them when they are ill, playing or taking part in leisure activities).[8]

The possible answers for each task are: "Always the respondent", "Usually the respondent", "Respondent and partner about equally", "Usually the partner", "Always the partner", "Always or usually other persons in the household", "Always or usually someone not living in the household" and "Children do it themselves",

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whether the respondent is working during the second interview, thus including both part-time and full-time working. The positive effect of father's involvement in housework is confirmed, but less significant. Indeed, father's involvement seems to be particularly relevant in determining the probability that a woman works full-time with respect to working part-time.

[7]The survey provided information for a total number of seven housework activities. Following previous studies with GGS data (Aassve et al., 2015; Riederer et al., 2019), we only consider those activities which are more typically performed by women.

[8]For what concerns childcare, the survey provided information for a total number of six activities. We decided to keep those that match the fact that respondents only have one child younger than 3 years old, so we did not consider *Helping with homework* and *Taking the children to/from school, day care centre, babysitter or leisure activities*

this last one only for childcare. The score variable of each task can range from 0, if the respondent always performs the task, to 4 if the partner always performs the task. We attribute the intermediate value 2 both if the two partners perform the task about equally and if the task is performed by someone else ("Always or usually other persons in the household", "Always or usually someone not living in the household' or "Children do it themselves", this last category having very few observations since children are younger than 3 years old), since in these cases there is not an unbalanced burden on either partner.

From these answers, we construct four different indicators, which we use to measure men's and women's involvement in housework and childcare. First, we perform a factor analysis (Kroll et al., 2016) and we create an indicator as a factor score of the four tasks for housework and childcare separately: a weighted linear combination of the four tasks, with the factor loadings as weights. Each item's contribution to the factor score depends on how strongly it relates to the factor, and it only slightly differs between women and men.[9]

Our factor analysis delivers the following indicators:

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[9]The factor analysis confirmed our choice about the selection of the activities: the four tasks that we are considering have factor loadings higher than 0.4, signalling a significant correlation with the latent factor, while the three tasks that we are not taking into account (*Doing small repairs in and around the house, Paying bills and keeping financial records* and *Organizing social activities*) have factor loadings lower than 0.4. Moreover, the items chosen show acceptable reliability (Cronbach's alpha > 0.5).

1. $Housework(Women) = 0.67 * meals + 0.76 * dish + 0.58 * shop + 0.64 * clean$

2. $Housework(Men) = 0.71 * meals + 0.78 * dish + 0.53 * shop + 0.63 * clean$

3. $Childcare(Women) = 0.78 * dressing + 0.79 * bed + 0.72 * illness + 0.61 * leisure$

4. $Childcare(Men) = 0.77 * dressing + 0.79 * bed + 0.66 * illness + 0.6 * leisure$

The indexes thus constructed range from 0 to about 10, with values around 5 corresponding to an equal contribution of the two partners in domestic tasks. We then transform them into binary variables, considering country-specific thresholds: low partner's involvement corresponds to values below the median of the respondent's country, high partner's involvement corresponds to values equal or above the median of the respondent's country. For women, both the housework and the childcare indexes have overall median values below the egalitarian threshold of 5 (2.65 and 2.9 respectively), indicating that the great majority of female respondents declare their partner performs significantly less than what would correspond to an egalitarian division. Symmetrically, for men both indexes have overall median values above the egalitarian threshold of 5 (7.22 for housework and 7.73 for childcare), indicating that the great majority of male respondents declare their female partner performs more than half of domestic activities. As robustness checks, we implement the analysis considering as a threshold the overall median value of the countries, and also considering values equal to the median as low partner's involvement.

GGS contains a set of individual variables which we use as control: age, education, working time (part-time or full-time), previous divorce, current leaves (ma-

ternity or paternity) of both the respondent and her/his partner, if the couple is married, if it receives external or grandparents' help with childcare and if it is able to make ends meet. We consider this information as measured during the first interview.

Information about education derives from two questions regarding the personal and the partner's highest level of education achieved, where education is measured through the International Standard Classification of Education (ISCED) levels. We include in the regressions two binary variables, one for each partner, indicating whether the individual has a university education or not.[10] Employment derives from two questions regarding the personal and the partner's current activity status. We consider as employed all individuals who are employed or self-employed, temporarily on maternity or paternity leave, those who work in a family business or farm and those who work in military or social services. The counterpart of not working individuals is constituted by unemployed, students, retired, homemakers and disabled for a long time. We include in the regressions two categorical variables, one for each partner, that take value 0 if the individual is unemployed, value 1 if he works part-time and value 2 if he works full-time (at least 40 hours per week).

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[10]In order to check that the correlation between mother's and father's education doesn't cause a bias in the results, we also perform the analysis considering only the highest level of education between the two partners. As results of the variables of interest remain unchanged, we present the analysis with the education of both parents, since it is interesting to look at the different effect of mother's and father's education on fertility and employment.

For each partner, we include a dummy indicating whether the individual is currently on parental leave.

Respondent's characteristics relate to some survey questions for which information is available for the respondent but not for the partner. More specifically, we know whether the respondent has a previous divorce, his satisfaction with the partner relation and his attitude towards gender roles. But we don't have the same information about the partner. The variable of partnership quality is based on the following question: "How satisfied are you with your relationship with your partner/spouse?", to which the interviewed could answer on a scale from 0 (not at all satisfied) to 10 (completely satisfied). The attitude towards gender roles derives from the survey question "When jobs are scarce, men should have more right to a job than women", which is widely used in the literature as a measure of the individual gender attitude (Alesina et al., 2013; Campa et al., 2010). The scores of the answers range from 1 (strongly agree) to 5 (strongly disagree). We create an ordinary variable which takes value 1 if the respondent (strongly) agrees, value 2 if the respondent neither agrees nor disagrees, value 3 if the respondent (strongly) disagrees. Higher values thus correspond to a more gender egalitarian attitude.

