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**Working Paper**

## Is 'Employment during Motherhood' a 'Value Changing Experience'?

CESifo Working Paper, No. 9222

**Provided in Cooperation with:**

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

*Suggested Citation:* Borrell-Porta, Mireia; Contreras, Valentina; Costa-i-Font, Joan (2021) : Is 'Employment during Motherhood' a 'Value Changing Experience?', CESifo Working Paper, No. 9222, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:

<https://hdl.handle.net/10419/245403>

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## **Impressum:**

CESifo Working Papers

ISSN 2364-1428 (electronic version)

Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH

The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute

Poschingerstr. 5, 81679 Munich, Germany

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Editor: Clemens Fuest

<https://www.cesifo.org/en/wp>

An electronic version of the paper may be downloaded

- from the SSRN website: [www.SSRN.com](http://www.SSRN.com)
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# Is ‘Employment during Motherhood’ a ‘Value Changing Experience’?

## Abstract

Does employment during motherhood change peoples preferences? We study whether the experience of employment during motherhood exerts an effect on attitudes towards gender norms, and more specifically, attitudes towards the impact of women’s employment on children’s wellbeing (which proxy traditional gender attitudes). Drawing on a large, representative and longitudinal data and an instrumental variable (IV) strategy that exploits a Bartik instrument for employment, we find that, that non-mothers who work and mothers who do not work are more likely to agree that pre-school children suffer if mothers work, which we proxy as having more traditional views. However, this is not the case when women experience both working and motherhood it does not significantly change women's attitudes. These results suggest that exogenous changes in employment during motherhood confirm individuals priors, and point towards the critical role of early life value formation. That is, employment during motherhood is not a “value changing experience” but rather a “value preserving experience”. Hence, the so-called ‘motherhood penalty’ cannot be fully explained by a change in attitudes after employment during motherhood.

JEL-Codes: Z100, J220.

Keywords: attitude formation, value changing experiences, confirmation bias, women employment attitudes, women employment after maternity, later life attitudes, children.

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## 1. Introduction

Traditional economic explanations of human behavior assume that individual's attitudes and values towards established norms<sup>1</sup> pre-exist their behavior and life-experiences<sup>2</sup>. It has been established that sometimes the latter (behaviour) might not coincide with the former (norms), which might lead to cognitive dissonance processes (Akerlof & Dickens, 1982). Instead, individuals might simply work out their attitudes using some form of 'backward induction' (Kahan, 2010). However, whether life-experiences (e.g., employment during motherhood) change people's values, and become 'value changing experiences', or whether experiences confirm people's prior values (Akerlof, 1983; Benabou & Tirole, 2011; Brennan et al., 2013), their 'loyalties' (Akerlof, 1983), and identities (Akerlof & Kranton, 2000) is an empirical question<sup>3</sup>. Although attitudes towards social norms are influenced by early life experiences (Brewster & Padavic, 2000; Giuliano & Spilimbergo, 2014; Wilkie, 1993), and intergenerational transmission (Fernández & Fogli, 2009), there is some scope for change from small level local community interventions (Archaya, 2004) and especially, from life-experiences (Danigelis et al., 2007; Mason & Lu, 1988) that influences them. This paper aims to understand *whether women change their attitudes towards gender norms after the experience of employment and motherhood*.

Understanding behaviour after employment during motherhood is important to further extend our understanding of the motherhood penalty, which is estimated to be around 7% of wages per child (Budig & England, 2001; Burda et al., 2007; Sigle-Rushton & Waldfogel, 2007). Such motherhood penalty is argued to explain a large share of the total gender pay gap, and

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<sup>1</sup> This paper provides a definition of attitudes towards social norms that would be akin to the 'deep preferences' referred to by Postlewaite and other economists. See Postlewaite in (Benhabib et al., 2010).

<sup>2</sup> Consistently, classical psychological theories of planned behavior (Ajzen, 1985) predict individual preferences and behaviours form their behavior.

<sup>3</sup> New models have summarised the process of belief and value formation (Fehr & Hoff, 2011; Stiglitz & Hoff, 2016).

more generally, influences women probability to returning to employment after motherhood, as well as gaps in old-age pension and in the odds of poverty (Schober & Scott, 2012). Both loss of job experience, lower productivity at work (Becker, 1985), a shift to mother-friendly jobs and discrimination by employers (Budig & England, 2001; Sigle-Rushton & Waldfogel, 2007) play a role in explaining the motherhood penalty.

While governments have put in place policies to correct some of these disadvantages (eg., job-protected maternity leave to encourage earlier returns and minimize the loss of job experience, childcare provisions to minimize lower productivity at work, or parental leave), other more subtle disadvantages remain, which operate via values and attitudes towards gender norms potentially influencing labour market outcomes. Behavioural explanations can play a significant role in explaining gender inequalities on labour market participation (Farré & Vella, 2013; Fernandez et al., 2004; Fernández & Fogli, 2009; Fortin, 2005; Johnston et al., 2014), on gender pay gap (Burda et al., 2007), and on the division of domestic work (M. Cunningham, 2008; Davis & Greenstein, 2009; DeMaris & Longmore, 1996; Greenstein, 1996). Hence, understanding attitudinal changes after motherhood can help explain the underlying explanations for lower job satisfaction, lower productivity at work, or the shift to mother-friendly jobs.

