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The Effect of Culture on the Age at First Birth

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Abstract: In this thesis, we investigate the potential effect of culture on the age at first birth. During the past decade, the age at first birth in Europe has steadily increased to an unprecedented level. Being one of the main factors behind decreasing fertility rates, this is of interest for the dangers following an aging population. With the aim to investigate if the cultural effect, previously found in the quantum of fertility, also exists in the timing-decision of first birth, we conduct an ordinary least square regression using a dataset measuring attitudes across Europe. To trace a cultural effect we use the epidemiological approach that focuses on the transmission of attitudes across generations. We find that culture has a positive effect on the age at first birth when controlling for age, education, partner's education, human capital, GDP per capita, and country- and survey round fixed effects . This result emphasizes the importance of taking culture into consideration when designing policies aimed at combating the aging population.

Keywords: culture, age at first birth, transmission of attitudes, tempo of fertility

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Contents

1 Introduction

The delaying of motherhood is one of the main factors behind the decreasing fertility rates in Europe (Gustafsson 2001). This fertility decline is of utmost importance due to the demographic dangers of an aging population, resulting in problems associated with a decreasing workforce, as it will put pressure on government funded program (Lee & Mason 2014). However, existing research mainly focuses on fertility rates and their impact, while few mention the timing of becoming a first-time mother. Consequently, in this thesis, we focus on the age of women at first birth, since this is one of the root causes behind the declining fertility, and thus the variable that requires more research.

Becoming a first-time mother is a choice influenced by multiple factors and to be able to affect this decision, understanding the underlying factors becomes crucial. Fernández and Fogli (2009) investigated the effect of culture on total fertility rates in the United States and found that culture has a significant effect on individual fertility outcomes. We therefore, based on Gustafsson's (2001) finding that delaying motherhood has a negative effect on fertility rates, propose the idea that culture may affect the choice of when to become a first-time mother.

We examine the relationship between culture and the age at first birth using a dataset from the European Social Survey (ESS) that measures attitudes, beliefs, and behavioral patterns across Europe. We complement this with aggregate country data from Eurostat and the United Nations (UN) to create the complete dataset. Previous research has been focusing either on the fertility rates or on the age at first birth, narrowing it down to solely the United States and France (Fernández & Fogli 2009; Chabé-Ferret 2019). To our knowledge, this is the first paper examining the cultural effect on the age at first birth using cross-national data in Europe.

To identify this potential effect of culture we propose using an epidemiological approach that has recently simplified a more common ground for quantitative studies regarding culture. The approach uses second-generation immigrants to investigate the transmission of attitudes from their country-of-origin while keeping the impact of institutions constant. The model builds upon using a proxy for culture, assigning the mean of the dependent variable in the

country-of-origin to see if this variable can explain the decision of when to become a first-time mother. Controlling for other factors influencing her choice, if the mean age at first birth in a country where she has never lived can explain her age at first birth we can assume it is a cultural effect that has been transferred through the attitudes of her parents.

We limit our examination of the cultural effect on the age at first birth to investigate women of reproductive age in marriage-like relationships.[1] When controlling for sociodemographic factors, country-of-origin specific variables, as well as country-of-residence, and ESS-round fixed effects, we find that culture has a statistically significant effect on the age at first birth. While we produce significant results, we are limited by our restricted sample size and we therefore conduct robustness tests to validate our main results.

To address the issue of our limited sample size of 534 women, we include all women regardless of relationship status but fail to find robust results. Further, we exclude teenage births as they, according to Finer (2010), are overrepresented in unintended births, and we want to aim attention at the decision of becoming a first-time mother. Conducting this restriction, culture continues to have a significant effect on the age at first birth. Moreover, due to its many possible definitions, culture is a complex concept, opening up the risk that how you define it may affect the results. We therefore change the definition and find conflicting results, leading us to discuss possible interpretations of this.

By concluding that there is a cultural effect on the age at first birth when studying fertility behavior in Europe, we contribute to the existing fertility research. Our results demonstrate that culture must be taken into consideration when designing policies aimed at making it easier for women to enter into motherhood earlier, and thereby possibly increase fertility rates. As a result, this can help target the aging population in Europe, and help support government finances.

This thesis is organized as follows: the next section provides a brief background and Section 3 presents our literature review. We state our research question and hypothesis in Section 4 and present our methodology in Section 5. In Section 6 we display our empirical results, and in Section 7 we conduct robustness tests. We present our discussion along with limitations and

[1] Restricted to ages between 15 to 49 according to the United Nations definition of reproductive age.

suggestions for how future research can contribute to the understanding of the subject in Section 8. Lastly, we highlight our conclusions in Section 9.

2 Background

Economists tend to focus on humans as Adam Smith's homo economicus, rational and selfish individuals whose main focus is to maximize their own utility. They prefer to remove psychology from economics by acting on rational choices rather than desire. Instead of understanding why people do things, inferences are made based on what they actually do, which opens up an opportunity to abstract away from complex psychological questions and develop mathematical theories of rational choice (Cartwright 2018).

Cartwright (2018) further explained that economists deem that rational people will reveal their desires through their choices, and thus remove desire from the equation. To provide a natural benchmark of what people deem the logical thing to do, economists thus focus on rational outcomes. However, this may culminate in the assumption that people act in a social vacuum (Chabé-Ferret 2019). By highlighting budget- and institutional differences, other potentially influencing aspects, including beliefs and preferences, get neglected in research (Fernández & Fogli 2009). To aim attention to cultural aspects such as beliefs and preferences is a relatively new contribution to economics, but has recently increased through quantitative approaches aiming to document culture and its norms on a wide range of behaviors.

Culture is shown to have a continuous influence on individual outcomes, even when separated from the originating environment (Fernández 2010). There appears to be a significant correlation between attitudes in the country-of-origin and attitudes obtained by immigrants and their descendants for a wide variety of outcomes. However, Fernández (2010) showed evidence of convergence over time to some extent in both economic outcomes and attitudes, indicating that the effect of culture might change following a new environment. Whether culture has an impact on attitudes and decisions, such as education, fertility, labor force participation, and marriage, therefore continues to be debated.

One of the most life-changing decisions in a woman's life is when to become a first-time mother. Fernández and Fogli (2009) found, when proxying a cultural effect using female labor force participation (LFP) and total fertility rate (TFR) in 1950, a statistically significant effect

of culture on women's participation in the labor market, and the number of children they choose to have. Due to this immense decision and the effect of culture on fertility outcomes, we ask ourselves whether culture similarly could influence the age of women at first birth.

Women's age at first birth has seen a steady increase in Europe during the last years. In 2013, the mean age at first birth of women in the European Union (EU) was 28.8 years, in 2020 it was 29.5 years. At the same time, the total fertility rate in the EU has seen a small increase from an average of 1.51 children born per woman in 2013, to 1.57 children in 2016, followed by a decrease until 2020, when the total fertility rate was 1.50 (Eurostat 2021).[2] Considering a longer time period, the increasing fertility rates during the post-World War II baby boom from 1946 to 1964 changed the previous pattern of declining birth rates dating back to the 19th century. However, from the mid 1960's and onward, fertility rates once again began to decrease steadily (Van Bavel & Reher 2013).

The negative correlation between the age at first birth and fertility found by Gustafsson (2001) must be considered by policy-makers when creating policies that aim to address an aging population and its resulting negative economic consequences. Policy-makers have an opportunity to change fertility dynamics by using this causal effect between the age of women at first birth and the total fertility rate (Lutz & Skirbekk 2005). To combat the demographic dangers following decreasing fertility, policy-makers must focus on making it possible for women to have children earlier without facing the motherhood penalty of systematic disadvantages in pay and development of competence.

Muers (2018) provided implications for policy-making in the presence of cultural influences in decision-making. He emphasized the importance of implementing supportive policies rather than forcing policies in this context. This implies constructing policies that build upon those existing beliefs held in society that support the aim of the policy.

One reason why women are having their first child later is that later childbearing may result in the mother obtaining more education and will potentially open up for professional opportunities otherwise not possible. When having the first child early, the interruption occurs

[2]Total fertility rate (Eurostat): "The mean number of children who would be born to a woman during her lifetime, if she were to spend her childbearing years conforming to the age-specific fertility rates, that have been measured in a given year."

when human capital is more easily acquired (Chabé-Ferret 2019). Accordingly, the age that a woman becomes a first-time mother is of particular importance for economic outcomes such as education, employment and wages. Understanding the drivers and underlying factors of this decision is thus important and one of the reasons why we will investigate to what extent culture might have an impact on it.

One possible explanation for the relatively late cultural contribution to the economic field could be that no agreed-upon definition of culture exists, blurring the possibility to contribute to further research since people define it differently.[3] For this thesis, we use the definition from the Merriam-Webster dictionary that defines culture as "the integrated pattern of human knowledge, belief, and behavior that depends upon man's capacity for learning and transmitting knowledge to succeeding generations." Why we select this definition is due to its focus on the transmission of culture to future generations, where it has been shown that beliefs and preferences are transferred along generations (Alesina & Giuliano 2011). Since the epidemiological approach we use in this thesis aims attention to the transmission of attitudes across generations, this further highlights the choice regarding the definition of culture.

[3]Kroeber and Kluckhohn (1952) presented over 160 different definitions.

3 Literature Review

The majority of previous research have focused on fertility rates and modeled this together with female labor supply since motherhood extensively transforms a woman's career (Crespi & Fontaine 2012). Female participation in the labor force continues to be a subject of research mostly due to its development through the decades. Moreover, many studies have investigated the effect of education on fertility through income and employment (Hwang & Lee 2014).

A relatively new contribution by Fernández and Fogli (2009) is the focus on the cultural effect on fertility decisions through the usage of the epidemiological approach. They concluded that culture has a statistically significant effect on fertility when they controlled for education and different characteristics of the husband. Further, they found that higher levels of both the woman's and husband's education resulted in lower fertility, while a higher total income is associated with higher fertility. This indicates that the age at first birth likely depends on the husband's income, also discussed by Gustafsson (2001). She argued on the basis of consumption smoothing and found that the optimal time to start a family is when the husband's income is at its highest level.

Another factor that could influence the choice of when to become a first-time mother is the age at marriage. Haque (2009) found this to be an essential determinant for the age at first birth, while Marphatia et al. (2020) further showed a significant correlation between the two. However, not all women get married, neither before nor after having their first child. Since the mid-1970's, there has been an increase in non-marital fertility, that is mainly due to three reasons: (i) increased childbearing for unmarried women, (ii) decreased childbearing for married women, (iii) decreased proportion over the last three decades of women in childbearing ages (Hotz, Klerman & Willis 2007). Moreover, a study conducted by Buttenheim and Nobles (2009), investigated the effect of cultural norms on marriage behavior among married Indonesian women. They found that a norm constructed using *adat*[4] experts' explanation of local marriage customs, significantly explained women's age at first marriage, and concluded that marriage

[4]Adat (Buttenheim & Nodes 2009): "The term 'adat' broadly refers to customs, traditions, rules, or practices that guide social life and decision-making in Indonesian communities."

behavior is closely linked to culture.

To capture the effect of culture on individual decision-making, the epidemiological approach is often used. It focuses on descendants of immigrants, ergo mitigating that first-generation immigrants may be directly influenced by the culture in their country-of-origin. This enables the analysis of individuals who share the same institutions but not necessarily the same culture. The approach originates from a methodology used in epidemiology examining ethnic differences in disease patterns. In the economic field, this was, to our knowledge, first used by Carroll, Rhee and Rhee (1994) who investigated whether it is possible to observe cultural differences in savings.

Previous literature in the field of culture has mainly focused on either individuals with different ethnic backgrounds, or immigrants to investigate the influence of culture. The quantitative evidence that exists of cultural influence as a significant determinant of important economic outcomes is limited. By purely focusing on immigrants Carroll, Rhee and Rhee (1994) obtained a greater degree of homogeneity when investigating the potential impact of culture on saving patterns in Canada.

