RUHR
ECONOMIC PAPERS

Julia Bredtmann
Lisa Sofie Höckel
Sebastian Otten

The Intergenerational Transmission of Gender Role Attitudes: Evidence from Immigrant Mothers-in-Law

RUHR UNIVERSITÄT BOCHUM RUB RWI #735

Imprint

Ruhr Economic Papers

Published by

RWI – Leibniz-Institut für Wirtschaftsforschung
Hohenzollernstr. 1-3, 45128 Essen, Germany

Ruhr-Universität Bochum (RUB), Department of Economics
Universitätsstr. 150, 44801 Bochum, Germany

Technische Universität Dortmund, Department of Economic and Social Sciences
Vogelpothsweg 87, 44227 Dortmund, Germany

Universität Duisburg-Essen, Department of Economics
Universitätsstr. 12, 45117 Essen, Germany

Editors

Prof. Dr. Thomas K. Bauer
RUB, Department of Economics, Empirical Economics
Phone: +49 (0) 234/3 22 83 41, e-mail: thomas.bauer@rub.de

Prof. Dr. Wolfgang Leininger
Technische Universität Dortmund, Department of Economic and Social Sciences
Economics – Microeconomics
Phone: +49 (0) 231/7 55-3297, e-mail: W.Leininger@tu-dortmund.de

Prof. Dr. Volker Clausen
University of Duisburg-Essen, Department of Economics
International Economics
Phone: +49 (0) 201/1 83-3655, e-mail: vclausen@vwl.uni-due.de

Prof. Dr. Roland Döhrn, Prof. Dr. Manuel Frondel, Prof. Dr. Jochen Kluve
RWI, Phone: +49 (0) 201/81 49-213, e-mail: presse@rwi-essen.de

Editorial Office

Sabine Weiler
RWI, Phone: +49 (0) 201/81 49-213, e-mail: sabine.weiler@rwi-essen.de

Ruhr Economic Papers #735

Responsible Editor: Thomas K. Bauer

ISSN 1864-4872 (online) – ISBN 978-3-86788-855-4

Ruhr Economic Papers #735

Julia Bredtmann, Lisa Sofie Höckel, and Sebastian Otten

The Intergenerational Transmission of Gender Role Attitudes: Evidence from Immigrant Mothers-in-Law

RUHR UNIVERSITÄT BOCHUM RUB

RWI

Bibliografische Informationen der Deutschen Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at http://dnb.dnb.de

RWI is funded by the Federal Government and the federal state of North Rhine-Westphalia.

http://dx.doi.org/10.4419/86788855
ISSN 1864-4872 (online)
ISBN 978-3-86788-855-4

Julia Bredtmann, Lisa Sofie Höckel, and Sebastian Otten[1]

The Intergenerational Transmission of Gender Role Attitudes: Evidence from Immigrant Mothers-in-Law

Abstract

The recent literature on intergenerational mobility has shown that attitudes and preferences are an important pathway for the intergenerational transmission of economic outcomes. We contribute to this literature by documenting that intergenerationally transmitted gender role attitudes also explain economic outcomes of individuals other than immediate relatives. Focusing on daughters-in-law, we examine whether the gender role attitudes of foreign-born mothers-in-law affect the fertility and labor supply decisions of native US women. Our results reveal that women's labor market participation is significantly positively related to the gender role attitudes in her mother-in-law's country of origin. Employing a new identification strategy, we show that this finding is due to the intergenerational transmission of gender roles rather than other unobservable characteristics of the mother-in-law's country of origin. These results suggest that the cultural values held in their source country do not only influence the behavior of immigrants and their descendants, but can also affect the labor force participation of native women. We do, however, not find any evidence that intergenerationally transmitted gender role attitudes affect the fertility behavior of native women.

JEL Classification: J13, J15, J22, D1

Keywords: Intergenerational transmission; gender role attitudes; culture; immigration; fertility; female labor force participation

December 2017

1 Julia Bredtmann, RWI, IZA, and CReAM; Lisa Sofie Höckel, RWI and RUB; Sebastian Otten, University College London, CReAM, and RWI. *– The authors are grateful to Thomas Bauer, Stefanie Schurer and seminar participants at RWI for helpful comments and suggestions. All remaining errors are our own.* *– All correspondence to: Lisa Sofie Höckel, RWI, Hohenzollernstr. 1-3, 45128 Essen, Germany, e-mail: lisa.hoeckel@rwi-essen.de*

1 Introduction

The economic literature has shown that children's economic outcomes such as educational attainment, labor supply, occupation, and income are highly correlated with the socioeconomic status of their parents (see Black and Devereux, 2011, for a review). In other words, parents transmit their economic and social status to their children. These cross-generational transfers occur through a variety of means. The recent literature on intergenerational mobility has revealed that beliefs, preferences, and attitudes are important pathways for the intergenerational transmission of economic outcomes (see, among others, Bisin and Verdier, 2000, 2001; Fernández *et al.*, 2004; Guiso *et al.*, 2006, 2008; Doepke and Zilibotti, 2008; Dohmen *et al.*, 2012). For instance, by passing on their gender role attitudes, parents can strongly influence their daughter's attitudes towards women's role in society and through this channel affect their educational attainment and labor force participation (e.g., Farré and Vella, 2013; Johnston *et al.*, 2014).

We build on this literature by analyzing whether maternal gender role attitudes can also explain adult economic outcomes of individuals other than immediate relatives. In particular, we focus on daughters-in-law and examine whether the gender role attitudes of foreign-born mothers-in-law affect the fertility and labor supply decisions of native US women who are married to second-generation immigrant men. As such, we are interested in the cultural spillovers from female immigrants to the subsequent generation of female natives.

Our paper relates to two strands of the economic literature. The first strand follows the theory of intergenerational transmission of preferences and studies whether cultural values are transmitted between generations. In their model of endogenous cultural transmission, Bisin and Verdier (2000) show that parents are motivated to shape their children's cultural values by a "paternalistic altruism" similar to their own (Bisin and Verdier, 2000, p.962). A growing empirical body tests the relevance of intergenerational transmission of preferences in general (Bisin and Verdier, 2000; Guiso *et al.*, 2006; Cesarini *et al.*, 2009; Dohmen *et al.*, 2012) and with respect to gender roles in particular. The latter studies often employ

survey questions on attitudes to quantify the intergenerational correlation in gender role attitudes between mothers and their children. Using mother-child pairs from the National Longitudinal Survey of Youth (NLSY79), Farré and Vella (2013), for example, document a strong correlation between mothers' gender role attitudes and children's views. They further find that maternal attitudes regarding the role of woman do not only affect the labor force participation of daughters, but are also strongly correlated with the work decision of daughters-in-law. Other studies explore the intergenerational transmission of gender role attitudes by using maternal employment as a proxy for attitudes. Based on data from the General Social Survey (GSS), Fernández *et al.* (2004) show that the probability that a woman works is positively and significantly correlated with having a working mother-in-law. Similar results for the intergenerational transmission of gender role attitudes are obtained by Kawaguchi and Miyazaki (2009) for Japan and Johnston *et al.* (2014) for the UK.

