Turning back the clock:

Beliefs about gender roles during lockdown[*]

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ABSTRACT

We study the impact of lockdown measures on beliefs about gender roles. We collect data from a representative sample of 1,000 individuals in France during the first COVID-19 lockdown in 2020. To measure beliefs about gender roles, we use questions from the 2018 wave of the European Values Study, and match respondents from the two surveys to compare beliefs before and during lockdown. We find evidence that the lockdown period was associated with a shift towards more traditional beliefs about gender roles. The effects are concentrated among men from the most time-constrained households (those with young children) and from households where bargaining with their female partner was likely to be an issue (households where both partners were equally unavailable for household production). Finally, we find evidence that beliefs about gender equality may be a luxury good. Overall, our results suggest that men seem more likely to hold egalitarian beliefs about gender roles when these beliefs are not costly for them.

Keywords: gender norms, household production, COVID-19.
JEL Classification Numbers: D13, J16, J22.

1 Introduction

Families' ability to outsource household production has been one of the driving factors behind women's increased participation in the labor market (Goldin, 2006). It is also associated with beliefs in more equal gender roles (Pedulla and Thébaud, 2015).[1] Throughout Europe, the share of individuals who agree with statements such as "When a mother works for pay, the children suffer" and "A job is alright but what most women really want is a home and children" has decreased since the European Values Study (EVS) first measured beliefs about gender roles in 1990 (Figure 1). In countries where enrolment rates in early childhood education and care services are higher (Figure 2) and the employment rates of mothers are higher (Figure 3), more individuals tend to believe in equal gender roles.

The COVID-19 crisis reversed families' ability to outsource household production, especially in the first months of the crisis. In early 2020, many governments implemented lockdown measures, which generally involved the closing of child care facilities and schools. For many households, these lockdown measures meant an increase in household production constraints. Research conducted in France (Champeaux and Marchetta, 2021; Ducoudré and Périvier, 2020), Italy (Biroli et al., 2021; Del Boca et al., 2020; Mangiavacchi et al., 2021), Spain (Farré et al., 2020), the United Kingdom (Sevilla and Smith, 2020; Hupkau and Petrongolo, 2020; Golin, 2021), and the United States (Biroli et al., 2021; Carlson et al., 2021) finds that lockdown measures significantly increased the constraints on households with young children, and that women took responsibility for the largest share of parental care, often by taking time off work (Albanesi and Kim, 2021; Alon et al., 2020a,b, 2021).

Did the reversal in families' ability to outsource household production also lead to a reversal in beliefs about gender roles? Previous research found that men and women tend to support more equal gender roles when household production constraints are removed (Pedulla and Thébaud, 2015). But what happens to men's and women's beliefs about gender roles when household production constraints are reinstated? In this paper, we study whether beliefs in gender equality are entrenched once acquired or whether they can be reversed.

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[1]By beliefs in equal gender roles, we mean beliefs that it is men's and women's shared responsibility to contribute both to household production and to the financial support of the household. These gender-role attitudes, combined with female participation in the labor-market and in politics, define gender norms within a society (Alesina et al., 2013).

We study two channels through which the lockdown measures could have impacted beliefs about gender roles. The first channel relates to the increased time constraints that some households faced during lockdown. The lockdown measures were an exogenous shock on households' ability to outsource household production as well as individuals' ability to work. Depending on the industry and occupation of partners, households differed in their availability for parental care: parents could be working from home, temporarily unemployed or still working outside the home if their employment was in a critical sector. If there is a relationship between the ability to outsource household production and individuals' beliefs about gender roles, then individuals from the most time-constrained households—households with young children and households where the partners were still working during lockdown—would be more likely to revert to traditional beliefs about gender roles during lockdown.

The second channel we explore relates to bargaining within couples over who should take care of the extra household production constraints during lockdown. Past research suggests that the work-related constraints of each partner are a determinant of who takes care of household production (Presser, 1994). According to the available time theory of household division of labor (Presser, 1994), the partner who is the least constrained by work is generally the one who spends the most time on household production. However, in households where both partners continued to work during lockdown, there was not always one partner who could "naturally" take care of the extra household production constraints. If there is a relationship between bargaining over who takes care of household production and individuals' beliefs about gender roles, then individuals from households where partners had to coordinate—that is, households where both partners either worked from home or worked outside the home during lockdown—would be more likely to revert to traditional beliefs about gender roles. Indeed, beliefs in traditional gender roles can serve as a focal-point equilibrium in a noncooperative bargaining game between partners (Lundberg and Pollak, 1994, 1996).

We study changes in beliefs about gender roles using data from a survey we designed during the first lockdown period in France, and that a survey institute conducted on a representative sample of 1,000 individuals from the French working population. We measure beliefs about gender roles by asking respondents about their opinions on six statements from the EVS.[2] We examine

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[2]We detail the six statements in Section 3.1. Researchers often use measures from the EVS and the World Values

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changes in beliefs about gender roles by combining responses to our survey with the responses of individuals from the latest wave of the EVS for France.[3] We perform a Nearest-Neighbor Match on respondents' observable characteristics from both surveys to estimate how the respondents to our survey would have likely responded before lockdown to the EVS questions about gender roles. We then use the predicted values to estimate changes in beliefs during lockdown.

We find empirical evidence of a shift in beliefs towards traditional gender roles during the first lockdown period. This shift is concentrated among fathers of young children (12 years old or under). For instance, we find a significant increase in the percentage of men with young children who agree with the statement "A man's job is to earn money; a woman's job is to look after the home and family" (14.9 percentage point increase) and "All in all, family life suffers when the woman has a fulltime job" (14.2 percentage point increase). This result is consistent with a time-constraint channel, although only for men.

Consistent with the available time theory, when men were relatively more available at home than their female partner, they took responsibility for the largest share of the increase in household production.[4] When women were relatively more available at home than their male partner, they took responsibility for the largest share of the increase in household production. When both partners were equally available, they shared responsibility for the increase in household production. We find evidence that the shift in beliefs towards more traditional gender roles is concentrated among men from this third group. That is, we find that men were more likely to declare believing in traditional gender roles during lockdown when both partners were either working from home or still working outside the home. This result suggests that some men believe in less equal gender roles when a conflict may occur over who should take responsibility for household production. This result points to a role of gender norms in marital bargaining, as described in the seminal model by Lundberg and Pollak (1994, 1996).

Why might men be more likely than women to shift their beliefs towards traditional gender roles when household production constraints increase? Beliefs about equal gender roles may be subject to

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Survey to measure beliefs about gender roles, for instance Alesina et al. (2013).

[3]The latest wave of responses for France was in 2018, less than two years before the beginning of the COVID-19 crisis. The EVS collects data every nine years.

[4]Men were relatively more available at home than their female partner to take care of household production in the following cases: they were not working while their female partner continued to work or they were working from home while their female partner was working outside.

motivated reasoning (Epley and Gilovich, 2016). When public policies remove household production constraints, holding gender equal beliefs is not costly for men. But when public policies reinstate household production constraints, holding gender equal beliefs become costly for men. Some men may then shift beliefs towards more traditional gender roles to avoid taking more responsibility for household production. This interpretation is consistent with research that shows that women have stronger preferences for equally sharing household production responsibilities when the couple has a young child (Auspurg et al., 2017). In previous research, Pedulla and Thébaud (2015) found that women's support for equal gender roles tends to be more elastic than men's to the removal of household production constraints. Our results suggest that men's beliefs in traditional gender roles are more elastic than women's when household production constraints increase.

This interpretation of our results suggests that beliefs in gender equality may be a luxury good. As household income increases, households can outsource household production more easily, which could lead to increased beliefs in equal gender roles. We examine this luxury good hypothesis by using cross-country European data from the latest wave of the EVS (pre-pandemic) to estimate the relationship between household income and beliefs about gender roles. Our results are consistent with egalitarian beliefs about gender roles being a luxury good: throughout Europe, both men and women are more likely to believe in equal gender roles as they move up the income distribution. We also find that women tend to believe in more equal gender roles across the entire income distribution.

The paper is structured as follows. Section 2 describes the data, including information on how we match respondents of the Lockdown and the EVS datasets. Section 3 provides descriptive evidence on beliefs about gender roles and household production constraints. Section 4 presents the results of our estimates of changes in beliefs about gender roles during lockdown, which can be related to household production constraints. Section 5 discusses our results by studying the relationship between beliefs about gender roles and income. Section 6 presents results of robustness checks. Section 7 concludes.

2   Data

In this section, we describe the datasets that we combine to perform our analysis. The first dataset is the "Lockdown survey", which includes information from the survey that we designed and

that IPSOS, a survey agency, conducted on a representative sample of 1,000 working individuals in France during the first lockdown period, between May 4th and May 8th, 2020.[5] The second dataset is the "EVS survey", which includes data from the fifth wave of the EVS for France, from 2018. We then describe how we match respondents of both surveys to build the dataset for our examination of changes in beliefs about gender roles during lockdown.

When the first lockdown in France occurred on March 17th, 2020, all Lockdown survey respondents were at least 18 years old and were either employed or independent workers. The survey agency applied a quota sampling method to ensure that the respondents were representative of the French population, based on gender, age, professional activity, as well as the region and the type of environment (rural or urban) where the respondent lived at the time of the survey.[6] Since time constraints were an issue during lockdown, we opted for a short, ten-minute, online survey.

The Lockdown survey includes questions from the EVS (2020) to measure respondents' beliefs about gender roles. The EVS dataset for France includes information collected between March 3rd and August 16th, 2018, two years before the first COVID-19 lockdown. We kept the same format as the EVS questions, asking respondents whether they strongly agree, agree, disagree, or strongly disagree with six statements about gender roles, which we describe in Section 3.1. For each statement measuring beliefs about gender roles, we construct a binary variable equal to one if the respondent answered either agree or strongly agree, and zero if the respondent answered either disagree or strongly disagree. These six measures of beliefs are the main dependent variables of our analysis.

After collecting the responses for each statement during lockdown, we match respondents from our survey with respondents from the EVS. Because we do not have panel data to measure within respondent variations in beliefs regarding gender roles before and during lockdown, we conduct a Nearest-Neighbor Match to estimate the Lockdown survey respondents' beliefs before lockdown. To have a matching set of respondents, we selected the 871 individuals in France from the EVS who were at least 18 years old and employed when they answered the survey in 2018.

Table 1 provides descriptive statistics for the variables that we use from both surveys to conduct the matching exercise. The two datasets include information on respondents: gender, age,

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[5]In France, the first lockdown period ended on May 11th, 2020.
[6]The survey agency kept the survey open until each quota was filled-up.

education, marital status, number and age of children, and geographic location.[7] For respondents with partners (67% in the Lockdown sample and 57% in the EVS sample), we also have information on their partner's employment.[8] In the Lockdown sample, we use the information about the employment status of the respondent's partner before lockdown for our matching exercise. This is an important variable, because it likely reflects prior beliefs about gender roles. For instance, the wife of a male respondent who believes in traditional gender roles is more likely to be a housewife. The employment status of partners is roughly the same in the EVS sample as in the Lockdown sample.