This paper examines whether childbirth and employment change women's attitudes towards gender norms and more specifically, attitudes towards the impact of women's employment on children's wellbeing. Although attitudes are formed before reaching adulthood, it is an empirical question whether going through the experience of employment and motherhood, give rise to visible changes in attitudes. Indeed, some evidence finds that pre-maternity expectations about the needs of children might not be fully anticipated, and parents are caught by surprise by the experience of having children (Deaton & Stone, 2014). Hence, given the fact that individuals seek consistency between their values and their actual behaviour

(Akerlof and Dickens, 1982), they might switch their beliefs to their new circumstances, consistently with a 'value changing experiences' effect.

Nonetheless, the direction of change is however not theoretically clear. Predictions from theories of exposure (exposure to new circumstances) can explain both either more traditional or more liberal attitudes (see literature review below), and the same is true for cognitive dissonance theories (Schober & Scott, 2012). Alternatively, individuals might engage in confirmation biases (a tendency for individuals to interpret and search for information that confirm ones prior values). Hence, experience confirms and even strengthens individuals 'pre-approved attitudes'<sup>4</sup>, giving rise to belief perseverance, and 'behavioural confirmation effects'. Yet, whether employment during mother is a 'value changing experiences' or, a 'value confirming experience, is the main purpose of this paper.

Using a British nationally representative longitudinal survey from 2005 to 2013 with around 43,000 observations, we examine whether childbirth and employment change maternal attitudes towards gender norms, and more specifically, attitudes towards the impact of women's employment on children's wellbeing. To alleviate endogeneity concerns we use fixed-effects, instrument the work status of women and we focus on the birth of the first child. More specifically, we use a Bartik instrument (an interaction of local industry employment shares and national employment growth rates) which allows to address concerns around the endogeneity of employment decisions. Similarly, we examine the effect on first children to account for the endogeneity concerns associated with first births.

The concept 'attitudes' is understood as 'evaluations of objects, behaviour, events or people as good or bad, which can be expressed by statements such as 'I agree with/disagree with'

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<sup>4</sup> This is, consistent with evolutionary explanations that predict the future to resemble the past (Churchland & Sejnowski, 1992). Experiments in politics suggest that most extreme individuals tend to exaggerate their differences with those holding different beliefs (Chambers et al., 2006).

(Bicchieri, 2017; Schwartz, 2012), and gender norms are understood as ‘collective definitions of socially approved conduct in relation to groups constituted in the gender order – mainly distinctions between men and women’ (Pearse & Connell, 2015). Therefore, attitudes towards gender norms are individual evaluations of these gender norms.

The results show that for non-mothers, working experience turns women more traditional, and the same holds for the experience of motherhood for non-working women. That is, non-mothers who work and mothers who do not work are more likely to agree that pre-school children suffer if mothers work, which we proxy as having more traditional views. However, when women *jointly* have the two experiences stated in the attitudinal statement – i.e when working women become mothers – their attitudes do not change significantly. That is, women joint experience of both working and motherhood, it does not significantly change women's attitudes. This result suggests that the motherhood penalty cannot be explained by a change in attitudes of working women who become mothers. That is, employment during motherhood is not a "value changing experience" but rather a "value preserving experience’.

To our knowledge, this is the first paper to causally examine this question with current data and a large sample. Two previous studies – Berrington et al. (2007) and Schober and Scott (2012) - examine the impact on attitudes of entry into parenthood and change in economic activities at the same time. Both papers conclude that becoming a mother is not associated with a change in gender role attitudes when work patterns remain the same. Both also find that, whenever work patterns change after childbirth, then mothers (and fathers) adjust their attitudes. Our paper improves on their analyses by alleviating endogeneity problems and using a more up-to-date and larger sample. Our results, stated above, are in line with both papers.

The paper is organized as follows. Next section provides the background and a short literature review. Section three describes the data and empirical strategy. Section four displays the results, section five and six present heterogeneity effects and robustness checks and we conclude in section seven.

## **2. Related Literature**

### *2.1 Malleability of attitudes*

The evolution of attitudes towards social norms has received some of attention in the social science literature. Two main theories have emerged to explain its evolution. Cohort replacement theories emphasise that attitudes evolve with cohort change, whereas intra-cohort change theories highlights the importance of life-experiences such as marriage, parenthood, employment patterns, among others, in the evolution of attitudes. A literature in psychology has found that ‘affective experience’ can influence color preferences (Strauss et al., 2013). In economics, laboratory experiments indicate that experience can change risk preferences (Ert, E., & Haruvy, 2017), and support with democracy is found to increase with experience with democracy (Fuchs-Schündeln & Schündeln, 2015).

The process of value change can compare to a “silent revolution” (Inglehart, 1971) influencing individuals perception of their own ‘selves’ (Giddens, 1991). Karl Mannheim (1952) was one of the first to argue that each generation receives a particular imprint of the social and political events taking place during its youth, exerting a decisive influence in later attitudes and actions. Taking this idea as a starting point, Schuman and Scott (1989) used the concept ‘collective memories’, imprinted during adolescence and early adulthood, to argue that these memories persist throughout one’s adult life and shape individual behaviour. Two main hypotheses have been developed accordingly: the increasing persistence hypothesis (Glenn,

2003; Inglehart & Baker, 2000) and the impressionable years one (Carlsson & Karlsson, 1970; Krosnick & Alwin, 1989; Ryder, 1965). While they differ in the degree of persistence (Sears, 1983) and their underlying factors (Krosnick & Alwin, 1989), both of them emphasise the importance of adolescence and early adulthood in acquiring attitudes that later on remain rather stable.