A second strand of literature follows the so called "epidemiological approach" (Fernández, 2007) and explores whether culture is mobile across countries. This literature studies the role of source-country culture in the economic behavior of immigrants in the host country. It relies on the assumption that when people emigrate, they leave their formal institutional environment behind, but take some aspects of their culture with them and transmit them to their children. In an early study, Antecol (2000) uses variation in the female labor force participation rate across immigrants' countries of origin as a proxy for culturally shaped gender role attitudes. She finds that the gender gap in the labor force participation of first-generation immigrant women in the US is positively correlated with the female labor force participation rate in their country of origin. For second and higher generations of immigrants, the explanatory power of her cultural proxy is substantially lower. Also for the US, Blau *et al.* (2011) show that the female to male labor force participation ratio in their country of origin is positively associated with immigrant women's labor supply assimilation profiles, with those coming from high female labor supply countries eventually assimilating fully to native labor supply levels. Using the 1970 US Census, Fernández and Fogli (2009) find that the work and fertility outcomes

of second-generation female immigrants are significantly correlated with the female labor force participation and fertility rate in their country of origin. Based on more recent data, Blau *et al.* (2013) provide evidence for intergenerational transmission from mothers to second-generation immigrant daughters with respect to fertility and labor supply. Similarly to previous studies (Blau and Kahn, 2007; Parrado and Morgan, 2008; Almond *et al.*, 2013), the authors further find considerable assimilation towards natives with respect to the number of children.

In our paper, we combine these two strands of the literature and analyze whether the fertility and labor supply decisions of native US women are influenced by the gender role attitudes held in their mother-in-law's country of origin. In doing so, we contribute to the growing literature on the role of immigrants' source-country culture. While previous literature has solely focused on analyzing its effect on the economic outcomes of immigrants (and their descendants), we are the first to examine the role of immigrants' source-country culture in the behavior of native women by investigating the cultural spillovers from female immigrants to their native daughters-in-law.

In line with the studies by Fernández *et al.* (2004) and Johnston *et al.* (2014), we expect the cultural values of the mother-in-law to influence a woman mainly through the gender role attitudes and the behavior of her husband. Considering, for example, women's labor force participation decisions, this transmission can work through different complementary channels: First, men are more likely to support their working wives if they grew up with a non-traditional family model (i.e., one in which their mother worked). Second, men are more productive in household chores if their attitudes towards household time allocation are not determined by traditional gender roles. Third, men might demand an active labor force participation from their wives if they are used to economically independent women. In this case, the effect of gender role attitudes can also work through assortative mating, whereby sons choose partners with similar attitudes to themselves and their mothers.

Our empirical analysis is based on the epidemiological approach and makes use of data from the US Current Population Survey (CPS) for the period 1994-2015. In addition, we employ a new identification strategy that addresses the problem of omitted variables at

the level of the mother-in-law's country of origin by exploring the differential impact of the source-country cultural values of mothers- and fathers-in-law to identify the effect of gender roles on women's behavioral responses.

Using the ratio of the female to male labor force participation rate as a cultural proxy for gender roles, we find the probability that a women participates in the labor market to be significantly positively related to the ratio of the female to male labor force participation rate in her mother-in-law's country of origin. We further show that this finding is due to the intergenerational transmission of gender roles rather than other unobservable factors at the mother-in-law's country of origin. This shows that cultural values are not only transmitted from mothers to their sons and daughters, but also to their daughters-in-law – either directly, or indirectly through their sons' gender role attitudes. Moreover, the results indicate that through this transmission mechanism, source-country cultural values do not only influence the labor force participation of female immigrants, but also of native women. With respect to women's fertility behavior, we do not find a robust correlation between a woman's number of children and the fertility rate in her mother-in-law's country of origin. This reveals that through the transmission of cultural values, immigration can affect the labor supply of native women, but does not seem to impact their fertility behavior.

The remainder of the paper is organized as follows. The next section outlines the empirical framework. Section 3 describes the data and in Section 4 we discuss our results. Section 5 provides concluding remarks.

2 Empirical Framework

To analyze the role of gender role attitudes of a foreign mother-in-law in the work and fertility decision of her native daughter-in-law, we use two different identification strategies. In our *baseline* specification, we follow the epidemiological approach (Fernández, 2007) and rely on variation in gender role attitudes across mother-in-law's countries of origin to identify the effect of source-country culture on the behavior of native women. For a sample of native women cohabiting with men with a foreign-born mother, we estimate the

following model:

$$y_{imfst} = \alpha + \beta\, CulturalProxy_{mt} + C'_{mt}\,\varphi + X'_i\,\lambda + \mu_f + \rho_s + \gamma_t + \varepsilon_{imfst}, \qquad (1)$$

where y_{imfst} is the work/fertility decision of native woman i with a mother-in-law from country m and a father-in-law from country f who resides in state s in the year of observation t. $CulturalProxy_{mt}$ refers to the gender role attitudes in the mother-in-law's country of origin, C_{mt} contains further origin-country characteristics, X_i contains household and individual characteristics, μ_f represents fixed effects for the father-in-law's source country[1], ρ_s denotes state of residence and γ_t year fixed effects. ε_{imfst} is the error term.

By including father-in-law source-country fixed effects, we only exploit variation in gender role attitudes across foreign mothers-in-law source countries, holding the father-in-law's source country constant. Thereby, we rule out that the gender role attitudes of the father-in-law's source country are confounding the estimated effect of our cultural proxy. However, the estimated effect β in Eq. (1) could still be biased if there exist other unobserved factors at the mother-in-law's source-country level that affect the work and fertility decisions of native American women. The quality of education in his mother's country of origin, for example, might – through the intergenerational transmission of human capital – influence a man's economic position, which itself might be correlated with the work and fertility behavior of his wife. We therefore estimate an *extended* specification that is based on the assumption that gender role attitudes are more likely to be transmitted from mothers-in-law than from fathers-in-law, as it is mainly the behavior of the mother that serves as a role model for her son's attitudes with respect to women's role in society.[2] This argument is supported by the findings of Blau *et al.* (2013), who show that the fertility and labor supply decisions of second-generation US immigrants is more strongly affected by the fertility and female labor force participation rate in the mother's source

[1] In our baseline sample, the father-in-law can be born in the same or in a different country as the mother-in-law. This includes the possibility that the father-in-law is a US native.

[2] Fernández *et al.* (2004), for example, argues that men whose mothers worked when they were adolescents develop a preference for working wives or are raised in a way that promotes helping out more in the household, making it easier for their wives to work.

country than by the same characteristics in the father's source country. Gender-neutral country characteristics, in contrast, are expected to affect the behavior of native women similarly, irrespective of whether their father or mother-in-law is an immigrant.

In our *extended* specification, we thus estimate the following model for a sample of native women cohabiting with men who either have (i) a foreign-born mother and a native father or (ii) a native mother and a foreign-born father:

$$y_{ipst} = \eta + \phi\, MigMom_i + \kappa\, CulturalProxy_{pt} + \delta\, MigMom_i \times CulturalProxy_{pt} + X_i'\,\pi + \omega_s + \tau_t + \upsilon_{ipst}. \tag{2}$$

y_{ipst} is the work/fertility decision of native woman i with a foreign parent-in-law from country p residing in state s at the year of observation t. $MigMom_i$ is a dummy variable for having a foreign mother-in-law vs. a foreign father-in-law. Our main variable of interest is the interaction of having a foreign-born mother-in-law and the gender role attitudes in the foreign parent-in-law's country of origin, $MigMom_i \times CulturalProxy_{pt}$. Its coefficient δ can be interpreted as the additional influence of our cultural proxy when having a foreign-born mother-in-law vs. a foreign-born father-in-law. An effect of our cultural proxy that is unique to or stronger when the foreign parent-in-law is the mother and not the father suggests that the effect of the foreign mother-in-law's gender role attitudes reflects a cultural effect rather than capturing other unobserved factors at the parent-in-law's source-country level that are expected to exert similar effects through foreign-born mothers and fathers.[3]

We estimate the parameters of Eqs. (1) and (2) using OLS, implying that the errors are normally distributed.[4] To address the problem of intra-class correlation in standard errors

[3]Of course, our identification strategy is only valid if migration flows to the US are not selective by gender, i.e., if male and female immigrants to the US come from similar source countries with comparable cultural values. To check this, Tables A1 and A2 show the top 15 source countries of the foreign mothers- and fathers-in-law in our sample along with their labor force participation ratios and fertility rates, respectively. As can be seen, the distribution of source countries and associated cultural values is fairly similar for the foreign-born mothers- and fathers-in-law in our sample.

