



Master's Programme in Economic Growth, Population and Development

The Effect of Changing Gender Roles on Fertility

An analysis of two European country groups

by

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This thesis aims to test the effect of changing gender roles on fertility. Previous literature has suggested that moving towards gender equality in the household sphere can increase fertility. I test whether a more equal division of housework or gender-egalitarian attitudes affect fertility. Two country groups are analysed that are at different levels regarding fertility and female labour force participation. The first group includes Northern countries (Denmark, Finland, Sweden, Norway) the second group continental countries (Austria, Germany, Switzerland). The cross-sectional data set stems from the International Survey Programme (ISSP) 2012 - Family and Changing Gender Roles IV. With the help of logistic regression models, I look at different parity transitions and their relationship with the division of housework, the perceived fairness of this division, and the attitudes towards how paid parental leave should be divided. Although the estimates were not significant in all cases, some suggestive evidence could be found for a positive relationship between having more than two children and a more egalitarian division of housework in the Northern countries. In comparison, the continental countries seem to have not evolved as far regarding gender-egalitarian behaviour and attitudes, thus weaker estimates were reported. A potential reason for this might be their differing welfare systems. Changing the welfare systems of the group of the continental countries towards a model similar to the Northern countries might help to increase fertility in the continental countries.

Keywords: *Gender equality, fertility, housework division, Gender revolution, gender egalitarian attitudes, demography*

Programme Code: EKHS01
Master's Thesis (15 credits ECTS)
June 2022
Supervisor: Gabriel Brea-Martinez
Examiner: Prof. Martin Dribe
Word Count: 12402

Acknowledgements

I would like to thank my supervisor Gabriel Brea-Martinez for his helpful advice and support throughout my thesis writing process.

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1 Introduction

Two-thirds of EU regions are expected to have a lower population size in the year 2050 compared to 2019 (Eurostat, 2019). Fertility has dropped to historically low levels in the second half of the twentieth century. Although it did slightly recover in some countries, it has remained below a total fertility rate of 2.1, which is considered the replacement level (meaning that this is the average number of children per woman needed to maintain a constant population size if no migration is taking place) (Eurostat, 2019a). Some countries even witnessed total fertility rates that were below 1.3 children per woman (i.e Spain, Italy) (World Bank, 2019). Paired with an increasing life expectancy, this creates challenges for the current welfare systems. An ageing population means that the share of elderly people increases while the working-age population (age 20-64 years, as defined by the European Commission (2020, p. 10) decreases. This means younger generations cannot support increasing healthcare and pension costs in the long term. While there were on average 2.9 people in the working-age population for every person above the age of 65 in 2019, this is projected to change to 1.7 in the year 2070. Increasing fertility levels could help to mitigate some of these issues (European Commission, 2020). Therefore, this is a relevant issue to explore further.

First of all, it is important to know what originally led to the low fertility levels. Gary Becker (1991) saw increased opportunity costs of having children as a major determinant. One reason for the very low fertility levels was put forward by the proponents of the framework of the Second Demographic Change (see for example Lesthaeghe, 2010). They saw a change in values towards the pursuit of more individualistic goals and a change in family patterns, away from traditional norms, as the main determinant of the transition to very low fertility levels. An important aspect of the latter framework was the proposed long-term nature of this change. However, some European countries have witnessed a reversal in fertility trends. This was in particular the case in Northern Europe.

Northern European countries have exhibited the highest fertility rates and the highest female labour participation rates. Thus, the relationship between female labour force participation changed. Highly educated working women had been the drivers of the first fertility decline, but a reversal had happened. This could be found on the macro- (comparison of countries on the aggregate level) as well as on the micro-level (comparison of individuals) (Brewster & Rindfuss, 2000; Goldscheider et al. 2013). As this change is ongoing, different theoretical approaches have emerged to explain this development, mainly dealing with changing gender roles and attitudes.

One of them is the framework of the Gender revolution and its two halves, which was proposed by Goldscheider et al. (2015). According to the authors, the first half of the Gender revolution

was the increasing participation of women in the labour force, thus a move toward gender equality in the public sphere. The second half is an increase in the number of men taking up tasks in the household, hence increasing gender equality in the private sphere (Goldscheider et al., 2015).

