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Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:
Baranowska-Rataj, A., & Matysiak, A. (2022). Family Size and Men's Labor Market Outcomes: Do Social Beliefs About Men's Roles in the Family Matter? *Feminist Economics*, *28*(2), 93-118. https://doi.org/10.1080/13545701.2021.2015076

Feminist Economics

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rfec20

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To cite this article: Anna Baranowska-Rataj & Anna Matysiak (2022) Family Size and Men's Labor Market Outcomes: Do Social Beliefs About Men's Roles in the Family Matter?, Feminist Economics, 28:2, 93-118, DOI: 10.1080/13545701.2021.2015076

To link to this article: https://doi.org/10.1080/13545701.2021.2015076

Feminist Economics, 2022
Vol. 28, No. 2, 93–118, https://doi.org/10.1080/13545701.2021.2015076

Family Size and Men's Labor Market Outcomes: Do Social Beliefs About Men's Roles in the Family Matter?

Anna Baranowska-Rataj and Anna Matysiak

ABSTRACT

This article provides evidence on the relationship between fathers' labor market outcomes and number of children. Using data from the European Union Statistics on Income and Living Conditions and instrumental variable models, this study examines how family size is related to fathers' probability of employment, number of paid working hours, job rank, wages, and job stability across European countries with diverse social beliefs about men's financial and caregiving responsibilities. Results show that having a larger family is associated with increases in fathers' share of paid working hours, chances of having a permanent contract and a managerial position, and wages. These findings are, however, largely due to selection. Net of selection, fathers tend to increase paid working hours and are more likely to be promoted after childbirth only in countries where they are considered the main income providers, and acceptance of involved fatherhood is weak. The magnitude of these effects is small, however.

KEYWORDS

Fatherhood, childbearing, family size, labor market, gender ideologies

JEL Codes: J12, J13, Z1

HIGHLIGHTS

- Family size is positively correlated with fathers' labor market outcomes in Europe.
- Having more children is associated with higher job rank, wages, and job stability.
- Multiple births are the source of exogenous variation in the number of children.
- Net of selection, family size premium for fathers depends on gender ideologies.
- In less-egalitarian countries, family size brings more labor market rewards.

INTRODUCTION

While a large body of research has examined the effects of having children on women's labor market participation (Sigle-Rushton and Waldfogel 2007; Boushey 2008; De Henau, Meulders, and O'Dorchai 2010), much fewer studies have been done on the links between fatherhood and men's labor market outcomes (Sigle-Rushton, Goisis, and Keizer 2013). The few existing studies on this topic mainly refer to single Anglo-Saxon countries and show that in comparison to childless men, fathers are paid higher wages (Glauber 2008; Cooke 2014; Fuller and Prince Cooke 2018). This advantage of fathers over childless men in the labor market, called the fatherhood premium, has been largely explained by the different social roles traditionally assigned to women and men (Hodges and Budig 2010; Killewald 2012). Based on traditional expectations that men provide income and women provide care, it was argued that a father is likely to increase his work effort after the birth of a child out of a desire to support his family economically (Kaufman and Uhlenberg 2000; Weinshenker 2015) or that employers tend to favor fathers based on the assumption that a father is likely to be more committed to his work because of his financial responsibilities to his family (Correll, Benard, and Paik 2007; Hodges and Budig 2010).

However, the perception of men's and women's roles in Europe is changing. In many European countries, women have assumed much of the financial responsibilities for the family (Goldscheider, Bernhardt, and Lappegård 2015), while men are now increasingly expected to provide care (Karu and Tremblay 2018). These shifts have been most advanced in the Nordic countries and least advanced in Southern Europe (Treas and Widmer 2000; De Henau, Meulders, and O'Dorchai 2010). In that context, the following question arises: Can the positive effect of family size on fathers' labor market outcomes, which was previously found in Anglo-Saxon countries, also be observed in other social contexts and does the magnitude of such an effect depend on the cultural expectations regarding men's economic and caring roles that predominate in the society?

This question remains unanswered. There is scarce evidence from other countries and the only pan-European published study on this topic concentrated on the moderating role of family policies on fathers' working hours (Bünning and Pollmann-Schult 2016). We add to this evidence by concentrating on the moderating role of gender ideologies. We conceptualize gender ideologies following Anna Chatillon, Maria Charles, and Karen Bradley as "taken-for-granted cultural beliefs" about men's and women's roles and abilities that predominate in the society and influence individual behaviors, such as the partners' division of paid and

unpaid work, as well as employers' hiring or promotion decisions (2018: 217). Gender ideologies are a multi-dimensional concept that taps into various aspects of femininity and masculinity (Davis and Greenstein 2009; Chatillon, Charles, and Bradley 2018). We concentrate on the selected dimension of gender ideologies that focuses on the father's care and financial responsibilities. By defining whether a father is well-suited to taking care of children, and thus should be an "involved father," or whether he should concentrate on breadwinning, and thus remain a "good provider" (Kaufman and Uhlenberg 2000), these social beliefs likely affect the scale of men's involvement in the labor market and their labor market outcomes.

Additionally, this study contributes to the literature by looking at the role of family size (number of children). Previous studies focused mainly on the distinction between fathers and childless men (notable exceptions are Kaufman and Uhlenberg [2000]; Glauber [2008]; Cooke [2014]). However, each additional child implies new expenses and extra care responsibilities and may thus trigger the mechanisms that influence fathers' position in the labor market, just as each additional child increases the motherhood penalty.

Furthermore, we use a broader range of measures of labor market outcomes than was used in previous research. Hence, we take into consideration the possibility that well paid managerial positions may offer lower stability than lower ranked jobs and advancing to a managerial position may, in some cases, be a matter of higher prestige than pay. Fathers are also likely to have different preferences: some attach more value to higher earnings while others opt for a stable or more prestigious job. By considering a wider array of labor market outcomes, we take this variety of options and fathers' preferences into account and thus assess the labor market gains men obtain after the birth of a child more accurately than previous research, which makes our findings more comprehensive and robust.