An alternative approach suggests that individuals are highly flexible throughout their lives and constantly alter their attitudes (Brim & Kagan, 1980). Throughout adulthood, individuals get involved in major social organizations such as the workplace or households which 'provide specific expectations and definitions of interests that validate some attitudes while discouraging others' (Brooks & Bolzendahl, 2004:110). Similarly, life events such as parenthood, the birth of a child, entry into employment, marriage, among others may affect attitudes towards employment, mothering and gender attitudes in general (Baxter et al., 2015). These social structural changes and changes in circumstances during adulthood can mediate significantly other early influences, resulting in attitudinal change over the life cycle.

Evidence for both theories exists, and therefore, the debate remains open. Several papers examining data in the 1970-80s and in the 2000s find strong evidence of stability of attitudes within cohorts (e.g. Brewster & Padavic, 2000; Wilkie, 1993). At the same time, there are other papers (e.g. Mason and Lu 1988, Danigelis et al 2007) whose evidence points to intra-cohort change. Finally, other authors have more nuanced findings. Krosnick (1988) argues and finds that attitudes that are more central or important to individuals are more resistant to change than are noncentral or unimportant attitudes. Brooks and Bolzendahl's findings (2004) point to a strong explanatory power of cohort replacement theories, but at the same time finds that ideological learning during adulthood mediates early influences on attitudes. Similarly, Fan and Marini (2000) find evidence for both impressionable years theories and the

impact of experiences. More specifically, they state that although they find considerable stability in gender-role attitudes during the transition to adulthood, both men and women – but especially men - experience attitudinal change in an egalitarian direction with age.

## ***2.2 Gender norms after experiencing employment and childbirth***

Specific research on attitudinal change *towards gender norms* has increased substantially in the last decades, and nonetheless, both the theory and the empirics are still inconclusive. Some theories follow the cohort replacement ideas and point at the relevance of adolescence and early adulthood stages in acquiring attitudes towards gender norms which later on shall remain rather stable. In this line, psychology research shows that by the age of six, children are already aware of gender stereotypes (Bian et al., 2017) with social pressure to conform to existing gender norms mounting around the early adolescence period (Lane et al., 2017). Adolescence and early adulthood is known to psychologists as ‘a dynamic period of development – a time when (...) gender norms are shaped’ (Lane et al 2017:S10). In the case of women, some authors suggest that by early adulthood they have already been exposed to gender issues more than men. As a consequence, and despite later exposure to workplace discrimination or work-life balance difficulties, their attitudes may remain unchanged because they have already reached a ‘threshold of exposure’ in their earlier stages of life (Shafer & Malhotra, 2011).

However, there is also a good amount of research highlighting the flexibility of gender norms throughout the life-cycle due to life events and changes in circumstances. One of the mechanisms behind this change is cognitive dissonance between held attitudes and behaviour (Festinger, 1957). In order to diminish the dissonance, the individual might change attitudes so that they fit with their newly acquired behaviour. Another mechanism of change might be

exposure to the new reality (Berrington et al., 2007; Bolzendahl & Myers, 2004; Fishbein & Ajzen, 1975). A third mechanism involves changes in self-identity and self-concept (see Baxter et al., 2015), by which both men and women construct new identities for themselves, in which parenthood takes a central role. This central role of parenthood could also be the result of the 'persuasive communication' mechanism highlighted by Fishbein and Ajzen (1975), by which the newly acquired social network related to parenthood has an impact on attitudes towards gender norms (Berrington et al., 2007).

In the case of employment and childbirth, the direction of the theoretical change in attitudes induced by the self-identity mechanism or the persuasive communication one would suggest that attitudes towards gender norms become more traditional. However, for the exposure and cognitive dissonance mechanisms, the direction of change remains theoretically ambiguous. If a woman in employment has a child and policies do not allow her to have a work-life balance, she might quit working and 'solve' her cognitive dissonance by believing that children suffer when mother works. Similarly, she might find it difficult to juggle care and work and this new information acquired via 'exposure' might make her change her previously held attitudes. Conversely, if a woman in employment finds it easy to have a work-life balance and/or policies in place allow her to combine care and work, both exposure and cognitive dissonance theories would predict a change in attitudes towards more liberal gender norms. Finally, it might also be the case that the perceived difficulty of juggling care and work depends on previously held attitudes. In this case, we would see a confirmation bias in place and a polarization of opinions between women in and out of formal employment.

The literature on the impact of employment on attitudes towards gender norms is quite conclusive. Both cross-sectional studies (see for example Glass, 1992; Huber & Spitze, 1983; Mason & Lu, 1988) (see for example Mason and Lu, 1988; Glass, 1992; Huber and Spitze

1981) and studies using longitudinal data are quite consistent in finding that women's employment leads to more liberal attitudes towards gender norms. Within the longitudinal studies, most data comes from the US (see for example M. Cunningham, 2008; Mick Cunningham et al., 2005; Thornton et al., 1983; Thornton & Freedman, 1979 for non-nationally representative data, and ; Coverdill et al., 1996 and; Fan & Marini, 2000 for nationally representative data).