We also control for some characteristics of the couple and the household. Since there is no information about income, we use the survey question "Thinking of your household total monthly income, is your household able to make ends meet?" to control for the family economic situation. The possible answers score from 1 (with great

difficulty) to 6 (very easily), and thus low values correspond to a difficult economic situation. A binary variable indicating whether the couple is married captures the possible effect of being married in comparison to a simple cohabitation. We then build two binary variables to control for the use of external paid childcare and for the regular help received by grandparents. More specifically, the dummy of external paid childcare takes value 1 if the respondent declares regular use of a day care centre, a nursery or pre-school, an afterschool care-centre, a self-organised childcare group, a babysitter or some other institutional or paid arrangement. The dummy of grandparents' help takes value 1 if the respondent declares he/she regularly receives informal help with childcare by his/her parents. Finally, we control for the age of the first child, to consider the relevance of birth interval between first and second child. Table 1 in Appendix B contains descriptive statistics of our variables.

4.1 Methods

We estimate the following 3 logit equations, which correspond to our 3 hypotheses:

$$P_{i,t}(NC) = \beta_0 + \beta_1(Partner's\ Involvement_{i,t\text{-}1}) + \beta_2(X_{i,\ t\text{-}1}) + \epsilon \tag{1}$$

$$P_{i,t}(FT) = \beta_0 + \beta_1(Partner's\ Involvement_{i,t\text{-}1}) + \beta_2(X_{i,\ t\text{-}1}) + \epsilon \tag{2}$$

$$P_{i,t}(NCFT) = \beta_0 + \beta_1(Partner's\ Involvement_{i,t\text{-}1}) + \beta_2(X_{i,\ t\text{-}1}) + \epsilon \tag{3}$$

where

- $P_{i,\ t}$ is the probability that individual i at time t has a new child (1), works full-time (2), has a new child and works full-time (3)

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- *Partner's Involvement$_{i,t-1}$* is the indicator which captures the involvement of the partner of individual i at time *t-1* for both household and childcare activity, as described in section 4

- $X_{i,\ t-1}$ are control variables for individual i at time *t-1* as described in section 4 and Table 1 and referred separately to the interviewed individual and her/his partner

- ϵ is the error term

We also include country fixed effects and we cluster the standard errors at the country level.

Equations 1,2 and 3 are estimated separately for women and men.

We present the results of the logistic regressions, which are appropriate to identify the direction and the significance of the effect for our models with binary dependent variables. However, we are aware of the critique of Mood (2010) that the odds ratios of logistic models can't be interpreted as effect measures and can't be compared across groups, because of the omitted variable bias that is present even with omitted variables unrelated to the independent ones. Therefore, we also use linear probability models as a robustness check. Results, which are available upon request, are not different from the ones we present in our next sections.

5 Results

5.1 Father's involvement and fertility outcomes

Table 2 in Appendix B shows the odds ratio of estimates at Equation 1 when we consider the sample of women, Table 3 shows the corresponding results for the sample of men and Table 4 details the different tasks which measure household and care activities, for both women and men.

Table 2 shows that while fathers' involvement in childcare is not significantly related to the birth of a second child for working women, the involvement in household activities is positive and significant for all the samples considered. The odds ratios are similar for all groups, but the strongest results are found for the subsample of working women who want or intend to have a child (column 2), for whom the odds of a second child are 1.47 times higher if the father is involved in housework activities compared to not involved fathers, and for working women who intend to both continue working and have a second child (column 5), for whom the odds of a second child with highly involved fathers are 1.42 times higher than with a low involvement of the father. These results suggest that an equal sharing of domestic activity is a significant driver of the choice for working women to have one more child. Among the control variables, some of them are significant in selected sample: education of the father (consistently with Trimarchi and Van Bavel (2017)), the level of income of the couple and the couple being married matter in a positive direction, while the

part-time work of the woman in a negative direction. Interestingly, grandparents' support does not seem to be particularly significant for the fertility decisions of women.

Table 3 shows that, when we consider men instead of women, the involvement of the mother is not significant. As expected, men have a new child indipendently from what women do at home or with childcare. This result is in line with the fact that women always contribute to domestic and childcare activities, while men are the marginal contributors. The age of the mother and the presence of a previous divorce are negatively related to the probability of a second child for the father, while, in some sub-samples, full-time working condition of the mother, egalitarian attitude of the father and good economic condition of the couple matter positively.

In Table 4 we decompose the contribution of partners to housework and childcare among different activities. The table shows that women declare the most important housework task for their partner's involvement to be washing dishes at home. This result is in line with what found by Carlson et al. (2018), who report that, among all female-types tasks, the sharing of dishwashing is particularly important in determining women's satisfaction with their relation.

5.2 Father's involvement and maternal employment outcomes

In Table 5 we estimate Equation 2 for women. We consider the same samples of Equation 1. Fathers' involvement in household is positively and significantly associated with a higher probability that the woman will work full-time during the second interview for all the subsamples. Control variables play here an important role: the probability to work full-time at the time of the second interview is negatively related to having enjoyed maternity leave during the first interview and, as expected, it is positively related to be working full-time at the time of the first interview. Interestingly, grandparents' support with childcare is positively and significantly related to mothers' full-time work. This is an interesting finding for Central and Eastern European countries, where coresidence with grandparents is very common (Jappens and Van Bavel, 2012).

In Table 6 we estimate Equation 2 for men. As expected, we observe that the probability of working full-time for men is not affected by the division of domestic tasks. Paternity leaves and full time-work of fathers have a symmetric effect of that found for mothers.

5.3 Fathers' involvement, fertility and maternal employment outcomes

We finally estimate Equation 3 and consider the joint probability of having a second child and working full-time. Table 7 shows that fathers' involvement in household work is positive and significant for all the groups considered. The involvement of fathers in childcare is instead never significant. The same is true for the involvement of mothers in household or childcare activities on decisions of fathers (Table 8): fathers have a second child (or not) and work (or not) full-time independently of what mothers do. Table 7 provides the most important result of our study: fathers' involvement in housework contributes to the choice of women of having a second child and working full-time.

5.4 Heterogeneous effects

In this section, we analyze heterogeneous effects within the group of women. As some authors suggest (Cinamon and Yisrael, 2002; Hakim, 2003; Esping-Andersen et al., 2007), women can be distinguished according to their work–lifestyle preferences: some women have strong family preferences, others are more career-oriented. In order to derive the potentially different effect of fathers' involvement on the decisions of women with different attitudes and preferences, we construct a measure of career orientation. We consider the questions of the survey asking the respondents to choose the first and second most important aspects of a job among a list of eleven possibilities.[11] We select the two aspects that signal more interest on the part of the individual in pursuing a career: "a job in which you feel you can achieve" and "a job that is interesting". We thus classify individuals as career-oriented if they chose at least one of these two aspects as first or second most important aspect of a job.[12] The results of the analyses performed on the two different subsamples of career-oriented and non career-oriented women, reported in Appendix C, show that

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[11]Respondents could choose the first and second most important aspects of a job among the following ones: "good pay", "not too much pressure", "good job security", "a job respected by people in general", "good working hours", "an opportunity to use initiative", "generous holidays", "a job in which you feel you can achieve", "a responsible job", "a job that is interesting" and "a job that meets one's abilities".