The epidemiological approach enables us to investigate the impact of culture since second-generation immigrants share the same institutional- and economical environment but their beliefs may be different due to the possibility of inheritance of parents' attitudes. Alesina and Giuliano (2011) stated that the transition of values regarding family is mainly based on a parent-child relationship where the parents are seen as teachers of values. They used the World Value Survey (WVS) to compare the effect of family ties within countries, and the strengths of these, thus investigating to which extent culture affects the closeness of the family ties. Their result showed that the strength of family ties can be viewed as inheritable attitudes. By looking at mother-child pairs, Farré and Vella (2013) further showed that mothers transmit attitudes to their children. They found it statistically significant that mothers obtaining more traditional attitudes have children with more traditional attitudes. Further, they detected that larger families possess more traditional views, that in turn can influence the children's views on gender roles, indicating that culture does matter.

What further highlights the importance of culture is Landes's (1998) research about the wealth and poverty of nations. In his research, he put great emphasis on the importance of cultural factors producing negative and positive outcomes for a country and concluded that if anything can be learned from the history of economic development it is that culture is of the essence.

Alesina, Giuliano and Nunn (2013) solely focused on gender roles, more precisely "the appropriate role of women in society" and investigated whether the historical division of labor between men and women has been part of the evolution of gender norms. This is a continuation of the research made by Boserup (1989) who investigated whether traditional agricultural practices during the pre-industrial period could be the origin of differences in gender roles. Since plow cultivation required a certain strength, men developed a competitive advantage in this area. Hence, countries practicing plow agriculture developed a specialization among genders where women focused on the house chores and men worked. This division in turn generated gender norms in the society; if the country had a history of plow agriculture, women belonged at home.

By focusing on children of immigrants living in Europe and the United States, Alesina, Giuliano and Nunn (2013) found strong and robust positive relationships that those with unequal gender norms today were ancestors from countries traditionally focused on plow agriculture. When the economy later moved on from agriculture, these beliefs persisted, affecting female participation in the labor force. In this context, cultural beliefs are seen as decision-making heuristics; by relying on general beliefs, individuals tend to not always behave in an optimal manner but instead save the cost of obtaining the information to be able to behave optimally. Through surveys examining the attitudes about gender roles, evidence of country differences can be observed. This further indicates that culture matters. From a theoretical point of view, Fernández (2010) argued that if culture would not matter the distribution of beliefs across counties must be identical, which they are not.

Before moving on, a distinction must be established between the tempo of fertility, when a woman becomes a first-time mother, and the quantum of fertility, the average number of

children a woman has during her lifetime. As the majority of the previous research regarding culture and fertility dynamics has been conducted with a focus on the quantum of fertility, we will instead highlight the tempo of fertility, contributing to the development through a focus on the timing of the first child.

Apart from this distinction, we must further discuss the conflicting results previously found concerning the relationship between high fertility and entry into motherhood. Fernández (2010) found that cultures possessing negative views on working females do, ceteris paribus, have a lower female LFP. A lower female LFP does, according to other studies, imply a higher fertility and younger age at first birth (Morgan & Rindfuss 1999; Kohler, Billari & Ortega 2002). Gustafsson (2001) further found that the increasing age at first birth is the major contributing factor to recent decreasing fertility rates since it reduces the chance of multiple births. On the other hand, while Chabé-Ferret (2019) confirmed that originating from a country with high fertility correlates to having large families she did not predict that this would result in earlier entry into motherhood. Due to these conflicting views, we find it important to investigate the cultural effect with a focus on the timing at first birth to see what kind of patterns may resolve.

In the era succeeding World War II, female secondary education rates increased considerably and marked a change in higher female educational attainment (Wright 2016). Both female education and female career advancement have been shown to impact the age at first birth (Martin 2000; Rindfuss, Morgan & Offutt 1996). Gustafsson, Wetzels and Kenjoh (2002) further showed that higher education is related to the increasing age at first birth. Comparing mothers in the 1990's to mothers in the 1980's, they found that highly educated mothers had their first child at an older age. Since the competitiveness in the labor market has been increasing, both men and women focus more on education to be able to improve their chances to get employed. The difficulties and longer processes to start a career delay youths' economic independence from their family, thus delaying leaving home and starting a family of their own.

In this uncertain environment, the increasing age of first-time mothers can be considered a rational choice (Crespi & Fontaine 2012). One indication that culture does affect these fertility decisions is the example from Badinter that Crespi and Fontaine (2012) highlighted; in France,

the ideology that being a mother is enough to feel complete is not supported. Consequently, since French women do not believe being a mother is a full-time job, a higher fertility rate has been observed compared to other countries.

Hwang and Lee (2014) additionally concluded that the autonomy of women is vital for the age at first birth to decrease. They argued that shifting norms might have been a factor for the increasing age at first birth as women now have increased possibilities in the labor force. Moreover, they found that this shift toward increasing ages of first-time mothers has mostly occurred in developed countries. This is a contributing factor to our choice of narrowing the focus down to Europe.

Gustafsson (2001) discussed the part of consumption smoothing in relation to the optimal age at motherhood and concluded that the optimal age of childbirth is when the husband's income is at its highest. Hence, if we assume earnings increase over time, the optimal age to become a mother is decided by maximizing life-cycle utility and thus delaying motherhood for as long as possible. Chabé-Ferret (2019) provided evidence of a trade-off between economic optimality and cultural compliance and showed that cultural norms are more influential in decisions with relatively fewer drastic consequences. Hence, the cultural effect continues to be a topic that needs further investigation.

Gustafsson (2001) showed that women in Europe have delayed the time of having their first child considerably since the 1970's and that this postponement is also seen in the 1990's, which makes us interested in whether this could be due to a cultural effect. Since culture is passed on through generations (Farré & Vella 2013), and an increased age at becoming a first-time mother can be observed, this might lead to even later entries into motherhood. This increasing age at first birth is further explained by the motherhood penalty, the monetary loss for women after giving birth, that also varies across countries (Herr 2016), and thus potentially among different cultures as well.

4 Research Question and Hypothesis

Since we cannot explain everything through the motherhood penalty, we find it interesting to investigate whether the decision to become a first-time mother is correlated with culture. It might be that the motherhood penalty in one country has influenced the parents, and when they immigrate their view gets transmitted to their daughter and can be visible to us in the shape of culture, even though it was a rational decision at the beginning. Our contribution to the field will be a focus on the tempo, and not the quantum, of fertility and in Europe instead of the US, with the aim to add external validity. Due to the lack of quantitative evidence that culture has a significant influence on the age at first birth, we find it interesting to examine this and try to explain the choice of becoming a first-time mother in a new way. The research question we aim to answer is:

Does culture impact the age that a woman chooses to become a first-time mother?

Based on Farré and Vella (2013) and Alesina and Giuliano (2011), a positive effect of culture is anticipated as they found that children will adopt similar cultural attitudes to those of their parents. In consequence, we expect the transmission of the cultural attitudes from a woman's country-of-origin to impact her decision of when to become a mother. This leads us to the following hypothesis:

The cultural proxy, mean age at first birth in a woman's country-of-origin, has a positive relationship with the age a woman chooses to become a first-time mother.

The alternative hypothesis is that we find a negative or no effect of culture on the age at first birth. Finding a negative relationship could indicate women are breaking free from their culture in their choice of their age at first birth. A result indicating no relationship between culture and the age at first birth would be congruous with the lacking quantitative evidence that culture has a significant impact. It would further imply that women modify their choices to align with the attitudes and beliefs held in their country-of-residence.

5 Methodology

5.1 The Epidemiological Approach

The epidemiological approach we use in this thesis is reminiscent of the approach used by epidemiologists who studied different health outcomes and compared these between natives and immigrants. When using the approach in an economic environment rather than a medical one, it attempts to distinguish between the contribution of environmental and cultural factors in individual variation. The reasoning behind this approach is threefold: (i) cultural beliefs are transmitted from parents to children, (ii) the systematic variation of cultural beliefs among groups reflects culture in the country-of-origin, (iii) individuals sharing the same country-of-residence face similar institutional environments (Fernández 2010). Thus the idea when investigating through an epidemiological approach is that individuals with different cultural backgrounds will, even though facing the same institutional environment, act differently.

To examine the effect of culture on economic behavior we must first distinguish cultural effects from effects related to political institutions, therefore we must hold all institutional factors fixed. By investigating women who live in one country with parents born in another country, women in the same country-of-residence will be faced with the same institutions but influenced by different cultures. This allows us to trace the cultural effect on decision-making by using second-generation immigrants.

The importance of holding institutions fixed in the context of our research question is mainly due to the differences between countries in regards to for example educational fees, childcare, and parental leave. One example of such a difference is the state loan to finance higher education in Sweden for university students following a required study pace. This makes it possible for them to borrow against future incomes. Sweden further has childcare subsidies available to parents with no or little income at a higher rate than high-income parents. Hence by combining these, if university students become parents they have access to cheaper childcare, that later is repaid by higher taxes due to the income tax progressivity when obtaining higher job opportunities as a result of their education (Gustafsson 2001). We must thus keep these

factors fixed since they can affect the choice of when to become a first-time mother.

Carroll, Rhee and Rhee's (1994) immigration focus has continued to be the center of attention in the epidemiological approach, more specifically on second-generation immigrants. The focus on first-generation immigration would open up the risk that the results are biased as a consequence of the individuals' exposure to the culture in their country-of-origin before migrating. Furthermore, these immigrants might be exposed to a third country's culture, as their parents might be immigrants as well. If we analyze third-generation immigrants and above, this will further be ambiguous. Individuals who have been in the country for many generations might have adapted more to the new country-of-residence compared to second-generation immigrants, who might still be influenced by their country-of-origin. By focusing on the second-generation immigrants we hence avoid these potential problems.

Before moving on, it should be explicitly stated that the epidemiological approach suffers from attenuation bias, implying that it is biased toward zero[5], thus results might indicate that culture does not matter (Fernández 2010). The fact that we only focus on the transmission of culture from parents, and that their cultural attitudes may differ from the average in their country-of-origin, indicates that the likelihood is higher to obtain an insignificant cultural proxy. Thus an insignificant coefficient for the cultural proxy does not indicate that only the institutional environment matters.

5.2 Empirical Framework

To investigate the cultural effect on the age at first birth, we estimate the following model:

$$\mathrm{A}_{irot} = \beta_0 + \beta_1 * culture_o + \beta_2 * X_i + \beta_3 * \bar{X}_o + f_r + f_t + \mathcal{E}_{irot}, \tag{1}$$

where A_{irot} describes the age at first birth for woman i living in the country-of-residence r whose mother is born in country-of-origin o and belongs to the survey round t. X_i is a set of sociodemographic characteristics of woman i, $\bar{X}_o$ is a set of country-of-origin specific

[5]Attenuation bias (Woolridge 2020): "Bias in an estimator that is always toward zero: thus, the expected value of an estimator with attenuation bias is less in magnitude than the absolute value of the parameter."

characteristics, and f_r and f_t are sets of dummies accounting for country fixed effects and round fixed effects. To account for systematic differences across countries it is essential to include country fixed effects in the country-of-residence since factors such as access to child support and opportunities for parental leave may affect women's choice of when to become a first-time mother. We also include round fixed effects to reduce the residual variation since it may predict variation in the sample. This allows us to isolate the causal effect of culture on the age at first birth from source of bias. β_0 is the intercept and $\mathcal{E}_{irot}$ is the idiosyncratic error term consisting of unobservable factors influencing the woman's age at first birth. We assume that $\mathcal{E}_{irot}$ is uncorrelated with $culture_o$, X_i, $\bar{X}_o$, f_r and f_t, as the results would otherwise suffer from omitted variable bias.

Our variable of interest $culture_o$ is unobservable and we must approximate it using a proxy variable. The traditional approach to estimating this model has been focusing on country dummies to capture the cultural effect (Fernández & Fogli 2009). However, this results in a much less precise focus on culture since it will include effects that are dependent on other factors. Instead, we use the mean age at first birth in the country-of-origin as a cultural proxy. For second-generation immigrants, the institutional and economic conditions should no longer affect their decisions, however, the beliefs held regarding the optimal age at first birth may still be transmitted across generations.