Another framework proposed by Esping-Andersen and Billari (2015) deals with normative change regarding gender roles and relations. Low fertility levels are seen as a transitory state between the state of traditional gender attitudes and gender egalitarianism. While the latter two exhibit stable and high fertility rates, the period in between leads to low fertility levels because of normative confusion regarding gender roles, according to the authors (Esping-Andersen & Billari, 2015). This will be explained in more detail in chapter 3 of this thesis. To reach the gender-egalitarian state a diffusion of norms is necessary. Esping-Andersen (2017) stated that highly educated women should be at the forefront of this change as they also led the first fertility transitions, thus they adopt new norms faster.

Building on these theoretical frameworks, this thesis aims to test the relationship between gender equality - in the form of an egalitarian division of housework and gender-egalitarian attitudes - and fertility. I will analyse two country groups that are at different levels regarding fertility and female labour force participation. The first group includes the Northern countries (Denmark, Finland, Sweden, Norway) the second group continental countries (Austria, Germany, Switzerland). The data stems from the International Survey Programme (ISSP) 2012 - Family and Changing Gender Roles IV. To my knowledge, it has not been used in other studies regarding the topic of gender roles and fertility. It is very well suited thematically regarding my research intent as it contains a lot of fitting variables on the division of housework, and gender attitudes, for example. The analysis will be conducted through the use of logistic regression models.

My research intent connects the aspects of the second half of the Gender revolution (Goldscheider et al., 2015) with the approach of the normative change (Esping-Andersen & Billari, 2015; Esping-Andersen, 2017). By making this combination and using the described micro-level data set, this thesis will add to the growing literature regarding the topic of gender roles and fertility. By looking at the two different country groups I can assess the progression of the Gender revolution and see whether the effect is only visible for the group of the Northern countries. The fact that they have different welfare regimes (see Esping-Andersen, 1990) may also make it an insightful comparison. My research question will be: "Does an increased involvement of the men in the household or egalitarian gender role attitudes lead to higher fertility?". Potential findings may, for example, provide political implications for European countries regarding family policy.

This thesis is structured as follows: I proceed by defining the most important concepts and giving an overview of the previous literature on this topic. After this, I will introduce the theoretical frameworks on which the research question is based and present the corresponding hypotheses. This is followed by an overview of descriptive statistics on the central factors of this thesis (namely the development of fertility, female labour force participation and gender

equality) for all of the chosen countries. In chapter 5, I will describe the data set, the creation of my sample, and the method. The results of my analysis will be presented in chapter 6 followed by a discussion section in chapter 7. The latter will include an interpretation of the results and a discussion of the limitations. In chapter 8, I will give a short summary and tie up my main results with the existing literature. Finally, I will give a few remarks for future research.

2 Previous Literature

First of all, I will define some important concepts that will be used in this thesis. The term fertility refers to a woman giving birth to an alive baby. In this thesis, the usual measure is the total fertility rate. This rate measures the number of children a woman would bear if she survives to the end of her childbearing years(15-49) and the age-specific rates of childbearing would remain constant over this time (Bongaarts & Feeney, 1998)

Another important concept in this paper is Gender equality, specifically in the family sphere. Gender equality means that there is an equality of opportunity and equality of outcome, thus an equal distribution. In the case of this paper, it especially means that the husband and wife take up equal shares of housework or parental leave for example. Gender equity is a related concept, although it focuses rather on the perceived fairness of a distribution (McDonald, 2013, Neyer et al., 2013). Both aspects will be tested in this paper.

The total fertility rates have strongly decreased since the 1960s in Western Europe. In the 1970s they dropped below the replacement level (total fertility rate of 2.1) in the countries. which are of interest for this study. Since then it has fluctuated slightly but has remained below replacement (with a small exception for Sweden around the year 1990) (World Bank, 2019).

From an economic point of view, the decreasing fertility rates were explained by increasing opportunity costs of having children, meaning that increasing opportunities in the labour market made the decision of having children more costly in terms of lost earnings and career opportunities (Becker, 1991). Another important factor was the postponement of childbearing to later ages. This distorted the period fertility rates which are based on the assumption that age-specific fertility rates will remain the same in the future (Bongaarts & Feeney, 1998). However, as soon as postponement slows down or stops the total fertility rate should rise again (Kohler et al., 2002). This is what happened especially in countries that exhibited very low fertility rates (below 1.3). Nevertheless, cohort fertility of women born in the 1970s is lower than the cohort fertility of older cohorts and it remains below replacement level (Goldstein et al., 2009).

The framework of the Second Demographic Transition (SDT) presents a possible explanation for the transition to very low fertility rates. Proponents of this framework see a change in values as the main reason for the very low fertility rates. Having a family and union formation became less important and individual values such as self-realisation became more important (Lesthaeghe, 2010). This implies that a fundamental and long-term change in fertility levels took place. As will be discussed later on in this paper there are indicators why this might not be the case.