[12]For the purpose of this additional analysis, we consider individuals with one child younger than 8 years old during the first interview, in order to have a sufficient number of observations.

the positive effect of fathers' involvement on women's fertility decisions is significant for all sub-samples and strong for career-oriented women. On the contrary, we find that the effect of fathers' involvement on the probability of full-time employment is significant only for some sub-samplnes of non career-oriented women. When considering the joint probability of having a second child and working full-time, the effect of fathers' involvement remains significant only for some sub-samples of non career-oriented women. Therefore, we can conclude that fathers' involvement is likely to support the decision of career-oriented women to have a second child, and the decision of less career-oriented women to work full-time.[13]

6   Discussion and conclusion

Considering five Central and Eastern European countries, we show that when fathers participate in household chores, it is more likely that women have a second child and work full-time. The involvement of women in housework and childcare plays instead no role for men's decisions. These results are confirmed for women who want or intend to have a child, women whose partner also wants a child or women who intend to continue working.

A possible drawback of our analysis is that GGS does not allow to match each interviewed with the own partner, and thus we cannot explore fertility and work as

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[13]The results about male respondents confirm that men's fertility and employment decisions are not influenced by mothers' involvement in domestic tasks and they are thus not reported.

joint decisions within the couple.

Our analysis can be extended in the future in several ways. Our results refer to the specific context of Central and Eastern European countries, interesting because of both female employment and fertility trends: these countries show levels of women's participation to the labour market in line with the European average (higher than in Southern Europe and lower than in the Nordic countries) and a current fertility rate below replacement. In the future, where data from a larger set of countries will become available, we will be able to test whether our results are confirmed, reinforced, or weakened in a different context and to analyse the relevance of different societal-level factors. Future research will also explain whether other demographic dynamics, such as divorce and the stability of the couple, are influenced by the allocation of family chores within the couple. The data currently available contain a too limited number of observations to make a significant analysis of this type.

Our result that a greater involvement of fathers in housework may push fertility up, while allowing women to continue working full-time, has strong policy implications. Policies which encourage a symmetric division of labor within the couple, such as exclusive paternity leaves, may sustain the double-earner family model and the recover of fertility rates, leading towards an equilibrium where working mothers may decide to have more than one child.

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7   Appendix A

More information about the five countries analyzed

Figure 1 shows employment and fertility rates for the five countries analyzes, comparing the data in 1989-1990, at the end of the communist regime, and in 2015, when the second interviews of the GGS were lastly conducted in Poland.

Figure 1: Employment and Fertility
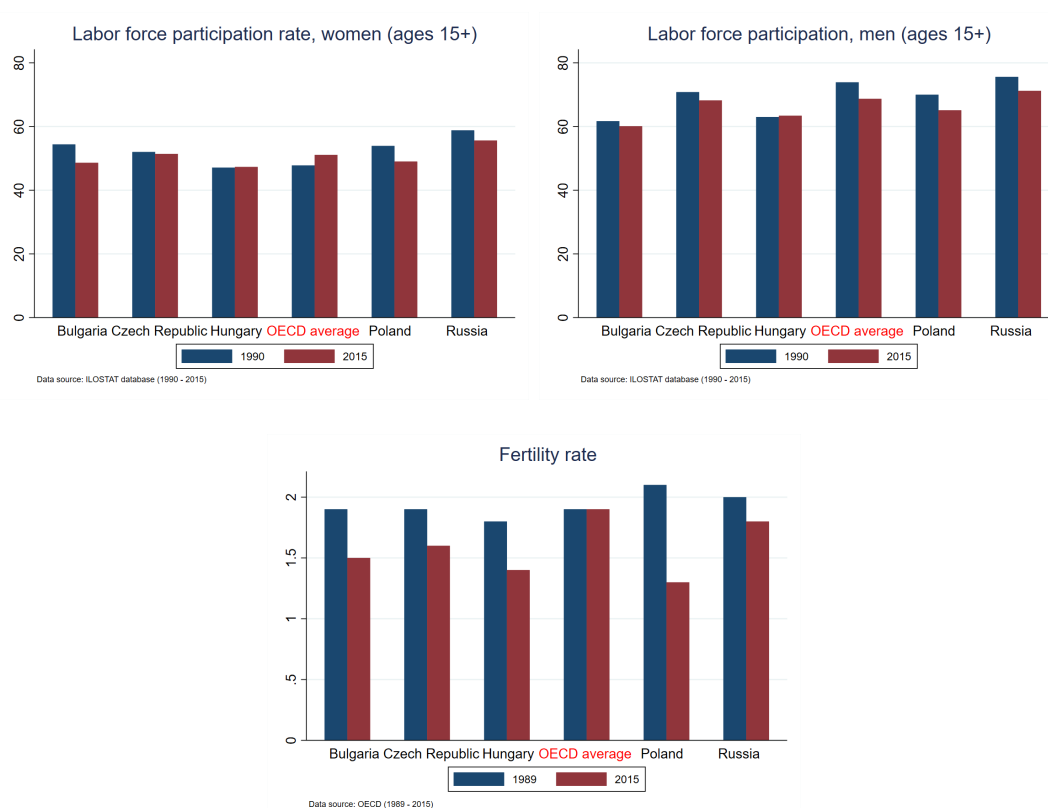
The relatively more liberal attitude of individuals in the Czech Republic goes with a high level of female employment: here, after the end of the communist regime, income actually rose and unemployment remained at minimal levels (Caldwell and

Schindlmayr, 2003). According to Michoń et al. (2010), women in the Czech Republic delay motherhood and devote larger amounts of time to work at the expense of the family if they are confronted with a lack of effective support to reconcile work and family. A similarly high level of female employment is found in Russia, where people however still hold a more traditional gender ideology. Here, when socialist policies were dismantled, female employment had an initial fall, but it soon started to recover with the beginning of the new century: even if it is not yet at its original level, it is still the highest among the countries of the sample. Female employment in Bulgaria and Poland was higher than in Czech Republic before 1989. However, these countries have been more severely hit by the political and institutional change, and female employment decreased significantly. Despite a slight recovery with the beginning of the new century, female employment is still lower than in the past and there is in these countries a high rate of inactivity, also among men (Michoń et al., 2010). Interestingly, the higher employment rate of Czech Republic and Russia goes with fertility rates higher than in the other countries, where employment levels are lower. Hungary had the lowest levels of female employment before 1989 and, after a fall and a subsequent recovery, it has nowadays almost the same levels as before. Fertility rates are low, only slightly higher than in Poland.