Finally, we add to the literature by accounting for the possibility of reverse causality. This approach allows us to examine whether the effects of family size on men's labor market outcomes are driven by changes in the behavior of men or their employers after the birth of a child or are caused by the fact that men who are potentially more successful in the labor market tend to have larger families (Kalmijn 2011; Vignoli, Drefahl, and De Santis 2012). To this end, we use instrumental variables that make use of an exogenous shift in the family size resulting from multiple births. While instrumental variable models have been used before to study the effects of childbearing on women's labor supply, our article is the first to implement instrumental variable models into a study focused on fathers' labor market outcomes.

LITERATURE REVIEW

Previous research highlighted three major mechanisms shaping fathers' labor market outcomes: (1) specialization, (2) employers' preferences, and (3) the selection of men with specific labor market outcomes into the group of fathers. These mechanisms all concentrate on the relationship between a man becoming a father and his labor market situation. We review these mechanisms below, but also extend them with the argument that a man's position in the labor market may change not only with the birth of his first child but also with the arrival of each additional child. Each additional child implies new expenses and extra care responsibilities and thus increases the financial pressure and care burden on the family.

The idea of specialization is rooted in the theory of time allocation (Becker 1965). Gary S. Becker argued that partners will seek to specialize in order to maximize the welfare of the household.[1] In principle, specialization functions as a mechanism that operates independent of the gender of the partners. However, Becker argued that the structural and cultural conditions of modern labor markets offer men a comparative advantage in paid labor, whereas women enjoy an advantage in housework and childrearing. Thus, women are encouraged to specialize in childcare and men to provide income. Given these assumptions, a man should increase his labor market efforts after he becomes father and after the birth of each additional child, particularly if his female partner reduces her involvement in paid work. A man's increased efforts may be reflected in longer working hours. Moreover, a man may strive to attain higher pay and a higher job rank, as well as more stable employment.

The specialization hypothesis has been influential in family research (see, for instance, Shockley and Shen [2016]) but has also been heavily criticized. Structural changes in labor markets, as well as the increasing social acceptance of women's employment, have reduced – if not eliminated – men's comparative advantage in paid labor, making predictions from the neoclassical theory applicable only to some selected societal contexts, a point to which we return in the following.

While the specialization model stresses the role of the labor market choices of men workers, recent studies have provided evidence on the discriminatory practices of employers toward childless men. In countries where a man's identity is defined through his success in fulfilling the breadwinner role (Dowd 2012), being a father signals high levels of loyalty and productivity to employers. In such contexts, fathers are perceived as ideal workers who will be willing to work long hours and whose performance at work is not likely to be interrupted by family obligations (Acker 1990). Thus, a man may be granted higher earnings and better chances for promotion to stable and higher ranked positions simply because he has become a father, even without increasing his work effort

(Hodges and Budig 2010). Such a premium may be also granted for each child, as having an additional child means that a father has greater financial responsibilities and thus may have an even higher level of work commitment. In an experimental study, Shelley J. Correll, Stephen Benard, and In Paik (2007) found that in the US, fathers are perceived as more committed employees, are offered higher starting salaries, and are more likely to be promoted than childless men. In a similar vein, Melissa J. Hodges and Michelle J. Budig (2010) and Rebecca Glauber (2008) demonstrated that American men are more likely to receive a bonus if their fatherhood status is combined with other characteristics of "workplace hegemonic masculinity," such as living with a housewife; being white, married, and college educated; and working on a professional or managerial level.

The last explanation, the selection hypothesis, assumes that men who are potentially more successful in the labor market are also more likely to form a family (Percheski and Wildeman 2008; Ludwig and Brüderl 2018). Indeed, men with more stable jobs and higher pay are more likely to marry and have children (Kalmijn 2011; Vignoli, Drefahl, and De Santis 2012). Furthermore, men with better labor market prospects may have larger families, not only because of their potentially better earnings, but because they may be attractive to women for other reasons that are also valued in the labor market, such as their physical attributes or social skills (Ludwig and Brüderl 2018). Empirical research provides mixed evidence for the selection mechanism, however. On the one hand, Volker Ludwig and Josef Brüderl (2018) found that men who are on a steep career track are indeed more likely to marry. On the other hand, Hodges and Budig (2010) demonstrated that men with characteristics that predict high earnings are less likely to become fathers.

Overall, all the mechanisms presented above that explain why men with larger numbers of children perform better in the labor market rely on the presumption that after the birth of a child partners start to specialize in different activities with men becoming responsible for income provision. As a result, women are more likely to have children with men who are successful in the labor market (selection), men tend to increase their work effort after the birth of a child (specialization), and employers are more likely to reward men with family responsibilities (employers' preferences). This assumption has, however, become increasingly outdated with changes in women's and men's social roles (Ferber 2003; Sigle-Rushton 2010). Women's, including mothers', employment has become socially accepted, and women are now widely present in the labor market, contributing growing income share to household budgets (Klesment and Van Bavel 2017). The perception of what it means to be a "good father" has changed as well: that is, a good father no longer just provides income for his family but is also active in caring for and nurturing his children, following the

"involved father model" (Kaufman and Uhlenberg 2000; Dermott and Miller 2015). Men increasingly express the desire to be more involved with their children (Hobson and Fahlén 2009) and derive numerous emotional benefits from the involvement with children (Connelly and Kimmel 2015). These changes have taken place across Europe, though they are far more advanced in some countries (for example, Nordic Europe) than in others (Southern and Eastern Europe).

We can thus expect to find the labor market advantage of fathers with larger families to be smaller in social contexts where men are supposed to share income provision and childcare with their female partners. In particular, in such social contexts, men will no longer specialize in income provision. They will be thus less inclined to increase their working hours upon the birth of a child and may even reduce their hours in order to meet the expectation of being an involved father. Furthermore, in countries where men are no longer perceived as main income providers and are additionally expected to care for their children, fatherhood may no longer signal work commitment to employers and may, like motherhood, be linked to absenteeism and lower reliability (Coltrane et al. 2013). In such social contexts, employers may be less likely to favor fathers, especially fathers of larger families, by granting them a higher salary, promotion, or a more stable work contract.