The characteristics of respondents in the EVS sample are generally similar to the ones of the Lockdown sample. The main difference between the two samples relates to education: respondents from the Lockdown survey have higher education on average than respondents from the EVS survey. The matching exercise takes into account such differences. We predict the Lockdown respondents' beliefs before lockdown by conducting a Nearest-Neighbor Match with Mahalanobis distances on the following characteristics: age, education category, marital status, the region the respondent lives in, the number of children living in the household, and the employment status of the partner before lockdown. We conduct an exact match on whether the respondent is female and whether the respondent has a child who is 12 years old or under living in the household.

We use the predicted values from the matching exercise to construct the outcome variable on beliefs before lockdown for the Lockdown respondents.[9] We describe the results of our predictions in Section 3.1. The precision of the predictions relies crucially on the quality of the match. In Section 6, we present the results of alternative matching strategies; they suggest that our predicted values are within bounds. In particular, we calculate average treatment effects (ATE) using different matching characteristics, and also using Euclidean distances. We find that the ATE remain stable in terms of both significance and magnitude across different matching alternatives.

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[7]Information on the geographic location (region) of respondents from each survey is in the Appendix (Table A1). We include this information as research suggests that beliefs about gender roles may vary by geographic location (Alesina et al., 2013; Le Barbanchon and Sauvagnat, 2021).

[8]Respondents in a same-sex relationship are 6.5% of the Lockdown sample (two thirds male couples, one third female couples). We do not have corresponding same-sex couples in the EVS dataset.

[9]The predicted values from the matching model exhibit a bimodal distribution, around the values zero (disagree or strongly disagree) and one (agree or strongly agree). We set the outcome variable for Lockdown respondents to be equal to one if the predicted value is larger than or equal to 0.5; we set the predicted outcome variable to be equal to zero if the predicted value is below 0.5.

3 Descriptive evidence

We describe the main outcome variables of our analysis in Section 3.1. In Section 3.2, we describe the variables we use to measure the impact of lockdown on household production constraints.

3.1 Measures of beliefs about gender roles

We interpret agreement with any of the six statements reported in Table 2 as representing beliefs in more traditional gender roles.

Statements (1) and (2) can be associated with a belief in traditional gender roles for women: "When a mother works for pay, the children suffer" and "All in all, family life suffers when the woman has a fulltime job". About one out of four men and women agree with these statements during lockdown (Table 2, Panel A). Compared to our estimates of beliefs before lockdown (from the Nearest-Neighbor Match), we observe an increase in the percentage of both men and women who agree with the first statement (6 to 11 p.p. increase). We also observe a small increase for the second statement (3 p.p. for men, and 4 p.p. for women).[10]

Statement (3) measures respondents' beliefs regarding gender norms: "A job is alright but what most women really want is a home and children". This statement measures whether the respondent believes that women in general have a preference for traditional gender roles, and is therefore a measure of second-order beliefs: it measures what the respondent believes that other people believe, that is, gender norms. Research suggests that beliefs in gender norms have an impact on individuals' behaviors regarding gender equality in the household and women's participation in the labor market (Bursztyn et al., 2020). Our descriptive statistics suggest that the lockdown period is not significantly associated with a change in individuals' second-order beliefs: 28% of women agree with the statement before lockdown compared to 25% during lockdown, whereas 29% of men agree with the statement before lockdown compared to 28% during lockdown.

Statement (4) measures the extent to which individuals associate *both* men and women with traditional gender roles: "A man's job is to earn money; a woman's job is to look after the home and family". We observe an increase in the percentage of men who agree with this statement: from

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[10]The data collection process by EVS is different from our survey. Interviews were conducted in person for the fifth wave of the EVS for France, whereas our survey was administered online. We check that differences in beliefs between our "before lockdown" period (based on EVS responses) and our "during lockdown" period (based on Lockdown responses) are not driven by type-of-interview bias in Section 6.2.

5% before lockdown to 16% during lockdown. We also observe an increase for women, from 5% to 11%. The difference between men and women during lockdown is statistically significant.

Finally, statements (5) and (6) suggest that men have a comparative advantage for activities related to economic and political leadership: "On the whole, men make better political leaders than women do" and "On the whole, men make better business executives than women do". Our descriptive statistics suggest a strong increase in the percentage of men (but not women) who agree with these two statements. Before lockdown, our estimates suggest that 5% of male respondents agree with the former statement, and 7% with the latter statement. During lockdown, 17% of men agree with both statements.

Overall, we do not observe a polarization of beliefs. Instead, we observe a shift in the distribution of answers, with fewer individuals strongly disagreeing and more individuals agreeing with the statements during lockdown (see Figure A1 in the Appendix).

Among the six statements, two have been asked by the EVS over several waves: "When a mother works for pay, the children suffer" (statement (1)) and "A job is alright, but what women really want is a home and children" (statement (3)). Descriptive evidence, which we present in Figure 4, shows that the share of individuals in France who agree or strongly agree with these two statements decreased steadily between 1990 and 2018. In 2020, we observe a clear trend reversal for both statements.

3.2 Time constraints during lockdown

Time constraints increased substantially during lockdown in households with young children. In the Lockdown survey, we asked respondents to report the number of hours per day that they and their partner spent on parental care and housework, before and during lockdown. During lockdown, about two extra hours a day on average were spent on parental care in households with at least one young child. We find that mothers took responsibility for a larger share of the additional parental care during lockdown. In households with young children, female respondents spent an average of 5.8 hours a day on parental care during lockdown (3.3 hours before lockdown), compared to 4.5 hours for male respondents (3.1 hours before lockdown). These increases and gender differences are consistent with findings from other countries (e.g Adams-Prassl et al., 2020; Biroli et al., 2021; Carlson et al., 2021; Farré et al., 2020; Sevilla and Smith, 2020; Golin, 2021).

Figure 5 shows the change in hours spent per day by mothers relative to fathers on parental care and housework, for each of the nine categories of employment situations during lockdown (Table 3 shows the share of couples, with and without young children, in each category). Although the large standard errors of the estimates reflect the imprecise measurement[11] of the time-use variables, the figure provides suggestive evidence that men increased the time spent on parental care relative to their female partner in the three situations where they were relatively more available at home to take care of household production: when they were not working and their female partner was working either from home or outside the home, and when they were working from home and their female partner was working outside the home.[12] When women were relatively more available at home, they also took responsibility for a larger share of the increase in parental care that took place during lockdown. This evidence is consistent with the available time theory (Presser, 1994): the partner who is the most available at home will "naturally" take responsibility for a larger share of household production. Time availability is a coordination device for couples bargaining over who will take care of household production. However, in households where both partners were equally likely to be at home (both were not working, both were working from home or both were working outside the home), male and female partners shared responsibility for the increase in parental care and housework during lockdown. While couples who were not working during lockdown had time for parental care and housework during lockdown, couples where both partners were either working from home or working outside were likely to be highly time-constrained. The available time theory (Presser, 1994) suggests that couples need to bargain in these situations over who takes care of household production when it cannot be outsourced.

4   Results

In this section, we examine whether individuals believed in more traditional gender roles during lockdown. First, we study the impact of lockdown measures on all individuals (Section 4.1). Second,

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[11]There are clear measurement errors in the time use variables, however. Many respondents do not estimate precisely how much time they spent per day on different tasks. For instance, several respondents completed daily time use that exceeds 24 hours. Furthermore, there are large differences in men's and women's perceptions of time spent by each partner on parental care and housework. For instance, men tend to say that their share on parental care is just below 50%, whereas women tend to say that their male partner's share on parental care is less than 40%, on average.

[12]While fathers' choices to increase their share of work on parental care is partly endogenous, this figure suggests that their increase in time spent on parental care was also exogenously determined by the way that the lockdown measures impacted the couple's ability to work, and whether they worked from home or outside the home.

we focus on the beliefs of individuals who were the most time constrained during lockdown: parents with young children (Section 4.2). Finally, we examine the changes in beliefs of individuals from households where both partners were either working from home or working outside during lockdown, compared to other households where time constraints were low (because partners were not working) or where partners had a "natural" way of distributing responsibility for household production (because at least one partner was relatively more at home) (Section 4.3).

4.1 Benchmark results

We analyze the changes in beliefs about gender roles during lockdown by estimating the following regression:

$$Y_{it} = \alpha + \beta_1 Lockdown_t + \beta_2 Female_i + \beta_3 Female_i \times Lockdown_t + \boldsymbol{X}_{it} + \epsilon_{it}, \quad (1)$$

where the outcome variable Y_{it} is a binary variable equal to one if respondent i answered agree or strongly agree to a statement presented in Section 3.1 at time t. The outcome before lockdown is defined as the estimate from the matching exercise for the beliefs of respondent i. The main variable of interest, *Lockdown*, is a binary variable equal to zero for the period before lockdown and one for during lockdown. In France, the share of individuals who agree with unequal gender roles has steadily decreased since 1990 (Figure 4). If the lockdown period were not associated with a shift in beliefs, we would expect β_1 to be negative, as the trend observed between 1990 and 2018 would continue in 2020. *Female* is a binary variable equal to one if the respondent is a woman. The coefficient on the interaction term (β_3) measures whether the impact of the lockdown period is different between male and female respondents. The vector of characteristics $\boldsymbol{X}$ includes both time variant and time invariant characteristics: age of the respondent, number of children, marital status, level of education, number of hours worked by the respondent, and fixed effects for the region where the respondent lives. Finally, ϵ_{it} is the idiosyncratic error term. Our benchmark model estimates equation (1) using ordinary least squares (OLS).

Table 4 presents the benchmark results, including all respondents. We find an effect of lockdown on four out of six measures of beliefs about gender roles. The first lockdown period is associated with a statistically significant increase in the probability of agreeing with the following statements:

- "When a mother works for pay, the children suffer" (9.9 p.p. increase, Column (1)),

- "All in all, family life suffers when the woman hasa fulltime job"" (5 p.p. increase, Column (2)),

- "A man's job is to earn money; a woman's job is to look after the home and family" (6.7 p.p. increase, Column (4)),

- "On the whole, men make better political leaders than women do" (9.4 p.p. increase, Column (5)),

- and "On the whole, men make better business executives than women do" (7.5 p.p. increase, Column (6)).

The interaction term between *Lockdown* and *Female* is almost always negative: individuals who changed their beliefs during lockdown were mainly men, especially regarding statements (1), (2), and (5). Our results suggest that the lockdown period is associated with an increase in more traditional beliefs in gender roles, especially among men.

We do not find a significant change in beliefs of the overall population regarding statement (3) on gender norms ("A job is alright but what most women really want is a home and children"). While the lockdown period is associated with a shift in some respondents' beliefs about gender roles, it does not seem to be associated with a shift in the perceptions that individuals have of other people's beliefs about gender roles.

4.2   The relationship between time constraints and beliefs

Since time constraints significantly increased for parents of young children during lockdown, we add in equation (1) a binary variable equal to one if there is at least one child who is twelve years old or under living in the household, and we allow lockdown to differentially impact men and women with and without young children living in the household. We use the variable on children living in the household as a proxy for increased time constraints for the whole sample of respondents.