We thus assume the following relationship between culture and the mean age at first birth:

$$\textit{culture}_o = \alpha_0 + \alpha_1 * meanage_o + u_o, \tag{2}$$

where $meanage_o$ is the mean age at first birth in country-of-origin o, α_0 is the intercept and u_o is the idiosyncratic error term consisting of unobservable factors influencing culture. Again, we assume the error term u_o is uncorrelated with $meanage_o$, X_i, $\bar{X}_o$, f_r and f_t, resulting in the following:

$$\textit{E}(culture_o|meanage_o, X_i, \bar{X}_o, f_r, f_t) = \textit{E}(culture_o|meanage_o) = \alpha_0 + \alpha_1 * meanage_o \tag{3}$$

The final model based on these assumptions replaces culture with the proxy $meanage_o$:

$$\mathrm{A}_{irot} = \beta_0 + \beta_1 * meanage_o + \beta_2 * X_i + \beta_3 * \bar{X}_o + f_r + f_t + \mathcal{E}_{irot} \tag{4}$$

We estimate this model using ordinary least squares regression and cluster the standard errors at the country-of-origin level.[6] It is worth mentioning that the proxy for culture, $meanage_o$, must be sufficiently correlated to the variable of interest, $culture_o$, to be a suitable substitute. Otherwise, if the proxy variable is systematically different from the variable of interest, we suffer from proxy bias. We thus assume that the mean age at first birth predicts culture with high accuracy.

5.3 Data Description

To estimate the model, we use the European Social Survey (ESS) dataset established in 2001. It is a cross-national dataset composed of at least 25 European countries in each completed round and the survey is conducted every two years through face-to-face interviews. The purpose of ESS is to measure beliefs, attitudes, and behavioral patterns across Europe. Of the currently nine completed rounds, round 3 and round 9 include the timing of life module that aims to map individuals' strategic planning of key life events. One of these variables is our variable of interest, the age at first birth. The two rounds together constitute a sample of approximately 90 000 observations, where 49 872 identify as women.

Further, 2 004 of the females in this dataset are second-generation immigrants, where we assign country-of-origin based on their mother's country-of-birth. The choice of assigning country-of-origin based on the mother's country-of-birth relies on Farré and Vella's (2013) findings that mothers transmit their attitudes to their children. Fernández and Fogli (2009) assigned country-of-origin based on the father's country-of-birth, however, due to the transmission of cultural patterns between mother-child pairs, we change the perspective to the

[6] According to Cameron and Miller (2015) clustering standard errors at the country-of-origin level is often done to account for correlations between observations from the same group, in this case observations from country-of-origin o. Using clustered standard errors leaves the OLS-estimated model unbiased but the reported standard errors may be wrong.

mother's country-of-origin.

Focusing solely on women who have given birth between the ages of 15 to 49, we generate a sample of 1 325 second-generation immigrants born between 1909 and 2002. However, when delimiting to this age range, the age at first birth of women in our sample ranges from 16 to 43 due to data limitations. The choice of delimiting the range from 15 to 49 goes in line with the United Nations (UN) definition of reproductive age in sustainable development goal 3 "[e]nsure healthy lives and promote wellbeing for all at all ages." Since we investigate the tempo of fertility, rather than the quantum of fertility, we choose to include all women of reproductive age to capture women's decision-making on when to become a first-time mother.

In previous research using the epidemiological approach to investigate the cultural effect on fertility decisions, the main focus has been on married women. However, due to the accelerating growth in Europe of having children out of wedlock, we delimit the women to those in a marriage-like relationship. The choice of including both legally married women and those in a legally registered civil union, instead of solely married women, is due to the increase in non-marital fertility (Hotz, Klerman & Willis 2007). Restricting the sample to women in a marriage-like relationship, we generate a sample consisting of 702 second-generation immigrants.

To assign the cultural proxy, we use fertility data from Eurostat and the UN. We use the 1990 mean age at first birth for all available countries using the UN dataset, assigning the missing countries the closest available year to 1990 between 1988 and 1992. The remaining countries missing a 1988-1992 value are to a majority European countries and we complete the dataset using the 1990 Eurostat mean age at first birth dataset. When constructing the variable using a short time interval, from 1988 to 1992, the risk that the distribution across countries has changed significantly is minimized and allows us to increase the sample size. The usage of 1990 mean age at first birth is mainly due to it being the earliest year with conclusive data.

To use data from 1988 to 1992 to explain the cultural effect on women born between 1909 and 2002 may seem unjustifiable. However, Fernández (2010) found that when replacing LFP in 1970 with LFP in 1990 to estimate the cultural effect on female labor outcomes, the

result remained positive and significant. Fernández and Fogli (2009) further stated that due to transmitted beliefs across generations, culture has a tendency to evolve slowly over time. Consequently, we find this to be a valid proxy for culture.

Lastly, we obtain data on GDP per capita in 1990 from the World Bank. We merge the mean age at first birth and GDP per capita with the respondents based on their country-of-origin. Additionally, we merge data on female lower secondary completion rates between the years 1991 and 2003 from UNESCO with our original dataset based on a woman's country-of-origin. We construct the variable using the earliest reported value in each country between these years. Due to 168 missing data points on these country aggregates in certain countries[7], the final sample consists of 534 women in a marriage-like relationship between the ages 16 to 43. These women reside in 30 different countries in Europe and are second-generation immigrants from 39 different countries. Individual- and country summary statistics, as well as, descriptive statistics on the distribution of country-of-origin, country-of-residence, age at first birth, age of the woman at the time of data collection, educational attainment levels for the woman, her partner, and her mother are presented in Appendix A.

5.4 Control Variables

To control for factors that can have a partial effect on a woman's choice of becoming a first-time mother, as well as factors correlated with the country-of-origin mean age at first birth, we include a vector of sociodemographic characteristics: education, partner's education, age, and human capital measured either as mother's education or lower secondary completion rate, as well as GDP per capita.

According to Martin (2000), and Rindfuss, Morgan and Offutt (1996), women's education and employment status have a major effect on their age at first birth. Hwang and Lee (2014) established that higher education for women tends to delay their entry into motherhood. They further concluded that higher education leads to higher status and gender equality, that in turn

[7]Countries with missing data: Angola, Bosnia and Herzegovina, Brazil, Canada, Caribbean Netherlands, China, Czechoslovakia, Denmark, Faroe Islands, Greenland, Guadeloupe, Kosovo, Latvia, Lebanon, Luxembourg, Maldives, Moldova, Montenegro, New Zealand, Pakistan, Poland, Serbia, Slovakia, Sweden, United Kingdom, United States.

results in career opportunities not consistent with early childbirth. Gender equality could be interpreted as an expression of traditional attitudes, aligning with our definition of culture. We therefore include the woman's educational attainment on a five-scale level ranging from "ES-ISCED I - less than lower secondary" to "ES-ISCED V - tertiary education", where "ES-ISCED I - less than lower secondary" is the base group.

The effect of husbands' characteristics on their wife's labor supply has proven to be an important determinant. Fernández and Fogli (2009) found that women work less if their husbands have obtained at least a college degree compared to those whose husbands have not finished high school. The female labor supply is in turn a contributing factor to when you enter into motherhood. We thus control for partner's educational attainment using an equivalent five-scale variable of educational levels with the same base group as for women's education.

Depending on the time passed since women's mothers left their country-of-birth, individuals will be heterogeneously affected by the environment in their country-of-residence. It also determines the time since the woman's mother was exposed to the culture in her country-of-birth. However, there is no such variable that measures the time since a woman's mother left her country-of-birth. To account for these differences, we use age as a proxy for the time in the country-of-residence, assuming the two are correlated.

As found by Hwang and Lee (2014), women's age at first birth increases in countries with higher female educational attainment. This indicates that there is a correlation between unobserved human capital and the cultural proxy that we must control for, to not risk that the results are not due to culture, but rather an outcome of differences in unobserved human capital. In line with our designation of country-of-origin to the mother's country-of-birth, we therefore include a proxy for unobserved human capital in the form of a woman's mother's educational attainment. It should be explicitly stated that while this allows us to avoid omitted variable bias, there is a risk that parental education is caused by the fertility norm, thus this proxy might be subject to reverse causality and considered a bad control variable. Women who favor motherhood over a career could have a lower interest in attaining a higher degree of education, leading to a downward bias in fertility (Chabé-Ferret 2019). Notwithstanding, we choose to

include this proxy to make sure that the results do not suffer from endogeneity.

Since there is a concern about whether a woman's mother's educational attainment is a suitable proxy for unobserved human capital in the country-of-origin, we additionally regress on an alternative proxy in the full specification of the estimated model. Fernández and Fogli (2009) proxied unobserved human capital using average education, implying that there are multiple approaches to control for this effect. We, however, use the female lower secondary completion rate[8] in a woman's country-of-origin, since there is a risk that the distribution of educational attainment in certain countries suffers from skewness. Therefore, using average education might not be a representative measure of unobserved human capital as outliers can cloud this measure, making completion rate a more suitable measure of educational attainment.

Lastly, we include GDP per capita in the country-of-origin to account for the relationship between this variable and the prevailing fertility norm. Following the work by Fernández and Fogli (2009), by including GDP per capita, we can account for the risk that the results are not driven by culture, but by differences in the financial status in the country-of-origin. Additionally, it is impossible to control for all factors, however, GDP per capita explains and correlates with numerous unobservables in the country-of-origin that we cannot control for. By including it, we can account for some of these effects through this variable, such as unobserved wealth for the women in our sample. Furthermore, due to the sample size restrictions, including several variables affecting the mean age at first birth in the country-of-origin, may lead to collinearity and result in difficulties tracing the effect of culture. Thus, when including GDP per capita in the country-of-origin we proxy for these factors.

5.5 Data Limitations

There are many factors potentially affecting the age that women choose to become first-time mothers and also correlate with the cultural proxy that, to the extent of this thesis, will not be controlled for. We choose to exclude female LFP in the country-of-origin from our model

[8]Lower secondary completion rate (UNESCO): "Lower secondary education completion rate is measured as the gross intake ratio to the last grade of lower secondary education (general and pre-vocational). It is calculated as the number of new entrants in the last grade of lower secondary education, regardless of age, divided by the population at the entrance age for the last grade of lower secondary education."

notwithstanding that Morgan and Rindfuss (1999), and Kohler, Billari and Ortega (2002) found that female LFP correlates with the age at first birth. Nevertheless, LFP is subject to statistical noise, and including it may thus produce inaccurate results. For instance, LFP follows a cyclical behavior and it is usually more correct to investigate it by looking at trends and movements, rather than taking a measure at a certain point in time. In this thesis we cannot control for trends, and therefore LFP is omitted to minimize noise in the regression.

In the ESS dataset, many variables could affect the age that women choose to become first-time mothers but face the risk of reverse causality. One such factor is the woman's occupation since the choice of career path can be an outcome of her childbearing, as she may not have the same occupational opportunities as women who have not given birth yet. Furthermore, since the husband's income has been shown to affect women's fertility decisions, it would be of interest to control for the effect it may have on the age at first birth (Fernández & Fogli 2009). However, since the ESS dataset only provides the household income, including this variable could result in the same risk of reverse causality as with the woman's occupation, as a woman's income may come as a result of her age at first birth.

Lastly, previous research has concluded that the age at marriage is correlated to a woman's age at first birth (Haque 2009; Marphatia et al. 2020), and cultural beliefs regarding marriage behavior (Buttenheim & Nobles 2009). Moreover, if the mean age at first birth can explain the age at first birth for a woman, given that cultural beliefs may also exist regarding the timing of marriage in relation to the age at first birth, the mean age at first birth in her country-of-origin may also help explain her age at marriage, suggesting a correlation. However, since we investigate women in marriage-like relationships rather than only legally married women, we are not able to control for this factor in the regression. This implies that we risk omitted variable bias since a part of the cultural effect on the age at first birth might be explained by age at marriage.

6 Results

To investigate the cultural effect on the age at first birth, we conduct a regression on women in marriage-like relationships. As seen in Table 1, culture has a statistically significant effect on the age at first birth without including control variables. A five-year increase in the mean age at first birth predicts a delayed age at first birth of 4.90 years. Once we control for country- and round fixed effects, the magnitude of the cultural effect decreases but remains significant.