While fertility decreased, female labour force participation increased in the countries of the European Union (World Bank, 2022). In industrialised societies, the association between women's labour force participation and childbearing has historically been negative. This was because women experienced a high incompatibility between having a job outside the home and caring for children (Stycos & Weller, 1967). As women were typically the main responsible person for childcare, they had to either limit their number of children or outsource the childcare (Brewster & Rindfuss, 2000) As it was mentioned before, the opportunity costs of having children grew (Becker, 1991) leading more women to choose a career over childbearing. This led to the previously described low-fertility levels that could be witnessed in industrialised countries (Brewster & Rindfuss, 2000). But this relationship changed.

Rindfuss and Brewster (1996) were one of the first scholars who described the changing relationship between the number of women in the labour force and fertility on a macro level. In the 1970s the relationship between female labour force participation and fertility was still negative, in the middle of the 1990s however a positive relationship could be estimated by running a simple regression. Countries that witnessed very low fertility levels (for example Spain and Italy) also exhibited a very low female labour force participation and countries with the highest levels of female labour (i.e. Denmark and Sweden) also had the highest total fertility rates. Fertility had not decreased as much in the Northern countries as it did in the Southern countries. Female labour force participation increased in both country groups by a similar amount during that time. A possible explanation for this might be that women in countries with higher fertility rates have found ways to combine childcare and having a job outside the home, thus they could decrease the incompatibility of these roles. Social, economic, and political factors might have played a role in this development (Brewster & Rindfuss, 2000; Rindfuss & Brewster 1996).

One factor that could have decreased the incompatibility is an increasing involvement of the men in the household. Goldscheider et al. (2013) have found a positive association between an egalitarian division of housework and fertility. The authors used data from Sweden for their analysis. Sweden is considered one of the most gender-egalitarian countries in Europe, having had the highest values in the Gender Equality Index in the European Union (EU) since the year 2010. This index measures Gender Equality not only in the work sphere but also in other spheres such as power, health, time, and knowledge (European Institute for Gender Equality, 2021). Goldscheider et al. (2013) could only find a positive relationship between the division of housework and fertility for second births. Attitudes toward egalitarian gender roles did only affect fertility if the housework was shared as well (Goldscheider et al., 2013).

In Finland, a country that is also considered quite advanced in terms of gender equality, Miettinen et al. (2011) found that attitudes towards gender roles have an impact on the ideal number of children men wish for. However, it was found that men with traditional gender role attitudes and also men with egalitarian gender role attitudes had a higher expected fertility compared with men with intermediate attitudes, hence they found a U-shaped relationship. For the case of women the results were not as clear and a bit more ambiguous (Miettinen et al., 2011).

A study on Norway by Dommermuth et al. (2017), who used micro-level data, found that inequality in the division of housework lowers the chance of having more children. They also looked at the perception of the fairness of the division of housework and child care. For the latter, the perceived fairness seemed to play a role as mothers who were not happy with the division were less likely to have another child, especially when going from one to two children (Dommermuth et al., 2017). Another study by Duvander et al. (2010) looked at the parental leave uptake of the father and its effect on fertility in the case of Norway and Sweden. They found that there is a positive association between those two factors. An effect on continued childbearing was found for couples with one child and with two children (Duvander et al., 2010).

For the continental countries that will be analysed in this thesis (Austria, Germany, Switzerland), not a lot of papers have looked into these aspects. One study in Switzerland found that a woman who is satisfied with the division of the household workload is more likely to have another child if she already has one child. This could not be found for childless women (Bernardi et al., 2013). Other papers looking at the mentioned countries usually focus on social policy rather than gender attitudes and the housework division (see for example Lanfranconi & Valarino, 2014; Neyer & Rieck, 2009).

The relationships between gender attitudes, the involvement of the man in the household, and fertility have also been examined in countries outside of Europe. A study in the United States (U.S.) reported similar results as in the case of Finland. However, their main focus was the division of housework. Similar to Goldscheider et al. (2013), they looked at dual-income couples and the transition to the second child. They found a U-shaped relationship meaning that couples with a traditional division of housework (wife does more than 84 percent of the housework) and couples with a modern division (wife does less than 54 percent) had a higher probability of having a second child than couples with an intermediate division of housework (wife does between 54 and 84 percent). Looking at gender attitudes alone as a predictor of having a second child, did not yield significant results in this study in the United States (Torr & Short, 2004).