8   Appendix B

Results

Table 1: Descriptive statistics by country
Working respondents with one child during the first interview

	Bulgaria		Czech Republic		Hungary		Poland		Russia		Total	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Partners' involvement in housework [0; ≈10]	3,2	7,1	2,6	7,7	2,4	7,4	3,4	7,0	2,8	7,0	2,9	7,1
Partners' involvement in childcare [0; ≈11]	2,6	8,2	2,4	8,2	2,6	7,5	3,6	7,5	2,6	8,0	2,9	7,8
Mothers' characteristics												
Age	27,5	28,1	26,9	29,5	27,3	29,2	29,7	29,1	25,6	26,1	27,7	28,3
University degree (%)	46,2	39,1	18,2	15,0	26,1	18,3	64,8	51,0	48,6	54,6	44,7	40,3
Currently on maternity leave (%)	47,0	42,4	93,9	95,0	79,0	68,7	35,2	13,4	58,1	38,0	57,0	40,9
Unemployed (%)	-	20,7	-	0,0	-	8,7	-	27,5	-	29,6	-	21,1
Part-time working(%)	9,1	8,7	6,1	5,0	5,7	6,1	16,4	10,7	23,8	15,7	12,6	10,1
Full-time working (%)	90,9	70,7	93,9	95,0	94,3	85,2	83,6	61,7	76,2	54,6	87,4	68,8
Fathers' characteristics												
Age	32,2	30,8	30,6	31,1	30,3	30,6	32,8	31,0	29,7	27,9	31,3	30,2
University degree (%)	31,1	26,1	15,2	15,0	18,5	16,5	41,5	39,6	36,2	28,7	30,5	28,1
Currently on paternity leave (%)	0,0	0,0	0,0	0,0	0,6	4,3	0,6	0,0	0,0	0,0	0,3	1,0
Unemployed (%)	15,9	-	0,0	-	6,4	-	4,4	-	7,6	-	7,8	-
Part-time working(%)	4,5	4,3	3,0	5,0	6,4	7,8	5,0	8,1	7,6	2,8	5,6	6,0
Full-time working (%)	79,5	95,7	97,0	95,0	87,3	92,2	90,6	91,9	84,8	97,2	86,5	94,0
Respondents' characteristics												
Previous divorce (%)	3,0	0,0	9,1	0,0	1,9	1,7	1,3	2,0	4,8	7,4	2,9	2,7
Relationship quality [1;10]	9,0	9,1	9,3	8,8	8,9	9,1	9,1	9,4	8,1	8,7	8,8	9,1
Egalitarian attitude [1;3]	2,5	2,0	2,5	1,8	2,4	2,2	2,5	2,2	2,2	2,0	2,4	2,1
Couples characteristics												
Household able to make ends meet [1;6]	2,6	2,5	3,1	3,1	3,4	3,3	3,7	3,6	2,7	2,6	3,2	3,1
Married (%)	81,1	88,0	84,8	95,0	79,0	81,7	93,1	89,9	85,7	90,7	84,8	88,0
External help with childcare (%)	34,1	33,7	9,1	0,0	21,0	32,2	24,5	26,8	36,2	34,3	27,0	30,0
Grandparents' help with childcare (%)	34,8	27,2	12,1	5,0	59,2	47,0	33,3	22,1	40,0	34,3	40,6	31,0
Number of respondents	132	92	33	20	157	115	159	149	105	108	586	484

Table 2: Odds Ratios for the probability of having a second child for working women

	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)
Father's involvement in housework (ref. Low)						
High	1.22*	1.47***	1.41***	1.23*	1.42***	1.29***
Father's involvement in childcare (ref. Low)						
High	1.17	1.44	1.56	1.20	1.45	1.67
Mother's characteristics						
Age	0.96	0.97	1.04	0.96	0.97	1.04
Education	1.26	1.25	0.84	1.23*	1.24	0.85
Maternity leave	0.84	0.86	1.87	0.87	0.89	2.00
Works full-time	0.69***	0.65**	0.90	0.67**	0.64**	0.88
Previous divorce	0.72	1.17	0.72	0.84	1.58	1.18
Satisfaction with relationship to partner	1.05	0.96	0.85***	1.05	0.95	0.85***
Egalitarian attitude	0.97	1.20	1.16	0.98	1.18	1.13
Father's characteristics						
Age	0.95	0.96	0.97	0.95	0.96	0.97
Education	1.33	1.28	1.47***	1.26	1.24	1.39***
Paternity leave	-	-	-	-	-	-
Works part-time	0.82	0.88	0.78	0.84	0.92	0.90
Works full-time	1.84**	1.49	1.58	1.68	1.34	1.50
Couple characteristics						
The household is able to make ends meet	1.17	1.20*	1.20	1.13	1.14	1.14
Married couple	1.69*	1.52	1.97	1.64	1.49	2.04
External help with childcare	0.99	0.88	1.01	1.05	0.92	1.06
Grandparents help with childcare	0.88	0.96	0.87	0.88	0.99	0.87
Age of the youngest child	1.01	0.91	1.11	0.97	0.90	1.09
Country dummies (ref. Bulgaria)						
Czech Republic	5.28***	5.40***	3.64***	5.97***	6.42***	4.05***
Hungary	4.40***	3.90***	1.91***	4.24***	3.77***	1.81***
Poland	2.39***	1.93***	1.51	2.36***	1.94***	1.51
Russia	0.61***	0.55***	0.46***	0.59***	0.62***	0.50***
Constant	0.76	0.78	0.10**	0.87	1.02	0.12**
Observations	584	396	263	553	376	248

*** p<0.01, ** p<0.05, * p<0.1

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Table 3: Odds Ratios for the probability of having a second child for working men