Table 1: The Cultural Effect on Women in Marriage-Like Relationships

	Age at first birth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mean age	0.980***	0.848**	0.636*	0.565	0.547	0.585*	0.668*
	(0.195)	(0.368)	(0.339)	(0.360)	(0.347)	(0.338)	(0.351)
Age			-0.002	0.001	-0.002	0.002	-0.008
			(0.024)	(0.025)	(0.025)	(0.025)	(0.025)
ES-ISCED II, lower secondary			-1.195	-1.197	-1.157	-1.081	-0.932
			(1.847)	(1.859)	(1.900)	(1.861)	(1.851)
ES-ISCED III, upper secondary			0.628	0.161	0.215	0.316	0.340
			(1.800)	(2.002)	(2.072)	(2.079)	(2.014)
ES-ISCED IV, advanced vocational			3.318*	2.200	2.236	2.549	2.497
			(1.699)	(1.938)	(1.995)	(2.060)	(1.903)
ES-ISCED V, tertiary education			3.897**	2.682	2.772	2.657	3.095
			(1.794)	(2.123)	(2.260)	(2.331)	(2.198)
Partner				-0.473	-0.475	-0.234	-0.580
ES-ISCED II, lower secondary				(1.442)	(1.444)	(1.400)	(1.441)
Partner				0.317	0.276	0.436	0.127
ES-ISCED III, upper secondary				(1.444)	(1.487)	(1.495)	(1.472)
Partner				3.114	3.138	3.258	2.940
ES-ISCED IV, advanced vocational				(2.174)	(2.145)	(2.125)	(2.112)
Partner				1.518	1.488	1.421	1.294
ES-ISCED V, tertiary education				(2.026)	(2.062)	(2.032)	(2.021)
GDP per capita					0.000	0.000	-0.000
					(0.000)	(0.000)	(0.000)
Mother						-0.749	
ES-ISCED II, lower secondary						(0.816)	
Mother						-1.226	
ES-ISCED III, upper secondary						(1.041)	
Mother						1.696	
ES-ISCED IV, advanced vocational						(2.292)	
Mother						0.412	
ES-ISCED V, tertiary education						(0.882)	
Education completion rate							0.026
							(0.023)
Constant	-1.865	2.118	6.892	8.778	9.134	8.339	4.464
	(5.425)	(9.796)	(9.630)	(9.911)	(9.606)	(9.165)	(9.459)
N	534	534	534	534	534	534	534
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Round Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.139	0.205	0.295	0.312	0.311	0.317	0.314

Data sources: European Social Survey (2018; 2006), United Nations (1990), Eurostat (1988-1992), World Bank (1990) and UNESCO (1991-2003).
Note: Robust standard errors in parentheses account for clustering at country-of-origin level.
* $p < .10$, ** $p < .05$, *** $p < 0.01$

Adding the personal characteristics, age and educational attainment, we find the cultural proxy statistically significant. An increase in the mean age at first birth of five years is associated with an increase in the age at first birth of 3.18 years, aligning with our hypothesis that culture has a positive effect on the decision of when to become a first-time mother. We fail to find that lower educational attainment levels affect the age at first birth. However, tertiary education is associated with a woman giving birth to her first child 3.90 years later than a woman with primary education.

Adding the partner's educational attainment to the specification, we find that it does not explain the woman's age at first birth. The pattern of the estimates does not align with economic reasoning since we expect a linear relationship where higher educational attainment of the partner would predict an older age at first birth. Moreover, the mean age at first birth and higher educational attainment for the woman becomes insignificant when controlling for this factor.

Once we account for GDP per capita, the magnitude of the cultural effect decreases and remains insignificant with a p-value of 0.123. A five-year increase in the mean age at first birth is associated with a 2.74-year increase in the age at first birth. Additionally, the partner's educational attainment continues to have no explanatory power of a woman's age at first birth. Consistent with the previous specification, a woman's educational attainment does not explain her choice of when to become a first-time mother.

Including the mother's educational attainment as a proxy for unobserved human capital, results in one of the full specifications of the estimated model. A five-year increase in the mean age at first birth is associated with an increased age at first birth of 2.93 years, and the variable is statistically significant at a 10 percent significance level. As in the previous specifications, age, GDP, the woman's, and the partner's, educational attainment remain insignificant and are all unexplanatory for a woman's choice of when to become a first-time mother. Moreover, human capital has no significant effect on the age at first birth, however, when included in the model, we can isolate the causal effect of culture on the age at first birth.

When we conduct the regression using the female lower secondary completion rate as a

proxy for unobserved human capital, culture has a significant effect on the age at first birth at a 10 percent significance level. The magnitude of the cultural effect increases and a five-year increase in the mean age at first birth is now associated with a delayed entry into motherhood of 3.34 years. We can thus conclude that the results are robust to changes in the definition of human capital, and culture seems to have an effect on the age at first birth.

7 Robustness

In the following section, we conduct various alterations to the explanatory variables included in our model and the delimitation of our sample. We execute this to investigate whether our results are robust to changes in the definition of restrictions, and how we define the proxy variables that we use in our model. The corresponding tables are presented in Appendix B.

7.1 Extended Sample: All Women Regardless of their Relationship Status

Due to the data limitations we face with our variable of interest, the final sample size of female second-generation immigrants in marriage-like relationships is small. This makes us interested in investigating if we can observe similar results when increasing the sample size to also include women who are not in a marriage-like relationship. Thus, we extend our analysis to include all female second-generation immigrants who have given birth between the ages of 16 to 43, regardless of their relationship status. This extension results in a sample of 965 female second-generation immigrants and an increase from 39 to 52 countries-of-origin.[9]

Similarly to when we only focus on women in marriage-like relationships, we find culture to have a statistically significant impact before we add the control variables. As seen in Table 4, when observing all women regardless of their relationship status, culture is significant at a one percent significance level and a five-year increase in the mean age at first birth is associated with the woman having her first child 3.99 years later. Once we control for country- and round fixed effects, the magnitude of the cultural effect decreases, and loses its significance.

When adding the personal characteristics, age and educational attainment, the magnitude of the cultural effect decreases even further and the regression is now more insignificant than earlier. Similar to the results of the women in marriage-like relationships, we fail to find that lower educational attainment levels explain the age at first birth. However, we find that higher educational attainment is significant, where a woman with tertiary education is predicted to enter into motherhood 3.76 years later compared to a woman with primary education.

[9]Countries added: Azerbaijan, Bulgaria, Cape Verde, Chile, Ethiopia, Japan, Madagascar, Malaysia, Mauritius, Peru, Philippines, South Africa, Venezuela.

The results remain insignificant with a continued decline in magnitude once we control for GDP per capita. Higher educational attainment remains significant, which is in line with the above regression when including personal characteristics but differs from our main results.

Once applying the mother's educational attainment as a proxy for unobserved human capital, the results continue to be in line with the previous regressions on the extended sample. More specifically, culture persists to be insignificant, and higher educational attainment remains to be of explanatory power. However, advanced vocational education now predicts an older age at first birth than tertiary education, which differs from previous specifications and what we expect. Nonetheless, although both educational attainment levels have a significant effect on the age at first birth, it does not imply that advanced vocational education has a significantly larger effect than tertiary education.[10] The proxy itself, a woman's mother's educational attainment, is statistically significant at a five percent significance level for a mother with tertiary education, where the woman receives her first child 1.57 years later, compared to a mother with primary education.

When we conduct the regression with female secondary completion rate as a proxy for unobserved human capital, culture continues to have no explanatory power. Similar to when the mother's educational attainment is used as a proxy, higher educational attainment remains significant. Using female secondary completion rate, however, leads us to a result more in line with economic reasoning where the higher education a woman obtains, the older she is when having her first child. To clarify, a woman with advanced vocational education is predicted to become a first-time mother 3.61 years later than a woman with primary education, while for a woman with tertiary education this delay is instead 3.89 years. The proxy for unobserved human capital is however not statistically significant by itself.

Even though higher educational attainment for this sample of women has an effect of leading to an older age at first birth, the results of the cultural effect do not remain robust and we fail to find significance. One reason for obtaining these results could be a consequence of our choice of excluding relationship status as a control variable due to the risk of reverse

[10]Using the lincom command in STATA, we find that these two point estimates are not significantly different from each other.

causality, since her relationship status at the time of data collection may come as a result of her age at first birth. Relationship status could be an important explanatory factor since a woman that is not in a marriage-like relationship might have a different probability of experiencing an unintended birth. This would result in difficulties tracing a cultural effect since there should be no such effect if the birth was unintended. Moreover, when including all women regardless of relationship status, we are not able to control for the partner's educational attainment. This might result in the exclusion of a variable that influences the choice of multiple women and could thus cloud the cultural effect on their choice of becoming a first-time mother.

7.2 Delimited Age Range of the Age at First Birth

According to Sully et al. (2020), approximately 10.5 million unintended pregnancies occur every year in low- and middle-income counties to teenage girls in the age span of 15 to 19 years.[11] In our investigation of the cultural effect on the age at first birth, we focus on a woman's decision of when to become a first-time mother. Thus, we want to examine whether the results are robust to the exclusion of potentially unintended births where we risk that no decision-making process has occurred. To account for this, we conduct a robustness regression where we delimit the lower bound of the age at first birth to 20 years old instead of 15 years old, in order to remove teenage births, since these have the highest rates of unintended births when focusing on sexually active women (Finer 2010). This restriction also allows us to exclude women whose education might come as a result of their age at first birth, as they might finalize their education after giving birth. Consequently, we can account for the risk of reverse causality in education to some extent.

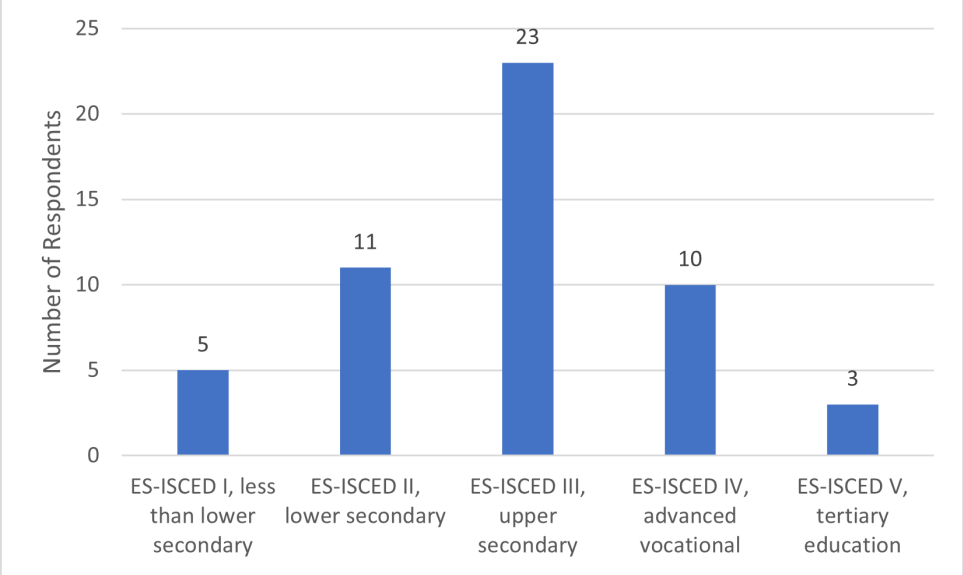
Focusing solely on women in marriage-like relationships who have given birth between the ages of 20 to 43, we generate a sample of 482 second-generation immigrants. As seen in Table 5, the results when delimiting the age range are similar to our main findings. One difference we find is that women's higher educational attainment levels no longer predict later entry into motherhood when only controlling for personal characteristics and country- and round fixed

[11] The World Health Organization restricts adolescent pregnancy to the age group 15-19.

effects.