[4]Estimating the labor force participation equation with a probit or a logit model and the fertility equation under a negative binomial distribution yields similar results. The respective estimation results are available from the authors upon request.

within source countries, we cluster standard errors at the level of the source country of the foreign mother-in-law (baseline specification) and the foreign parent-in-law (extended specification), respectively.

3 Data

Our data source at the individual level is the US Current Population Survey (CPS), which we extract from the IPUMS database (King *et al.*, 2010). Within this monthly US household survey, we derive the data from the March Annual Social and Economic Supplement (ASEC). We restrict our sample to the period 1994-2015 as only those waves contain information on the country of origin of the parents of all household members. We are interested in the labor supply and fertility decisions of native women, i.e., of women who are born in the US and have US born parents. We further restrict the sample to those women cohabiting with a second-generation immigrant man, i.e., with a man who has at least one parent who is born outside the US.[5]

Our outcomes of interest are a woman's decision to participate in the labor market and her number of children at the time of the interview. Labor force participation is measured by a binary indicator that takes value 1 if the woman is either employed or unemployed and 0 if she does not participate in the labor market. For our estimations on labor force participation, we only consider women aged 25-55. This restriction is applied to ensure that education is completed and retirement considerations do not determine work decisions yet. A woman's number of children is measured by her own children residing with her in the same household. For the analysis of fertility behavior, we limit our sample to women aged 30-40 to ensure that they are in their reproductive years and that their children have not moved out yet.[6] Based on the detailed socio-demographic characteristics provided by the ASEC, we generate the following control variables: years of education, age and

[5]We consider both married and non-married partners that live in the same household. A robustness analysis including only married partners yields similar results. The respective estimation results are available from the authors upon request.

[6]This age range is in line with previous studies such as Fernández and Fogli (2009). Nevertheless, we checked the robustness of our results by applying different age restrictions (see Section 4).

its square, ethnic origin, Hispanic origin, married, number of own children in household, number of own children under age 5 in household, husband's years of education, husband's age and its square, husband's personal income (in thousands), husband's ethnic origin, and husband's Hispanic origin.

In addition to individual and household characteristics, we include some aggregate variables at the level of the foreign parent-in-law's country of origin, which are derived from the World Development Indicators. Our main explanatory variables are the country's ratio of the female to the male labor force participation rate (RLFPR) and the fertility rate. They serve as proxies for the gender role attitudes in the source country of the foreign mother-in-law (or the foreign father-in-law). Unlike source-country dummies, these cultural proxies reflect the preferences and believes towards women's market work and fertility in the source country more directly and capture changes over time. Moreover, the use of the ratio of the female to the male labor force participation rate has two advantages over the use of the female labor force participation rate: (i) the relative measure captures gender roles explicitly, net of other unobserved macroeconomic conditions correlated with a country's labor market conditions in general, and (ii) it implicitly adjusts for measurement errors in labor force participation rates at least to the extent that such measurement errors affect men's and women's participation rates similarly (Bredtmann and Otten, 2015). The fertility rate represents the total number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates.

As outlined by Fernández and Fogli (2009), the two cultural proxies might have independent power to explain women's work and fertility behavior, as they may capture different aspects of culture. Whereas both variables should reflect a population's attitudes and beliefs with respect to the appropriate role of women in society, the fertility rate might further capture some independent cultural preferences for family size. Therefore, in our final specification, we also include both cultural proxies in our work and fertility regressions, respectively. In addition, we include a country's GDP per capita to control

for differences in economic development between countries.[7]

Our source-country indicators are assigned to women based on their parent-in-law's country of origin and year of observation (1994-2015). Similar to Antecol (2000) and Fernández and Fogli (2009), we use present values of the source-country characteristics as they reflect best how the country's cultural values have influenced women's counterparts in their parent-in-law's country of origin.[8] Origin countries with missing information on any aggregate indicator as well as countries for which the number of observations is particularly small (lower than 20) are excluded from the sample. In addition, to avoid our results to be driven by outliers, we exclude the 0.5 percent observations with the highest and the lowest values of our cultural proxy.[9]

4 Results

The estimation results on women's labor force participation are shown in Table 1.[10] Columns I-III are based on estimating the *baseline* specification in Eq. (1). The first column shows the effect of the RLFPR at the mother-in-law's country of origin on the probability that a woman participates in the labor force, controlling only for her characteristics as well as state, year, and father-in-law country fixed effects. In column II, we add husband's characteristics and in our final specification in column III, we include the log of GDP per capita and the fertility rate in the mother-in-law's source country. The results of estimating the extended specification in Eq. (2) are presented in columns IV-VI. Similar to Eq. (1), we first only control for women's characteristics as well as state and year fixed effects (column IV). In column V, we additionally include husbands' characteristics and in column VI, we add further characteristics of the foreign parent-in-law's country of origin.

[7] Descriptive statistics of all variables are shown in Tables A3 and A4 for the sample underlying the estimations on labor force participation and fertility, respectively.

[8] Data limitation do not allow us to use cultural proxies prior to 1960. However, Fernández and Fogli (2009) and Marcén *et al.* (2016) show that results based on past and present cultural proxies are very similar.

[9] Excluding the top and bottom 1 percent or 1.5 percent of observations yields quantitatively similar results. The respective estimation results are available from the authors upon request.

[10] Full estimation results are shown in Tables A5 and A6.

For both specifications, our results reveal a positive correlation between the cultural proxy and a woman's probability to participate in the labor market. In our *baseline* specification, the estimated effect of the RLFPR in the mother-in-law's source country is positive and significantly different from zero. In our preferred specification (column III), a 10 percentage points increase in RLFPR increases a woman's probability to participate in the labor market by 1.3 percentage points. In the *extended* specification, the coefficient for the RLFPR of the father-in-law's country of origin is insignificant and close to zero in all columns. The interaction effect, i.e., the additional impact of the RLFPR if the foreign parent is the mother-in-law and not the father-in-law, is positive and statistically significant in all specifications. Adding the base effect (–0.014) and the interaction effect (0.133) of the RLFPR reveals that a 10 percentage points increase in the RLFPR in the mother-in-law's country of origin increases a woman's probability to participate in the labor force by around 1.2 percentage points (column VI).[11] The magnitude of this effect is therefore comparable to the baseline specification. This gender difference in the effect of the RLFPR of the mother-in-law's and the father-in-law's country of origin reveals that our cultural proxy reflects a true cultural effect and not merely the effect of other (unobserved) characteristics of the parent-in-law's source country. This argumentation is supported by the fact that the other country characteristics controlled for, i.e., GDP per capita and the fertility rate in the mother/parent-in-law's country of origin, do not have any impact on women's labor force participation decisions.

We interpret these findings as evidence that the preferences and believes regarding working women held in the source country of their foreign mothers-in-law affect the labor force participation decision of native American women. This result does not only confirm that husbands' attitudes are influential drivers of women's labor supply decision, as previously shown, amongst others, by Fernández *et al.* (2004), Farré and Vella (2013), and Johnston *et al.* (2014), but further reveals that source-country culture cannot only influence the labor market behavior of immigrants and their descendants, but can also

[11] The overall effect of the RLFPR in the mother-in-law's country of origin is statistically significant at the 5-percent level.

have spillover effects on the labor market outcomes of native women. Of course, as already outlined by Farré and Vella (2013), our results must not reveal a causal relationship between men's preferences and the labor supply of women, as the effect may operate through sorting in the marriage market. However, even in the latter case our findings have important implications for the labor market prospects of women. Given that at least previous waves of immigrants to the US mainly came from countries with more traditional gender roles (as measured by RLFPR, see Table A1), women might become less involved in labor market activities, for example because of (missing) social pressure or to increase their marriage probability.