Most previous research on fathers' labor market outcomes has shown that fathers are, on average, more likely than other men to work longer hours (Kaufman and Uhlenberg 2000; Smith Koslowski 2011) and have higher earnings (Lundberg and Rose 2002; Choi, Joesch, and Lundberg 2008). However, most of these studies were conducted in Anglo-Saxon countries. Thus, we know very little about whether the positive effects of family size on fathers' labor market outcomes are smaller in societies where the notions of involved fatherhood and dual earning are more widespread. A recent study by Mareike Bünning and Matthias Pollmann-Schult (2016) provided some cross-country evidence for Europe. The authors found that fathers tend to work longer hours than childless men but not in countries that provide generous family allowances and paternal leave schemes for fathers. This study concentrated, however, solely on working hours. It thus addressed the specialization hypothesis but did not account for the possibility that employers may favor fathers by offering them better work conditions. Furthermore, it did not consider a possible selection of men who are successful in the labor market into fatherhood. Our study thus extends the previous research on the moderating role of the social context on the fatherhood premium by looking into how prevalent gender ideologies shape the relationship between family size and labor market outcomes among men, extending the array of possible labor market outcomes beyond the working hours and accounting for selection affects.

EUROPEAN CONTEXT

Social beliefs about men's financial and care responsibilities to their family differ considerably across European societies (see Figures A1 and A2 in the Supplemental Online Appendix). Dual earning and the sharing of care responsibilities are most accepted in the Nordic countries (Treas and Widmer 2000). In these countries, active fatherhood and men taking responsibility for household duties have been seen as crucial to achieving a gender-equal society (Hearn et al. 2012). Indeed, Nordic countries have exceptionally high rates of men's participation in household duties and childcare (Kan, Sullivan, and Gershuny 2011; Sullivan, Billari, and Altintas 2014). However, even among these countries, there is some variation in gender ideologies, with Finland being the most traditional (Lammi-Taskula 2008).

Elsewhere in Europe attitudes toward fathers' participation in care and domestic duties are more traditional, and the levels of acceptance of a father providing care for his children are lower. Dual earning is socially accepted, but men tend to be less involved in care and domestic duties than they are in the Nordic countries (Sani 2014). Social acceptance of sharing both financial responsibilities and childcare duties is lowest in Southern Europe, while the German-speaking and Anglo-Saxon countries have levels between those of the Southern European and the Nordic countries (Treas and Widmer 2000). The post-socialist Central and Eastern European countries represent a slightly different case. Dual earning is widely accepted there, but the social support for active fathering, including care provision, is low (see Figure A2 in the Online Appendix). This is a result of the socialist legacy, when women and men were both expected to work for pay and provide income for the family, but the image of the man as an involved father was not promoted (Javornik 2014).

RESEARCH DESIGN

In order to investigate the effects of having children on fathers' labor market outcomes, we need analytical methods that allow us to control for reverse causality, that is, for the possibility that men who are successful in the labor market are usually able to afford to have more children. A failure to account for this possibility may lead to an overestimation of the positive relationship between a man's family size and his labor market outcomes. To this end, we employ multiple births as an instrumental variable that induces an exogenous shift in the number of children (Baranowska-Rataj and Matysiak 2016). Within the instrumental variable framework, we include interactions between the key variable of interest (family size) and country-level indicators (gender ideologies) to determine how family size affects

fathers' working hours and labor market outcomes across countries with diverse social beliefs about men's financial and care responsibilities.

Data and sample

We pool cross-sectional samples from the European Union Statistics on Income and Living Conditions (EU-SILC) for all countries participating in the survey and the years 2004–11. The EU-SILC is a household survey conducted in the EU member states, Norway, and Iceland that was launched in 2003. The advantage of the survey is that it provides detailed information on household structure and labor market outcomes and allows us to compare the effects of the number of children on fathers' employment outcomes across European countries. The disadvantage of the EU-SILC is that it provides data on resident children only. Previous studies have, however, shown that non-resident children do not affect the fatherhood premium (Killewald 2012). In addition, in order to measure gender ideologies, we make use of data derived from the European Value Survey 2008 (EVS), which is a cross-national survey on basic human values conducted every ten years across Europe.

We focus on men of reproductive ages (18–50) in heterosexual relationships. We exclude single fathers, because they are likely to have unique patterns of providing care and financial support for their children, and we observe too few of them in our sample to enable us to study them separately. Furthermore, we restrict our sample to men whose oldest resident child is age 12, as older children are less likely than school-age and younger children to require intense care and parental monitoring and substantial financial expenditures. The overall sample used in the analysis is comprised of 100,665 cases from twenty-seven European countries.[2] The number of couples who experienced multiple births in our data is 1,927.

Measurement

We examine the following labor market outcomes of fathers: (1) the probability of doing paid work; (2) the number of hours worked; (3) the man's share in the total amount of time a couple spent in paid work; (4) the type of contract (permanent versus temporary); (5) the job position (managerial versus non-managerial); and (6) income from work. Paid work includes full-time or part-time employment. Performing domestic tasks and care responsibilities (including parental leave); participating in education or military or community service; and being unemployed, disabled, or retired are defined as not doing paid work. The number of hours corresponds to the number of hours normally spent in the main job. This number includes extra hours, either paid or unpaid, but excludes the travel time between the home and the place of work. The share of

working hours refers to the proportion of father's working hours within the number of working hours of the couple.[3] The type of employment contract refers to the distinction between workers with contracts of limited and of unlimited duration. The managerial job position is defined by the category of "legislators, senior officials and managers," according to the International Standard Classification of Occupations. Finally, we analyze data on annual salaries and wages from the EU-SILC, which we standardize with use of the index of purchasing power parity and express in 2005 values to account for inflation in the 2004–11 period.[4] The models in which we analyze the probability of having a permanent contract or a managerial position, as well as the models in which we analyze wages, are estimated for employed men only (89 percent of the total sample). The sample means and the proportions of these outcome variables, as well as of the control variables used in the analysis, are presented in Table A3 in the Online Appendix (for an exact list of the control variables and an explanation of how they are included in our models, see the following discussion).