	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)
Mother's involvement in housework (ref. Low)						
High	0.69	0.65	1.00	0.70	0.66	1.02
Mother's involvement in childcare (ref. Low)						
High	0.93	0.90	0.68	0.99	0.88	0.65
Mother's characteristics						
Age	0.89***	0.91***	0.89**	0.89***	0.92***	0.90**
Education	1.40	1.48	1.14	1.35	1.46	1.08
Maternity leave	1.08	0.78	0.54	1.02	0.79	0.54
Works part-time	1.77	3.28	4.83	1.86	3.20	4.71
Works full-time	1.16	1.90**	2.06**	1.15	1.87**	2.04**
Father's characteristics						
Age	0.99	0.97	0.98	0.98	0.97	0.97
Education	1.12	1.10	1.16	1.19	1.11	1.14
Paternity Leave	-	-	-	-	-	-
Works full-time	0.67	0.68	0.47**	0.71	0.67	0.46**
Previous divorce	0.17***	0.20***	-	0.19***	0.21***	-
Satisfaction with relationship to partner	1.02	1.00	0.98	1.00	0.98	0.93
Egalitarian attitude	1.08	1.09	1.19***	1.09	1.07	1.16***
Couple characteristics						
The household is able to make ends meet	1.12	1.24*	1.64***	1.11	1.25**	1.67***
Married couple	1.29	1.69	1.83	1.28	1.72	1.90
External help with childcare	1.23*	0.89	0.75	1.31*	0.91	0.78
Grandparents help with childcare	1.25	1.10	1.22	1.25	1.09	1.18
Age of the youngest child	1.00	1.04	0.81	0.98	1.04	0.81
Country dummies (ref. Bulgaria)						
Czech Republic	2.13***	1.01	2.13*	2.42***	1.02	2.14*
Hungary	2.29***	2.85***	2.56**	2.32***	2.74***	2.33*
Poland	4.43***	3.48***	3.47***	4.32***	3.33***	3.15***
Russia	0.33***	0.27***	0.29***	0.28***	0.26***	0.27***
Constant	4.29*	2.52	3.77	6.22***	3.04	6.19
Observations	479	324	198	472	320	195

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Odds Ratios for the probability of having a second child
for working women

	All sample		Want/Intend to have a child		Both partners want a child		Intend to work		Intend to work & Want/Intend to have a child		Intend to work & Both partners want a child	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father's involvement in housework tasks (ref. <=1)												
Preparing meals (>=2)	0.83	-	0.65	-	0.69	-	0.80	-	0.64	-	0.65	-
Washing dishes (>=2)	1.30***	-	1.73***	-	1.34	-	1.34***	-	1.77***	-	1.39	-
Doing the shopping (>=2)	1.22	-	1.26	-	1.38	-	1.31	-	1.36	-	1.52	-
Cleaning (>=2)	0.66**	-	0.77	-	0.92	-	0.67**	-	0.73	-	0.88	-
Father's involvement in housework tasks (ref. <=1)												
Dressing the children (>=2)	-	1.06	-	1.27	-	1.41	-	1.03	-	1.28	-	1.45
Putting to bed (>=2)	-	1.36*	-	1.28	-	1.01	-	1.43*	-	1.30	-	1.05
Staying at home when ill (>=2)	-	0.93	-	0.96	-	1.19	-	0.93	-	0.93	-	1.17
Leisure activities (>=2)	-	0.82***	-	0.98	-	1.22	-	0.77***	-	0.94	-	1.21
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	584	584	396	396	263	263	553	553	376	376	248	248

for working men

	All sample		Want/Intend to have a child		Both partners want a child		Intend to work		Intend to work & Want/Intend to have a child		Intend to work & Both partners want a child	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mother's involvement in housework tasks (ref. <=1)												
Preparing meals (>=2)	0.73	-	0.59	-	0.11***	-	0.74	-	0.59	-	0.12**	-
Washing dishes (>=2)	1.15	-	1.35	-	0.68	-	1.17	-	1.37	-	0.69	-
Doing the shopping (>=2)	0.62	-	0.41	-	0.59	-	0.62	-	0.43	-	0.63	-
Cleaning (>=2)	0.94	-	0.49***	-	0.05***	-	0.89	-	0.49***	-	0.05***	-
Mother's involvement in childcare tasks (ref. <=1)												
Dressing the children (>=2)	-	0.63	-	1.38	-	0.15	-	0.63	-	1.43	-	0.16
Putting to bed (>=2)	-	0.34	-	0.13**	-	0.12*	-	0.33	-	0.13**	-	0.13*
Staying at home when ill (>=2)	-	12.46**	-	9.95	-	-	-	13.06**	-	9.71	-	-
Leisure activities (>=2)	-	1.29	-	1.53	-	3.24	-	1.31	-	1.51	-	3.20
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	479	479	324	324	198	195	472	472	320	320	195	192

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Odds Ratios for the probability of working full-time during the second wave for working women

	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)
Father's involvement in housework (ref. Low)						
High	1.43**	1.87**	2.22**	1.51***	1.86**	2.17**
Father's involvement in childcare (ref. Low)						
High	0.87	0.76	0.51**	0.79	0.71	0.47**
Mother's characteristics						
Age	1.08**	1.11*	1.06	1.07	1.10*	1.04
Education	1.01	1.12	1.63	1.08	1.16	1.74
Maternity leave	0.44***	0.38***	0.52**	0.47***	0.42**	0.57
Works full-time	4.04***	4.85***	5.53***	3.57***	4.04***	4.61***
Previous divorce	0.75	0.40***	0.52	1.10	0.48**	0.65*
Satisfaction with relationship to partner	0.91**	0.85**	0.85	0.91*	0.85**	0.85
Egalitarian attitude	1.02	0.81	0.79	1.03	0.84	0.84
Father's characteristics						
Age	0.99	0.99	0.99	0.99	0.99	0.99
Education	0.89	0.83	0.71	0.83	0.85	0.72
Paternity leave	0.49	0.35	0.35	0.56	0.42	0.45
Works part-time	2.06	3.07	3.71	2.68	3.14	3.73
Works full-time	2.21	2.48	3.13	2.52	2.36	2.72
Couple characteristics						
The household is able to make ends meet	0.87***	0.94	1.00	0.87**	0.92	0.99
Married couple	0.74	0.80	1.28	0.69**	0.74	1.25
External help with childcare	1.53	1.09	1.44	1.71*	1.19	1.55
Grandparents help with childcare	1.73***	1.69***	1.74***	1.75***	1.58***	1.57***
Age of the youngest child	0.89	1.01	1.00	0.90	1.01	1.02
Country dummies (ref. Bulgaria)						
Czech Republic	0.14***	0.15***	0.13***	0.14***	0.17***	0.14***
Hungary	0.26***	0.23***	0.30***	0.25***	0.23***	0.30***
Poland	0.77**	0.87	1.12	0.75***	0.82**	1.09
Russia	0.54***	0.55***	0.55***	0.51***	0.49***	0.49***
Constant	0.37	0.24	0.30	0.42	0.40	0.56
Observations	586	398	265	555	378	250