The estimation results on our second outcome of interest, women's number of children, are reported in Table 2.[12] In contrast to our results on female labor force participation, we do not find a consistent significant effect of a mother-in-law's source-country culture on her daughter-in-law's number of children. Though the estimated effect of our cultural proxy, the fertility rate in the mother-in-law's country of origin, is positive, it is small in magnitude and mostly insignificant (columns I-III). The results of the extended specification further reveal no differential impact of the fertility rate in the foreign mother-in-law's and the foreign father-in-law's country of origin on women's number of children (columns IV-VI).

To test the robustness of this finding, we conduct two sensitivity analyses. First, we adjust the age range of women considered in our sample. Panel A of Table 3 shows the results for the group of women aged 35 to 40 years. This smaller age range defines a group that is more likely to have completed family planning while still having children living at home. Panel B of Table 3 shows the results for the group of women aged 25 to 55 years, i.e., a similar age group as in our labor force participation sample. This larger age range specifies a group of women of all ages, including those who did not yet complete their fertility and potentially those whose oldest children have already left the household.[13] For both age groups, the results are similar to our basic findings for women aged 30 to 40

[12] Full estimation results are shown in Tables A7 and A8.

[13] Although controlling for age should address the problem that, for older women, the number of children present might differ from fertility, we rather restrict the sample to women aged 30 to 40 in our basic specification.

years.

Second, we use two alternative outcomes to explore the impact of source-country culture on the family formation of native women cohabiting with second-generation immigrant men. Analogous to our analysis on the number of children, we check whether the fertility rate in the mother-in-law's country of origin can explain women's age at first birth or their probability of being married.[14] The respective estimation results are shown in Tables 4 and 5. For both outcomes, we do not find a significant effect of our cultural proxy, confirming our basic result that women's family planning decisions are not influenced by their partner's intergenerationally inherited gender role attitudes.

This result is in line with the findings of Johnston *et al.* (2014). The authors test whether women with traditional mothers are more likely to marry and have children and find statistically insignificant estimates near zero for both, the impact of maternal gender role attitudes on marital status and motherhood. However, the absence of a significant coefficient on our cultural proxy must not indicate that cultural values do not matter. It can also imply that the intergenerationally transmitted fertility norms of her husband have no influence on a woman's fertility decision other than through the choices we already control for, as for example her human capital investments. This indirect effect of cultural values is supported by Marcén *et al.* (2016), who only find meaningful effects of their cultural proxy, the mean number of children born by country of origin, on the fertility decisions of childhood-arriving immigrant women once they account for within-country differences of their proxy with respect to age, education, and employment status.

Nevertheless, cultural values of the mother-in-law's country of origin seem to be more important for the labor force participation of native US women than for their fertility decisions. One possible explanation for this finding might be that the fertility rate in the mother's source country is not a good proxy for her son's norms and values with respect to family size. Unlike the ratio of the female to male labor force participation rate, a country's fertility rate might not only reflect cultural values. In the absence of a public

[14] While there is little evidence in the literature on cultural effects on the probability of being married, Furtado *et al.* (2013) show that the divorce tendencies of childhood-arriving immigrants in the US can be explained by source-country divorce rates.

pension system or other financial instruments providing retirement income, children are perceived by parents as a component of their optimal retirement portfolio, as they will take care of their parents once they are retired (Boldrin and Jones, 2002). In case of such an "old-age security" motivation for childbearing, a high fertility rate does not necessarily mirror a population's strong cultural preference for large families and traditional gender roles, but might also reflect the economic benefit of having many children.[15] However, as we also do not find a significant correlation between our second cultural proxy, the ratio of the female to male labor force participation rate in the mother-in-law's country of origin, and women's fertility (column III of Table 2), the choice of cultural proxy alone cannot explain our finding.

An alternative argument is given by Chabé-Ferret (2016), who provides empirical evidence for the existence of a trade-off between the benefits and costs of following a cultural norm.[16] As Chabé-Ferret (2016) argues, if the welfare costs of sticking with a norm are large enough, they outweigh the associated utility gain and people decide not to comply with it. In our context, one could argue that following a culturally transmitted fertility norm (i.e., having many children) is more costly for women than following a respective norm against female work (i.e., not participating in the labor market). As the economic costs of raising children in the US are very high[17], budget constraints may simply prevent women from complying with a culturally transmitted fertility norm.

5 Conclusion

The recent literature on intergenerational mobility has shown that the intergenerational transmission of preferences and attitudes is an important mechanism for the high correlation

[15] In addition, Günther and Harttgen (2016) point to a possible discrepancy between actual and wanted levels of fertility. However, the level of unwanted births has decreased to close to zero in most developing countries, except for African countries.

[16] Studying the birth timing decisions of second-generation immigrant women in France and the US, Chabé-Ferret (2016) shows that source-country fertility norms do not matter for the age at first and second birth, which are costly decisions to adjust, but for the timing of third births.

[17] The United States Department of Agriculture estimates that the current per-child cost from birth to age 17 (which does not factor in college tuition costs) can be as high as $372,000, or about $23,000 per year (Lino *et al.*, 2017).

between the economic outcomes of parents and their children. We contribute to this literature by examining whether and to what extent maternal gender role attitudes are associated with adult economic outcomes of individuals other than immediate relatives. In particular, we focus on daughters-in-law and analyze whether the fertility and labor supply decisions of native US women who are married to second-generation immigrant men are affected by the gender role attitudes held in their mother-in-law's country of origin.

Our empirical analysis is based on data from the US Current Population Survey (CPS) for the period 1994-2015. To identify the cultural spillovers from female immigrants to the subsequent generation of female natives, we use two different identification strategies. Our first set of results is based on the well-established epidemiological approach (Fernández, 2007). To address the problem of omitted variables at the mother-in-law's country of origin, we further employ a new identification strategy that explores the differential impact of the source-country cultural values of mothers- and fathers-in-law.

Our results reveal that the probability that a woman participates in the labor market is significantly positively related to the ratio of the female to male labor force participation rate in her mother-in-law's country of origin. Based on our new identification strategy, we provide evidence that this finding is due to the intergenerational transmission of gender roles rather than other unobservable factors at the mother-in-law's country of birth. These results indicate that attitudes and values are not only transmitted from mothers to their sons and daughters, but also to their daughters-in-law. More importantly, they reveal that through this transmission mechanism, the cultural values held in their country of origin do not only influence the labor force participation of female immigrants, but can also affect the labor market behavior of native women.

In contrast to our results on female labor force participation, we do not find a consistent significant effect on women's fertility behavior. Though the estimated effect of our cultural proxy, the fertility rate in the mother-in-law's source country, on a woman's number of children is positive, it is small in magnitude and mostly insignificant. This insignificant effect remains when applying different age restrictions to our sample and when investigating alternative outcomes of family formation. Hence, we do not find evidence that the

intergenerationally transmitted gender role attitudes of their foreign mother-in-law affect the fertility behavior of native US women.