Conversely, the evidence on the effect of parenthood on attitudes towards gender norms is less conclusive. Some studies have focused on work commitment, which is defined as 'the centrality of the work role as a source of intrinsic satisfaction relative to other adult roles' (Bielby & Bielby, 1984) and it is usually measured with a question on how important is work for the respondent. These studies present mixed evidence<sup>5</sup>. Studies focusing specifically on gender-related attitudes usually find evidence of a relationship between the birth of a child and more traditional attitudes towards gender norms, but not always. Two studies using non-nationally representative data from the US find either little evidence of childbearing influencing attitudes (Cunningham et al., 2005) or evidence depending on race and marital status (Morgan & Waite, 1987). In contrast, three studies from the US using representative longitudinal data find evidence that the birth of a child shifts attitudes towards more traditional stances (Corrigan & Konrad, 2007; Fan & Marini, 2000; Moors, 2003). A similar result is reached by a longitudinal study from Australia in which only the first child is taken into account (Baxter et al., 2015).

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<sup>5</sup> Cross-sectional studies do not find evidence of the impact of parenthood on attitudes (Doorewaard et al., 2004; Hult & Svallfors, 2002; Svallfors et al., 2001). Bielby and Bielby (1984), using longitudinal data of college graduates from the US also shows no evidence for a relationship. A nationally-representative study from the US (Noonan et al., 2006) finds no evidence of an impact of parenthood on attitudes, whereas two studies with nationally-representative data from Finland and Sweden suggest that entry into motherhood leads to lower work commitment, albeit only temporary.

Papers studying the *joint* impact of employment and childbirth, like ours, are still scarce. One of them by Berrington and co-authors (2007) uses the BHPS up until 1997, with a total of 700 observations and using graphical chain model and SEM. They find that it is not entry into parenthood as such, but the change in economic activity that is related to attitudinal change. Schober and Scott (2012) use BHPS data up until 2007 with 300 observations and find that becoming a mother is not associated with a change in gender role attitudes when work patterns remain the same. Instead, whenever work patterns change after childbirth, then mothers (and fathers) adjust their attitudes. We improve on these previous analyses in several ways. First, it uses an instrumental variable for employment, panel fixed-effects and first child only to establish causality. This is important given the important endogeneity problems between childbirth and attitudes and employment and attitudes. Second, it uses a larger sample of 5,000 women and 43,000 observations, and third, it uses current data from 2005 to 2013. Given the fast-paced changes in attitudes during the last decades, the use of current data can shed new light on the issue.

### **3. Data and Empirical Strategy**

#### *3.1 Data.*

We employ the British Household Panel Survey – BHPS (University of Essex, Institute for Social and Economic Research., 2018) and the Understanding Society – UKHLS (University of Essex, Institute for Social and Economic Research, NatCen Social Research, Kantar Public., 2019) datasets. Both are annual surveys consisting of a representative sample of households in which every adult member of the sampled household is interviewed, following them over a period of years. We use the last two BHPS waves, 2005 and 2007. This waves interviewed around 10,000 individuals, and it is UK-wide. The Understanding Society started in 2009, and we use the first four waves, from 2009 to 2013. UKHLS is a continuation from BHPS. The two datasets together

gather information on health, work, education, income, family, and social life, collecting both objective and subjective indicators.

Amongst the variables, the datasets include attitudes towards working mothers, which is the main focus of the paper. These attitudes are asked every other year. We limit our study to attitudes of female respondents, leaving us with a sample of around 40,000 observations. Table 1 summarises the descriptive statistics for our main dependent variable, which is the answer to the statement 'Pre-school child suffers if mother works'. The evidence already suggests that one of four women in the UK agrees with this statement, and that another third 'neither agrees, nor disagrees'. Hence, overall female respondents in the UK seem to uphold values that can potentially limit their labour market participation after maternity.

Table 2 shows the descriptive statistics for our main independent variables, that is, working status and presence of pre-school children at home, and the individual-level control variables. The latter include age and age squared, education levels, presence of other children at home and marital status. About half (51%) of women are employed in the labour market, and one third (64%) do not have children in the household, almost one quarter have children (22%) and 13% have children under 4 years of age. About 20% hold no education at all, 59% are married and the average age of our female respondent is 46.3 years.

[Insert Table 1 and 2 about here]

### *3.2 Empirical Strategy*

We are interested in understanding whether the women's experience of working has an impact on the belief that small children suffer if mother works. We suspect that the impact may differ according to the presence of small children at home, therefore we interact working experience with presence of small and older children. Suppose we can model the outcome variable described in Table 1 for individual  $i$  in period  $t$ ,  $y_{it}$ , as:

$$y_{it} = \alpha + \beta_1 w_{it} + \beta_2 ch_{it} + \beta_3 w * ch_{it} + \beta_4 X_{it} + \beta_5 R_i + u_{it} \quad (1)$$

where  $w_{it}$  is a dummy representing working status of individual  $i$  at time  $t$ ,  $ch_{it}$  is a dummy for presence of children at home taking value 0 if there are no children at home; value 1 if there are 0 to 4 year old children at home, and 2 if children are older than 4 years old<sup>6</sup>.  $w * ch_{it}$  is the interaction of the two.  $X_{it}$  are individual controls mentioned above,  $R_i$  are regional dummies added to control for institutional factors and  $u_{it}$  are the residuals. Our coefficients of interest are  $\beta_1$ ,  $\beta_2$  and  $\beta_3$ , and measure the effect of each covariate in terms of likert scale unit change in the dependent variable.