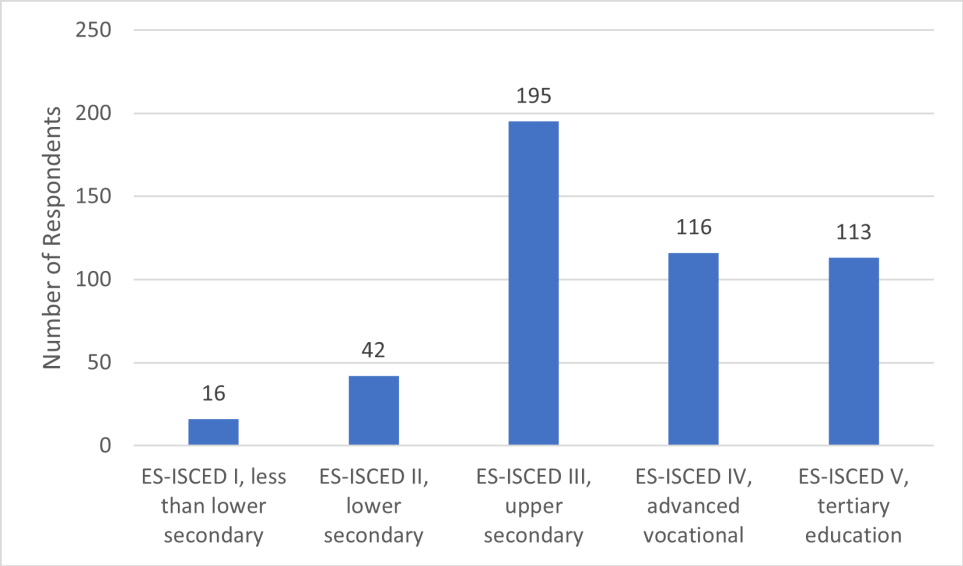
One explanation for this result could be that the distribution of educational attainment for women in the 20-43 age range is skewed upwards, while the distribution of the excluded women's educational attainment is less skewed. A visualization of this is presented in Figure 1 and 2. Thus, when excluding the women who have given birth before the age of 20, we thereby delimit the number of observations with lower educational attainment levels. This might result in a difficulty to trace the effect of higher education on the age at first birth. However, the results of the cultural effect on the age at first birth remain robust at a five percent significance level when estimating the full model using female lower secondary completion rate as a proxy for unobserved human capital. On the contrary, when using the mother's educational attainment as a proxy, the cultural effect is not statistically significant at the conventional level (p-value 0.104).

Figure 1: Distribution of the Educational Attainment - Age at First Birth 16-19



Data source: European Social Survey (2018; 2006).

Figure 2: Distribution of the Educational Attainment - Age at First Birth 20-43



Data source: European Social Survey (2018; 2006).

7.3 Alternative Proxies for Culture

As previously mentioned, there are many different definitions of culture. Due to these differences in the interpretation of culture, we find it interesting to see if another explanation could affect the result since various definitions highlight different aspects of culture. In 1980, Hofstede observed different countries to compare cultural conditions resulting in a four dimension model of culture. In subsequent research two more dimensions have been added (Hofstede, Hofstede & Minkov 2010), resulting in a six dimension model describing the culture of groups. One of these six dimensions is the masculinity dimension that stereotypically describes masculine and feminine cultures, thus translating gender norms into culture. Based on this, we find it interesting to see if we can use values held regarding gender norms as a proxy for culture and how this may affect the result.

To quantify values we use the World Value Survey (WVS), which is conducted to investigate how values change over time and their impact on both political- and social life (Haerpfer et al. 2022). We have focused on wave 7, that was a collaboration with the European Value Survey (EVS) to increase the coverage of countries, and append data from the Afrobarometer Survey for one of the two dependent variables. We chose to define culture based on two different

questions asked in the WVS relating to gender norms: Question 28) "When a mother works for pay, the children suffer" and Question 33) "When jobs are scarce, men should have more right to a job than women."

Using both questions, we construct a country-mean, presented on a scale from one to four, where four indicates strong disagreement. The first question generates a sample of 251 women and the second question a sample of 493 women. The large difference is due to the choice of merging the second question with responses from the Afrobarometer Survey. We are unable to merge the first question as there is no equivalent question in the Afrobarometer Survey. Moreover, it is important to note that the sample of women we investigate in this robustness test is not necessarily the same women as in our main sample. Since we merge based on the availability of data in women's country-of-origin, some countries have data on values presented in the WVS but no available data on the mean age at first birth, leading to different datasets.

7.3.1 Measuring Culture through Gender Norms: Attitudes toward Working Mothers

As seen in Table 6, without adding control variables, culture is insignificant (p-value 0.649) when conducting a regression with the question "When a mother works for pay, the children suffer" as a cultural proxy.[12] Nonetheless, when we introduce control variables, the results become significant. Once we add country- and round fixed effects culture is significant at a one percent significance level. A one-point increase, meaning that the individual perceives children not to suffer as much when mothers work, results in a woman having her first child 8.62 years earlier.

Adding the personal characteristics, age and educational attainment, decreases the magnitude of the cultural proxy but it remains significant at a one percent significance level. A one-point increase in disagreement with the statement is associated with a woman entering into motherhood 5.81 years earlier.

When we include the partner's characteristics, the cultural proxy remains significant, and a one-point increase in the response scale predicts the mother to give birth to her first child 5.36 years earlier. Furthermore, tertiary education for both the woman and her partner significantly

[12]The variable is named "Children suffer" in the regression output in Table 4.

increases a woman's age at first birth.

The cultural proxy increases in magnitude and remains significant at a five percent significance level once we control for GDP per capita, making a one-point increase associated with an earlier entry into motherhood of 6.37 years. Higher educational attainment for both the woman and her partner continues to have a significant effect. Using the mother's educational attainment as a proxy for unobserved human capital, a one-point increase in the scale is associated with becoming a first-time mother 6.82 years earlier. This is significant at a five percent significance level.

Conducting the regression with female secondary completion rate as a proxy for unobserved human capital, instead of the woman's mother's educational attainment, produces more significant results. Culture is significant at a five percent significance level and predicts a 5.20 years earlier entry into motherhood as a consequence of a one-point increase in disagreement with the statement. GDP per capita is significant at a 10 percent significance level, and the proxy for unobserved human capital itself is significant at a one percent significance level but with a negative coefficient. However, the magnitude of this coefficient is negligible, where a 10 percentage point increase in the female secondary completion rate results in a younger age at first birth of 0.71 years.

We expect that countries whose individuals agree with the statement "When a mother works for pay, the children suffer" will indicate unequal gender norms in the country and thus women should become first-time mothers earlier. This expectation is based on the reasoning of Boserup (1989), and Alesina, Giuliano and Nunn (2013), that the development of contemporary gender norms are rooted in the preceding division of labor, where countries with unequal gender norms in the present time have maintained the idea that women belong at home with the children. This may result in a greater emphasis on family than on career, that in turn could lead to earlier entry into motherhood. However, we observe a negative connection indicating that originating from a country agreeing that children suffer if mothers work, results in women having their first child later. This result could be interpreted as a woman being expected to work before having her first child and exit the labor market once she enters into motherhood. Thus, women might be

expected to not work parallelly with raising children and would then postpone their first birth. However, due to the restricted sample in this robustness test, we are hesitant to conclude that this contradicts our main results.

7.3.2 Measuring Culture through Gender Norms: Attitudes toward Distribution of Jobs

As seen in Table 7, when conducting a regression using the question "When jobs are scarce, men should have more right to a job than women"[13] as a proxy for culture, without including control variables, the result is insignificant with a p-value of 0.108. A one-point increase, meaning that individuals do not perceive men to have more right to jobs than women, thus indicating a more gender-equal perception, results in women having their first child 2.03 years later. Once we control for country- and round fixed effects, the magnitude of the cultural effect decreases and predicts a 0.82 years delayed entry into motherhood, as a result of a one-point increase in disagreement with the statement, however, the results are insignificant (p-value 0.515).

When we add the personal characteristics, age and educational attainment, culture remains insignificant even though the magnitude increases slightly. Women's tertiary education is significant on a 10 percent significance level and indicates that a woman with tertiary education becomes a first-time mother 3.69 years later than a woman with primary education.

Adding the partner's characteristics results in a completely insignificant model. This remains the case when we add controls for GDP per capita, and when including mother's educational attainment, as well as female secondary completion rate, as the proxy for unobserved human capital. To conclude, using this question as a proxy for culture does not produce robust results. This raises the question of whether gender norms alone are a suitable proxy for culture, or simply a part of a larger explanation.

7.3.3 Discussion of Alternative Proxies

One possible explanation for why gender norms do not explain the cultural effect on the age at first birth could be due to it representing only one of the six dimensions of culture presented

[13]The variable is named "Men have more right to a job" in the regression output in Table 5.

by Hofstede et al. (2010). Culture is a complex concept that is explained by more than gender norms. As a result, when we define the cultural proxy based solely on gender norms, this might not produce the same explanatory power of the cultural effect on the dependent variable. This could be an explanation for why we fail to find significant results in one of the models proxying culture with gender norms. How we define culture seems to affect the outcome of the results, and the cultural proxy we use in our main model may include more unobserved influences of culture that are not captured when we narrow down the definition to gender norms. The results in this section indicate that how you choose to define culture can have an outcome on the results.

Furthermore, Ljunge (2017) investigated the effect of the cultural dimensions on gender norms of second-generation immigrants to assess the transmission of attitudes across generations. He measured gender norms by regressing individual responses in the ESS to "When jobs are scarce, men should have more right to a job than women" on all six of Hofstede's cultural dimensions by pointing out that the masculinity dimension might be one part of the shaping of gender norms but not necessarily the only one. Thus, it might not capture all of the transmission of gender attitudes.

As a result, since we question whether gender norms are a suitable proxy for culture, and this proxy itself might not explain gender norms fully, this could generate a proxy that fails to capture the concept of culture and limits our ability to produce robust results. According to Ljunge (2017), the transmission of gender norms from mothers to daughters is weaker than from mothers to sons, while fathers have a stronger influence on daughters than on sons. Thus, the fact that we choose the mother's country-of-origin to assign the cultural proxy and only investigate women could be an additional explanation for why we fail to find a robust cultural effect.

8 Discussion

8.1 Discussion of Main Results

The positive cultural effect on the age at first birth that we find aligns with our hypothesis that builds upon the work of Farré and Vella (2013). Since mothers are expected to influence children by transmitting their cultural attitudes, women who have never been directly exposed to the culture in their country-of-origin should still be influenced and base their decision of when to become a first-time mother on those attitudes. The cultural effect has previously been found to have a positive impact on the quantum of fertility (Fernández & Fogli 2009). Our results further indicate that the cultural effect is also an explanatory factor of the tempo of fertility. Therefore, since the delaying of motherhood is one of the root causes of declining fertility rates, finding these results are as predicted (Gustafsson 2001).

Previous research on the cultural effect has been skewed toward studying the quantum of fertility, however, our results highlight the importance of further investigating the tempo of fertility as well as the intermediating effects between the two. As the effects of culture found are moving in the same direction, it may be that some of the cultural effect found on the fertility rates is actually due to its effect on the age at first birth, given the impact of the age at first birth on fertility rates.

As observed in our results, higher educational attainment seems to have an effect on the age at first birth, but the significance fades away as we control for more factors. Following the increasing competitiveness in the labor market, higher education has become more coveted, leading to a postponement of first birth (Gustafsson, Wetzels & Kenjoh 2002). According to Chabé-Ferret (2019) becoming a mother at a young age will interrupt a woman's career path when it is easier for her to acquire human capital. Consequently, entering into motherhood at a younger age could be too costly, resulting in women considering it a rational choice to postpone the first birth (Crespi & Fontaine 2012).

The increase in competitiveness and decreasing fertility rates during the end of the 20th century is expected to suggest that higher educational attainment levels implicate later entry

into motherhood. Not observing these results can be due to our sample of women being born between 1909 and 2002, while the findings of the effect of education stem from the shift towards delaying motherhood between 1980 and 1990. Moreover, educational access for women changed substantially following World War II, leading to increased female educational attainment (Wright 2016). Thus, many women in our sample might not have been subject to this effect, resulting in this potentially not being traceable using this sample of women.

The unexplanatory power we find of the partner's educational attainment on the age at first birth could be due to conflicting effects of this variable. Fernández and Fogli (2009) found that higher educational attainment of a woman's husband results in lower fertility. Given the causal relationship between the age at first birth and fertility (Gustafsson 2001), we expect that a higher educated partner would predict later entry into motherhood, which is not what we observe.

On the other hand, arguing on the basis of unequal gender norms, Boserup (1989) and Alesina, Giuliano and Nunn (2013) found that countries where females traditionally were expected to take care of the household experienced a lower female labor force participation in concurrent time. As men previously had a competitive advantage in the labor market they were the providers of the household. When these societies developed, they maintained the idea that men are supposed to work. Given the competitive labor market, obtaining an education may be crucial to succeed (Gustafsson, Wetzels & Kenjoh 2002). For a woman that is expected to stay at home, there is no need to obtain the higher education that makes her competitive. This might indicate that a higher educated partner would predict earlier entry into motherhood since the partner is expected to work and the woman should take care of the household. Since different countries have developed different gender norms, and we conduct this study using a cross-national sample, the effect of a partner's educational attainment on the woman's age at first birth might thus be inconsistent and lack explanatory power.