Social beliefs about men's financial and caregiving responsibilities are measured based on responses to two attitudinal questions that were asked in the EVS 2008: "*Both the husband and wife should contribute to the household income*" and "*Men are as suited to taking care of children as women.*" These two statements refer to two major responsibilities of fathers: income provision and caregiving. The first statement captures the social support for the dual earner model and, in the same time, the rejection of the male breadwinner model. However, the fact that men are no longer considered as main income providers does not imply yet that they are also considered suited to provide care. For this reason, we also use the second statement that measures social acceptance of fathers' involvement in childcare (support for the involved father model). The level of agreement with these statements was assessed on a five-point Likert scale. The distribution of these variables are presented in Figures A1 and A2 in the Online Appendix, and were discussed earlier. For each country, we calculate the proportion of respondents who strongly agreed with these statements.

One potential problem with this approach is that social beliefs about men's financial and caregiving responsibilities are latent variables that cannot be measured directly. The attitudes and beliefs that underlie these beliefs may differ substantially *within* countries, including across regions and social classes (Chatillon, Charles, and Bradley 2018). While the EVS data are nationally representative, a high degree of heterogeneity in the measured country-specific variable can lead to measurement errors. In addition, the construction of indicators inevitably involves making arbitrary decisions, which can also lead to measurement errors. Fitting the models with error-prone measures of the latent phenomena may yield inconsistent estimators of all model parameters. Errors-in-variables models are one solution to this problem (Wooldridge 2010). Such models can

be estimated if there are at least two alternative measures of the same underlying latent variable. In that case, one "imperfect" indicator is used as an instrumental variable for another. In order to account for the measurement error, we adopt this approach when assessing the moderating role of the predominant social beliefs about men's financial and caregiving responsibilities and the relationship between family size and fathers' labor market outcomes as an alternative strategy to using single attitudinal questions. As an instrumental variable for the indicator of support for a dual earner family model, we calculate country-specific proportions of respondents expressing strong agreements with the statement: "Having a job is the best way for a woman to be an independent person;" the correlation of this indicator with the instrumented measure is 0.62. In order to instrument the acceptance of fathers' involvement in childcare, we follow a similar strategy, using responses to the statement: "Men should take as much responsibility as women for the home and children." The correlation of this indicator with the instrumented measure is 0.75. We run errors-in-variables models using procedures implemented by James W. Hardin, Henrik Schmiediche, and Raymond J. Carroll (2003).

While the indicators mentioned above have the advantage of being easy to interpret because they correspond to two distinct dimensions of gender ideologies, using selected indicators can be seen as arbitrary. As an additional robustness check, we construct a composite measure of social beliefs about men's financial and caregiving responsibilities that combines all four indicators mentioned above into a sum of ratings. We also account for the within-country heterogeneity in this measure (for a detailed description, see Online Appendix B). We regress the sum of the ratings against individual characteristics such as age, gender, partnership status, number of children, social class, and region of residence, as these characteristics have been identified in the literature as major observed sources of heterogeneity in gender ideology (Chatillon, Charles, and Bradley 2018). We then calculate both fitted values and their standard errors and then calculate averages of these two measures for specific countries. The resulting variables, after standardization, give a country-specific index of social beliefs regarding men's financial and caregiving responsibilities, henceforth, the Composite Gender Ideology Index (CGII), and reveal its dispersion within countries.

Social beliefs about men's financial and caregiving responsibilities may be also correlated with other country-specific factors, such as a general political framework supportive of women's empowerment. This correlation, if not accounted for, may confound the estimated correlation of social beliefs regarding men's roles in the family with the outcome variables (in our case, fathers' labor market outcomes). To this end, we make use of two alternative country-specific measures of women's involvement in public life: the World Economic Forum's Global Gender

Gap Index (GGI) and the Gender Empowerment Measure (GEM). The GGI captures women's economic participation, economic opportunity (including the impact of laws on hiring practices), political participation, educational attainment, and health and well-being (Lopez-Claros and Zahidi 2005). It is compiled by the United Nations Development Program (UNDP) and the World Bank, as well as based on executive opinion survey data collected by the World Economic Forum. The GEM seeks to measure relative women's representation in economic and political power. It considers gender gaps in political representation, in professional and management positions in the labor market, and in incomes. The GGI and the GEM can be seen as outcome-based measures of gender equality, as they capture both the existence and the actual effects of policies aimed at promoting gender equality. Because dominant gender ideologies may be interrelated with the institutional setting, we first estimate the models without these indicators and then include these covariates in the models in a second step. Finally, we also use the country and year-specific unemployment rates published by Eurostat to control for the cross-country differences in unemployment that may influence fertility and men's labor market prospects and that may confound our findings if not accounted for.

The distribution of all the macro-level variables used in our analyses is presented in Figure A1 and Figure A2, as well as in Table A4 in the Online Appendix.

Model specification

In order to model the relationship between family size and fathers' labor market outcomes, we use two-stage least squares (2SLS) instrumental variable models (IV). In the IV framework, we can control for the individual-level characteristics of fathers and their partners that simultaneously affect the probability of a multiple birth and the fathers' labor market outcomes, thereby accounting for the selection of fathers who are potentially successful in the labor market into large families. We can also control for the cross-country variation in the institutional setup and cultural conditions.

We regress the labor market outcomes of fathers against the number of children ages 12 and under. We control for the age and education of the father, the mother's age at first birth, and the mother's country of birth (with a distinction made between women born in and outside of Europe). The descriptive statistics for the control variables are displayed in Table A3 in the Online Appendix. We also include fixed effects for survey years and for country groups. First, we examine the relationship between family size and fathers' labor market outcomes. To this end, we have chosen the

following specification of 2SLS instrumental variable models:

$$nchild = \alpha_0 + \alpha_1 multi_1 + \alpha_2 X + \alpha_3 country + \alpha_4 year + \varepsilon \quad (1)$$

$$work = \beta_0 + \beta_1 \overline{nchild_1} + \beta_2 X + \beta_3 country + \beta_4 year + \varepsilon \quad (2)$$

where *nchild* is the total number of children age 12 and under; *work* measures fathers' labor market outcomes; *multi* is an indicator that a given person has experienced a multiple birth[5]; X is a vector of control variables; *country* measures the country-specific influences; and *year* measures the period effects. We also adjust standard errors for the clustering of individuals within countries.