Equation (1) may suffer from endogeneity problems on various fronts. First, attitudes might be influencing employment decisions, therefore causing a potential problem of reverse causality. Similarly, there might be omitted variables in the error term. These two problems suggest that the errors in (1) are not independent of the explanatory variables. One strategy for dealing with the omitted variable problem is to control of a wide range of individual characteristics in order to try to account for time-variant characteristics that affect our dependent variable. Taking advantage of the longitudinal nature of the dataset, we can also include individual and area fixed effects to control for time-invariant variables. Area-level fixed effects would for instance account for institutional characteristics –quality, affordability and availability of nurseries – which differ depending to the local area and may be correlated with our dependent and independent variables.

The fixed effects strategy alleviates the problem of Omitted Variable Bias for time-invariant variables, but it does not alleviate the problem for time-variant variables, nor the problem of reverse causality problem. To tackle this problem, we instrument maternal working status – i.e.

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<sup>6</sup> For observations reporting no children across the panel, it is not possible to disentangle whether they have had children in the past and have left home, or whether they have never had children. This is because all questions ask about the presence of children *at home*. Nevertheless, with fixed effects these observations leave the sample. This means that the OLS specification may result in biased estimates if women who have had children in the past but have left the panel and therefore are not registered are categorised as having had no children.

we assume there is an instrumental variable  $z_{it}$  independent of  $u_{it}$  but correlated with  $w_{it}$ . The first-stage of this instrumental variable approach will then be:

$$w_{it} = \pi_1 z_{LSOA,t} + \pi_2 X_{it} + \rho_{it} \equiv \hat{w}_{it} + \rho_{it} \quad (2)$$

The variable used as an instrument is a ‘Bartik’ style variable (Bartik, 1991). The idea behind the instrument is that at some point in time people distributed across geographical areas and industries in a random way. The subsequent area level growth in the demand for jobs follows the national level growth rate according to this initial composition. The variation in demand for jobs therefore comes from national level changes. The IV is<sup>7</sup>:

$$C_{at} = \sum_i G_{it} \frac{E_{iao}}{E_{ao}} \quad (3)$$

Where  $G_{it}$  is the growth rate of industry  $i$  in year  $t$  and  $\frac{E_{iao}}{E_{ao}}$  is the initial ratio of employment of industry  $i$  in the area. This instrumental strategy has been widely used and its identification relies on the fact that small area labour market conditions influence individuals probability of employment. The identification of the LATE effect hence, does not rely on individual specific variation but on national level variation.

Second, with regard to the children variable, fertility is arguably endogenous, and the more so for subsequent children. That is, attitudes towards working mother may affect the number of children a woman wants to have. At the same time, if attitudes are malleable, they are likely to change after the first child more than after the subsequent ones, as the experience is not as new as it was. Including observations on second, third and subsequent children might therefore lead to an underestimation of the effect of having children on attitudes towards working mothers. In order to alleviate these problems, some specifications reduce the sample to those of first

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<sup>7</sup> We thank Monica Langella and Alan Manning at the CEP (LSE) for the idea and data on the Bartik variable.

child only. The subsample is constructed by keeping only household waves with one child only, which allows the data to retain its panel structure.

#### 4. Results

We begin by reporting the main results using OLS, although they are potentially biased due to endogeneity concerns. Column (1) shows the impact of working and of having children at home, with individual and regional controls. It suggests that female employment (working) increases the strengths of the attitudes to gender roles captured by the value of the statement on 'working mothers'; that is, if the woman works, she is less in agreement with the statement that *pre-school child suffers if mother works* (from now on, a decrease in agreement with the statement is referred to as women becoming 'less traditional, and an increase in agreement with the statement is referred to as women becoming 'more traditional').

Our estimates suggest that employment makes women more liberal by 0.35 likert scale units. In regard to children, the first specification seems to suggest that having children at home is associated with women becoming less traditional by between 0.06 and 0.11 likert scale units. This result changes in the second specification. We are interested in the effect of motherhood on attitudes for working and non-working women. Column (2) adds an interaction effect between working and the presence of children, and the results show that while working continues to be associated with women becoming less traditional, motherhood (always proxied by the presence of children at home) makes women become less traditional only when they work. That is, *motherhood is associated with becoming more traditional by 0.30 likert scale units for non-working mothers*. Instead, motherhood is associated with becoming less traditional by 0.31 scale units for working mothers. Yet, given the measurement of the dependent variable – on a scale from 1 to 5, the effect of motherhood alone when working is not jointly insignificant.

Column (3) only accounts for first child only to account for potential endogenous fertility, influencing fertility stopping rules. Specifications with first child only are constructed by keeping only one observation (that of the first child) per woman and summarize information from different survey waves. Column (3)'s interpretation of the results are similar in the direction of change of attitudes, albeit with lower but still significant coefficients at 1% significance level.

**[Insert Table 3 about here]**

So far, results from Table 3 only take endogeneity fertility stopping rules into account. However, these results are potentially bias due to problems of omitted variable bias for both time-invariant and time-variant variables, as well as and reverse causality still remain. To alleviate these problems, Table 4 displays the effect of motherhood for working and non-working women using individual fixed effects and instrumenting work using the Bartik instrument specified in section 3 of the paper which is relevant and significant and reveal and F test and the Anderson test above expected cut-off. Thus, column (1) shows the IV results using the same specification of column (2) in Table 3, and column (2) follows the same sequence, but this time with the reduced sample that only includes the first child. Both columns show similar results, and therefore we shall focus on the Column (2).

**[Insert Table 4 about here]**

Interestingly, we find that women who experience either working or having children (but not both at the same time), are more traditional. That is, *women with no children at home, that change their working status and start working, become more traditional*. Similarly, women who do not work and become mothers also become more traditional, albeit our estimates are less precise.