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 6: Odds Ratios for the probability of working full-time during the second wave for working men

	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)
Mother's involvement in housework (ref. Low)						
High	0.73	0.98	1.25	0.71	0.99	1.31
Mother's involvement in childcare (ref. Low)						
High	1.25	0.74	1.04	1.28	0.75	1.03
Mother's characteristics						
Age	0.92*	0.90**	0.96	0.91**	0.90**	0.97
Education	1.84*	1.43	0.85	1.90**	1.48	0.90
Maternity leave	4.10***	6.91***	7.74***	4.09***	6.98***	8.13***
Works part-time	1.31	2.68	1.82	1.31	2.68	1.73
Works full-time	0.86	1.31	1.58	0.83	1.28	1.50
Father's characteristics						
Age	1.05	1.10*	1.05	1.06*	1.10*	1.05
Education	0.93	1.06	2.21	0.95	1.09	2.28
Paternity Leave	0.27***	0.25***	0.23***	0.26***	0.25***	0.22***
Works full-time	2.39***	3.13***	2.78**	2.53***	3.05***	2.72*
Previous divorce	1.63	-	-	1.55	-	-
Satisfaction with relationship to partner	1.08	1.07	0.94	1.10	1.11	0.96
Egalitarian attitude	0.88	0.89	0.86	0.91	0.90	0.87
Couple characteristics						
The household is able to make ends meet	1.17	1.19	1.08	1.17	1.16	1.07
Married couple	1.31	2.38**	2.99***	1.27	2.34**	2.93***
External help with childcare	1.96***	2.33*	1.43	1.95***	2.29*	1.42
Grandparents help with childcare	1.85***	1.61**	1.58	1.84***	1.65**	1.61
Age of the youngest child	1.03	0.94	1.10	1.04	0.95	1.11
Country dummies (ref. Bulgaria)						
Czech Republic	0.49***	0.35***	0.11***	0.42***	0.34***	0.09***
Hungary	0.73*	0.45***	0.25***	0.77	0.47***	0.25***
Poland	1.10	1.37	0.76	1.10	1.41	0.73
Russia	0.65***	0.84	0.74	0.67**	0.88	0.75
Constant	1.14	0.19	0.53	0.91	0.14	0.39
Observations	484	320	202	477	317	199

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Odds Ratios for the probability of having a second child and working full-time during the second wave for working women

	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)
Father's involvement in housework (ref. Low)						
High	1.77**	2.09**	2.78***	1.82**	2.01*	2.47***
Father's involvement in childcare (ref. Low)						
High	0.75	0.84	0.72	0.76	0.81	0.69
Mother's characteristics						
Age	1.02	1.10	1.13**	1.03	1.11**	1.13**
Education	1.14	1.15	1.00	1.18	1.12	1.01
Maternity leave	0.57***	0.56**	1.58	0.64***	0.61*	1.81*
Works full-time	0.99	0.90	0.98	0.95	0.86	0.87
Previous divorce	0.48	0.44	-	0.65	0.66	-
Satisfaction with relationship to partner	0.90**	0.81***	0.76***	0.89***	0.80***	0.76***
Egalitarian attitude	0.96	1.08	0.99	0.98	1.08	0.93
Father's characteristics						
Age	0.96***	0.96*	0.99	0.96***	0.96*	0.99
Education	0.80	0.63**	0.55***	0.68**	0.58***	0.45***
Paternity leave	4.58	2.90	3.68	5.09	3.46	5.00
Works part-time	0.84	0.43	0.84	0.86	0.41	0.96
Works full-time	1.33	0.89	1.27	1.17	0.75	1.23
Couple characteristics						
The household is able to make ends meet	1.14	1.13	1.08	1.14	1.05	1.02
Married couple	1.29	1.25	5.08**	1.29	1.29	5.31**
External help with childcare	1.37	0.97	0.94	1.45	1.04	1.04
Grandparents help with childcare	0.82***	1.04	0.90	0.86	1.13	1.04
Age of the youngest child	0.92	0.90	1.25	0.90	0.89	1.24
Country dummies (ref. Bulgaria)						
Czech Republic	-	-	-	-	-	-
Hungary	1.00	0.66**	0.57***	0.93	0.65**	0.49***
Poland	2.44***	1.92***	1.96**	2.35***	1.99***	1.81**
Russia	0.58***	0.66*	0.82	0.50***	0.64	0.67*
Constant	0.32	0.21	0.01**	0.37	0.24	0.01**
Observations	553	372	241	524	354	229

*** p<0.01, ** p<0.05, * p<0.1

Table 8: Odds Ratios for the probability of having a second child and working full-time during the second wave for working men