According to Landes (1998), culture has a substantial impact on economic development. The results we find of a positive cultural effect on the age at first birth could have a negative influence on the future fertility dynamics and accordingly economic development. Further,

Lutz and Skirbekk (2005) concluded that the causal relationship between the age at first birth and fertility dynamics could be exploited by policy-makers. We propose that this could be done through a focus on the cultural effect on the age at first birth that we find in this thesis.

The increase in the age at first birth throughout Europe today could create attitudes reflecting a behavior of postponing first birth. Since our findings imply a transmission of cultural attitudes, this may culminate in an upwards spiral of the age at first birth, consequently leading to fertility rates continuing to decline. As a result, the issue of an aging population persists and produces negative outcomes for public finances and living standards (Lee & Mason 2014). Therefore, to increase fertility rates and aid economic development, policy-makers must consider the effect of culture when designing tools to combat this.

It should however be considered that there may not always be benefits associated to earlier childbirth and increasing fertility rates. For example, women may not be mentally fit to become mothers at younger ages. Moreover, considering a larger perspective, increasing fertility rates could also escalate into a situation where we are faced with overpopulation. Nevertheless, if policy-makers manage to create an advantageous tool to target and minimize the motherhood penalty and allow women to enter into motherhood earlier, the problems of an aging population could be mitigated. However, our results imply that it might not be enough to create a suitable tool. Policy-makers also have to take into account that this tool may be great in a social vacuum, but women are also affected by their culture and this cultural impact may influence the policy outcomes.

Designing public policies targeting culture can be complicated in multiple ways. Since policies are created to affect behaviors, and cultural attitudes are deeply rooted in individuals, people may not be willing to rapidly adapt their behavior. Additionally, creating a policy aimed at forcing a change in society may not be the best solution as it can be too abrupt and individuals will then oppose it. Instead, policy-makers must build upon the existing beliefs in society and create a support function rather than focusing on changing behavior (Muers 2018). Creating a policy to decrease the age at first birth in a country, where the prevailing culture is that women should be able to participate in the labor market and postpone having their first child, might

be seen as illegitimate and hard to implement. Consequently, policy-makers should consider constructing a tool that simplifies entry into motherhood but does not try to affect the behavior of women.

Another aspect to consider when designing policies targeting behaviors affected by culture is the implementation level. Herr (2016) suggested that the motherhood penalty varies across countries. If these differences affect individual decision-making, what might have begun as a rational decision, based on the systematic disadvantages for women, can through the transmission of this behavior be expressed as culture. It may thus be that the motherhood penalty varies across cultures as well. Since our results indicate an effect of culture on the age at first birth, policy-making may be more prosperously implemented on a national level to target the behavior of postponing first birth. Moreover, considering larger countries where multiple cultures may prevail, a policy should potentially be devolved to a lower implementation level to succeed. One further implication of the cultural effect we find in our results is that the development of a policy tool can be influenced by observing countries holding similar cultural beliefs. Policy-makers must ask themselves what the success factors in countries with comparable attitudes behind a certain policy are, and see how they can adapt these to succeed.

8.2 Limitations and Suggestions for Future Research

While this thesis suggests culture has an effect on the age at first birth, some potentially explanatory variables remain unexplored. It would be interesting to see to what extent the partner's culture impacts the choice of when to become a first-time mother, however, the ESS dataset we use in our study does not present the opportunity to examine this. Fernández and Fogli (2009) assigned a cultural proxy for both the woman and her husband. They found that when using both proxies together, the coefficient on the husband's cultural proxy is larger and significant compared to his wife's, that is no longer significant compared to when investigating solely the effect of her culture. This result implies that the husband's culture has a larger impact on the woman's decision than her own culture. Thus, it would be of interest to see if a similar effect of the partner's culture can be found when examining women's age at first birth.

One additional suggestion for future research would be to include an investigation of the impact of religion. Since beliefs are a fundamental component of culture, the impact of religious beliefs on the choice of when to become a first-time mother would be an extension of this thesis further deepening the understanding of the underlying factors. Religion is, similarly to culture, often transmitted across generations and gives people a sense of belonging. People want to belong to a group and strive for conformity that can result in pursuing a herd behavior and adjustments of actions to fit the group. This could therefore indicate that religion may play a vital part in the explanation of when to become a first-time mother.

One limitation of this thesis is the small sample size due to the ESS including our question of interest in two of their total of nine rounds. From a statistical point of view, the results we find may be statistically significant but not necessarily have statistical power, and thus the results may not hold in the population. The possibility to increase the sample size in the near future is opened up once round 10 of the ESS is released since it will include responses to at what age a woman had her first child. Our small sample size further limits the possibility to examine women with parents descending from the same country, as opposed to only studying women with a mother born in another country, since this would produce a sample too small to draw conclusions from. By examining the effect of culture using a woman's mother's country-of-birth to assign her country-of-origin, we risk an omitted variable bias when not controlling for if the father is from another country, and thus has a different culture that affects our woman of interest. If conducting the study solely on women with parents descending from the same country, this issue could be solved, but it would require a larger dataset than the one provided by ESS.

Connecting to our limited sample size, to not restrict the sample further, we choose to include all women regardless of their year of birth. As a result, we face limitations since the women in our sample are born between 1909 and 2002, while the majority of previous research, and the country-level data we have appended, was produced at the end of the 20th century, and the beginning of the 21st. Consequently, this complicates the process of drawing accurate conclusions in this thesis.

Lastly, since there is no agreed-upon definition of culture that is being used continuously in research, it results in difficulties to develop and improve previous papers' investigations to the same extent as in other fields of economics. As indicated in the robustness section of this thesis, defining culture in different ways could have an outcome on the results. Thus, future research should take into consideration that choosing a definition that is more restricted, rather than a broad one, might limit the possibility to trace the effect of culture on people's decision-making.

9 Conclusion

This thesis argues for the existence of a cultural effect on a woman's choice of when to become a first-time mother. We aim to explain that when focusing solely on rational decisions, economists fail to account for the fact that humans make decisions based on factors that we cannot observe. What we propose, in the context of family matters, is that culture imbues these decisions since it is transmitted from parents to their children. The analysis of this cultural effect is carried out using the epidemiological approach that has emerged in economics as a response to the shift to go beyond rationality in decision-making.

The results we find suggest that culture has a positive impact on the age that women choose to enter into motherhood. This finding is of the essence for policy-makers in constructing tools to target the decreasing fertility rates across Europe. On the basis of Gustafsson (2001), decreasing fertility is a result of the increasing age at first birth. Thus, the findings imply that by impacting the core issue of an older age at first birth, through a consideration of the influence of culture, policy-makers can impact fertility rates and combat the aging population. With time, the danger of a decreased workforce may thus be escaped and ultimately culminate in a strengthening of economic development. Based on Muers (2018), policy-making in matters affected by culture should focus on creating a supportive, rather than a hard, tool. The observed cultural effect thus makes us propose that policy-making aimed at decreasing the age at first birth must emphasize on aiding women instead of using directives to change their behavior.

We hope that the results we find will provide guidance for economists to understand that we do not live in the rational world that they tend to assume. If we engrain ourselves in the idea of rationality, we will not be able to address the structural problems that exist as a result of nonrational decision-making. People are not rational, they do not act in a social vacuum.

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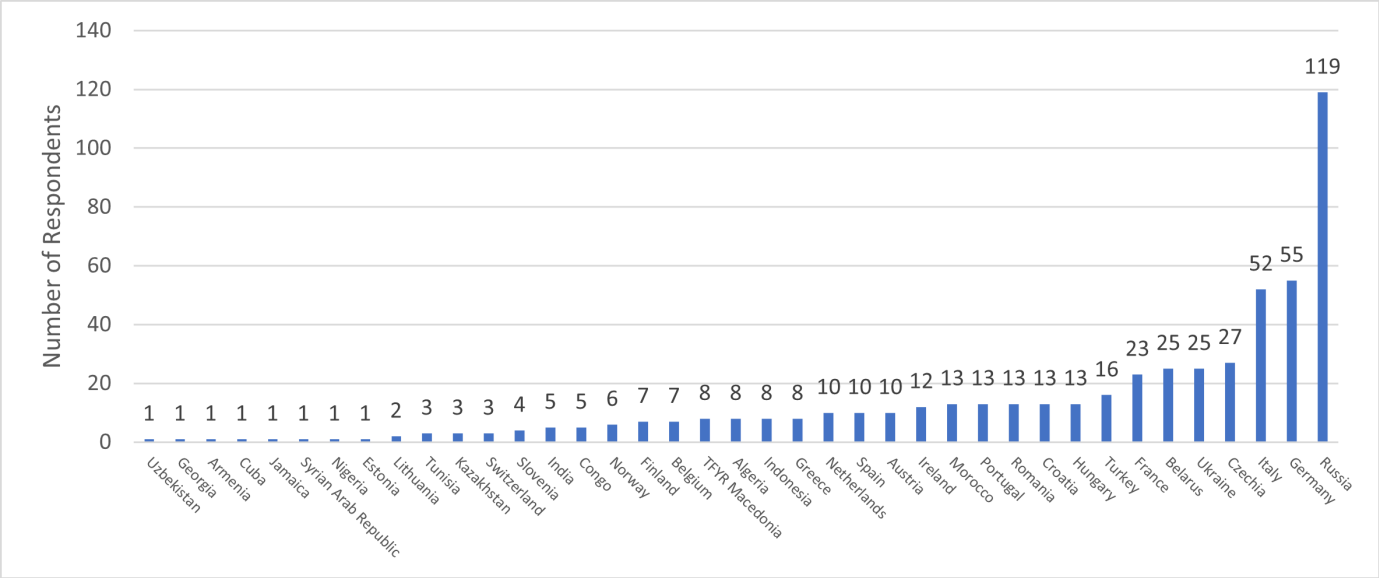
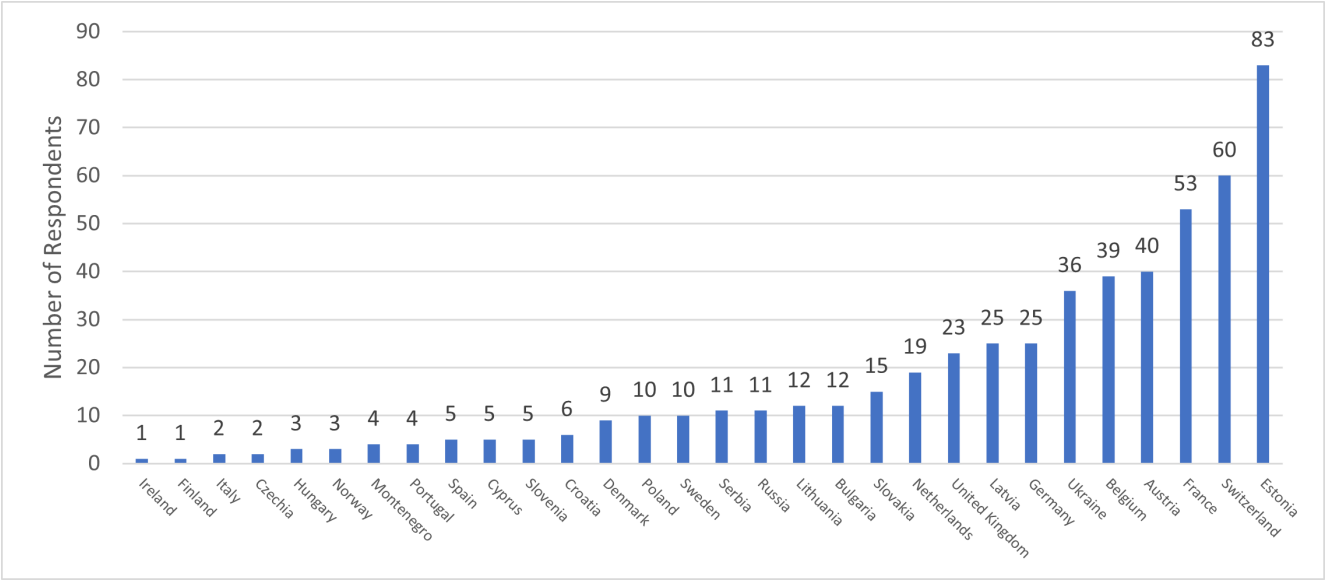
Appendix A. Descriptive Statistics

Figure 3: Distribution of the Country-of-Origin in the Main Sample



Data source: European Social Survey (2018; 2006).