We find that men with young children increased their beliefs towards unequal gender roles during lockdown. In Figure 6 (see also Table A2 in the Appendix), we show the estimated change in beliefs during lockdown for four categories of respondents separately: men and women, and whether or not they were living with young children during lockdown. We find a significant increase in the

percentage of men with young children who agree with all six statements during lockdown. The increases range from a 13 p.p. increase for "When a mother works for pay, the children suffer", to a 14.9 p.p. increase for "A job is alright but what most women really want is a home and children".

While we find strong and consistent evidence of an increase in beliefs in unequal gender roles for fathers with young children, the results for other men are more mixed. We find a significant but much smaller increase in beliefs in traditional gender roles for statements (1) and (5). However, we also find that men without young children are less likely to agree with the statement "A job is alright, but what most women really want is a home and children" during lockdown.

Finally, we generally do not find that women's beliefs changed significantly during lockdown, whether they had young children living in the household or not. The only significant result we find is that women with young children agreed more often with the statement "When a mother works for pay, the children suffer".[13]

Overall, these results suggest that the increased time constraints that households with young children faced during lockdown are associated with a shift in beliefs towards more traditional gender roles. This shift is concentrated among fathers.

4.3 The relationship between parental occupations and beliefs

To further corroborate the evidence that the change in beliefs among men is driven by an increase in household production constraints, we exploit the variation in individual occupations generated by the lockdown measures, whereby some individuals stopped working, others started working from home and others kept working outside of the home. Comparing couples in the different ways that the lockdown measures impacted their work arrangements is a way for us to proxy potential bargaining issues over which partner should take care of household production during lockdown.

In the benchmark model in equation (1), we add a binary variable equal to one if the respondent and his or her partner either continued to both work outside or both work from home during lockdown, and include an interaction term with the gender variable. For this analysis, we only keep respondents who were living with a partner during lockdown, because we want to compare individuals in a potential bargaining situation with their partner over taking responsibility for

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[13]When working mothers agree with this type of statement, it can be interpreted as measuring a "mother's guilt" effect (Fortin, 2005). For more literature on the mother's guilt effect, see Slaughter (2015) and Kuziemko et al. (2018).

household production.

The overall pattern of results in Figure 7 shows that the change in beliefs towards traditional gender roles is concentrated among men from the households where both partners were either working from home or working outside during lockdown (see also Table A3 in the Appendix). This pattern suggests that what drives the change in beliefs among men is not *per se* the increased time they spent on parental care or housework. Indeed, men who were relatively more available for parental care and housework were not the ones whose beliefs shifted. However, when there is no partner relatively more available than the other partner to take care of household production, then men seem to shift their beliefs towards more traditional gender roles.

We interpret this result as evidence that men may adopt more traditional beliefs in a bargaining situation with their female partner. Adopting these beliefs is less costly for them, as the burden of household production would fall more heavily on their female partner. Women, however, are less likely to revert to traditional beliefs about gender roles. They are likely to maintain egalitarian beliefs because they would ideally like to share the work on parental care and household chores rather than do the larger share of that work.

5   Discussion

Overall, our results suggest that beliefs about gender roles are endogenous to households' ability to outsource household production.

We examine the relationship between beliefs about gender roles and income, by using cross-country data from the latest wave of the EVS. We conduct a regression analysis where an individual's agreement with each statement is the dependent variable and household income decile is the main independent variable, controlling for gender, age, marital status, number of children, and country fixed effects.

Figure 8 shows the predicted percentage of men and women who agree with each statement by household income decile. The figure shows that women are more likely than men to agree with equal gender roles. The figure also shows that egalitarian beliefs are a luxury good: as income levels increase, both men and women are more likely to believe in equal gender roles. This relationship is strongest for the statements ascribing a role to women.

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6 Robustness

6.1 Estimation and matching alternatives

Our estimations rely on the predictions from the Nearest-Neighbor Match. In this section, we present the results of several analyses we conducted to test the robustness of our estimates to different empirical strategies and alternatives to our baseline matching exercise.

First, instead of matching respondents from the EVS survey and our Lockdown survey, we estimate our benchmark model using an OLS cross section analysis. Respondents from both surveys are representative of the French population, and descriptive statistics comparing respondents from both surveys (Table 1) suggest that both samples are comparable (the main differences between the two datasets concern the education variable). Using this unmatched dataset, we find very similar results as when using the matched dataset. Results in Table A4 in the Appendix suggest that the lockdown period is associated with a statistically significant increase in beliefs in unequal gender roles across the same four out of six statements. Statement (2) is also significant in the unmatched data. The results from the unmatched dataset confirm that the main effects are driven by men.

Second, we run our baseline model directly on the matched data. Compared to the main analysis (Table 4), we use the control variables from the Nearest-Neighbor Match in this exercise. Table A5 in the Appendix presents the results, which are similar in size and significance compared to the ones we present in Table 4.

Finally, Table A6 in the Appendix compares average treatment effects estimated using different respondent characteristics to conduct the match, and using either Mahalanobis distances (columns (1) to (6)) or Euclidean distances (columns (7) to (12)). The ATE for our baseline model is Model 1 with Mahalanobis distances. We find that our ATE are comparable to the other models and to Euclidean distances.

6.2 Social-desirability bias

We check whether social-desirability or type-of-interview bias can explain our results. Indeed, respondents to our survey may have been more willing to express beliefs in unequal gender roles because our survey was conducted online, compared to the EVS survey which was conducted in person. We measure desirability bias by using data from the fifth wave of the EVS for six countries

(Denmark, Finland, Germany, Iceland, Netherlands and Switzerland), where some respondents were interviewed in person and other respondents were surveyed online. In these countries, we compare respondents who answered each statement in the online version of the survey with the in-person interview version of the survey. In Panel A of Table A7 in the Appendix, we show results of regressions where the coefficient on the variable *Online survey* measures the difference in the share of individuals who agree with each statement in the online version of the survey compared to the in-person interviews. We find that men are more likely to agree with most statements in the online version (the main exception is statement (1)). Depending on the statement, respondents are between 9% and 18% more likely to agree with a statement when the question is asked online compared to an in-person interview. While this result suggests that social-desirability bias may explain part of our results, it is likely to explain only a small share of the effect that we find for two reasons. First, the economic significance of the coefficients is small compared to the changes that we measure through our lockdown survey. For instance, looking at our benchmark results reported in Table 4 for statement (4), we find that respondents are 52% more likely to agree with the statement during lockdown, compared to before the lockdown. Second, in our analysis, we make the conservative assumption that respondents would not have changed their beliefs between 2018 and before the lockdown. But had the decreasing trend of agreement on these statements continued, we would have expected a *decrease* in the share of respondents who agree with these statements in 2020 compared to 2018.

Finally, Table A7 in the Appendix shows that type-of-interview reporting bias does not depend on having children under 12 in households. This result further suggests that the effects we find during lockdown are not mainly or completely driven by social-desirability bias.

7   Conclusion

In this research, we study whether beliefs about gender roles are entrenched or whether a shock that increases household production constraints can lead individuals to shift their beliefs towards more unequal gender roles. We find that more men believed in unequal gender roles during the first lockdown period in France. We find that men from households with young children and from households where both partners continued working either from home or outside the home during

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lockdown were more likely to shift beliefs. Women's beliefs, however, mainly did not change. These results suggest that time constraints and bargaining within the household were likely drivers of changes in beliefs about gender roles. Finally, we find evidence consistent with beliefs about gender equal roles being a luxury good for both men and women.

Our findings suggest that the increase in beliefs in equal gender roles that has occurred in many European countries, since at least the early 1990s, are likely related to families' ability to outsource household production. When governments implement policies that prevent the outsourcing of household production (such as during the lockdown period), they may reinstate traditional beliefs about gender roles, which may lead some women to exit the labor force.

The effects we measure may be only short run effects: when lockdown measures disappear, household production constraints also disappear, and men may revert to beliefs in more equal gender roles. However, the length of the COVID-19 crisis could lead to long run impacts on individuals' beliefs, as well as women's participation in the labor market.[14] The literature has highlighted that long-lasting shocks in gender roles can shape gender identity norms, which can explain cross-country differences in labor force participation of women in the long run (Alesina et al., 2013). For example, during World War II, women entered the labor market due to men's military involvement in the war; this change in gender roles persisted across generations and led to an increase in female labor force participation in the long run (Fernández et al., 2004). We observe an opposite effect on women's labor force participation caused by lockdown measures: women left the labor market to take care of household production. The effects that we find regarding beliefs about gender roles may have long run repercussions, even when lockdown measures are relaxed and households can outsource household production again.

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[14]Following the publication of the first draft of our research, (Danzer et al., 2021) published a short analysis of attitudes towards maternal employment in West Germany in 2021. They find similar results as ours: men's beliefs shifted towards more traditional beliefs, but women's beliefs did not change.

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Table 1. Demographic characteristics, Lockdown and EVS survey respondents

	Lockdown Survey			EVS Survey		
	Count	Mean	SD	Count	Mean	SD
Female	1,000	0.49	0.500	871	0.52	0.500
Age	1,000	41.69	11.766	871	42.21	11.982
Marital status						
Single	1,000	0.26	0.436	870	0.24	0.427
Married	1,000	0.39	0.489	870	0.34	0.474
Civil partnership	1,000	0.09	0.283	870	0.09	0.287
Cohabitation	1,000	0.19	0.390	870	0.14	0.350
Other	1,000	0.08	0.267	870	0.19	0.389
Children						
At least one child	1,000	0.41	0.493	871	0.48	0.500
Child 12 y.o. or under	1,000	0.31	0.464	871	0.33	0.471
Number of children	413	1.65	0.740	416	1.78	0.789
Partner's employment status						
Works full time	1,000	0.47	0.500	871	0.45	0.498
Works part time	1,000	0.05	0.222	871	0.04	0.207
Works as independent	1,000	0.04	0.196	871	0.01	0.112
Other	1,000	0.12	0.326	871	0.08	0.265
Education level of respondent						
Less than *Baccalauréat*	1,000	0.17	0.375	866	0.33	0.472
High school graduate	1,000	0.23	0.419	866	0.20	0.403
Two years post graduate	1,000	0.23	0.423	866	0.19	0.390
Higher education	1,000	0.37	0.483	866	0.27	0.446

Source: EVS and Lockdown Survey (2020).

Notes: In the EVS, we selected the 871 individuals who had a professional activity when they were surveyed, to match the sample from the Lockdown survey. The "Other" category in marital status includes individuals who are either separated, divorced or widowed. The "Other" category in the partner's employment status includes individuals who are retired, housewives or househusbands, students, unemployed and searching or not searching for a job. The "Number of children" variable only takes into account respondents who have at least one child living in the household (18 or younger). The "Higher education" variable includes individuals who have at least a Bachelor's degree (in France, a degree validating three years of higher education).

Table 2. Share of respondents who agree with each statement, before and during lockdown, by gender

	Before lockdown			During lockdown		
	Mean		t-test	Mean		t-test
	Male	Female	p-value	Male	Female	p-value
Statement (1): Kids	0.13	0.18	0.041	0.24	0.24	0.894
Statement (2): Family	0.22	0.31	0.002	0.25	0.27	0.584
Statement (3): Home	0.29	0.28	0.760	0.28	0.25	0.326
Statement (4): Money	0.05	0.05	0.919	0.16	0.11	0.009
Statement (5): Politics	0.05	0.09	0.034	0.17	0.09	0.000
Statement (6): Business	0.07	0.04	0.142	0.17	0.07	0.000

Source: Lockdown Survey (2020).