	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)
Mother's involvement in housework						
(ref. Low)						
High	0.72	0.81	1.19	0.74	0.83	1.22
Mother's involvement in childcare						
(ref. Low)						
High	0.95	0.80	0.68	1.02	0.78	0.65
Mother's characteristics						
Age	0.88***	0.89***	0.88***	0.88***	0.89***	0.89***
Education	1.67	1.73	1.29	1.64	1.73	1.25
Maternity leave	1.09	0.97	0.73	1.04	1.00	0.75
Works part-time	1.73	2.95	3.47	1.81	2.86	3.33
Works full-time	1.18	1.84	1.98	1.15	1.79	1.95
Father's characteristics						
Age	1.02	1.02	1.02	1.01	1.02	1.01
Education	1.07	1.08	1.09	1.15	1.09	1.08
Paternity Leave	3.84***	2.75***	1.48	3.96***	2.76***	1.49
Works full-time	1.60**	1.77*	0.95	1.83***	1.74	0.93
Previous divorce	0.19***	0.23**	-	0.22***	0.24**	-
Satisfaction with relationship to partner	1.11	1.09	1.01	1.09	1.08	0.97
Egalitarian attitude	1.02	1.01	1.11	1.03	1.00	1.08
Couple characteristics						
The household is able to make ends meet	1.12	1.25*	1.61***	1.12	1.25*	1.63***
Married couple	1.16	1.83	2.12	1.13	1.84	2.16
External help with childcare	1.55***	1.40	1.07	1.69***	1.42	1.10
Grandparents help with childcare	1.51**	1.30*	1.24	1.50***	1.30*	1.22
Age of the youngest child	0.92	0.91*	0.79	0.90	0.91*	0.79
Country dummies (ref. Bulgaria)						
Czech Republic	1.26	0.43***	0.92	1.43	0.43***	0.90
Hungary	2.39***	2.91***	2.40**	2.47***	2.84***	2.20*
Poland	4.59***	4.00***	3.22***	4.49***	3.89***	2.92***
Russia	0.42***	0.39***	0.38***	0.36***	0.39***	0.36***
Constant	0.46	0.14	0.47	0.61	0.16	0.67
Observations	484	329	202	477	325	199

*** p<0.01, ** p<0.05, * p<0.1

9 Appendix C

Analysis for two subsamples of women
(career-oriented and non career-oriented)

Table 9: Odds Ratios for the probability of having a second child for working women

	Career oriented women						Non career oriented women					
	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Father's involvement in housework (ref. Low)												
High	1.91*	3.02*	6.31*	1.86*	2.96**	5.20**	1.07	1.29**	1.20	1.08	1.32**	1.20
Father's involvement in childcare (ref. Low)												
High	1.33	2.72**	1.99	1.40	3.03***	2.69	0.83	0.94	0.98	0.83	0.93	1.01
Mother's characteristics												
Age	0.84*	0.78***	0.86	0.84*	0.77***	0.89	0.96*	0.96	0.97	0.98	0.98	1.00
Education	1.46	1.57	0.88	1.56	1.55	0.80	1.00	0.98	0.84**	1.01	1.00	0.86*
Maternity leave	0.84	1.82	1.51	0.99	2.12**	1.93	1.20	1.28	1.85*	1.33	1.41*	2.10**
Works full-time	1.50	1.47	0.81	1.32	1.34	0.65	0.44***	0.49***	0.55***	0.48***	0.52***	0.59**
Previous divorce	0.76	1.15	0.29	0.83	1.37	0.59	0.80	0.85	0.89	0.85	1.06	1.31
Satisfaction with relationship to partner	1.09	0.75	0.60***	1.06	0.75	0.60***	1.09*	1.06	0.99	1.10***	1.07	1.02
Egalitarian attitude	0.90	1.10	0.83	0.85	0.98	0.62	0.97	1.18	1.18	0.97	1.20	1.23
Father's characteristics												
Age	1.02	1.08	1.04	1.02	1.09	1.05	0.95*	0.96*	0.97	0.93***	0.94***	0.95*
Education	1.30	1.24	1.76	1.24	1.23	1.68	1.14*	1.26***	1.34***	1.05	1.19***	1.21***
Paternity leave	-	-	-	-	-	-	-	-	-	-	-	-
Works part-time	0.26	0.13	-	0.20**	0.09*	-	1.27	1.61	1.74	1.24	1.63	1.91
Works full-time	1.60	0.86	0.42	1.18	0.52	0.27	1.79	1.66	1.87	1.82	1.64	1.99
Couple characteristics												
The household is able to make ends meet	1.15	1.60	1.78*	1.14	1.53	1.77**	1.21***	1.32***	1.40**	1.17**	1.26**	1.34**
Married couple	1.78	1.23	4.19*	1.80*	1.54	8.25***	1.46*	1.67	1.30	1.35	1.50	1.10
External help with childcare	1.16	1.11	0.75	1.10	1.12	0.73	1.01	0.88	1.19	1.08	0.90	1.18
Grandparents help with childcare	0.99	2.02	3.17	0.97	1.93	2.59	1.04	0.86	0.77	1.13	0.92	0.81
Country dummies (ref. Bulgaria)												
Czech Republic	5.00**	9.92	7.31*	7.86***	15.98*	19.63**	4.03***	2.73***	2.23***	4.38***	2.99***	2.21***
Hungary	5.20***	5.58***	4.49**	4.69***	4.94***	3.06	3.40***	3.15***	2.13***	3.43***	3.23***	2.17***
Poland	5.01***	7.64***	9.54***	4.74***	7.18***	6.93***	2.36***	1.63***	1.49	2.50***	1.71***	1.55
Russia	3.19***	6.74***	7.10***	2.74***	6.81***	7.91***	0.83	0.86	0.89	0.91	1.07	1.10
Constant	0.04**	0.16	0.79	0.08	0.34	0.83	0.60	0.16*	0.16**	0.63	0.15	0.11**
Observations	233	140	89	220	131	82	664	435	309	633	415	296

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 10: Odds Ratios for the probability of working full-time during the second wave for working women