Nevertheless, our results on women's labor force participation provide further evidence that preferences and attitudes are an important pathway for the intergenerational transmission of economic outcomes. Specifically, they reveal that the gender role attitudes held by immigrant women in the US are not only transmitted to their sons and daughters, but can also affect the labor force participation of their native daughters-in-law. In line with Fernández *et al.* (2004) and Johnston *et al.* (2014), we interpret our results as evidence that the cultural values of the mother-in-law influence a woman mainly through the gender role attitudes and the behavior of her husband. Another possibility is, of course, that the effect of gender role attitudes works through assortative mating, whereby sons choose wives with similar attitudes to themselves and their mothers. However, even in this case, our findings have important implications for the labor market prospects of women. Given that at least previous waves of immigrants to the US mainly came from countries with more traditional gender roles (see Table A1), women might become less involved in labor market activities, for example because of (missing) social pressure or to increase their marriage probability.

References

Almond, D., Edlund, L. and Milligan, K. (2013). Son preference and the persistence of culture: evidence from South and East Asian immigrants to Canada. *Population and Development Review*, **39** (1), 75–95.

Antecol, H. (2000). An examination of cross-country differences in the gender gap in labor force participation rates. *Labour Economics*, **7** (4), 409–426.

Bisin, A. and Verdier, T. (2000). "Beyond the melting pot": cultural transmission, marriage, and the evolution of ethnic and religious traits. *Quarterly Journal of Economics*, **115** (3), 955–988.

— and — (2001). The economics of cultural transmission and the dynamics of preferences. *Journal of Economic Theory*, **97** (2), 298–319.

Black, S. E. and Devereux, P. J. (2011). Recent Developments in Intergenerational Mobility. In D. Card and O. Ashenfelter (eds.), *Handbook of Labor Economics, Vol. 4, Part B*, Amsterdam: Elsevier, pp. 1487–1541.

Blau, F. D. and Kahn, L. M. (2007). Gender and assimilation among Mexican Americans. In *Mexican immigration to the United States*, University of Chicago Press, pp. 57–106.

—, —, Liu, A. Y.-H. and Papps, K. L. (2013). The transmission of women's fertility, human capital, and work orientation across immigrant generations. *Journal of Population Economics*, **26** (2), 405–435.

—, — and Papps, K. L. (2011). Gender, source country characteristics, and labor market assimilation among immigrants. *The Review of Economics and Statistics*, **93** (1), 43–58.

Boldrin, M. and Jones, L. E. (2002). Mortality, Fertility, and Saving in a Malthusian Economy. *Review of Economic Dynamics*, **5** (4), 775–814.

Bredtmann, J. and Otten, S. (2015). The Role of Source- and Host-Country Characteristics in Female Immigrant Labor Supply. MPRA Paper No. 44544.

Cesarini, D., Dawes, C. T., Johannesson, M., Lichtenstein, P. and Wallace, B. (2009). Genetic variation in preferences for giving and risk taking. *Quarterly Journal of Economics*, **124** (2), 809–842.

Chabé-Ferret, B. (2016). Adherence to cultural norms and economic incentives: Evidence from fertility timing decisions. IZA Discussion Paper No. 10269.

Doepke, M. and Zilibotti, F. (2008). Occupational choice and the spirit of capitalism. *The Quarterly Journal of Economics*, **123** (2), 747–793.

Dohmen, T., Falk, A., Huffman, D. and Sunde, U. (2012). The intergenerational transmission of risk and trust attitudes. *The Review of Economic Studies*, **79** (2), 645–677.

Farré, L. and Vella, F. (2013). The intergenerational transmission of gender role attitudes and its implications for female labour force participation. *Economica*, **80** (318), 219–247.

Fernández, R. (2007). Alfred Marshall lecture: Women, work, and culture. *Journal of the European Economic Association*, **5** (2–3), 305–332.

Fernández, R. and Fogli, A. (2009). Culture: An empirical investigation of beliefs, work, and fertility. *American Economic Journal: Macroeconomics*, **1** (1), 146–177.

—, Fogli, A. and Olivetti, C. (2004). Mothers and sons: Preference formation and female labor force dynamics. *Quarterly Journal of Economics*, **119** (4), 1249–1299.

Furtado, D., Marcén, M. and Sevilla, A. (2013). Does Culture Affect Divorce? Evidence From European Immigrants in the United States. *Demography*, **50** (3), 1013–1038.

Guiso, L., Monte, F., Sapienza, P. and Zingales, L. (2008). Culture, gender, and math. *Science*, **320** (5880), 1164–1165.

—, Sapienza, P. and Zingales, L. (2006). Does culture affect economic outcomes? *Journal of Economic Perspectives*, **20** (2), 23–48.

Günther, I. and Harttgen, K. (2016). Desired fertility and number of children born across time and space. *Demography*, **53** (1), 55–83.

Johnston, D. W., Schurer, S. and Shields, M. A. (2014). Maternal gender role attitudes, human capital investment, and labour supply of sons and daughters. *Oxford Economic Papers*, **66** (3), 631–659.

Kawaguchi, D. and Miyazaki, J. (2009). Working mothers and sons' preferences regarding female labor supply: direct evidence from stated preferences. *Journal of Population Economics*, **22** (1), 115–130.

King, M., Ruggles, S., Alexander, J. T., Flood, S., Genadek, K., Schroeder, M. B., Trampe, B. and Vick, R. (2010). Integrated public use microdata series, current population survey: Version 3.0. [machine-readable database].

Lino, M., Kuczynski, K., Rodriguez, N. and Schap, T. (2017). Expenditures on Children by Families, 2015. Miscellaneous Publication No. 1528-2015. U.S. Department of Agriculture, Center for Nutrition Policy and Promotion.

Marcén, M., Molina, J. A. and Morales, M. (2016). The effect of culture on the fertility decisions of immigrant women in the United States. MPRA Paper No. 75511.

Parrado, E. A. and Morgan, S. P. (2008). Intergenerational fertility among hispanic women: New evidence of immigrant assimilation. *Demography*, **45** (3), 651–671.

Tables

Table 1: Women's Labor Force Participation

	Baseline specification			Extended specification		
	I	II	III	IV	V	VI
Origin country characteristics[a]						
Ratio of female to male LFPR (RLFPR)	0.094**	0.127***	0.131***	−0.033	0.005	−0.014
	(0.041)	(0.041)	(0.041)	(0.047)	(0.052)	(0.053)
Foreign mother-in-law	–	–	–	−0.100†	−0.095†	−0.093†
				(0.029)	(0.027)	(0.027)
Foreign mother-in-law × RLFPR	–	–	–	0.144†	0.137†	0.133†
				(0.041)	(0.039)	(0.038)
Log of GDP per capita	–	–	−0.008	–	–	0.005
			(0.006)			(0.006)
Fertility rate (FR)	–	–	−0.015	–	–	−0.000
			(0.010)			(0.010)
Husband's characteristics	no	yes	yes	no	yes	yes
Father-in-law country FE	yes	yes	yes	no	no	no
Observations	13,465	13,465	13,465	13,997	13,997	13,997
Adjusted R^2	0.060	0.072	0.072	0.050	0.065	0.065

*Notes: – Results are obtained from OLS regressions. All regressions include controls for woman's characteristics as well as state and year fixed effects. Full estimation results are shown in Tables A5 and A6. – The sample of the baseline specification includes all US born women aged 25-55 with a US born husband and a foreign mother-in-law. The sample of the extended specification includes all US born women aged 25-55 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). – [a] In the baseline specification, the origin country characteristics refer to the country of birth of the foreign mother-in-law. In the extended specification, the origin country characteristics refer to the country of birth of the foreign parent-in-law. – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign mother-in-law (baseline specification) and the foreign parent-in-law (extended specification), respectively. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Table 2: Women's Number of Children