Conversely, *women who go through both experiences, that is, who become mothers while working do not change their attitudes significantly*. This is shown by the linear combination of the estimates for working women: women who have a pre-school child become 0.25 unit scales less traditional, albeit not in a significant way. The significance of the coefficient does not change when those children grow older. This result is in line with the earlier literature examining the joint impact of work and motherhood on attitudes towards gender norms. Indeed, such literature established that parenthood in their case is not associated with a change in gender role attitudes when work patterns remain the same.

## 5. Heterogeneity effects

Given that such baseline results of Tables 3 and 4 may be concealing heterogeneity of reactions to working on attitudes, we consider a number of heterogeneous effects. More specifically, it could be that mothers engage in part-time work because they have similar concerns for their children than non-working mothers. If that was the case, the effect would be concealed with the variable working, which is a binary variable (yes/no). Table 5 shows the results employing a binary work variable with a cut-off at 8h and 16h, with column (1) and (3) distinguishing women who work more than 16h from those who work less than 16h, and column (2) and (4) distinguishing women who work more than 8h from those who work less than 8h. The results, however, are not different from the previous tables, and the standard errors are even bigger.

**[Insert Table 5 about here]**

A different but equally important type of heterogeneity might be given by the level of education of the women in the sample. Education tends to affect attitudes, with highly-educated women having generally more liberal attitudes than low-educated ones. Hence, we test whether the effect of motherhood changes depending on the mother's education level, and this is what we analyse in Table 6. These results however show no significant differences with previous results,

and more importantly, they are imprecisely estimated (standard errors are large), and hence unconvincing.

[Insert Table 6 about here]

## 6. Robustness checks

Finally, in addition to a number of heterogeneities, we consider a number of potential robustness checks. Table A.1 in the appendix excludes divorced and separated women. This is especially relevant because when a couple's separation or divorce takes place, it is likely that one of the two in the couple leaves home, and therefore drops out of the sample. This means that some women will have dropped out and others will not, resulting in non-random attrition in our analysis. For the analysis in Table A.1 we drop the divorced and separated women in the sample.

Estimates are consistent with those of Table 3, but this time they are more precisely estimated (lower standard error and significant). Column (2) shows that women that experience either employment, or motherhood (but not both at the same time), become more traditional. That is, we find that for women without children at home, starting a job (hence changing their working status), leads them to become more traditional. Similarly, when women do not work, motherhood makes them more traditional on average. Conversely, *women who are exposed to both motherhood and employment, that is, who become mothers while working, do not change their attitudes significantly*. Indeed, the interaction effect in Table 3 reveals that their attitudes increase in 0.026 scale units though estimates are less precisely estimated (10% significance level), resulting in a joint non significant 0.35 unit scale increase.

The significance of the coefficient does not change when children grow older. This is more robust evidence that while *separately* motherhood and employment result in more traditional attitudes, becoming a mother when working does not change attitudes in a significant way. In

other words, rather than a 'value changing experience', employment during motherhood is a 'value preserving or confirming experience'.

## 7. Conclusion

This paper has examined whether the experiences of motherhood and employment change attitudes to children's wellbeing effect from women's employment, proxying traditional gender norms. More specifically, drawing on a number of different specifications, including an instrumental variable strategy that employs a Bartik instrument (an interaction of local industry employment shares and national employment growth rates) we study whether an exogenous changes in female employment during motherhood alters women's view about whether a 'pre-school child suffers if mother works'. This is an important question to understand the behavioural roots of gender employment gaps.

Against the backdrop of what Akerlof (1983) defines as 'value changing experiences', we document evidence consistent with what we call as 'value confirming experiences'. That is, that preferences are guided by deep values and confirm individual priors, that are confirmed by individuals experience. More specifically, we find that when women – non-mothers - start working or when non-working women become mothers, their attitudes become more traditional (namely, are more likely to agree than a child suffers when a mother works). However, *when women jointly go through the two experiences of employment and motherhood, their attitudes do not change significantly*. This result is consistent with findings of earlier studies (Berrington et al, 2008 and Schober and Scott, 2012).

Compared earlier studies, not only we employ larger and coterminous datasets (coming from recent data from the BHPS and UKHLS), but also addresses the important endogeneity concerns that comes from both employment (we draw on a Bartik instrument), and endogenous fertility stopping rules (when we examine first children only). Our results have

significant behavioural implications for the future understanding of the behavioural roots of a motherhood penalty. More specifically, our results indicate that individuals' priors and early life exposure is critical to the formation of women's attitudes towards motherhood and employment. Second, it suggests that the motherhood penalty, associated with lower productivity and a change to mother-friendly jobs, cannot be explained by a change in attitudes of working women when they become mothers.

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## Tables and Figures

**Table 1** Descriptive statistics for attitude variables for the British Household Panel and Understanding Society sample.

Variable	N	Percentage
<i>Pre-school child suffers if mother works</i>		
strongly agree	2,584	7.01
agree	7,303	19.81
not agree/disagree	12,448	33.76
disagree	10,781	29.24
strongly disagree	3,752	10.18
Total	<b>36,868</b>	100

**Table 2** Descriptive statistics for individual working status, presence of pre-school children at home and individual-level control variables for the British Household Panel and Understanding Society sample.