Next, we examine whether the social beliefs about men's financial and caregiving responsibilities that dominate in a given society moderate the relationship between family size and fathers' labor market outcomes. To this end, we use a similar specification of the model, but the number of children is interacted with the country-level indicators of gender ideologies. The interaction terms are implemented in line with a suggestion by Jeffrey M. Wooldridge (2010: 236–7)[6]:

$$nchild = \alpha_0 + \alpha_1 multi_1 + \alpha_2 X + \alpha_3 country + \alpha_4 year + \alpha_5 indicator + \alpha_6 interaction + \varepsilon \quad (3)$$

$$work = \beta_0 + \beta_1 \overline{nchild_1} + \beta_2 X + \beta_3 country + \beta_4 year + \beta_5 indicator + \beta_6 interaction + \varepsilon \quad (4)$$

where *indicator* denotes the country-level measure of the impact of social beliefs on men's roles in the family (and its variance), and the *interaction* stands for the cross-level interaction between the gender ideology measure and family size. In specifications, in which we additionally control for the country-specific measures of women's involvement in public life, the GGI and the GEM, and the country-specific unemployment rate, these variables are also introduced into the model.

The key assumptions made in the instrumental variable models are related to the relevance and the validity of the instrument based on information about multiple births. The relevance of the instrument means that the multiple births need to be strongly correlated with the number of children; in Table A1 in the Online Appendix, it is shown that this condition is fulfilled. The validity of the instrument is related to the lack of a direct impact on the outcome of interest; moreover, the instrument should not be correlated with any unobserved factors affecting the outcome. The literature discusses two main aspects of the potential relationship between multiple births and parental labor market outcomes that could lead to the instrument being deemed invalid. Multiple births are more likely to occur among older women, and, at the same time, the ages of women and their

male partners may be correlated with their labor market outcomes. This potential difficulty can be resolved by controlling for the partners' ages. Another critique relates to the use of assisted reproduction technology, which is known to affect the probability of experiencing a multiple birth.

We checked whether the group of parents with children born in multiple births differ from the group of parents who did not experience multiple births in order to verify whether our findings are representative for parents. To this end, we compare the characteristics of these two groups. In Table A2 in the Online Appendix, we show the associations between basic characteristics such as parental age and country of origin and the instrument. Our estimates showing that observed characteristics are not related to the probability of having a multiple birth are consistent with results from previous studies, which also used multiple birth as an instrument (Angrist, Lavy, and Schlosser 2010; Vere 2011; Cáceres-Delpiano 2012).

Empirical results

We first examine associations between the labor market outcomes of fathers and their number of children using OLS regressions (Table 1). Our results indicate that the number of children is not associated with the probability of employment or the number of working hours among fathers. Still, a positive association is found between the number of children and the share of working hours within a couple. On average, the birth of a child is shown to be associated with a four percentage-point increase in the father's share of hours worked within a couple. Clearly, this pattern is largely due to a decrease in working time among mothers and not to an increase in work effort among fathers. At the same time, we observe a positive association between the number of children and the type of employment contract a father has and his chance of having a managerial position and higher wages. Upon the arrival of a child, a man's chance of having a permanent contract increase by less than 0.4 percentage points, his chance of becoming a manager increase by one percentage point, and his wages increase by 4.2 percentage points.

An important question that emerges at this point is whether these associations are not upward biased, as we may not have been able to control for all the factors that affect a man's family size and his labor market performance. Hence, in the next step, we estimate instrumental variable models (Eq 1 and 2). The results from these models confirm that the number of children is positively related to the father's share of working hours and wages, but not to other labor market outcomes, such as the probability of doing paid work, the stability of employment contracts, or the probability of holding a managerial position.

Table 1 The effects of the number of children on fathers' labor market outcomes – results from OLS regressions and IV models

	Employment probability		*Working hours*		*Share of working hours within couple*		*Permanent contract*		*Managerial position*		*Logarithm of wage*	
	OLS	*IV*	*OLS*	*IV*	*OLS*	*IV*	*OLS*	*IV*	*OLS*	*IV*	*OLS*	*IV*
Number of children	− 0.003	0.009	− 0.080	0.615	0.040***	0.052***	0.004*	0.011	0.010***	0.011	0.042***	0.042**
	(0.003)	(0.009)	(0.162)	(0.432)	(0.004)	(0.012)	(0.003)	(0.013)	(0.002)	(0.013)	(0.004)	(0.020)
Father's age	0.002***	0.001***	0.058**	0.029	− 0.003***	− 0.004***	0.004***	0.002**	0.002***	0.002**	0.013***	0.013***
	(0.001)	(0.000)	(0.026)	(0.024)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Father's tertiary education	0.062***	0.061***	2.603***	2.533***	0.018**	0.017**	0.019*	0.105***	0.105***	0.105***	0.390***	0.390***
	(0.007)	(0.007)	(0.380)	(0.366)	(0.008)	(0.008)	(0.010)	(0.011)	(0.011)	(0.011)	(0.029)	(0.028)
Mother's age	0.007***	0.007***	0.274***	0.313***	0.004**	0.004**	0.005***	0.002***	0.002***	0.002***	0.018***	0.019***
	(0.001)	(0.001)	(0.036)	(0.049)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Mother's country of birth	− 0.110***	− 0.110***	− 4.845***	− 4.851***	− 0.033	− 0.033*	− 0.092***	− 0.042***	− 0.042***	− 0.042***	− 0.202***	− 0.202***
	(0.026)	(0.025)	(1.162)	(1.144)	(0.019)	(0.019)	(0.022)	(0.006)	(0.006)	(0.006)	(0.021)	(0.021)
Constant	0.698***	0.676***	29.894***	28.688***	0.748***	0.727***	0.693***	− 0.096***	− 0.095***	− 0.096***	9.600***	9.599***
	(0.034)	(0.045)	(1.591)	(1.948)	(0.035)	(0.052)	(0.053)	(0.032)	(0.029)	(0.032)	(0.074)	(0.067)
N	100665		100665		100665		90186		90186		90186	

Notes: Fixed effects for survey years and countries are included in the regression; results not displayed.
***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.
Source: EU-SILC data.