	Baseline specification			Extended specification		
	I	II	III	IV	V	VI
Origin country characteristics[a]						
Fertility rate (FR)	0.063	0.079*	0.057	0.141**	0.144***	0.160**
	(0.041)	(0.044)	(0.056)	(0.066)	(0.052)	(0.062)
Foreign mother-in-law	–	–	–	0.121	0.133	0.129
				(0.139)	(0.126)	(0.128)
Foreign mother-in-law × FR	–	–	–	−0.062	−0.074	−0.072
				(0.072)	(0.065)	(0.065)
Log of GDP per capita	–	–	−0.010	–	–	0.023
			(0.038)			(0.029)
Ratio of female to male LFPR (RLFPR)	–	–	−0.142	–	–	−0.099
			(0.305)			(0.289)
Husband's characteristics	no	yes	yes	no	yes	yes
Father-in-law country FE	yes	yes	yes	no	no	no
Observations	5,150	5,150	5,150	4,968	4,968	4,968
Adjusted R^2	0.111	0.125	0.124	0.094	0.113	0.113

*Notes: – Results are obtained from OLS regressions. All regressions include controls for woman's characteristics as well as state and year fixed effects. Full estimation results are shown in Tables A7 and A8. – The sample of the baseline specification includes all US born women aged 30-40 with a US born husband and a foreign mother-in-law. The sample of the extended specification includes all US born women aged 30-40 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). – [a] In the baseline specification, the origin country characteristics refer to the country of birth of the foreign mother-in-law. In the extended specification, the origin country characteristics refer to the country of birth of the foreign parent-in-law. – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign mother-in-law (baseline specification) and the foreign parent-in-law (extended specification), respectively. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Table 3: Robustness Check: Women's Number of Children – Different Age Groups

	Baseline specification			Extended specification		
A. Women aged 35 to 40 years	I	II	III	IV	V	VI
Origin country characteristics[a]						
Fertility rate (FR)	0.112**	0.132**	0.101	0.137*	0.147**	0.116
	(0.052)	(0.062)	(0.078)	(0.080)	(0.058)	(0.070)
Foreign mother-in-law	–	–	–	0.100	0.106	0.119
				(0.164)	(0.142)	(0.146)
Foreign mother-in-law × FR	–	–	–	0.004	−0.015	−0.018
				(0.087)	(0.072)	(0.073)
Log of GDP per capita	–	–	0.017	–	–	−0.017
			(0.047)			(0.029)
Ratio of female to male LFPR (RLFPR)	–	–	−0.622*	–	–	−0.195
			(0.317)			(0.279)
Husband's characteristics	no	yes	yes	no	yes	yes
Father-in-law country FE	yes	yes	yes	no	no	no
Observations	2,964	2,964	2,964	2,947	2,947	2,947
Adjusted R^2	0.068	0.089	0.089	0.062	0.090	0.090
B. Women aged 25 to 55 years						
Origin country characteristics[a]						
Fertility rate (FR)	0.078†	0.089†	0.069*	0.095**	0.076**	0.072*
	(0.022)	(0.026)	(0.037)	(0.044)	(0.037)	(0.043)
Foreign mother-in-law	–	–	–	0.074	0.030	0.035
				(0.086)	(0.078)	(0.078)
Foreign mother-in-law × FR	–	–	–	−0.034	−0.022	−0.024
				(0.042)	(0.038)	(0.038)
Log of GDP per capita	–	–	−0.012	–	–	0.008
			(0.028)			(0.023)
Ratio of female to male LFPR (RLFPR)	–	–	−0.118	–	–	−0.190
			(0.160)			(0.134)
Husband's characteristics	no	yes	yes	no	yes	yes
Father-in-law country FE	yes	yes	yes	no	no	no
Observations	13,465	13,465	13,465	13,997	13,997	13,997
Adjusted R^2	0.165	0.179	0.179	0.159	0.180	0.180

*Notes: – Results are obtained from OLS regressions. All regressions include controls for woman's characteristics as well as state and year fixed effects. – In Panel A the sample of the baseline specification includes all US born women aged 35-40 with a US born husband and a foreign mother-in-law. The sample of the extended specification includes all US born women aged 35-40 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). In Panel B the sample of the baseline specification includes all US born women aged 25-55 with a US born husband and a foreign mother-in-law. The sample of the extended specification includes all US born women 25-55 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). – [a] In the baseline specification, the origin country characteristics refer to the country of birth of the foreign mother-in-law. In the extended specification, the origin country characteristics refer to the country of birth of the foreign parent-in-law. – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign mother-in-law (baseline specification) and the foreign parent-in-law (extended specification), respectively. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Table 4: Women's Age at First Birth

	Baseline specification			Extended specification		
	I	II	III	IV	V	VI
Origin country characteristics[a]						
Fertility rate (FR)	−0.263	−0.304*	−0.301	−0.434*	−0.395*	−0.399*
	(0.164)	(0.155)	(0.192)	(0.229)	(0.198)	(0.236)
Foreign mother-in-law	–	–	–	−0.638	−0.495	−0.468
				(0.400)	(0.430)	(0.424)
Foreign mother-in-law × FR	–	–	–	0.328	0.253	0.244
				(0.220)	(0.235)	(0.236)
Log of GDP per capita	–	–	0.050	–	–	0.096
			(0.116)			(0.123)
Ratio of female to male LFPR (RLFPR)	–	–	−0.599	–	–	−1.448**
			(0.970)			(0.685)
Husband's characteristics	no	yes	yes	no	yes	yes
Father-in-law country FE	yes	yes	yes	no	no	no
Observations	4,350	4,350	4,350	4,180	4,180	4,180
Adjusted R^2	0.282	0.305	0.305	0.258	0.279	0.279

*Notes: – Results are obtained from OLS regressions. All regressions include controls for woman's characteristics as well as state and year fixed effects. – The sample of the baseline specification includes all US born women aged 30-40 with a US born husband and a foreign mother-in-law. The sample of the extended specification includes all US born women aged 30-40 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). – [a] In the baseline specification, the origin country characteristics refer to the country of birth of the foreign mother-in-law. In the extended specification, the origin country characteristics refer to the country of birth of the foreign parent-in-law. – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign mother-in-law (baseline specification) and the foreign parent-in-law (extended specification), respectively. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Table 5: Women's Probability of Being Married

	Baseline specification			Extended specification		
	I	II	III	IV	V	VI
Origin country characteristics[a]						
Fertility rate (FR)	−0.004	0.003	0.001	−0.014**	−0.002	−0.004
	(0.006)	(0.006)	(0.010)	(0.007)	(0.009)	(0.009)
Foreign mother-in-law	–	–	–	0.004	0.006	0.007
				(0.023)	(0.022)	(0.022)
Foreign mother-in-law × FR	–	–	–	0.000	−0.003	−0.003
				(0.012)	(0.012)	(0.012)
Log of GDP per capita	–	–	−0.000	–	–	−0.004
			(0.006)			(0.004)
Ratio of female to male LFPR (RLFPR)	–	–	−0.023	–	–	0.021
			(0.038)			(0.035)
Husband's characteristics	no	yes	yes	no	yes	yes
Father-in-law country FE	yes	yes	yes	no	no	no
Observations	13,465	13,465	13,465	13,997	13,997	13,997
Adjusted R^2	0.116	0.120	0.120	0.092	0.096	0.096

*Notes: – Results are obtained from OLS regressions. All regressions include controls for woman's characteristics as well as state and year fixed effects. – The sample of the baseline specification includes all US born women aged 25-55 with a US born husband and a foreign mother-in-law. The sample of the extended specification includes all US born women aged 25-55 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). – [a] In the baseline specification, the origin country characteristics refer to the country of birth of the foreign mother-in-law. In the extended specification, the origin country characteristics refer to the country of birth of the foreign parent-in-law. – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign mother-in-law (baseline specification) and the foreign parent-in-law (extended specification), respectively. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Appendix