Variable	Mean	Std. Dev.	Min	Max	N
Working	.514	.5	0	1	43358
No presence of children	.644	.479	0	1	43183
Presence of 0 to 4 year-old at home	.129	.335	0	1	43183
Presence of older children at home	0.223	.419	0	1	43183
No education	.196	.397	0	1	42422
Education at GCSE level	.238	.426	0	1	42422
Education at A-levels	.185	.388	0	1	42422
Education between A-levels and degree	.088	.284	0	1	42422
Education at degree level	.192	.394	0	1	42422
Education at high degree level	.101	.301	0	1	42422
Presence of other children at home	.237	.425	0	1	43465
Married	.59	.492	0	1	43616
Age	46.347	18.535	15	104	43682

*Note:* All variables except for age are dummies constructed upon affirmative replies.

**Table 3:** Impact of working on attitudes towards working mothers with pre-school children. OLS specifications.

Variables	(1) OLS M1	(2) OLS M2	(3) OLS M2 - FC
<b>Presence of children</b> <i>[base: no children]</i>			
Pre-school children	0.064** (0.025)	-0.303*** (0.035)	-0.157*** (0.049)
Older children	0.107*** (0.029)	-0.148*** (0.038)	-0.208*** (0.066)
<b>Work status</b> <i>[base: not employed]</i>	0.346*** (0.017)	0.146*** (0.019)	0.143*** (0.020)
<b>Presence of child <math>\times</math> employed</b>			
Pre-school children		0.614*** (0.040)	0.457*** (0.059)
Older children		0.377*** (0.037)	0.399*** (0.052)
<b>Education level</b> <i>[base: no qual]</i>			
GSCE	0.090*** (0.024)	0.100*** (0.023)	0.058** (0.025)
A-level	0.121*** (0.026)	0.108*** (0.025)	0.102*** (0.027)
Between A-level - degree	0.078*** (0.029)	0.089*** (0.027)	0.073** (0.029)
Degree	0.196*** (0.027)	0.198*** (0.025)	0.167*** (0.028)
High degree	0.148*** (0.029)	0.157*** (0.027)	0.144*** (0.030)
<b>Siblings</b> <i>[base: none]</i>	-0.137*** (0.026)	-0.140*** (0.025)	-0.036 (0.052)
<b>Marital status</b> <i>[base: not married]</i>	-0.067*** (0.018)	-0.056*** (0.015)	-0.043** (0.017)
<b>Age</b>	-0.008*** (0.002)	-0.003 (0.002)	-0.002 (0.002)
<b>Age squared</b>	0.000 (0.000)	-0.000** (0.000)	-0.000** (0.000)
<b>Constant</b>	3.314*** (0.053)	3.338*** (0.049)	3.339*** (0.052)
<b>Linear combination of estimates: effect for working mothers</b>			
Pre-school children		0.311*** (0.029)	0.300*** (0.036)
Older children		0.230*** (0.029)	0.192 (0.055)
Observations	31,940	31,940	25,074
R-squared	0.065	0.075	0.065
Region dummies	Yes	Yes	Yes

Individual-clustered and robust standard errors in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. OLS regressions.

Specifications: (1) Presence of children, work status and controls included. (2) Full model with interactions. (3) Full model with interactions for the subsample with first child only.

**Table 4** Impact of working on attitudes towards working mothers with pre-school children. Addressing endogeneity concerns related to the work variable.

Variables	(1) IV	(2) IV- FC
<b>Work status</b>	-2.439***	-2.155***
<i>[base: not employed]</i>	(0.835)	(0.794)
<b>Presence of child <math>\times</math> employed</b>		
Pre-school children	0.250	1.818
	(4.974)	(1.807)
Older children	2.066**	1.373
	(0.892)	(1.312)
<b>Presence of child</b>		
<i>[base: no children]</i>		
Pre-school children	-0.479	-1.563
	(3.539)	(1.360)
Older children	-1.572**	-1.211
	(0.726)	(1.015)
<b>Linear combination of estimates: effect for working mothers</b>		
Pre-school children	-0.288	0.255
	(1.446)	(0.477)
Older children	0.494	0.162
	(0.475)	(0.386)
Observations	27,993	20,982
R-squared	-0.625	-0.484
F Test	24.34	15.23
Number of pid	11,605	8,942
Region dummies	Yes	Yes

Individual-clustered and robust standard errors in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Note:* All models include controls for age, education, marital status, presence of other children at home and regional dummies. rie Specifications: (1) Instrumental variable strategy specification with individual fixed effects. (2) Instrumental variable strategy specification with individual fixed effects for the subsample with first child only.

**Table 5** Impact of hours of work on attitudes towards working mothers with pre-school children. Addressing endogeneity concerns related to the hours of work dummy variables.

Variables	(1) 16 hrs	(2) +8 hrs	(3) 16 hrs- FC	(4) 8 hrs -FC
<b>Presence of child</b> [base: no children]				
Pre-school children	-4.528* (2.746)	-3.699* (1.954)	-0.190 (27.965)	-2.446 (2.817)
Older children	-3.421 (2.258)	-2.768* (1.496)	0.838 (24.877)	-1.961 (1.891)
<b>Hours worked +16</b> [base: hrs<16]	-4.623** (2.265)		-3.484 (2.448)	
<b>Presence of child <math>\times</math> +16 hrs</b>				
Pre-school children	6.460 (4.015)		-0.764 (46.577)	
Older children	4.111 (2.896)		-2.431 (38.459)	
<b>Hours worked +8</b> [base: hrs<8]		-3.976** (1.668)		-3.398** (1.407)
<b>Presence of child <math>\times</math> +8 hrs</b>				
Pre-school children		4.800* (2.550)		3.017 (3.831)
Older children		3.251* (1.742)		2.256 (2.300)
<b>Linear combination of estimates: effect for working mothers</b>				
Pre-school children	1.932 (1.290)	1.101* (0.613)	-0.954 (18.618)	0.571 (1.035)
Older children	0.690 (0.782)	0.483 (0.352)	-1.593 (13.599)	0.295 (0.559)
Observations	28,227	28,227	21,170	21,170
R-squared	-1.684	-1.188	-1.859	-1.120
F test	8.38	11.26	3.05	4.77
Number of pid	11,694	11,694	9,021	9,021
Region dummies	Yes	Yes	Yes	Yes