We also carried out additional analyses to check the robustness of our findings. Studies that assessed whether a twin birth is a credible instrument found that the magnitude of the effects estimated within the models using this instrument declines with time (Braakmann and Wildman 2016). Our findings do not confirm this pattern (see Table A5 in the Online Appendix).

In the next step, we move to the question of how social beliefs about men's financial and caregiving responsibilities moderate the relationship between the number of children and fathers' labor market outcomes. We hypothesized that in countries where people tend to reject a sole income provider model and support fathers' involvement in childcare, men will be less likely to increase their work effort and/or receive a premium (salary increase, promotion, permanent contract) after a birth of a child. In Table 2, we present the results of instrumental variable models (Eq. 3–4), and of errors-in-variable models that incorporate interactions between the number of children and indicators measuring the social beliefs about men's financial and caring responsibilities. Models 1a and 1b display the findings from these two modeling approaches in which the social acceptance of the dual earner model (rejection of the male breadwinner model) is introduced as the moderating variable. Models 2a and 2b show the results from the instrumental variable models and the errors-in-variable models, respectively, with the social acceptance of men's caregiving as a moderator.

Overall, the findings from these two different modeling approaches suggest that social beliefs about men's economic and caring roles indeed moderate some, but not all, relationships between family size and men's labor market outcomes. The belief that both partners should contribute to the household income clearly moderates the probability of being promoted to a managerial position after the birth of a child (Models 1a and 1b). In a hypothetical setting in which the proportion of people who agree strongly with the idea that both men and women should contribute to the household income is equal to zero, the probability that a father has a managerial position upon the arrival of a child increases by 8.2–11.1 percentage points, depending on the modeling approach. This positive relationship between family size and the probability of being promoted weakens and even becomes negative as social acceptance for dual earner families increases. As a result, we find that in countries where social acceptance of the dual earner model is very high (for example, Norway, France, Hungary), having a child is associated with a decline in the probability of becoming a manager. The instrumental variable models (Models 1a) suggest that the social acceptance of the dual earner model does not moderate the remaining relationships between family size and fathers' labor market outcomes. However, the errors-in-variable models (Models 1b) show that this social belief also affects the link between the number of children and the employment probability. According to these

Table 2 The effects of the number of children on fathers' labor market outcomes according to social acceptance of a dual-earner family – results from instrumental variable models

	Employment probability	*Working hours*	*Share of working hours within couple*	*Permanent contract*	*Managerial position*	*Logarithm of wage*
Model 1: Individual control variables						
Number of children	0.045	2.383	0.092**	− 0.032	0.082**	0.224
	(0.032)	(1.514)	(0.040)	(0.030)	(0.042)	(0.206)
Interaction: Number of children # Social acceptance of a dual-earner family	− 0.001	− 0.043	− 0.001	0.000	− 0.002**	− 0.004
	(0.001)	(0.037)	(0.001)	(0.001)	(0.001)	(0.004)
Social acceptance of a dual-earner family	0.002	0.078	0.001	0.000	0.003*	− 0.004
	(0.002)	(0.089)	(0.002)	(0.002)	(0.002)	(0.004)
Model 2: Individual control variables, GEM indicator, and unemployment rate						
Number of children	0.040	1.874	0.083*	− 0.030	0.086*	0.153
	(0.039)	(1.730)	(0.046)	(0.032)	(0.045)	(0.178)
Interaction: Number of children # Social acceptance of a dual-earner family	− 0.001	− 0.022	− 0.001	0.000	− 0.002*	− 0.002
	(0.001)	(0.045)	(0.001)	(0.001)	(0.001)	(0.004)
Social acceptance of a dual-earner family	0.001	0.035	0.001	0.001	0.003	0.016
	(0.002)	(0.104)	(0.002)	(0.002)	(0.002)	(0.011)
Model 3: Individual control variables, GGI indicator, and unemployment rate						
Number of children	0.043	2.246	0.089**	− 0.031	0.082**	0.020
	(0.034)	(1.533)	(0.041)	(0.029)	(0.042)	(0.128)
Interaction: Number of children # Social acceptance of a dual-earner family	− 0.001	− 0.037	− 0.001	0.000	− 0.002**	0.001
	(0.001)	(0.038)	(0.001)	(0.001)	(0.001)	(0.004)
Social acceptance of a dual-earner family	0.001	0.063	0.001	0.000	0.003*	0.008
	(0.002)	(0.088)	(0.002)	(0.002)	(0.002)	(0.014)

Notes: Control variables include father's age and education, maternal age at first birth, and country of birth, as well as fixed effects for survey years and country groups are included in the regression; the results for these covariates are not displayed. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.
Source: EU-SILC data.

models, the employment probability increases by 7.2 percentage points in a hypothetical country where the acceptance of the dual earner model is close to zero, but this probability declines as the social acceptance of the dual earner model increases. Our observation that the errors-in-variable models, which consider measurement error in the indicator of the social acceptance of the dual earner model, produce somewhat larger and, in some cases, more significant findings is consistent with the literature on attenuation bias (Wooldridge 2010).

The social acceptance of a father's involvement in childcare moderates the relationship between the number of children and fathers' labor market outcomes to a larger extent than the social acceptance of the dual earner model (Models 2a and 2b). The moderating effect in the instrumental variable models is significant for the probability of the father's employment, the father's working hours and share of working hours within the couple, and the father's probability of getting a permanent contract (see Model 2a in Table 2). In a hypothetical setting in which the proportion of people who agree strongly with the view that men are well-suited to taking care of children is equal to zero, a father's probability of doing paid work increases by nearly 6.8 percentage points, his weekly working hours increase by three hours, and his share in the number of hours worked at the household level rises by about 11.6 percentage points upon the arrival of a child. However, if the social acceptance of a father's involvement in childcare is close to 100 percent, these effects are negative, and imply that having a large family is associated with penalties.