Notes: This table shows descriptive statistics for the main outcome variables, which are binary variables equal to one if response is "Agree" or "Strongly Agree" for each statement. Statements are (1) Kids: "When a mother works for pay, the children suffer". (2) Family: "All in all, family life suffers when the woman has a fulltime job". (3) Home: "A job is alright but what most women really want is a home and children". (4) Money: "A man's job is to earn money; a woman's job is to look after the home and family". (5) Politics: "On the whole, men make better political leaders than women do". (6) Business: "On the whole, men make better business executives than women do". The number of Lockdown observations for each statement is as follows: Statement (1) has 936 observations, Statement (2) has 947 observations, Statement (3) has 898 observations, Statement (4) has 968 observations, Statement (5) has 912 observations, and Statement (6) has 927 observations.

Table 3. Job combinations between partners during lockdown

Job combinations	All couples		Couples with young children	
	Freq.	Percent	Freq.	Percent
Both partners are equally available at home				
F not working & M not working	122	19.61	40	15.38
The male partner is relatively more available at home				
F working outside & M not working	42	6.75	15	5.77
F working from home & M not working	51	8.20	16	6.15
F working outside & M working from home	30	4.82	10	3.85
The female partner is relatively more available at home				
F not working & M working outside	58	9.32	30	11.54
F not working & M working from home	59	9.49	24	9.23
F working from home & M working outside	75	12.06	38	14.62
Both partners are equally unavailable at home				
F working outside & M working outside	74	11.90	34	13.08
F working from home & M working from home	111	17.85	53	20.38
Total	622	100	260	100

Source: Lockdown Survey (2020).

Notes: This table shows the different work combinations that opposite-sex couples were in during lockdown. "F" refers to the female partner, and "M" refers to the male partner.

Table 4. Impact of lockdown on beliefs about gender roles, benchmark model

Statement:	(1) Kids	(2) Family	(3) Home	(4) Money	(5) Politics	(6) Business
Dependent variable:	"Agree" or "Strongly Agree" with Statement					
Lockdown	0.099***	0.050*	-0.009	0.067***	0.094***	0.075***
	(0.026)	(0.028)	(0.031)	(0.021)	(0.023)	(0.023)
Female	0.073***	0.090***	-0.004	-0.024	0.010	-0.056***
	(0.023)	(0.027)	(0.029)	(0.017)	(0.018)	(0.017)
Lockdown × Female	-0.072**	-0.071*	-0.026	-0.036	-0.097***	-0.040
	(0.036)	(0.039)	(0.042)	(0.028)	(0.028)	(0.027)
Constant	0.234***	0.194***	0.413***	0.180***	0.214***	0.160***
	(0.059)	(0.064)	(0.072)	(0.049)	(0.051)	(0.049)
Observations	1868	1890	1793	1932	1821	1850
R-squared	0.063	0.056	0.032	0.045	0.046	0.042

Source: Lockdown Survey (2020).

Notes: The dependent variable is a binary variable equal to one if response is "Agree" or "Strongly Agree" for each of the following statements. (1) Kids: "When a mother works for pay, the children suffer". (2) Family: "All in all, family life suffers when the woman has a fulltime job". (3) Home: "A job is alright but what most women really want is a home and children". (4) Money: "A man's job is to earn money; a woman's job is to look after the home and family". (5) Politics: "On the whole, men make better political leaders than women do". (6) Business: "On the whole, men make better business executives than women do". All columns control for the following characteristics: age, level of education, number of children, marital status, number of hours worked, and region fixed effects. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Robust standard errors in parenthesis.

Figure 1. Changes in beliefs about gender roles in Europe, 1990-2018
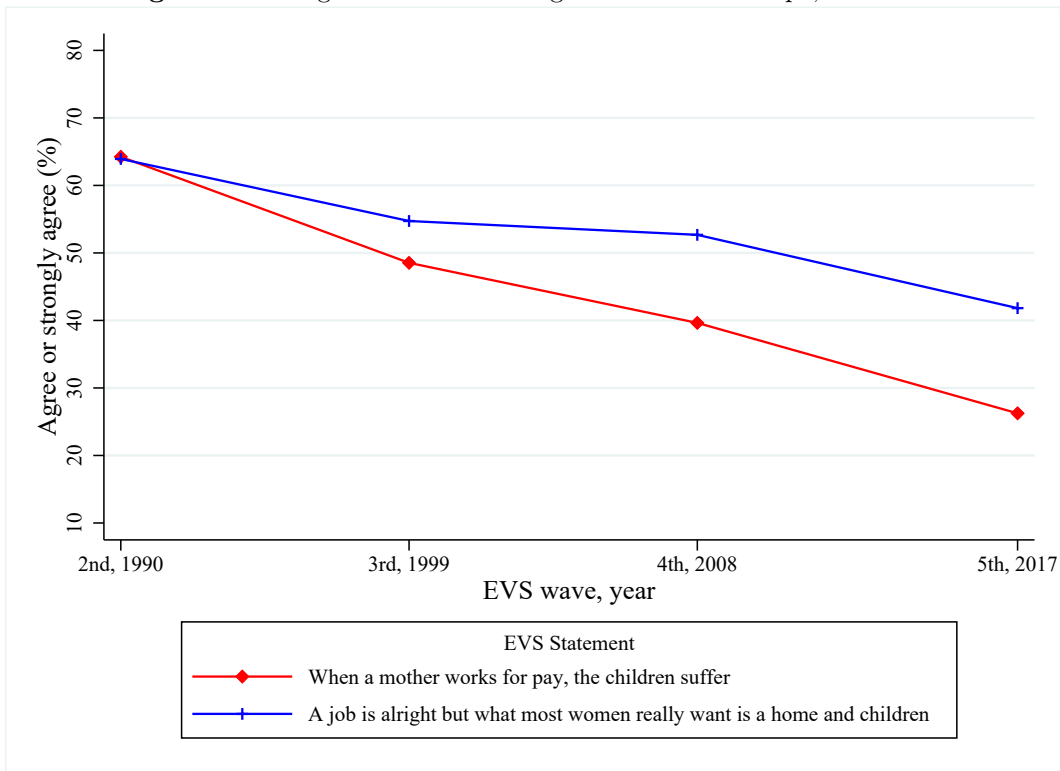
*Notes:* This figure shows the overall decrease in beliefs in unequal gender roles since 1990, in European countries, regarding the two statements for which the EVS has collected beliefs over time; the first time it collected these beliefs was in 1990, for the second wave of its survey. The figure shows the mean share of individuals who agree with each statement in the 17 European countries where the EVS collected data for the four consecutive waves: Bulgaria, Czech Republic, Denmark, Estonia, Germany, Hungary, Finland, France, Iceland, Italy, Lithuania, Netherlands, Poland, Romania, Slovakia, Slovenia, and Spain.

Figure 2. Correlation between beliefs about gender roles and enrolment rates in early childhood education and care services, OECD countries
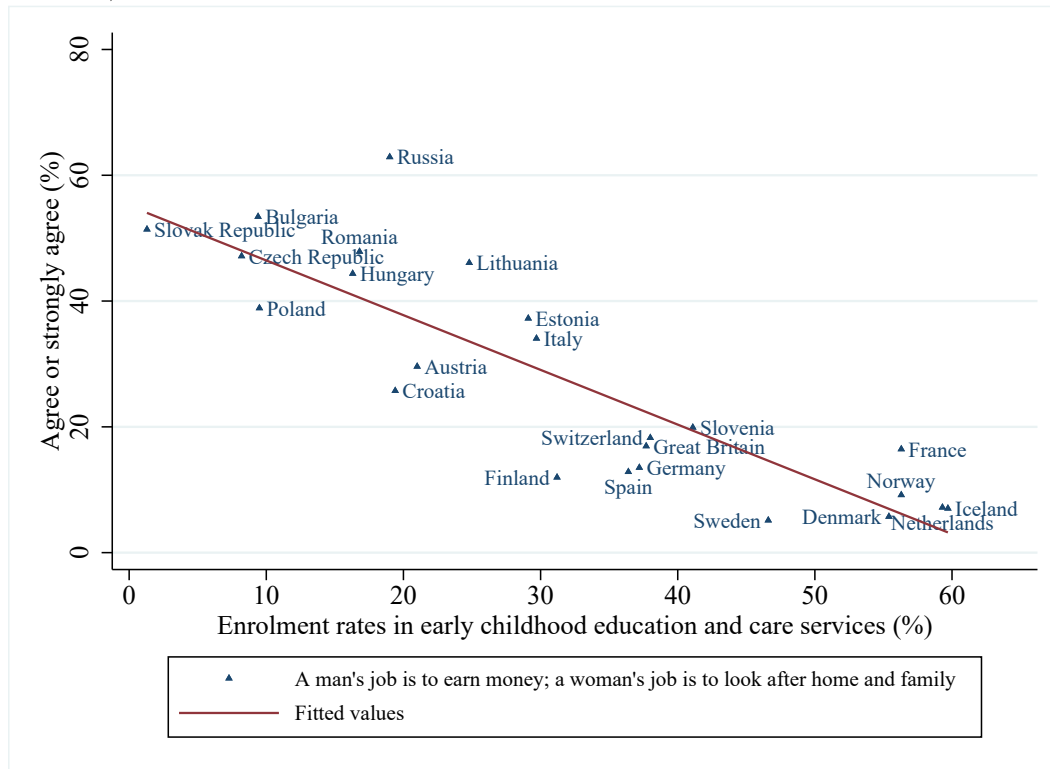
Source: The data for beliefs about gender roles are from the fifth wave (2017) of the EVS (EVS, 2020). The data for enrolment rates are from the OECD Family Database, and are for 2017 or the latest year available. The OECD defines these enrolment rates as the "percent of children enrolled in early childhood education and care services (ISCED 0 and other registered ECEC services), 0- to 2-year-old". The EVS data are available at `https://europeanvaluesstudy.eu/methodology-data-documentation/survey-2017/`. The OECD data are available at `https://www.oecd.org/els/family/database.htm`, Table PF3.2.

Notes: This figure presents the correlation between the percentage of individuals who agree or strongly agree with the statement "a man's job is to earn money; a woman's job is to look after home and family" and the enrolment rates in early childhood education and care services in European countries. The value of the Pearson correlation is 0.86 and is significant at the 1% level.