Table A1: Top 15 Source Countries – Labor Force Participation Sample

Mother-in-law's birthplace			**Father-in-law's birthplace**		
Country	Freq	RLFPR	Country	Freq	RLFPR
US	0.493	0.804	US	0.507	0.805
Canada	0.097	0.831	Canada	0.078	0.830
Germany	0.074	0.760	Mexico	0.076	0.508
England	0.049	0.784	Italy	0.061	0.600
Mexico	0.046	0.505	Germany	0.048	0.755
Italy	0.032	0.603	England	0.019	0.778
Japan	0.019	0.666	Puerto Rico	0.015	0.625
Ireland	0.018	0.689	Ireland	0.014	0.696
El Salvador	0.012	0.545	Poland	0.013	0.765
Poland	0.012	0.764	Philippines	0.012	0.617
Scotland	0.011	0.783	Russia	0.012	0.784
France	0.010	0.806	El Salvador	0.011	0.560
Philippines	0.008	0.625	Netherlands	0.010	0.769
Puerto Rico	0.008	0.625	Greece	0.008	0.644
Cuba	0.006	0.577	Scotland	0.008	0.776
Top 15	0.895	0.691	Top 15	0.891	0.702
Total	1.000	0.691	Total	1.000	0.694

Notes: – For the labor force participation sample the table shows the top 15 source countries of the foreign mothers- and fathers-in-law in our extended specification and the countries' ratios of female to male labor force participation rate.

Table A2: Top 15 Source Countries – Fertility Sample

Mother-in-law's birthplace			**Father-in-law's birthplace**		
Country	Freq	FR	Country	Freq	FR
US	0.452	1.995	US	0.548	1.999
Canada	0.094	1.577	Mexico	0.082	2.576
Germany	0.085	1.366	Canada	0.065	1.585
Mexico	0.057	2.595	Italy	0.055	1.306
England	0.054	1.772	Germany	0.045	1.364
Italy	0.029	1.313	Puerto Rico	0.022	1.746
Japan	0.022	1.367	England	0.014	1.742
Ireland	0.018	1.943	Ireland	0.012	1.949
El Salvador	0.014	3.152	Netherlands	0.012	1.709
Puerto Rico	0.011	1.740	El Salvador	0.012	2.847
Scotland	0.011	1.800	Philippines	0.009	3.503
Poland	0.009	1.383	Greece	0.007	1.353
France	0.009	1.921	Poland	0.007	1.438
Philippines	0.008	3.327	France	0.007	1.940
Cuba	0.006	1.634	Cuba	0.007	1.630
Top 15	0.879	1.926	Top 15	0.902	1.913
Total	1.000	1.974	Total	1.000	2.046

Notes: – For the fertility sample the table shows the top 15 source countries of the foreign mothers- and fathers-in-law in our extended specification and the countries' fertility rate.

Table A3: Descriptive Statistics – Labor Force Participation

	Baseline specification		**Extended specification**	
	Mean	StD	Mean	StD
Labor force participation	0.77	0.42	0.78	0.42
Mother-in-law's country characteristics				
Ratio of female to male LFPR	0.69	0.12	–	–
GDP per capita (in ten thousands)	2.82	1.71	–	–
Fertility rate	1.81	0.56	–	–
Foreign parent-in-law's country characteristics				
Ratio of female to male LFPR	–	–	0.70	0.12
GDP per capita (in ten thousands)	–	–	2.98	1.71
Fertility rate	–	–	1.79	0.56
Woman's characteristics				
Years of education	14.37	2.71	14.36	2.70
Age	40.53	8.33	41.20	8.32
Ethnic origin				
White	0.94	0.24	0.95	0.23
Black	0.02	0.14	0.02	0.12
Other race	0.04	0.19	0.04	0.19
Hispanic	0.10	0.30	0.08	0.27
Married	0.91	0.28	0.93	0.26
Number of own children in hh	1.49	1.21	1.44	1.19
Number of own children under age 5 in hh	0.33	0.63	0.30	0.61
Husband's characteristics				
Years of education	14.33	2.86	14.34	2.87
Age	43.19	9.91	43.90	9.87
Personal income (in thousands)	65.63	70.35	63.79	68.75
Ethnic origin				
White	0.91	0.29	0.92	0.27
Black	0.02	0.14	0.02	0.13
Other race	0.07	0.26	0.06	0.24
Hispanic	0.24	0.42	0.17	0.38
Observations	13,465		13,997	

Table A4: Descriptive Statistics – Number of Children

	Baseline specification		**Extended specification**	
	Mean	StD	Mean	StD
Number of own children in hh	1.82	1.20	1.81	1.19
Mother-in-law's country characteristics				
Fertility rate	1.86	0.58	–	–
GDP per capita (in ten thousands)	2.68	1.70	–	–
Ratio of female to male LFPR	0.68	0.13	–	–
Foreign parent-in-law's country characteristics				
Fertility rate	–	–	1.82	0.57
GDP per capita (in ten thousands)	–	–	2.89	1.69
Ratio of female to male LFPR	–	–	0.70	0.13
Woman's characteristics				
Years of education	14.50	2.71	14.47	2.65
Age	35.21	3.12	35.34	3.14
Ethnic origin				
White	0.93	0.25	0.95	0.23
Black	0.02	0.15	0.02	0.14
Other race	0.04	0.20	0.04	0.19
Hispanic	0.11	0.31	0.08	0.28
Married	0.91	0.28	0.92	0.27
Husband's characteristics				
Years of education	14.37	2.79	14.36	2.80
Age	37.81	5.80	38.04	5.97
Personal income (in thousands)	63.33	63.24	61.43	61.94
Ethnic origin				
White	0.90	0.30	0.92	0.27
Black	0.02	0.16	0.02	0.14
Other race	0.08	0.27	0.06	0.24
Hispanic	0.27	0.45	0.20	0.40
Observations	5,150		4,968	

Table A5: Determinants of Women's Labor Force Participation – Baseline Specification

	I	II	III
Ratio of female to male LFPR (RLFPR)	0.094**	0.127***	0.131***
	(0.041)	(0.041)	(0.041)
Log of GDP per capita	–	–	−0.008
			(0.006)
Fertility rate (FR)	–	–	−0.015
			(0.010)
Woman's characteristics			
Years of education	0.019†	0.024†	0.024†
	(0.003)	(0.002)	(0.002)
Age/100	2.235†	2.216**	2.210**
	(0.587)	(0.839)	(0.847)
Age squared/100	−3.083†	−2.815***	−2.808***
	(0.760)	(1.031)	(1.040)
Ethnic origin (Ref: White)			
Black	0.066**	−0.004	−0.003
	(0.028)	(0.044)	(0.045)
Other race	−0.011	−0.027	−0.026
	(0.018)	(0.019)	(0.019)
Hispanic	−0.022**	−0.033***	−0.032***
	(0.011)	(0.011)	(0.011)
Married	−0.040***	−0.031**	−0.031**
	(0.012)	(0.013)	(0.013)
Number of own children in hh	−0.032†	−0.030†	−0.030†
	(0.004)	(0.004)	(0.004)
Number of own children under age 5 in hh	−0.098†	−0.097†	−0.097†
	(0.006)	(0.006)	(0.006)
Husband's characteristics			
Years of education	–	−0.005***	−0.005***
		(0.001)	(0.002)
Age/100	–	0.379	0.391
		(0.597)	(0.598)
Age squared/100	–	−0.584	−0.598
		(0.625)	(0.626)
Personal income (in thousands)	–	−0.001†	−0.001†
		(0.000)	(0.000)
Ethnic origin (Ref: White)			
Black	–	0.087**	0.086**
		(0.037)	(0.037)
Other race	–	0.036**	0.034**
		(0.014)	(0.015)
Hispanic	–	0.009	0.010
		(0.013)	(0.013)
State FE	yes	yes	yes
Year FE	yes	yes	yes
Father-in-law country FE	yes	yes	yes
Observations	13,465	13,465	13,465
Adjusted R^2	0.060	0.072	0.072