Interestingly, the relationship between family size and the probability of having a permanent contract is negative in countries where the social acceptance of a father having care responsibilities is low and is positive in countries where it is higher. We tested whether this finding was driven by the high prevalence of temporary contracts in Southern Europe, which is also a region where the acceptance of men's caregiving is low. To do so, we excluded Southern European countries from our sample. The findings, available on request, remained unchanged. This outcome suggests that in a conservative country, a father who decides to seek employment after the birth of a child in order to support a larger family may be more likely to be offered a temporary rather than a permanent contract. While this finding may seem surprising, a potential explanation for it is that a father may be tempted to accept any contract rather than having no job at all. Finally, when we consider the measurement error in the indicator of social acceptance of a father's involvement in childcare, the results are quite similar (Model 2b in Table 2), but with two exceptions: the moderating role of the attitudinal variable loses its significance in the model explaining fathers' working hours, and gains significance in the model explaining fathers' wages.

Last, we carried out additional analyses with a Composite Measure of Gender Ideology (CGII) and its within-country dispersion (DIS). Like before, the CGII and the DIS were interacted with the number of children, and the findings are presented in Table 3. Both covariates, the CGII and the DIS, are standardized so that regression coefficients reflect a change in the outcome after an increase in the covariate by one standard deviation. The results from these models again confirm that while fathers with larger families tend to have somewhat better labor market outcomes, these benefits are smaller in more egalitarian countries (Model 3 in Table 3).

Table 3 The effects of the number of children on fathers' labor market outcomes according to social acceptance of a man's involvement in childcare – results from instrumental variable models

	Employment probability	*Working hours*	*Share of working hours within couple*	*Permanent contract*	*Managerial position*	*Logarithm of wage*
Model 1: Individual control variables						
Number of children	0.068***	3.152**	0.116***	− 0.070***	0.013	0.186
	(0.025)	(1.243)	(0.033)	(0.024)	(0.026)	(0.181)
Interaction: Number of children # Social acceptance of a man's involvement in childcare	− 0.002***	− 0.073**	− 0.002**	0.002***	− 0.000	− 0.004
	(0.001)	(0.029)	(0.001)	(0.001)	(0.001)	(0.004)
Social acceptance of a man's involvement in childcare	0.002*	0.063	0.001	− 0.002	− 0.000	0.044***
	(0.001)	(0.067)	(0.001)	(0.001)	(0.001)	(0.013)
Model 2: Individual control variables, GEM indicator, and unemployment rate						
Number of children	0.068**	2.818**	0.124***	− 0.087***	0.000	0.186
	(0.029)	(1.415)	(0.038)	(0.025)	(0.031)	(0.167)
Interaction: Number of children # Social acceptance of a man's involvement in childcare	− 0.002**	− 0.058	− 0.002**	0.002***	0.000	− 0.004
	(0.001)	(0.038)	(0.001)	(0.001)	(0.001)	(0.004)
Social acceptance of a man's involvement in childcare	0.002	0.041	0.001	− 0.003**	− 0.001	0.025*
	(0.002)	(0.076)	(0.002)	(0.001)	(0.002)	(0.014)
Model 3: Individual control variables, GGI indicator, and unemployment rate						
Number of children	0.064**	2.988**	0.113***	− 0.070***	0.013	0.067
	(0.025)	(1.218)	(0.033)	(0.024)	(0.026)	(0.115)
Interaction: Number of children # Social acceptance of a man's involvement in childcare	− 0.002**	− 0.066**	− 0.002**	0.002***	− 0.000	− 0.000
	(0.001)	(0.028)	(0.001)	(0.001)	(0.001)	(0.003)
Social acceptance of a man's involvement in childcare	0.002**	0.073	0.001	− 0.002*	− 0.000	0.037***
	(0.001)	(0.055)	(0.001)	(0.001)	(0.001)	(0.009)

Notes: Control variables include father's age and education, maternal age at first birth and country of birth, as well as fixed effects for survey years and country groups are included in the regression; the results for these covariates are not displayed.

***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Source: EU-SILC data.

Having a managerial position is the only labor market outcome for which we find no significant moderating role of CGII. Our models also suggest that some of the benefits for men's labor market outcomes associated with having a large family are smaller in countries where social beliefs regarding men's financial and care responsibilities are more heterogeneous. Finally, we tested whether the moderating role of CGII remains significant after we

control for the general political support for women's empowerment (such as political support for women's participation in public life) and the labor market situation, measured by the country-specific unemployment rate (see Models 4 and 5 in Table 3). Our findings remained largely unchanged, except that in most of the models that control for the GEM, the moderating role of the CGII lost its significance.

CONCLUSIONS

The aim of this article was to provide evidence on the effects of family size on fathers' labor market outcomes, as measured on a range of dimensions: the probability of doing paid work, the number of working hours, the father's share of working hours within the couple, job stability, job rank, and level of pay. Moreover, we investigated whether these effects are affected by country-specific beliefs about men's financial and caregiving responsibilities.

Our results show that having a larger family is positively associated with increases in a father's share of hours of paid work, as well as with a father's chance of having a permanent contract and managerial position and with his wage level. Some of these results are, however, driven by selection, as men who have better chances of succeeding in the labor market also tend to have more children. Hence, our analyses are consistent with previous demographic research that showed that men with better labor market opportunities are more likely to marry and have children (Kalmijn 2011; Vignoli, Drefahl, and De Santis 2012).