Figure 3. Correlation between beliefs about gender roles and maternal employment rates, OECD countries
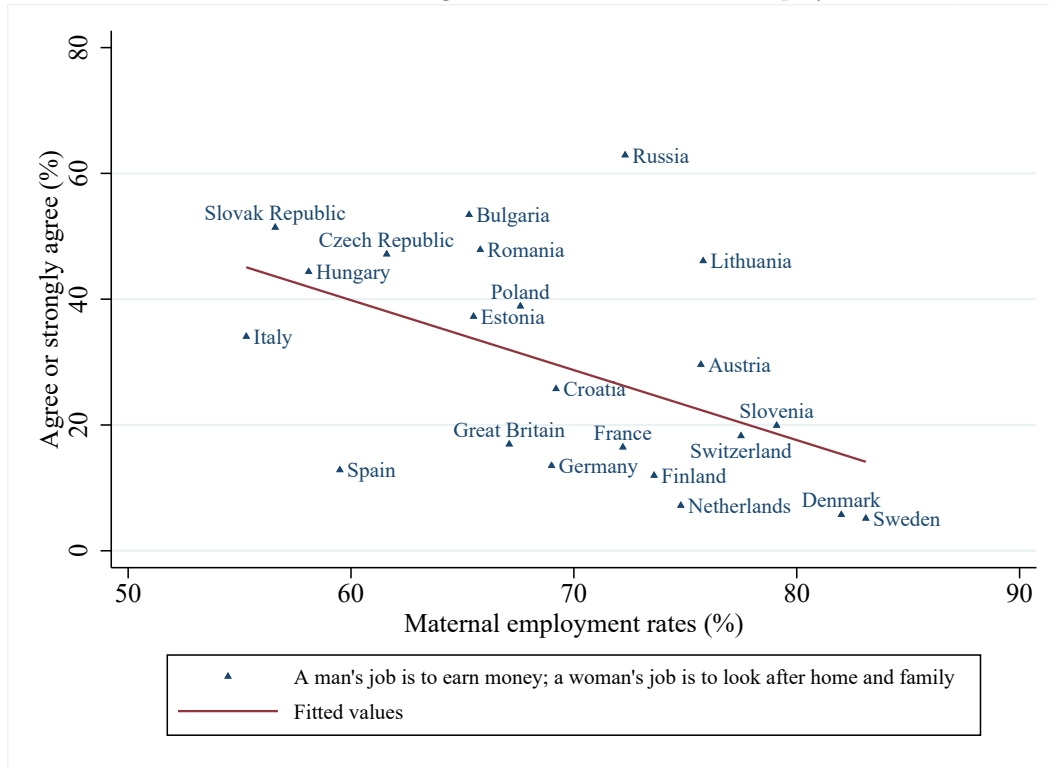
Source: The data for beliefs about gender roles are from the fifth wave of the EVS (EVS, 2020). The data for maternal employment rates are from the OECD Family Database, and are for 2019 or the latest year available. The OECD defines maternal employment rates as employment rates for women (15-64 year olds) with at least one child aged 0-14, who are working full-time or part-time. The EVS data are available at `https://europeanvaluesstudy.eu/methodology-data-documentation/survey-2017/`. The OECD data are available at `https://www.oecd.org/els/family/database.htm`, Table LMF1.2.

Notes: This figure presents the correlation between the percentage of individuals who agree or strongly agree with the statement "a man's job is to earn money; a woman's job is to look after home and family" and maternal employment rates in European countries. The value of the Pearson correlation is 0.51 and is significant at the 5% level.

Figure 4. Changes in beliefs about gender roles in France, between 1990 and 2020
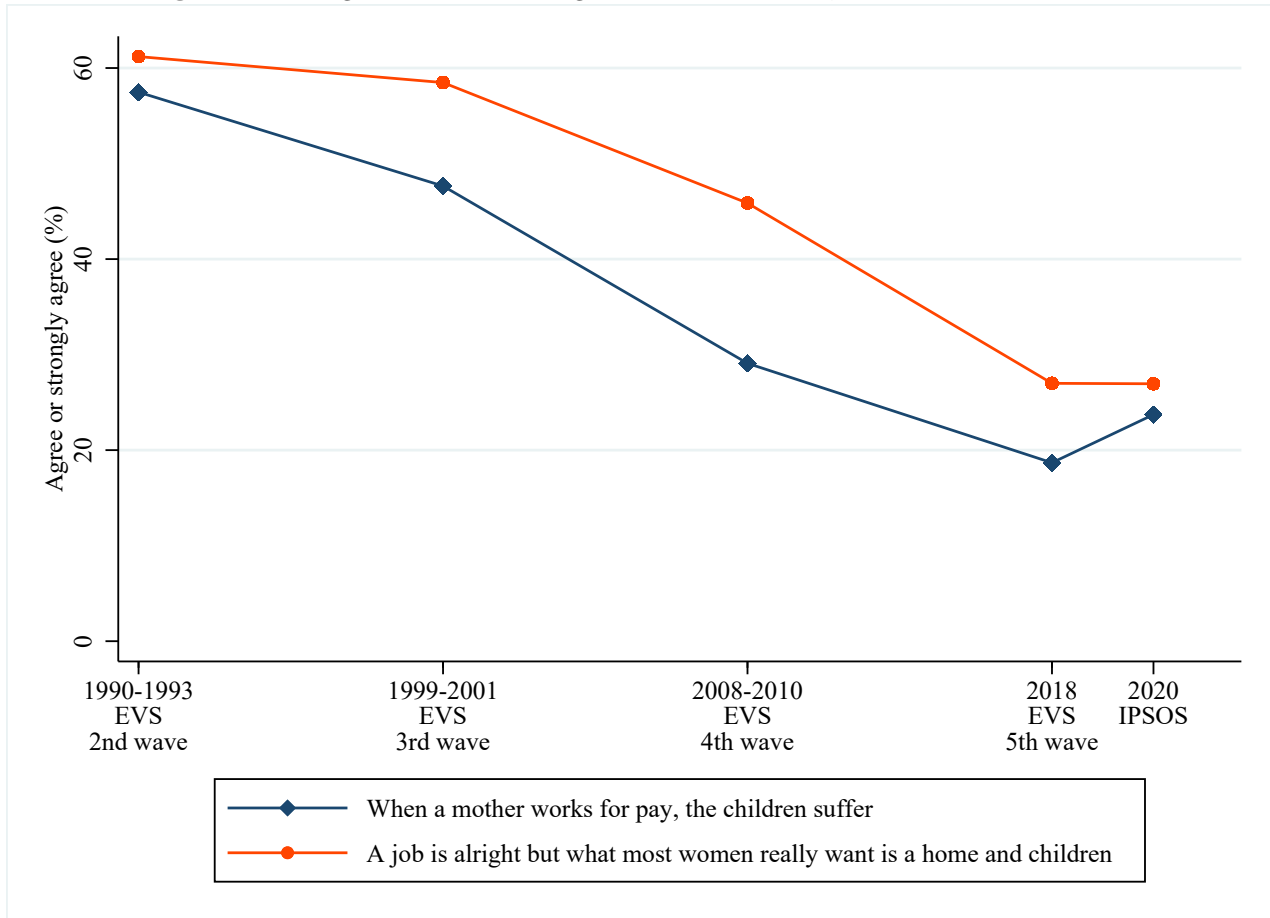
Notes: This figure shows the change over time of respondents' opinions about two statements regarding gender roles that the EVS has included in its survey since 1990. In France, the EVS collected data for its 2nd wave between 1990 and 1993, its 3rd wave between 1999 and 2001, its fourth wave between 2008 and 2010, and its fifth wave in 2018. We included these two statements in our Lockdown survey; the data were collected in May 2020. For each wave, we selected EVS respondents who were either employed (full-time or part-time) or self-employed, before calculating the percentage of respondents who either agree or strongly agree with each statement.

Figure 5. Impact of lockdown on time spent on childcare and housework by individuals in heterosexual couples, by job situation
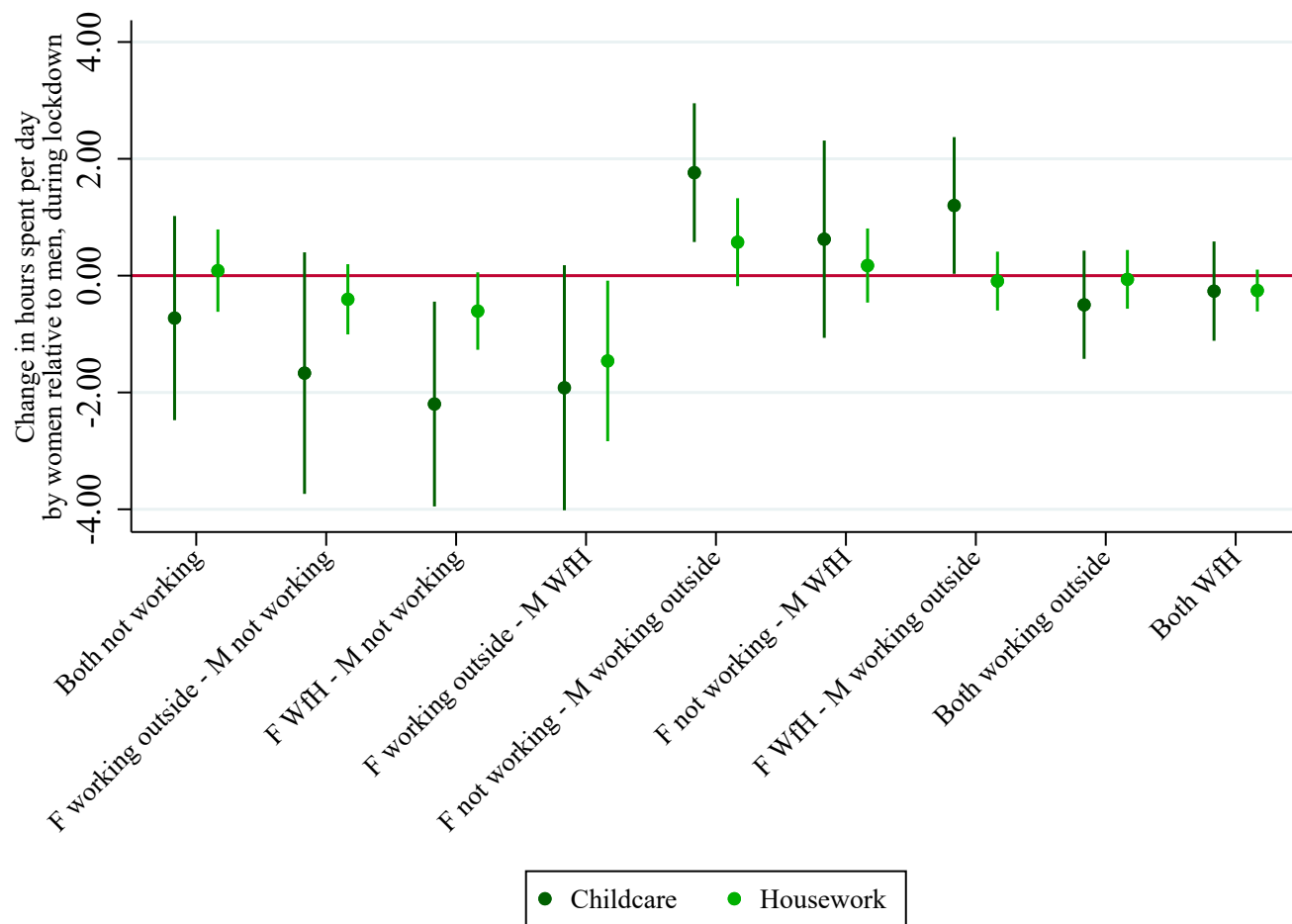
Source: Lockdown Survey (2020).