*Notes: – Results are obtained from OLS regressions. – The sample of the baseline specification includes all US born women aged 25-55 with a US born husband and a foreign mother-in-law. – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign mother-in-law. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Table A6: Determinants of Women's Labor Force Participation – Extended Specification

	I	II	III
Foreign parent-in-law country characteristics			
Foreign mother-in-law	−0.100†	−0.095†	−0.093†
	(0.029)	(0.027)	(0.027)
Ratio of female to male LFPR (RLFPR)	−0.033	0.005	−0.014
	(0.047)	(0.052)	(0.053)
Foreign mother-in-law × RLFPR	0.144†	0.137†	0.133†
	(0.041)	(0.039)	(0.038)
Log of GDP per capita	–	–	0.005
			(0.006)
Fertility rate (FR)	–	–	−0.000
			(0.010)
Woman's characteristics			
Years of education	0.019†	0.025†	0.025†
	(0.002)	(0.002)	(0.002)
Age/100	2.046***	1.457***	1.454***
	(0.635)	(0.543)	(0.544)
Age squared/100	−2.905†	−2.078***	−2.072***
	(0.804)	(0.671)	(0.672)
Ethnic origin (Ref: White)			
Black	0.048	−0.014	−0.014
	(0.034)	(0.060)	(0.060)
Other race	−0.024	−0.042	−0.043
	(0.028)	(0.031)	(0.031)
Hispanic	0.027	0.011	0.011
	(0.019)	(0.021)	(0.021)
Married	−0.035**	−0.025*	−0.025*
	(0.014)	(0.014)	(0.014)
Number of own children in hh	−0.030†	−0.027†	−0.027†
	(0.004)	(0.004)	(0.004)
Number of own children under age 5 in hh	−0.097†	−0.095†	−0.095†
	(0.008)	(0.007)	(0.007)
Husband's characteristics			
Years of education	–	−0.004**	−0.004**
		(0.002)	(0.002)
Age/100	–	1.107***	1.102***
		(0.361)	(0.360)
Age squared/100	–	−1.276***	−1.272***
		(0.398)	(0.396)
Personal income (in thousands)	–	−0.001†	−0.001†
		(0.000)	(0.000)
Ethnic origin (Ref: White)			
Black	–	0.057	0.060
		(0.048)	(0.049)
Other race	–	0.031**	0.034**
		(0.015)	(0.016)
Hispanic	–	0.008	0.010
		(0.015)	(0.015)
State FE	yes	yes	yes
Year FE	yes	yes	yes
Observations	13,997	13,997	13,997
Adjusted R^2	0.050	0.065	0.065

*Notes: – Results are obtained from OLS regressions. – The sample of the extended specification includes all US born women aged 25-55 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign parent-in-law. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Table A7: Determinants of Women's Number of Children – Baseline Specification

	I	II	III
Fertility rate (FR)	0.063	0.079*	0.057
	(0.041)	(0.044)	(0.056)
Log of GDP per capita	–	–	−0.010
			(0.038)
Ratio of female to male LFPR (RLFPR)	–	–	−0.142
			(0.305)
Woman's characteristics			
Years of education	−0.063†	−0.062†	−0.062†
	(0.010)	(0.009)	(0.009)
Age/100	59.108†	52.192***	52.387***
	(16.107)	(15.531)	(15.565)
Age squared/100	−76.144***	−67.378***	−67.649***
	(23.085)	(22.212)	(22.259)
Ethnic origin (Ref: White)			
Black	0.292**	0.266	0.266
	(0.116)	(0.215)	(0.217)
Other race	−0.046	0.024	0.024
	(0.073)	(0.081)	(0.081)
Hispanic	0.123	0.139	0.139
	(0.079)	(0.085)	(0.085)
Married	0.692†	0.673†	0.674†
	(0.075)	(0.077)	(0.077)
Husband's characteristics			
Years of education	–	−0.017*	−0.016*
		(0.010)	(0.010)
Age/100	–	10.559†	10.589†
		(2.722)	(2.717)
Age squared/100	–	−13.204†	−13.232†
		(3.329)	(3.323)
Personal income (in thousands)	–	0.001†	0.001†
		(0.000)	(0.000)
Ethnic origin (Ref: White)			
Black	–	0.096	0.094
		(0.233)	(0.234)
Other race	–	−0.148	−0.155
		(0.097)	(0.097)
Hispanic	–	−0.083	−0.102
		(0.081)	(0.078)
State FE	yes	yes	yes
Year FE	yes	yes	yes
Father-in-law country FE	yes	yes	yes
Observations	5,150	5,150	5,150
Adjusted R^2	0.111	0.125	0.124

*Notes: – Results are obtained from OLS regressions. – The sample of the baseline specification includes all US born women aged 30-40 with a US born husband and a foreign mother-in-law. – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign mother-in-law. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*

Table A8: Determinants of Women's Number of Children – Extended Specification

	I	II	III
Foreign parent-in-law country characteristics			
Foreign mother-in-law	0.121	0.133	0.129
	(0.139)	(0.126)	(0.128)
Fertility rate (FR)	0.141**	0.144***	0.160**
	(0.066)	(0.052)	(0.062)
Foreign mother-in-law × FR	−0.062	−0.074	−0.072
	(0.072)	(0.065)	(0.065)
Log of GDP per capita	–	–	0.023
			(0.029)
Ratio of female to male LFPR (RLFPR)	–	–	−0.099
			(0.289)
Woman's characteristics			
Years of education	−0.071†	−0.077†	−0.077†
	(0.008)	(0.010)	(0.010)
Age/100	74.426†	63.574†	63.448†
	(18.562)	(18.352)	(18.423)
Age squared/100	−99.226†	−84.040***	−83.860***
	(26.840)	(26.246)	(26.347)
Ethnic origin (Ref: White)			
Black	0.079	0.032	0.026
	(0.112)	(0.173)	(0.174)
Other race	0.035	0.134	0.134
	(0.140)	(0.139)	(0.138)
Hispanic	0.225**	0.225***	0.221***
	(0.088)	(0.073)	(0.074)
Married	0.705†	0.652†	0.653†
	(0.074)	(0.070)	(0.070)
Husband's characteristics			
Years of education	–	−0.005	−0.004
		(0.009)	(0.009)
Age/100	–	12.280***	12.265***
		(3.949)	(3.938)
Age squared/100	–	−16.221***	−16.209***
		(4.885)	(4.874)
Personal income (in thousands)	–	0.002†	0.002†
		(0.000)	(0.000)
Ethnic origin (Ref: White)			
Black	–	0.115	0.127
		(0.210)	(0.212)
Other race	–	−0.158	−0.149
		(0.099)	(0.099)
Hispanic	–	0.015	0.009
		(0.083)	(0.078)
State FE	yes	yes	yes
Year FE	yes	yes	yes
Observations	4,968	4,968	4,968
Adjusted R^2	0.094	0.113	0.113

*Notes: – Results are obtained from OLS regressions. – The sample of the extended specification includes all US born women aged 30-40 with a US born husband and one foreign parent-in-law (mother-in-law or father-in-law). – Standard errors (in parentheses) are clustered at the level of the origin country of the foreign parent-in-law. – † p<0.001, *** p<0.01, ** p<0.05 * p<0.10.*