Net of selectivity, we find that men increase their number of working hours after a birth of a child, but only in countries where a man is considered the main breadwinner, and, in particular, where a man having a caregiving role is not socially accepted. Conversely, where sharing of financial and care responsibilities is more socially accepted, men not only do not work more upon a childbirth but even reduce their working time. It seems thus that whether partners specialize in paid or unpaid work depends on the social norms about men's and women's roles rather than biological predispositions. This finding is consistent with our expectations and speaks against the specialization hypothesis rooted in the Beckerian theory of the family. Furthermore, our findings are also in line with those obtained by Mareike Bünning and Matthias Pollmann-Schult (2016) who showed that fathers work shorter hours than childless men if the country they live in supports men in fulfilling their care responsibilities by granting them non-transferable parental leave entitlements. However, in addition to this study, we also demonstrate that fathers with larger families residing in countries with more egalitarian gender role attitudes not only work less but also earn lower wages and are less likely to be promoted to a managerial position. Unfortunately, our study does not allow us to

conclude whether this difference in earnings and promotion opportunities is due to shorter working hours or results from discriminatory practices of employers who penalize fathers of larger families for making use of flexible work arrangements or other family friendly policies. The latter explanation is possible given the recent findings from Sweden and the US that point to such employers' practices toward involved fathers (Coltrane et al. 2013; Evertsson 2016). Finally, an interesting new finding that emerges from our study is that from the two dimensions of gender ideologies on men's roles in the family the social support for men's involvement in care turned out to have a stronger moderating role than the acceptance of the dual earner family. This implies that the level of social acceptance of fathers' involvement in care is more decisive for fathers' performance in the labor market than social beliefs about the gender division of financial responsibilities. An overall conclusion stemming from this study is that in countries with higher social acceptance of involved fatherhood, labor markets tend to reward the skills and work effort of their employees instead of taking into account their family status. Our results also suggest that conservative gender ideologies introduce inequality not only *across* but also *within* sexes, as in conservative countries, where having fewer children is related to the men's poorer labor market outcomes.

Our study has important policy implications. First, the finding that children affect not only women's but men's labor market outcomes suggests that policymakers should increase their efforts to improve fathers' caregiving rights. Up to now, the main focus has been on integrating women into the labor market. However, efforts should also be made to integrate men into caregiving. In European societies, men tend to be seen by employers as "ideal workers" whose availability for work is not affected by family obligations. Men in countries with more traditional gender role attitudes may find it particularly difficult to break with this stereotype and ask for shorter or more flexible working hours. However, even in more egalitarian societies, men pay a penalty for becoming fathers. This finding is consistent with studies conducted in Sweden, which showed that the penalty for taking parental leave is greater among men than women (Evertsson 2016). Overall, more efforts should be made to support fathers who want to enter the private sphere. In particular, individualizing rights to parental leave can make it easier for fathers to assert their rights than is often the case in gender-neutral parental systems in which parental leave rights can be transferred between partners (Brandth and Kvande 2009).

Second, the positive relationship we found between family size and men's labor market outcomes is mostly in countries with traditional gender ideologies, and is definitely smaller than the negative effects of children on women's employment reported in the literature (Cruces and Galiani 2007; Vere 2011; Cáceres-Delpiano 2012). Hence, an improvement in a man's labor market opportunities after the birth of a child does not compensate

for the decline in the woman's labor market position after she becomes a mother. Consequently, an increase in the number of children is likely to cause a reduction in family income. This result is in line with the findings from previous research on income inequalities across families with children (Sigle-Rushton and Waldfogel 2007a) and with the feminist critique of Becker's theory of the family (Ferber 2003; Sigle-Rushton 2010). In fact, this study shows that household welfare may even decline if partners assume the traditional division of labor. Thus, improving the conditions for work and family reconciliation for mothers and fathers should be seen as an important policy goal, not only in order to support women and men in their work careers but to improve the material well-being of children in large families.

In our study, we investigated whether the career benefits from having a large family among fathers depend on the social beliefs about men's financial and care responsibilities that predominate across European countries. These beliefs are likely to vary considerably across subnational regions, social classes, and cohorts (Chatillon, Charles, and Bradley 2018) and disregarding this heterogeneity may obscure important information. Although we accounted for the within-country variation in gender ideologies in our models, studying the links between the fatherhood premium and the gender ideologies specific to the environment in which fathers function (for example, social class, region, workplace, cohort) could generate important additional insights into the topic. Another limitation of our study is that we take a snapshot of European families without performing a detailed analysis of how the relationship between family size and men's labor market outcomes varies across children's ages, and without inspecting the nonlinearities in the relationship with the number of children. These are substantial shortcomings of the study, as men's involvement in the labor market may decline as children become older and their female partners return to work. Likewise, the relationship between the family size and fathers' labor market outcomes may be non-linear due to declining marginal costs of children. While all these aspects are interesting and important, undertaking such a detailed analysis is difficult to reconcile with the combined aim of conducting an analysis that deals with selection effects and simultaneously uses a cross-country comparative framework. Last but not least, our study mostly concentrated on the moderating role of gender ideologies in the links between family size and men's labor market outcomes. Gender ideologies are, however, strongly linked to welfare and family policies, which have been shown to be related to fathers' working hours (Bünning and Pollmann-Schult 2016). Thus, future research should aim to take these nuances into account in order to delve more deeply into the relationship between family size and men's labor market outcomes, while also accounting for selectivity.

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ACKNOWLEDGMENTS

We are very grateful for constructive and helpful comments from editors and four anonymous reviewers.

FUNDING

This work was supported by Polish National Agency for Academic Exchange (NAWA): [Polish Returns 2019]; Swedish Research Council: [Grant Number 2017-02385]; National Science Centre in Poland: [Grant Number UMO-2011/03/D/HS4/04258].

NOTES

[1] This idea has been broadly criticized in the literature that points out numerous benefits from sharing work duties instead of adopting a strict division of labor; see, for instance, an excellent discussion by Marianne A. Ferber (2003).

[2] The list of countries includes Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and UK.

[3] Note that in case of this outcome, the effect of the number of children on men's share of work is partly due to mothers' labor market outcomes following the birth of a child.

[4] Specifically, we use information about gross employee cash income, which refers to the monetary component of the compensation of employees payable in cash by an

employer. It includes the value of any social contributions and income taxes to social insurance schemes or tax authorities. Gross employee cash income, apart from wages or salaries, also includes remuneration for time not worked (for example, holiday payments), overtime payments, or supplementary payments (such as a thirteenth month payment).

[5] Following Joshua Angrist, Victor Lavy, and Analia Schlosser (2010), we combine multiple birth instruments at different parities to produce more precise IV estimates (see their discussion of the validity and benefits from such an approach).

[6] Note that in models with interactions, the value of the coefficient corresponding to the number of children represents the relationship between family size and the outcome of interest in a hypothetical situation where the interacted variable is equal to zero.

SUPPLEMENTAL DATA

Supplemental data for this article can be accessed at https://doi.org/10.1080/13545701.2021.2015076

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