Notes: This figure presents the nine situations that opposite-sex couples were in during the first lockdown period. Each partner, male (M) or female (F) was either not working, working from home (WfH) or working outside the home (outside). We included respondents who declared working partly from home, partly outside from home, in the WfH category. The vertical axis shows the change in the number of hours spent by the female partner relative to her male partner on childcare (dark green) and housework (light green), during lockdown (compared to before lockdown). A positive value means that the female partner increased the time she spent on childcare or housework compared to her male partner during lockdown. A negative value suggests that the male partner spent relatively more time on the activity than his female partner during lockdown, compared to before lockdown. The estimated model controls for the following characteristics: age, level of education, number of children, marital status, family income categories, number of hours worked, and region fixed effects. Bars represent 95% confidence intervals.

Figure 6. Impact of lockdown on respondents' beliefs about gender roles, by having children twelve or under living in the household
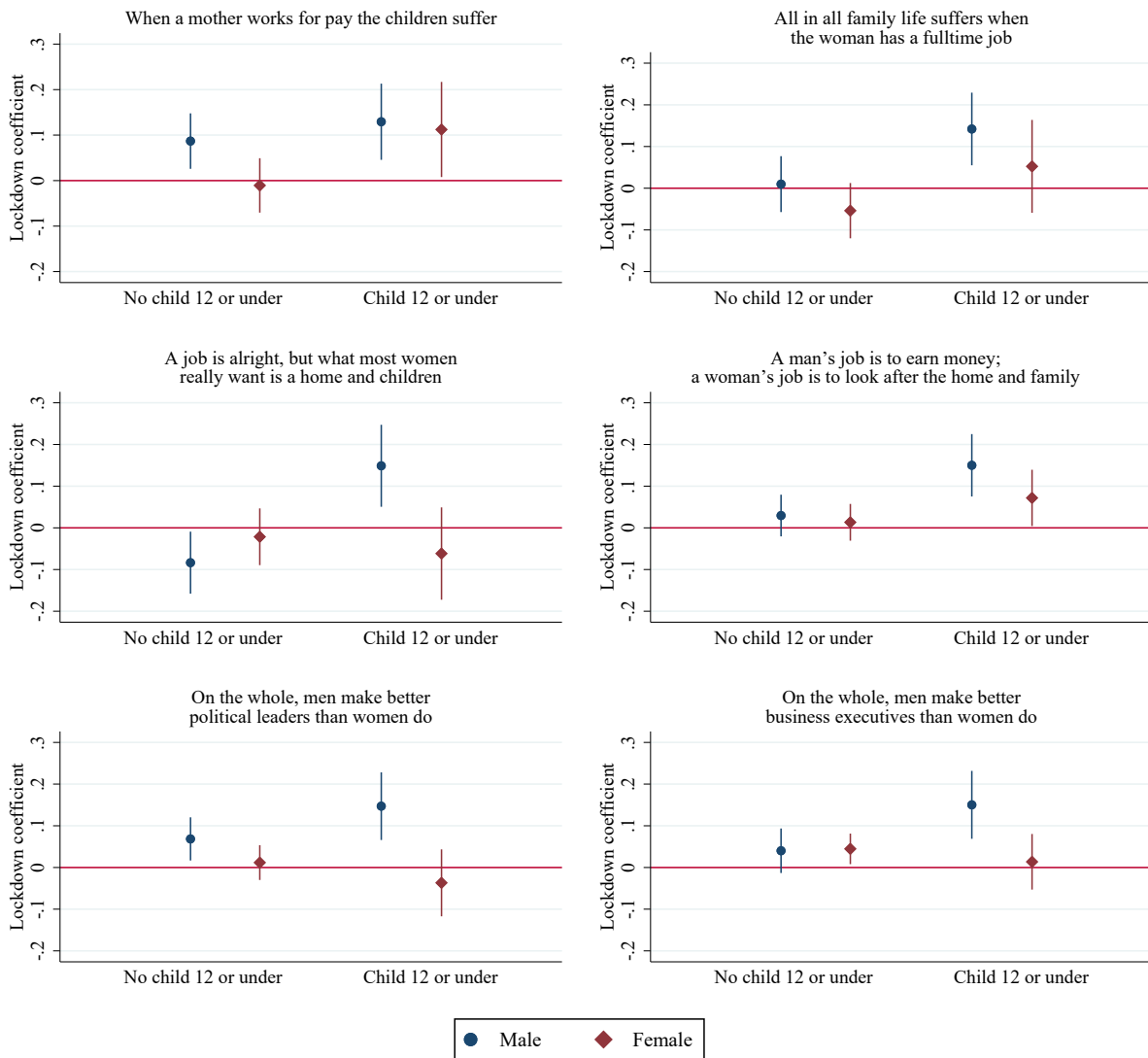
Source: Lockdown Survey (2020).

Notes: This figure shows the marginal effect of lockdown on the probability of agreeing with each statement for four groups of individuals: men with and without children twelve years old or under, and women with and without children twelve years old or under. To calculate these coefficients, we use the regressions for which we present the results in Table A2. All respondents (single individuals, same-sex couples, and heterosexual couples) are included in the results we present. Bars represent 95% confidence intervals.

The full model estimated in Table A2 is:

$$Y_{it} = \alpha + \gamma_1 Lockdown_{it} + \gamma_2 Female_i + \gamma_3 Lockdown_{it} \times Female_i$$
$$+ \gamma_4 Childbelow12_i + \gamma_5 Lockdown_{it} \times Childbelow12_i$$
$$+ \gamma_6 Female_i \times Childbelow12_{it} + \gamma_7 Lockdown_{it} \times Childbelow12_i \times Female_i + \boldsymbol{X}_{it} + \epsilon_{it},$$

and the corresponding marginal effects that we show in this Figure are equal to:

- γ_1 for men without children who are 12 years old or under
- $\gamma_1 + \gamma_5$ for men with children who are 12 years old or under
- $\gamma_1 + \gamma_3$ for women without children who are 12 years old or under
- $\gamma_1 + \gamma_3 + \gamma_5 + \gamma_7$ for women with children who are 12 years old or under.

Figure 7. Impact of lockdown on respondents' beliefs about gender roles, by occupational categories
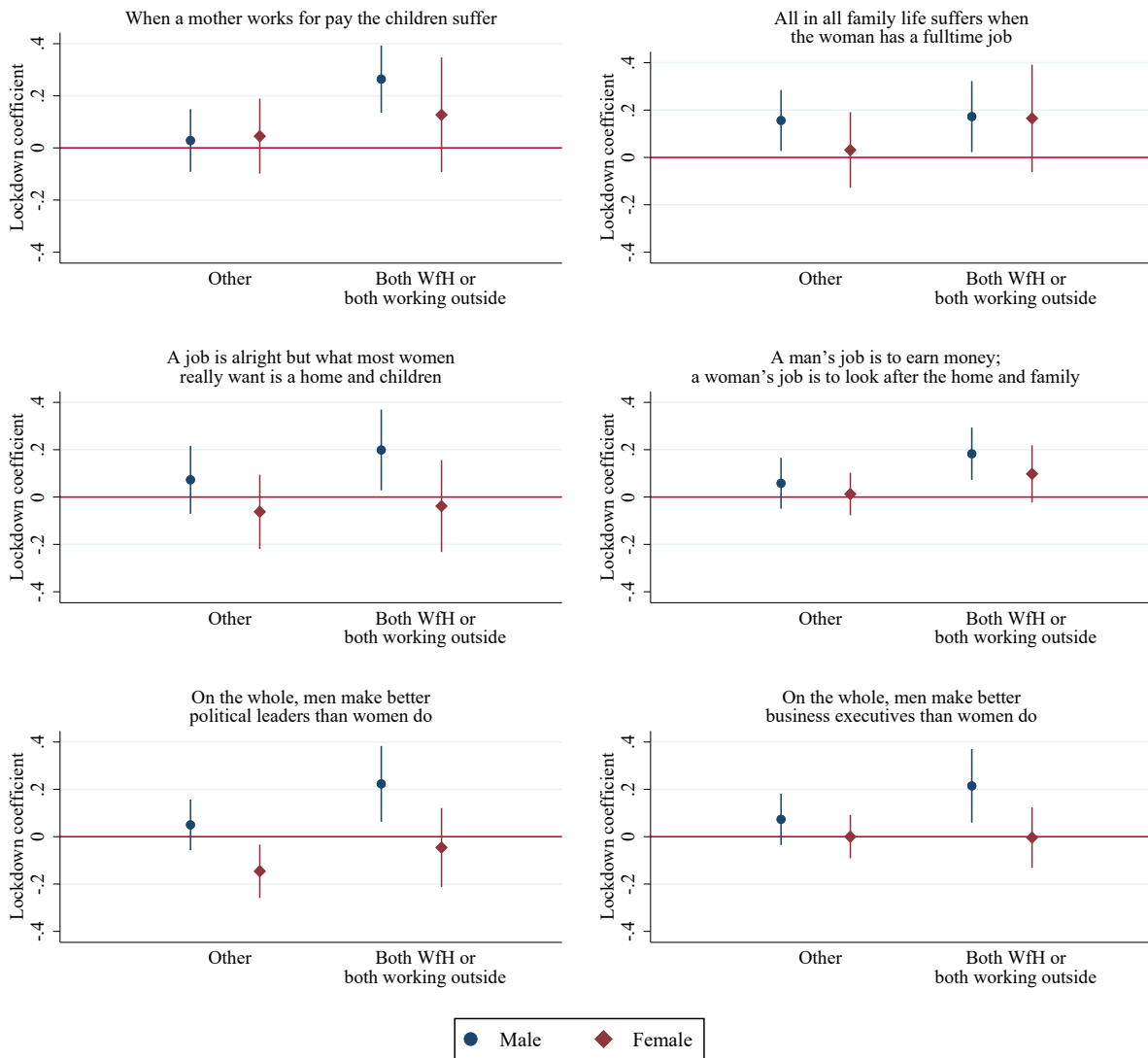
Source: Lockdown Survey (2020).

Notes: This figure shows the marginal effect of lockdown on the probability of agreeing with each statement for four groups of individuals: men in household where both partners work (from home or outside) or other, and women in household where both partners work (from home or outside) or other. "Both WfH or both working outside" represents the situations where partners experience an increase in household time constraints. To calculate these coefficients, we use the regressions for which we present the results in Table A3 in the Appendix. Only heterosexual couples with children below age 12 are included in the results we present. Bars represent 95% confidence intervals.