Individual-clustered and robust standard errors in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Note:* All models include controls for age, education, marital status, presence of other children at home and regional dummies. Specifications: (1) and (2) Instrumental variable strategy specification with individual fixed effects. (3) and (4) Instrumental variable strategy specification with individual fixed effects for the subsample with first child only.

**Table 6** Impact of working on attitudes towards working mothers with pre-school children. Addressing endogeneity concerns related to the work variable; separating by level of education.

Variables	Education: Below A-levels		Education: Above A-levels	
	(1) IV	(2) IV- First Child	(3) IV	(4) IV- First Child
<b>Work status</b> <i>[base: not employed]</i>	-3.331 (3.813)	-2.980** (1.438)	-2.635 (8.015)	-1.747 (1.663)
<b>Presence of child <math>\times</math> employed</b>				
Pre-school children	-1.027 (51.626)	-2.209 (7.565)	19.636 (73.029)	7.068 (7.872)
Older children	2.605 (3.998)	1.553 (2.156)	-5.779 (16.217)	-0.808 (2.800)
<b>Presence of child</b> <i>[base: no children]</i>				
Pre-school children	0.221 (31.513)	1.071 (4.800)	-16.027 (59.657)	-5.976 (6.717)
Older children	-1.853 (1.489)	-1.013 (1.449)	2.701 (6.445)	0.054 (2.180)
<b>Linear combination of estimates: effect for working mothers</b>				
Pre-school children	-0.806 (20.116)	-1.138 (2.788)	3.609 (13.384)	1.092 (1.171)
Older children	0.751 (2.680)	0.539 (0.9211)	-3.077 (10.570)	-0.753 (1.149)
Observations	16,845	12,733	10,453	7,649
R-squared	-1.373	-1.178	-16.215	-0.919
F Test	13.09	7.84	5.39	6.28
Number of pid	7,005	5,417	4,656	3,496
Region dummies	Yes	Yes	Yes	Yes

*Note:* All models include controls for age, education, marital status, presence of other children at home and regional dummies. Specifications: (1) and (3) Instrumental variable strategy specification with individual fixed effects. (2) and (4) Instrumental variable strategy specification with individual fixed effects for the subsample with first child only.

## Online Appendix

**Table A.1** Impact of working on attitudes towards working mothers with pre-school children. Addressing endogeneity concerns related to the work variable; sample excluding divorced and separated women.

Variables	(1) IV	(2) IV- FC
<b>Work status</b> <i>[base: not employed]</i>	-2.930*** (1.087)	-2.649** (1.039)
<b>Presence of child <math>\times</math> employed</b>		
Pre-school children	0.349 (2.840)	2.554* (1.335)
Older children	2.886** (1.248)	2.017 (1.752)
<b>Presence of child</b> <i>[base: no children]</i>		
Pre-school children	-0.654 (2.027)	-2.209** (1.047)
Older children	-2.237** (0.991)	-1.830 (1.365)
<b>Linear combination of estimates: effect for working mothers</b>		
Pre-school children	-0.306 (0.850)	0.345 (0.355)
Older children	0.649* (0.386)	0.187 (0.462)
Observations	24,696	18,534
R-squared	-0.933	-0.741
F test	19.07	12.14
Number of pid	10,262	7,891
Region dummies	Yes	Yes

Individual-clustered and robust standard errors in parenthesis: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

*Note:* All models include controls for age, education, marital status, presence of other children at home and regional dummies. Specifications: (1) Instrumental variable strategy specification with individual fixed effects. (2) Instrumental variable strategy specification with individual fixed effects for the subsample with first child only.

**Table A.2** Impact of working on attitudes towards working mothers with pre-school children and pregnant women. Addressing endogeneity concerns related to the work variable.

Variables	(1) IV	(2) IV- FC
<b>Work status</b>	-2.196**	-2.066**
<i>[base: not employed]</i>	(0.887)	(0.920)
<b>Presence of child <math>\times</math> employed</b>		
Pre-school children or pregnant	0.174	1.242
	(12.313)	(2.002)
Older children	1.638	1.139
	(1.712)	(1.386)
<b>Presence of child</b>		
<i>[base: no children]</i>		
Pre-school children or pregnant	-0.087	-0.927
	(8.037)	(1.660)
Older children	-0.951	-0.776
	(1.021)	(1.226)
Observations	27,993	20,982
R-squared	-0.516	-0.442
F Test	20.76	12.47
Number of pid	11,605	8,942
Region dummies	Yes	Yes

Individual-clustered and robust standard errors in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Note:* All models include controls for age, education, marital status, presence of other children at home and regional dummies. *rie* Specifications: (1) Instrumental variable strategy specification with individual fixed effects. (2) Instrumental variable strategy specification with individual fixed effects for the subsample with first child only.