Figure 4: Distribution of the Country-of-Residence in the Main Sample



Data source: European Social Survey (2018; 2006).

Table 2: Country Summary Statistics

Country	Observations	Mean age at first birth	GDP per capita
Algeria	8	31.37	2397.29
Armenia	1	25.35	650.54
Austria	10	27.20	21552.16
Belarus	25	25.21	1919.01
Belgium	7	28.40	20519.54
Congo	5	29.48	1303.90
Croatia	13	26.05	3482.18
Cuba	1	25.22	2703.14
Czechia	27	24.80	3938.56
Estonia	1	25.60	3615.40
Finland	7	28.90	28310.50
France	23	28.57	21793.14
Georgia	1	25.70	1640.88
Germany	55	27.64	22410.60
Greece	8	27.19	9572.95
Hungary	13	25.60	3584.10
India	5	27.52	376.90
Indonesia	8	28.24	734.87
Ireland	12	29.90	14046.41
Italy	52	28.90	20706.76
Jamaica	1	27.11	2180.67
Kazakhstan	3	26.69	1810.57
Lithuania	2	25.90	2769.10
Morocco	13	31.55	1222.20
Netherlands	10	29.30	21270.84
Nigeria	1	29.18	646.30
Norway	6	28.10	28204.11
Portugal	13	27.50	7955.07
Romania	13	25.44	1717.69
Russia	119	25.29	3891.11
Slovenia	4	25.90	9062.85
Spain	10	28.90	13686.05
Switzerland	3	29.00	39982.01
Syrian Arab Republic	1	31.81	896.57
TFYR Macedonia	8	25.71	1458.63
Tunisia	3	30.53	1640.22
Turkey	16	26.85	3849.48
Ukraine	25	24.89	1816.26
Uzbekistan	1	27.29	866.24

Data sources: European Social Survey (2018; 2006), United Nations (1990), Eurostat (1988-1992) and World Bank (1990).

Note: These statistics represents the countries-of-origin of women in the main sample.

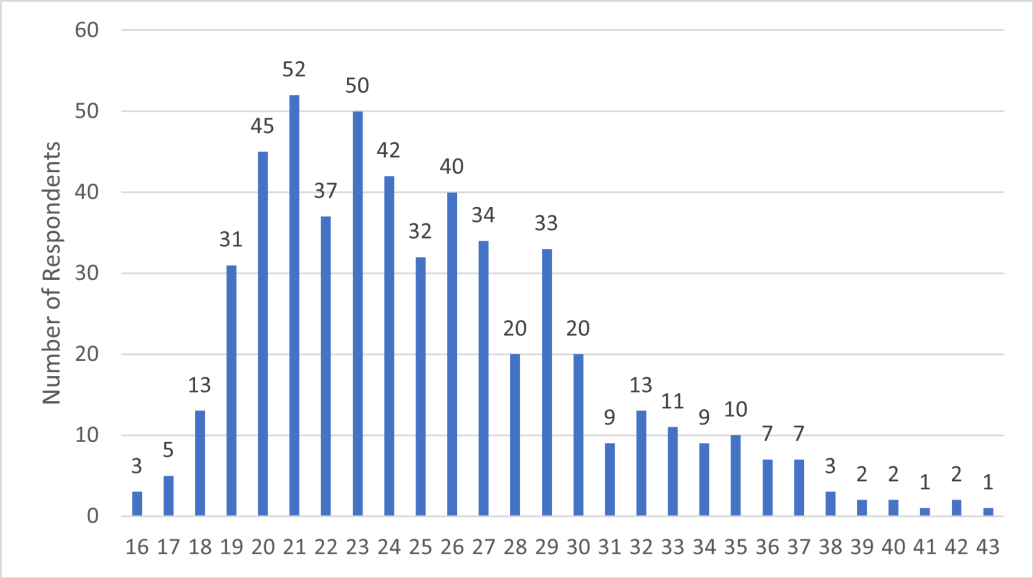
Table 3: Individual Summary Statistics

Variable	Mean	Std. dev.	Min	Max
Age at first birth	25.20599	5.118729	16	43
Age	48.85393	13.25692	17	86
ES-ISCED I, less than lower secondary	0.0393258	0.1945513	0	1
ES-ISCED II, lower secondary	0.0992509	0.299279	0	1
ES-ISCED III, upper secondary	0.4082397	0.4919688	0	1
ES-ISCED IV, advanced vocational	0.2359551	0.4249924	0	1
ES-ISCED V, tertiary education	0.2172285	0.412746	0	1
P: ES-ISCED I, less than lower secondary	0.0318352	0.1757258	0	1
P: ES-ISCED II, lower secondary	0.1142322	0.3183913	0	1
P: ES-ISCED III, upper secondary	0.4363296	0.4963945	0	1
P: ES-ISCED IV, advanced vocational	0.1029963	0.304239	0	1
P: ES-ISCED V, tertiary education	0.3146067	0.4647945	0	1
M: ES-ISCED I, less than lower secondary	0.3089888	0.4625098	0	1
M: ES-ISCED II, lower secondary	0.2715356	0.4451686	0	1
M: ES-ISCED III, upper secondary	0.247191	0.4317832	0	1
M: ES-ISCED IV, advanced vocational	0.0486891	0.2154191	0	1
M: ES-ISCED V, tertiary education	0.1235955	0.3294281	0	1

Data source: European Social Survey (2018; 2006).

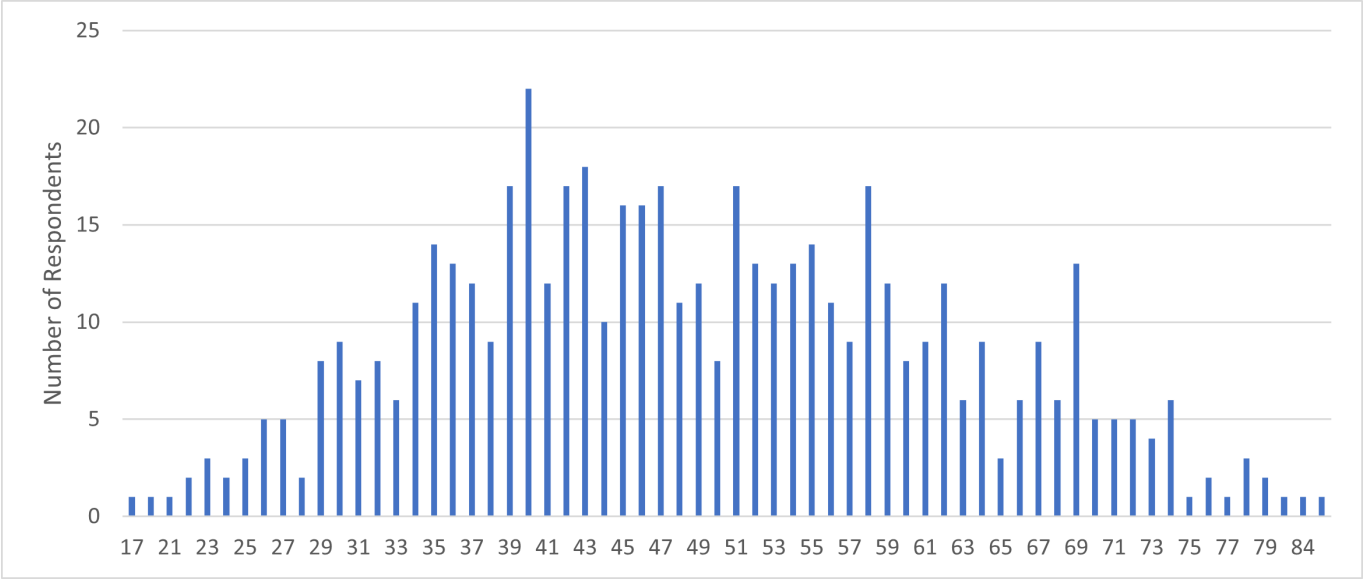
Note: These statistics represents the women in the main sample.

Figure 5: Distribution of the Age at First Birth in the Main Sample



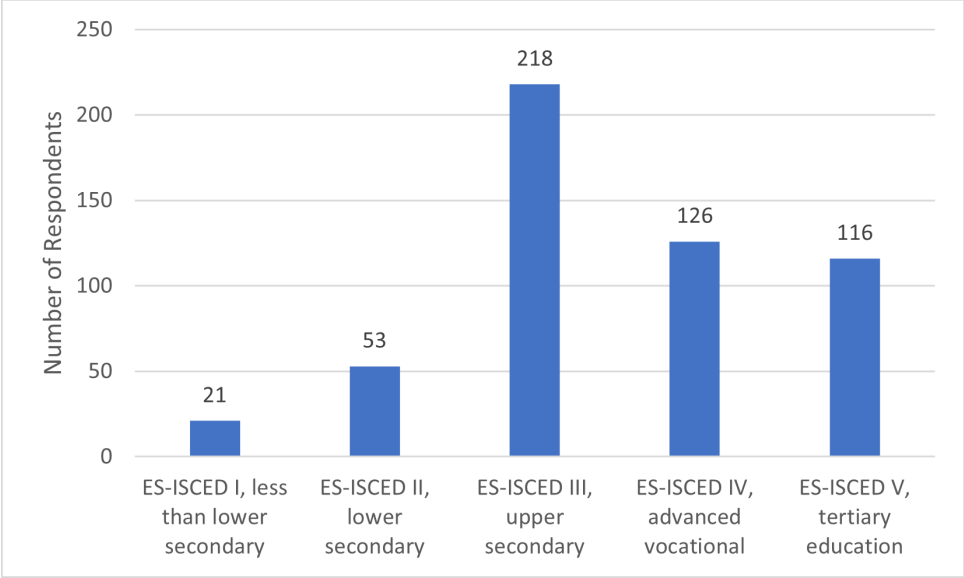
Data source: European Social Survey (2018; 2006).

Figure 6: Distribution of the Age in the Main Sample



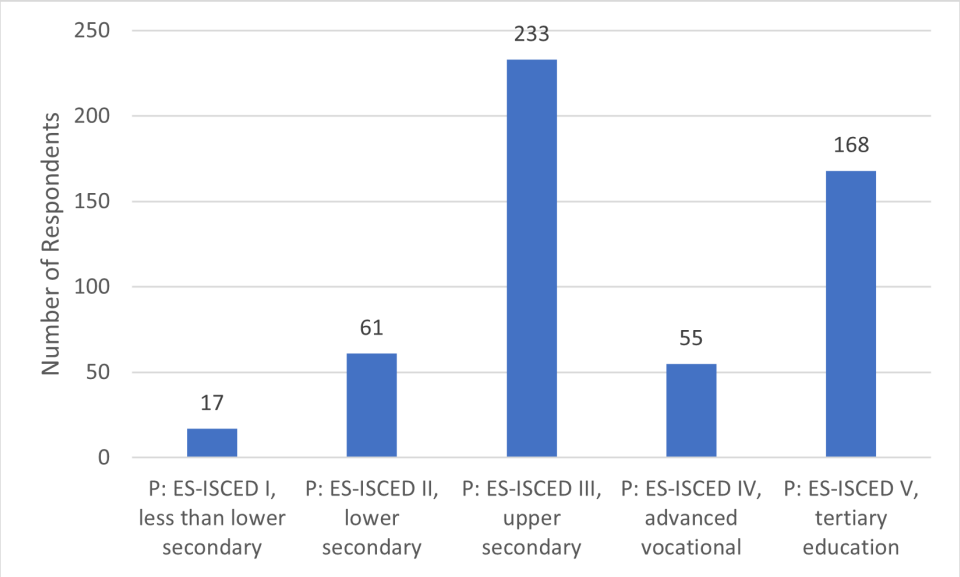
Data source: European Social Survey (2018; 2006).