Figure 8. Relationship between beliefs about gender roles and income categories, by gender
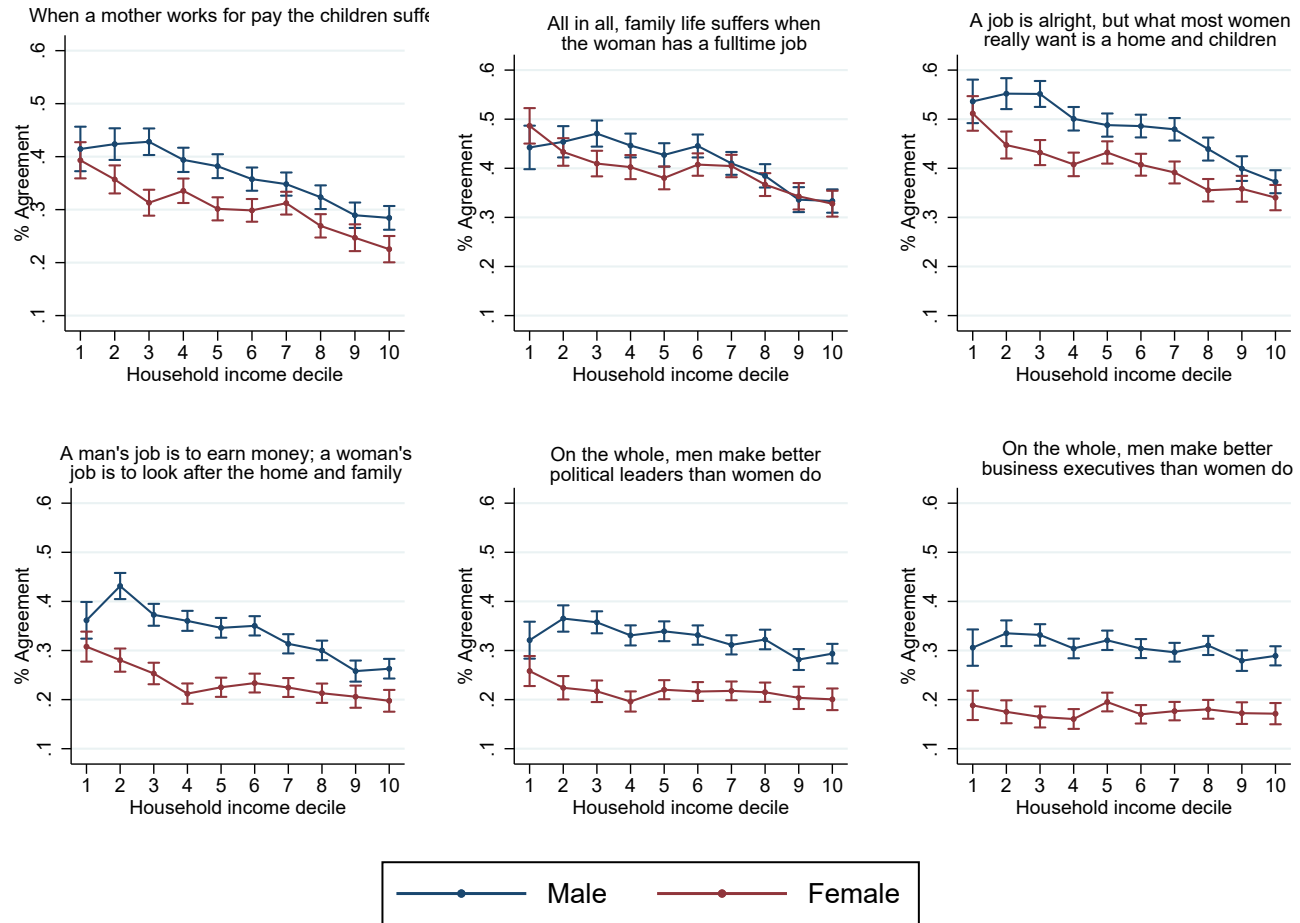
Notes: We use data from 30 different countries to examine the relationship between beliefs in equal gender roles and income. The figure presents the estimates of an OLS regression, controlling for gender, age, number of children, marital status, and country fixed effects. We include all working individuals from the full dataset of the fifth wave of the EVS.

Table A1. Percentage of respondents from each region of France, EVS and Lockdown surveys

Region of France	EVS	Lockdown
Auvergne-Rhône-Alpes	11.83	15.00
Bourgogne-Franche-Comté	4.94	5.30
Bretagne	5.74	4.70
Centre-Val de Loire	3.44	3.80
Corse	0.00	0.40
Grand Est	8.38	7.60
Hauts-de-France	8.15	9.10
Ile-de-France	20.09	20.40
Normandie	6.20	4.40
Nouvelle-Aquitaine	11.83	8.60
Occitanie	7.46	8.00
PACA	5.40	5.60
Pays de la Loire	6.54	7.10

Source: EVS and Lockdown Survey (2020).

Table A2. Impact of lockdown on respondents' beliefs about gender roles, by having children twelve years old or under living in the household

Statement:	(1) Kids	(2) Family	(3) Home	(4) Money	(5) Politics	(6) Business
Dependent variable:	"Agree" or "Strongly Agree" with Statement					
Lockdown	0.087***	0.010	-0.083**	0.030	0.069***	0.040
	(0.031)	(0.034)	(0.038)	(0.025)	(0.026)	(0.027)
Female	0.044	0.022	-0.111***	-0.035	-0.020	-0.081***
	(0.028)	(0.033)	(0.036)	(0.021)	(0.020)	(0.020)
Lockdown × Female	-0.097**	-0.064	0.062	-0.016	-0.057*	0.004
	(0.042)	(0.046)	(0.050)	(0.033)	(0.032)	(0.031)
Child below 12	-0.051	-0.134***	-0.199***	-0.057**	-0.028	-0.039
	(0.031)	(0.035)	(0.041)	(0.026)	(0.028)	(0.029)
Lockdown × Child below 12	0.043	0.132**	0.232***	0.121***	0.079	0.110**
	(0.051)	(0.054)	(0.062)	(0.045)	(0.048)	(0.048)
Female × Child below 12	0.094*	0.223***	0.335***	0.035	0.099**	0.081**
	(0.050)	(0.056)	(0.061)	(0.035)	(0.042)	(0.037)
Lockdown × Female × Child below 12	0.080	-0.026	-0.273***	-0.062	-0.127*	-0.141**
	(0.079)	(0.084)	(0.089)	(0.060)	(0.065)	(0.061)
Constant	0.257***	0.256***	0.463***	0.191***	0.226***	0.172***
	(0.061)	(0.066)	(0.074)	(0.050)	(0.053)	(0.050)
Observations	1868	1890	1793	1932	1821	1850
R-squared	0.073	0.072	0.051	0.050	0.049	0.047

Source: Lockdown Survey (2020).

Notes: The dependent variable is a binary variable equal to one if response is "Agree" or "Strongly Agree" for each of the following statements. (1) Kids: "When a mother works for pay, the children suffer". (2) Family: "All in all, family life suffers when the woman has a fulltime job". (3) Home: "A job is alright but what most women really want is a home and children". (4) Money: "A man's job is to earn money; a woman's job is to look after the home and family". (5) Politics: "On the whole, men make better political leaders than women do". (6) Business: "On the whole, men make better business executives than women do". All columns control for the following characteristics: age, number of children, marital status, level of education, number of hours worked, and region fixed effects. Corresponding marginal effects can be found in Figure 6. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Robust standard errors are in parentheses.

Table A3. Impact of lockdown on respondents' beliefs about gender roles, by occupational categories during lockdown

Statement:	(1) Kids	(2) Family	(3) Home	(4) Money	(5) Politics	(6) Business
Dependent variable:	"Agree" or "Strongly Agree" with Statement					
Lockdown	0.080*	0.103**	-0.039	0.059*	0.032	0.026
	(0.043)	(0.044)	(0.048)	(0.034)	(0.034)	(0.034)
Female	0.087**	0.167***	0.005	-0.043*	0.005	-0.067***
	(0.038)	(0.040)	(0.045)	(0.025)	(0.028)	(0.024)
Lockdown × Female	-0.087	-0.158***	-0.005	-0.041	-0.096**	-0.011
	(0.056)	(0.059)	(0.063)	(0.041)	(0.041)	(0.038)
Both working	-0.062*	0.030	0.013	-0.049*	-0.015	-0.036
	(0.035)	(0.048)	(0.057)	(0.026)	(0.034)	(0.034)
Lockdown × Both working	0.131**	-0.045	0.050	0.046	0.134**	0.176***
	(0.066)	(0.072)	(0.082)	(0.051)	(0.061)	(0.062)
Female × Both working	0.056	-0.040	0.003	0.055	0.061	0.077
	(0.063)	(0.076)	(0.082)	(0.039)	(0.055)	(0.047)
Lockdown × Female × Both working	-0.073	0.141	-0.044	-0.013	-0.118	-0.218***
	(0.100)	(0.109)	(0.114)	(0.070)	(0.082)	(0.074)
Constant	0.270***	0.154*	0.420***	0.236***	0.285***	0.257***
	(0.080)	(0.082)	(0.088)	(0.060)	(0.064)	(0.056)
Observations	1173	1203	1141	1217	1137	1157
R-squared	0.076	0.066	0.032	0.057	0.054	0.070

Source: Lockdown Survey (2020).

Notes: The dependent variable is a binary variable equal to one if response is "Agree" or "Strongly Agree" for each of the following statements. (1) Kids: "When a mother works for pay, the children suffer". (2) Family: "All in all, family life suffers when the woman has a fulltime job". (3) Home: "A job is alright but what most women really want is a home and children". (4) Money: "A man's job is to earn money; a woman's job is to look after the home and family". (5) Politics: "On the whole, men make better political leaders than women do". (6) Business: "On the whole, men make better business executives than women do". All columns control for the following characteristics: age, number of children, marital status, level of education, number of hours worked, and region fixed effects. Corresponding marginal effects can be found in Figure 7. Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses.

Table A4. Impact of lockdown on respondents' beliefs about gender roles, Cross-sectional evidence

Statement:	(1) Kids	(2) Family	(3) Home	(4) Money	(5) Politics	(6) Business
Dependent variable:	"Agree" or "Strongly Agree" with Statement					
Lockdown	0.095***	0.060**	0.044	0.101***	0.115***	0.104***
	(0.028)	(0.029)	(0.032)	(0.022)	(0.023)	(0.023)
Female	0.041	0.077**	0.002	-0.009	0.020	-0.012
	(0.027)	(0.031)	(0.031)	(0.019)	(0.019)	(0.018)
Lockdown x Female	-0.040	-0.059	-0.025	-0.045	-0.104***	-0.085***
	(0.039)	(0.042)	(0.044)	(0.030)	(0.030)	(0.028)
Constant	0.337***	0.316***	0.522***	0.235***	0.276***	0.210***
	(0.067)	(0.071)	(0.075)	(0.052)	(0.052)	(0.051)
Observations	1,645	1,653	1,608	1,670	1,602	1,630
R-squared	0.074	0.070	0.066	0.058	0.051	0.047

Source: EVS and Lockdown Survey (2020).

Notes: This table describes the results of our baseline regression described in equation (1), using a dataset that includes directly the responses from the EVS and Lockdown surveys (unmatched dataset). See Table A2 for the description of the six statements. All columns control for the following characteristics: age, level of education, number of children, marital status, household income categories, and region fixed effects. We use the same control variables as the results presented in Table 4, except for number of hours worked, because the EVS dataset does not include this information. Significance levels: *** $p<0.01$, ** $p<0.05$. Robust standard errors are in parentheses.