	Career oriented women						Non career oriented women					
	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Father's involvement in housework (ref. Low)												
High	1.51	1.71	1.25	1.94	2.65	2.73	1.16	1.64***	1.42*	1.25	1.80***	1.51***
Father's involvement in childcare (ref. Low)												
High	0.84	1.01	0.87	0.91	1.15	0.87	1.01	0.94	0.64**	0.95	0.93	0.64**
Mother's characteristics												
Age	0.89***	0.91**	1.00	0.88***	0.84***	0.82*	1.04	1.01	0.98	1.04	1.01	0.98
Education	1.02	1.36	1.12	1.18	1.56	1.80	1.33**	1.55***	1.55***	1.36***	1.55***	1.55**
Maternity leave	0.37***	0.36***	0.59	0.38**	0.36*	0.47**	0.23***	0.22***	0.28***	0.22***	0.24***	0.29***
Works full-time	16.72***	15.35***	15.79***	16.79***	13.00***	11.90***	6.34***	7.77***	8.26***	5.79***	6.49***	7.06***
Previous divorce	3.73***	2.97**	0.94	5.48***	9.23***	0.50	1.36	0.61	0.75	2.18	0.81	0.95
Satisfaction with relationship to partner	0.81***	0.94	0.98	0.86***	1.00	1.16	0.97	0.90***	0.82***	0.95	0.90**	0.80***
Egalitarian attitude	0.95	0.86	0.93	0.91	0.84	1.07	1.04	0.90	0.88	1.00	0.86	0.83
Father's characteristics												
Age	1.16***	1.18***	1.17***	1.17***	1.22***	1.25***	0.96**	0.94**	0.95	0.96*	0.94*	0.94
Education	0.87	0.69	0.59**	0.69	0.53**	0.39***	1.12**	1.20*	1.15	1.14**	1.27***	1.24**
Paternity leave	-			-			-			-		
Works part-time	9.51**	28.94*	26.52**	13.47***	32.29	46.47	1.29	1.63	1.65	1.21	1.60	1.47
Works full-time	3.82	7.88	9.13	4.47	6.58	8.67	3.13	3.38	2.85	3.28	3.58	2.68
Couple characteristics												
The household is able to make ends meet	0.84	1.05	1.16	0.74	0.84	0.83	0.88	1.10	1.24***	0.94	1.17*	1.34***
Married couple	0.24**	0.14	0.20	0.32*	0.14	0.18	1.05	1.42	2.12*	0.97	1.24	1.84*
External help with childcare	1.88	1.31	1.07	2.38*	1.80	1.28	0.70***	0.77	0.92	0.71**	0.82	1.01
Grandparents help with childcare	2.88***	4.12***	3.97**	2.90**	4.29*	3.87	1.50***	1.55***	1.84***	1.44***	1.46***	1.71**
Country dummies												
(ref. Bulgaria)												
Czech Republic	1.28	1.72	0.69	-	-	-	2.27***	2.45***	1.78**	2.09***	2.28***	1.89**
Hungary	1.43	1.22	0.57	1.49	1.40	1.18	0.71***	0.66	0.42***	0.70***	0.66*	0.42***
Poland	0.61*	0.34***	0.15**	0.61*	0.41*	0.25	0.42***	0.32***	0.31***	0.38***	0.29***	0.29***
Russia	0.21***	0.36**	0.39	0.16***	0.20***	0.32	0.25***	0.13***	0.09***	0.24***	0.13***	0.10***
Constant	1.57	0.04	0.01	1.06	0.22	0.06	0.40	0.69	2.65	0.48	0.69	3.49
Observations	233	140	96	215	127	85	664	435	309	633	415	296

*** p<0.01, ** p<0.05, * p<0.1

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Table 11: Odds Ratios for the probability of having a second child and working full-time during the second wave for working women

	Career oriented women						Non career oriented women					
	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child	All sample	Want/Intend to have a child	Both partners want a child	Intend to work	Intend to work & Want/Intend to have a child	Intend to work & Both partners want a child
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Father's involvement in housework (ref. Low)												
High	1.21	1.94	2.24	1.26	2.02	2.08	1.14	1.24***	1.15	1.16	1.30***	1.16
Father's involvement in childcare (ref. Low)												
High	0.98	1.48	0.92	1.02	1.50	0.94	0.81	0.95	0.98	0.79	0.95	1.02
Mother's characteristics												
Age	0.80**	0.77***	0.85	0.81**	0.77***	0.88	0.97	0.96	0.97	0.99	0.99	1.00
Education	1.26	1.38	0.82	1.35	1.38	0.73	1.06	1.06	0.91	1.06	1.06	0.93
Maternity leave	0.50	0.38	0.43	0.58	0.40	0.45	1.00	1.21	1.93**	1.07	1.35	2.18**
Works full-time	3.52**	3.67***	1.74	3.24*	3.39***	1.68	0.83	0.84	0.89	0.84	0.80	0.84
Previous divorce	1.36	1.96	0.85	1.46	2.44	1.21	0.54	0.40	0.38	0.53	0.39	0.41
Satisfaction with relationship to partner	1.05	0.98	0.87	1.05	1.02	0.92	1.06	0.97	0.92	1.07	0.99	0.96
Egalitarian attitude	0.85	0.94	0.70	0.82	0.81	0.53	1.09	1.19	1.22	1.09	1.20	1.22
Father's characteristics												
Age	1.06**	1.08**	1.08	1.06**	1.09**	1.10	0.94*	0.95	0.98	0.93***	0.94***	0.96
Education	1.14	1.12	1.17	1.08	1.09	1.06	1.07	1.22***	1.19***	1.01	1.18***	1.11**
Paternity leave	-	-	-	-	-	-	-	-	-	-	-	-
Works part-time	-	-	-	-	-	-	0.82	0.83	1.01	0.84	0.91	1.21
Works full-time	5.07**	3.70**	-	4.01*	3.14**	-	1.43	1.43	1.77	1.40	1.41	1.82
Couple characteristics												
The household is able to make ends meet	1.16	1.29	1.70**	1.09	1.12	1.39	1.21***	1.34***	1.47***	1.20*	1.29**	1.42***
Married couple	1.30	0.89	1.93	1.34	0.98	3.37	1.19	1.33	0.97	1.11	1.22	0.87
External help with childcare	1.04	0.60	0.59	1.01	0.57	0.55	0.81	0.69*	0.94	0.84	0.73	0.98
Grandparents help with childcare	1.45	3.24*	4.07	1.42	3.43*	5.22	1.11	0.98	0.92	1.20**	1.07	1.01
Country dummies (ref. Bulgaria)												
Czech Republic	4.83**	10.00**	6.31*	7.84***	19.75***	21.55**	3.90***	2.85***	2.10***	4.23***	3.14***	2.15***
Hungary	3.92***	4.61***	2.24	3.86***	4.98***	2.41	2.70***	2.43***	1.55***	2.71***	2.45***	1.55***
Poland	3.10***	3.08***	2.36	3.19***	3.43***	2.81	1.51***	1.07	1.01	1.51***	1.07	1.00
Russia	1.66***	3.11***	2.46*	1.53***	2.75**	2.39*	0.38***	0.36***	0.33***	0.49***	0.49***	0.47***
Constant	0.09**	0.09	0.57	0.10**	0.14	0.27	0.40	0.28	0.25	0.40	0.25	0.17
Observations	221	130	84	210	123	78	664	435	309	633	415	296

*** p<0.01, ** p<0.05, * p<0.1

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