Figure 7: Distribution of the Educational Attainment in the Main Sample



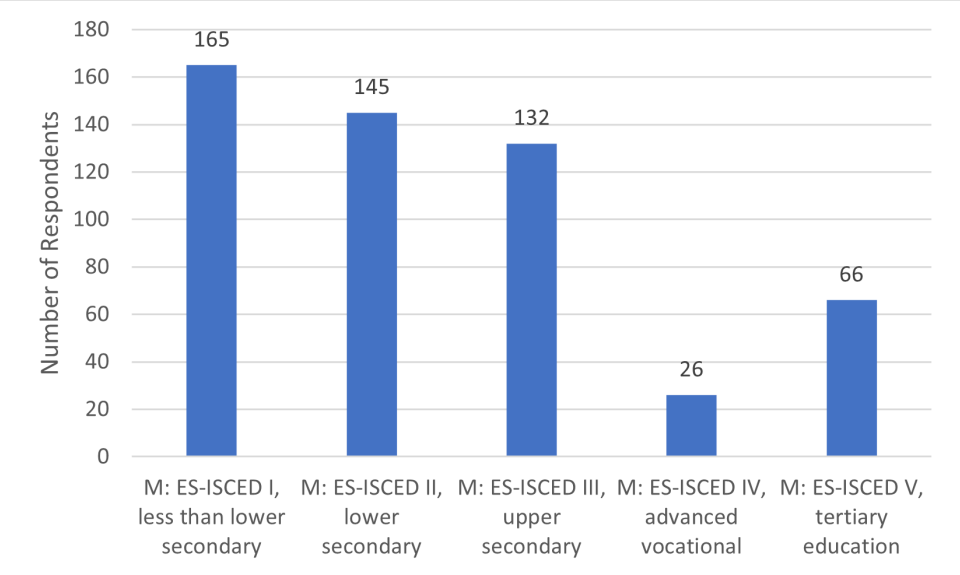
Data source: European Social Survey (2018; 2006).

Figure 8: Distribution of the Partner's Educational Attainment in the Main Sample



Data source: European Social Survey (2018; 2006).

Figure 9: Distribution of the Mother's Educational Attainment in the Main Sample



Data source: European Social Survey (2018; 2006).

Appendix B. Regression Output for Robustness Tests

Table 4: Robustness - All Women Regardless of their Relationship Status

	Age at first birth					
	(1)	(2)	(3)	(4)	(5)	(6)
Mean age	0.797***	0.346	0.195	0.172	0.183	0.212
	(0.179)	(0.309)	(0.266)	(0.261)	(0.265)	(0.294)
Age			-0.001	-0.005	0.005	-0.006
			(0.020)	(0.020)	(0.022)	(0.021)
ES-ISCED II, lower secondary			-0.933	-0.881	-0.855	-0.811
			(1.556)	(1.563)	(1.572)	(1.488)
ES-ISCED III, upper secondary			0.813	0.877	0.820	0.907
			(1.468)	(1.472)	(1.509)	(1.437)
ES-ISCED IV, advanced vocational			3.522**	3.545**	3.344**	3.608**
			(1.432)	(1.440)	(1.513)	(1.408)
ES-ISCED V, tertiary education			3.761**	3.820**	3.288**	3.889***
			(1.473)	(1.500)	(1.590)	(1.451)
GDP per capita				0.000	0.000	0.000
				(0.000)	(0.000)	(0.000)
Mother					0.529	
ES-ISCED II, lower secondary					(0.601)	
Mother					0.738	
ES-ISCED III, upper secondary					(0.777)	
Mother					0.436	
ES-ISCED IV, advanced vocational					(1.421)	
Mother					1.574**	
ES-ISCED V, tertiary education					(0.766)	
Education completion rate						0.009
						(0.018)
Constant	2.945	15.200*	18.090**	18.460***	17.090**	16.820**
	(4.845)	(8.148)	(6.897)	(6.753)	(6.503)	(7.848)
N	965	965	965	965	965	965
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Round Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.100	0.147	0.246	0.246	0.250	0.246

Data sources: European Social Survey (2018; 2006), United Nations (1990), Eurostat (1988-1992), World Bank (1990) and UNESCO (1991-2003).
Note: Robust standard errors in parentheses account for clustering at country-of-origin level.
* $p < .10$, ** $p < .05$, *** $p < 0.01$

Table 5: Robustness - Delimited Age Range of the Age at First Birth

	Age at first birth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mean age	0.943***	0.840**	0.619*	0.550	0.559	0.583	0.738**
	(0.204)	(0.396)	(0.336)	(0.347)	(0.347)	(0.350)	(0.338)
Age			-0.022	-0.016	-0.015	-0.009	-0.022
			(0.026)	(0.026)	(0.026)	(0.027)	(0.026)
ES-ISCED II, lower secondary			-2.793	-2.816	-2.826	-2.732	-2.402
			(1.828)	(1.830)	(1.826)	(1.809)	(1.774)
ES-ISCED III, upper secondary			-1.510	-1.842	-1.869	-1.709	-1.724
			(1.960)	(2.093)	(2.125)	(2.144)	(2.091)
ES-ISCED IV, advanced vocational			0.869	0.010	-0.010	0.306	0.328
			(1.708)	(1.970)	(1.996)	(2.102)	(1.969)
ES-ISCED V, tertiary education			1.303	0.315	0.265	0.214	0.702
			(1.824)	(2.126)	(2.204)	(2.321)	(2.231)
Partner				0.134	0.125	0.302	0.162
ES-ISCED II, lower secondary				(1.242)	(1.230)	(1.192)	(1.282)
Partner				0.711	0.738	0.906	0.754
ES-ISCED III, upper secondary				(1.087)	(1.135)	(1.150)	(1.208)
Partner				3.288	3.274	3.366	3.184
ES-ISCED IV, advanced vocational				(2.156)	(2.144)	(2.144)	(2.162)
Partner				1.732	1.749	1.677	1.669
ES-ISCED V, tertiary education				(1.859)	(1.900)	(1.918)	(1.918)
GDP per capita					-0.000	-0.000	-0.000
					(0.000)	(0.000)	(0.000)
Mother						-0.607	
ES-ISCED II, lower secondary						(0.878)	
Mother						-0.806	
ES-ISCED III, upper secondary						(1.144)	
Mother						1.733	
ES-ISCED IV, advanced vocational						(2.393)	
Mother						0.491	
ES-ISCED V, tertiary education						(0.866)	
Education completion rate							0.034
							(0.021)
Constant	-0.170	2.993	10.720	11.950	11.770	11.020	4.869
	(5.676)	(10.330)	(10.010)	(10.040)	(9.979)	(9.796)	(9.641)
N	482	482	482	482	482	482	482
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Round Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.136	0.218	0.277	0.290	0.289	0.291	0.295

Data sources: European Social Survey (2018; 2006), United Nations (1990), Eurostat (1988-1992), World Bank (1990) and UNESCO (1991-2003).
Note: Robust standard errors in parentheses account for clustering at country-of-origin level.
* $p < .10$, ** $p < .05$, *** $p < 0.01$

Table 6: Robustness - Attitudes toward Working Mothers

	Age at first birth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Children suffer	-2.407	-8.623***	-5.805***	-5.357**	-6.373**	-6.822**	-5.202**
	(5.120)	(2.623)	(1.650)	(1.747)	(2.103)	(2.304)	(1.730)
Age			-0.003	0.016	0.016	0.013	0.030
			(0.026)	(0.024)	(0.023)	(0.026)	(0.027)
ES-ISCED II, lower secondary			0.822	1.624	1.521	1.496	2.552
			(3.305)	(2.562)	(2.467)	(2.542)	(2.056)
ES-ISCED III, upper secondary			2.376	1.939	2.053	2.068	2.955
			(3.103)	(2.168)	(2.114)	(2.189)	(1.904)
ES-ISCED IV, advanced vocational			5.458	4.574	4.467*	3.960	5.068**
			(3.479)	(2.575)	(2.432)	(2.771)	(2.201)
ES-ISCED V, tertiary education			5.843	4.577*	4.462*	4.312	4.767*
			(3.298)	(2.255)	(2.191)	(2.391)	(2.120)
Partner				-0.461	-0.396	0.000	-0.001
ES-ISCED II, lower secondary				(1.445)	(1.464)	(1.998)	(1.429)
Partner				0.164	0.219	0.679	0.418
ES-ISCED III, upper secondary				(1.541)	(1.512)	(2.064)	(1.663)
Partner				2.688	2.681	3.173	3.179
ES-ISCED IV, advanced vocational				(2.121)	(2.133)	(2.179)	(2.420)
Partner				2.720*	2.831*	3.534	3.091*
ES-ISCED V, tertiary education				(1.374)	(1.371)	(1.965)	(1.556)
GDP per capita					0.000	0.000	0.000*
					(0.000)	(0.000)	(0.000)
Mother						-0.620	
ES-ISCED II, lower secondary						(0.863)	
Mother						0.482	
ES-ISCED III, upper secondary						(1.307)	
Mother						0.317	
ES-ISCED IV, advanced vocational						(4.678)	
Mother						-0.956	
ES-ISCED V, tertiary education						(0.989)	
Education completion rate							-0.071***
							(0.022)
Constant	29.620*	49.500***	39.360***	37.820***	39.760***	40.850***	38.650***
	(13.740)	(7.144)	(6.016)	(4.002)	(3.580)	(4.473)	(5.347)
N	251	251	251	251	251	251	251
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Round Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.010	0.262	0.404	0.446	0.446	0.445	0.469

Data sources: European Social Survey (2018; 2006), World Values Survey (2017-2022), World Bank (1990) and UNESCO (1991-2003).
Note: Robust standard errors in parentheses account for clustering at country-of-origin level.
* $p < .10$, ** $p < .05$, *** $p < 0.01$

Table 7: Robustness - Attitudes toward Job Distribution

	Age at first birth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Men have more right to a job	2.033	0.816	1.022	0.895	0.640	0.705	0.565
	(1.225)	(1.237)	(1.035)	(1.024)	(1.453)	(1.390)	(1.367)
Age			-0.006	-0.001	-0.002	-0.003	-0.006
			(0.026)	(0.026)	(0.027)	(0.027)	(0.029)
ES-ISCED II, lower secondary			-2.371	-2.185	-2.091	-2.017	-1.978
			(1.793)	(1.804)	(2.093)	(2.087)	(2.034)
ES-ISCED III, upper secondary			-0.469	-1.096	-1.024	-0.942	-0.925
			(2.097)	(2.257)	(2.500)	(2.509)	(2.413)
ES-ISCED IV, advanced vocational			2.628	1.331	1.421	1.816	1.602
			(1.787)	(2.096)	(2.411)	(2.494)	(2.276)
ES-ISCED V, tertiary education			3.690*	2.320	2.446	2.428	2.680
			(1.834)	(2.135)	(2.549)	(2.587)	(2.394)
Partner				-0.175	-0.192	-0.100	-0.249
ES-ISCED II, lower secondary				(1.707)	(1.752)	(1.751)	(1.748)
Partner				1.124	1.100	1.158	1.018
ES-ISCED III, upper secondary				(1.520)	(1.590)	(1.633)	(1.570)
Partner				3.223	3.239	3.417	3.171
ES-ISCED IV, advanced vocational				(2.496)	(2.446)	(2.407)	(2.416)
Partner				2.215	2.179	2.087	2.088
ES-ISCED V, tertiary education				(2.124)	(2.222)	(2.192)	(2.176)
GDP per capita					0.000	0.000	0.000
					(0.000)	(0.000)	(0.000)
Mother						-0.206	
ES-ISCED II, lower secondary						(0.633)	
Mother						-1.323	
ES-ISCED III, upper secondary						(1.095)	
Mother						1.743	
ES-ISCED IV, advanced vocational						(2.422)	
Mother						-0.176	
ES-ISCED V, tertiary education						(0.923)	
Education completion rate							0.016
							(0.020)
Constant	17.690***	22.030***	21.890***	21.550***	22.190***	22.260***	21.480***
	(4.457)	(5.014)	(4.417)	(4.618)	(5.195)	(5.299)	(4.818)
N	493	493	493	493	493	493	493
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Round Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.032	0.175	0.293	0.307	0.306	0.311	0.307

Data sources: European Social Survey (2018; 2006), World Values Survey (2017-2022), Afrobarometer (2016-2018), World Bank (1990) and UNESCO (1991-2003).
Note: Robust standard errors in parentheses account for clustering at country-of-origin level.
* $p < .10$, ** $p < .05$, *** $p < 0.01$