Table A5. Impact of lockdown on beliefs in gender roles, Direct match

Statement:	(1) Kids	(2) Family	(3) Home	(4) Money	(5) Politics	(6) Business
Dependent variable:		"Agree" or "Strongly Agree" with Statement				
Lockdown	0.114***	0.042	0.013	0.113***	0.129***	0.110***
	(0.024)	(0.027)	(0.030)	(0.020)	(0.021)	(0.021)
Female	0.073***	0.113***	0.018	0.008	0.033**	-0.024
	(0.023)	(0.027)	(0.029)	(0.014)	(0.017)	(0.015)
Lockdown x Female	-0.067*	-0.087**	-0.037	-0.063**	-0.124***	-0.075***
	(0.035)	(0.039)	(0.041)	(0.026)	(0.027)	(0.026)
Constant	0.484***	0.493***	0.567***	0.205***	0.214***	0.070
	(0.077)	(0.085)	(0.091)	(0.059)	(0.060)	(0.050)
Observations	1,872	1,894	1,796	1,936	1,824	1,854
R-squared	0.110	0.083	0.067	0.062	0.071	0.050

Source: EVS and Lockdown Survey (2020).

Notes: This table shows the corresponding results of Table 4 using the matched sample directly, and using the variables that we used to conduct the Nearest-Neighbor Match as controls: age, level of education, marital status, life satisfaction, whether the respondent has children living in the household, and region fixed effects. See Table A2 for the description of the six statements. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A6. Impact of lockdown on beliefs in gender roles, ATE using different Nearest-Neighbor Matching models

Statement:	Mahalanobis distance						Euclidean distance					
	(1) Kids	(2) Family	(3) Home	(4) Money	(5) Politics	(6) Business	(7) Kids	(8) Family	(9) Home	(10) Money	(11) Politics	(12) Business
Dependent variable:	"Agree" or "Strongly Agree" with Statement											
Model 1	0.066***	-0.003	-0.010	0.064***	0.053***	0.060***	0.049**	0.018	-0.012	0.063***	0.064***	0.061***
	(0.022)	(0.023)	(0.025)	(0.016)	(0.016)	(0.015)	(0.022)	(0.022)	(0.024)	(0.016)	(0.016)	(0.015)
Model 2	0.083***	0.021	0.000	0.068***	0.060***	0.059***	0.067***	0.012	-0.012	0.059***	0.059***	0.052***
	(0.022)	(0.024)	(0.025)	(0.016)	(0.016)	(0.015)	(0.023)	(0.023)	(0.025)	(0.017)	(0.017)	(0.016)
Model 3	0.085***	0.016	0.011	0.075***	0.058***	0.064***	0.067***	0.005	-0.009	0.065***	0.057***	0.053***
	(0.023)	(0.025)	(0.026)	(0.016)	(0.017)	(0.015)	(0.023)	(0.023)	(0.025)	(0.016)	(0.017)	(0.015)
Model 4	0.081***	0.017	0.041*	0.083***	0.071***	0.062***	0.068***	0.009	0.011	0.076***	0.060***	0.059***
	(0.022)	(0.024)	(0.025)	(0.017)	(0.017)	(0.016)	(0.022)	(0.023)	(0.025)	(0.016)	(0.016)	(0.016)

Notes: This table shows ATE of Nearest-Neighbor Matching models where the matching variables differ by model. Model 1 matches on age, marital status, education, number of children, region, and exact matches on female and having a child 12 or under. Model 2: matches on age, marital status, education, number of children, region, and exact matches on female. Model 3: matches on age, marital status, education, region, and exact matches on female. Model 4: matches on age, marital status, education, and exact matches on female. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.10$. Robust standard errors are in parentheses.

Table A7. Analysis of response bias, in person interview versus self-administered, EVS 2018

Statement:	(1) Kids	(2) Family	(3) Home	(4) Money	(5) Politics	(6) Business
Dependent variable:	"Agree" or "Strongly Agree" with Statement					
Panel A: Benchmark						
Online survey	-0.003	0.029**	0.044***	0.020**	0.045***	0.049***
	(0.013)	(0.014)	(0.014)	(0.009)	(0.009)	(0.010)
Female	-0.074***	0.024	-0.051***	-0.031***	-0.016	-0.045***
	(0.013)	(0.015)	(0.014)	(0.009)	(0.010)	(0.010)
Online survey × Female	-0.021	-0.036*	-0.041**	-0.019	-0.062***	-0.071***
	(0.017)	(0.019)	(0.018)	(0.012)	(0.013)	(0.013)
Constant	0.242***	0.339***	0.401***	0.177***	0.244***	0.272***
	(0.036)	(0.041)	(0.040)	(0.026)	(0.027)	(0.028)
Observations	7,919	7,895	7,803	7,951	7,887	7,888
R-squared	0.114	0.169	0.110	0.055	0.040	0.049
Panel B: Children under 12						
Online survey	-0.002	-0.001	0.058***	0.026**	0.059***	0.061***
	(0.017)	(0.019)	(0.019)	(0.012)	(0.013)	(0.013)
Female	-0.086***	-0.030	-0.049**	-0.033**	-0.019	-0.039***
	(0.019)	(0.021)	(0.021)	(0.013)	(0.014)	(0.015)
Online survey × Female	-0.024	0.003	-0.086***	-0.023	-0.072***	-0.088***
	(0.024)	(0.027)	(0.026)	(0.017)	(0.018)	(0.018)
Kids	-0.008	-0.016	-0.019	0.002	0.012	0.005
	(0.018)	(0.021)	(0.020)	(0.013)	(0.014)	(0.014)
Online survey × Kids	-0.004	0.058**	-0.033	-0.013	-0.029	-0.025
	(0.023)	(0.027)	(0.026)	(0.017)	(0.018)	(0.018)
Female × Kids	0.023	0.105***	-0.004	0.003	0.006	-0.011
	(0.026)	(0.030)	(0.029)	(0.018)	(0.019)	(0.020)
Online survey × Female × Kids	0.010	-0.071*	0.100***	0.010	0.022	0.036
	(0.034)	(0.038)	(0.037)	(0.024)	(0.025)	(0.026)
Constant	0.248***	0.371***	0.406***	0.175***	0.241***	0.267***
	(0.037)	(0.042)	(0.041)	(0.026)	(0.028)	(0.029)
Observations	7,919	7,895	7,803	7,951	7,887	7,888
R-squared	0.114	0.171	0.112	0.055	0.041	0.049

Source: EVS (2020).

Notes: Data include respondents' beliefs about gender roles in six countries where a mixed-method (online survey or in-person interview) was applied for data collection: Denmark, Finland, Germany, Iceland, Netherlands, and Switzerland. See Table 3 for the description of the six statements. All regressions include regional fixed effects, as well as controls for age, household income category, level of education, marital status, and whether the respondent has children living in the household. Full results are available on request. Significance levels: *** p<0.01, ** p<0.05, * p<0.10.

Figure A1. Distributions of respondents' answers to the six statements on beliefs about gender roles, EVS 2018 and Lockdown 2020 surveys
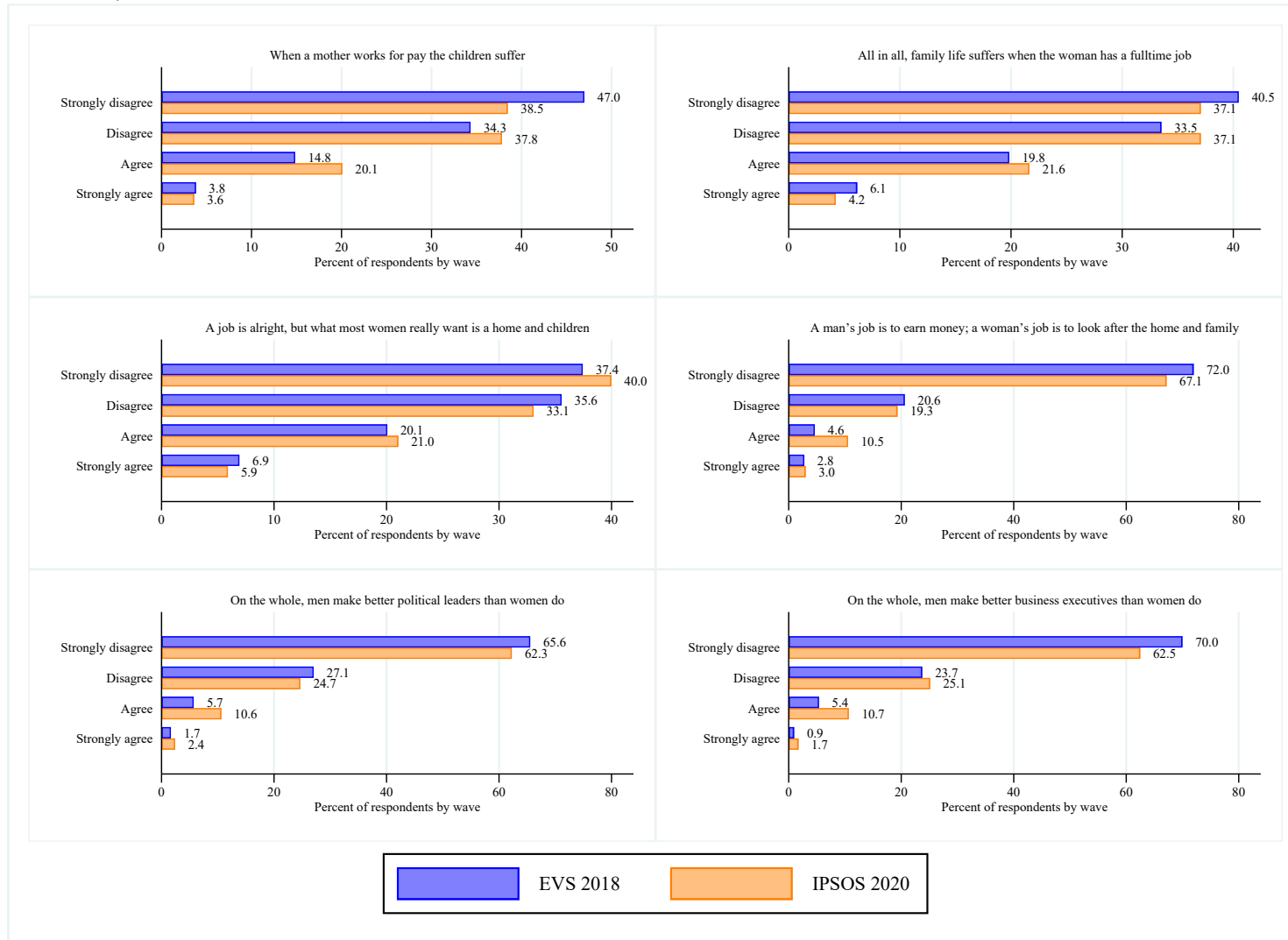
Source: EVS and Lockdown Survey (2020).

Notes: This figure shows the percentage of respondents who answered "Strongly disagree", "Disagree", "Agree" or Strongly Agree" to each of the six statements on beliefs about gender roles, for each survey. All 871 EVS and 1,000 Lockdown respondents are included.