Another non-European study looked at East-Asian countries and examined the relationship between the division of housework and the ideal number of children each partner wants. While women do a much larger share of housework in all of the examined countries, they could find a positive association between a husband's greater involvement in the household and a wife's wishes for additional children, the same could not be found for the husbands. Overall, they concluded that low fertility in East Asia is linked to women's double burden regarding housework and a job outside the home (Kan & Hertog, 2017).

Overall, there are indications that higher gender equality is associated with higher fertility levels, especially on the macro-level (see for example Brewster & Rindfuss, 2000). On the micro-level, the picture is less clear. For some countries, a positive relationship between the division of housework and fertility could be found, but it depends on the parity. Furthermore,

it depended on how gender equality was defined and measured, thus there is an inconclusive picture regarding the relationship between gender equality and fertility (Neyer et al., 2013). By comparing two country groups with different characteristics I will add new insights to this relationship. In the following chapter, I will explain the theoretical framework my research question is based on.

3 Theories and Hypotheses

McDonald (2000) already suggested differences in gender equity as a reason for low fertility levels in most industrialised countries. While individual-oriented institutions such as education and the labour force started to come closer to gender equity, family-oriented institutions for example the organisation and the conditions of the workplace and the family, and government transfers exhibit low levels of gender equity (McDonald, 2000). McDonald deliberately focused on equity instead of equality to support his hypothesis on the macro-level. According to the author, it should not be assessed whether the amount of working hours is the same (which would be considered gender equality), as gender inequality in that sense would not lead to lower fertility rates. The concept of gender equity on the other hand, measures the perceived fairness of outcomes, and the equality of opportunity rather than the equality of outcome. If women perceive family-oriented institutions as unfair (as they do not support their gained freedoms in the labour market and educational sphere) they might respond by lowering their fertility (McDonald, 2013).

Connected to the hypothesis of McDonald (2000) are the two main theoretical frameworks, which will act as the base for this thesis. The first one was proposed by Goldscheider et al. (2015), who suggested that a Gender Revolution took place in the second half of the twentieth century and the beginning of the twenty-first century. During the first half of this revolution female labour force participation increased sharply. According to the authors, this development depressed fertility levels as women were faced with two "shifts" (or a double burden) when they were working outside the home and were responsible for housework and childcare (Hochschild & Machung, 1989 cited in Goldscheider et al. 2015). However, the pressure of the second shift may be reduced when an increasing number of men start to take up larger shares of housework. This development is regarded as the second half of the Gender Revolution. It may lead to a strengthening of families and higher fertility. The Gender Revolution thus presents an alternative framework to the SDT. The very low fertility levels are not regarded as a long-term trend caused by a change in values regarding the importance of having children but rather as a temporary consequence of women facing a double burden that kept them from realising their desired fertility (Goldscheider et al. 2015).

The second theoretical framework was proposed by Esping-Andersen and Billari (2015). They presented an equilibrium framework dealing with a change in attitudes towards gender roles. It follows a similar pattern as the Gender Revolution, though it focuses on a change in attitudes rather than the actual involvement of the men in the household. According to the authors, there were three stages in the development of the normative guidelines. The first was a traditional equilibrium that exhibited high and stable fertility. The wife remained in the private sphere and the man in the public sphere. This can also be referred to as the male breadwinner model. In the

second stage, this model lost its acceptance as norms changed, women started to increase their education levels, and increasingly entered the work sphere. This was a period of normative confusion regarding gender roles and was thus a stage of multiple equilibria of normative guidelines. While women's roles in the public sphere evolved quite quickly, societal institutions did not adapt at the same pace. This led to a decrease in the fertility rate. The reversal in fertility trends, that could be observed in the Northern countries, for example, is considered to be the third stage, which is a new equilibrium with gender-egalitarian norms and practices (Esping-Andersen & Billari, 2015; Esping-Andersen, 2017).

A diffusion of gender-egalitarian norms is needed to reach the third stage and a new stable equilibrium. According to Esping-Andersen (2017), highly educated people play an important role in influencing new norms and their diffusion as they adopt new values earlier on average than people with lower levels of education. Sullivan et al. (2014) also highlighted the effect of education levels on egalitarian gender norms and as well as their effect on fertility levels. Their paper stated that having a college degree has a strong positive relationship with taking up larger shares of housework and childcare. Thus more educated men might be more involved in the private sphere (Sullivan et al., 2014).

While the Gender Revolution (Goldscheider et al., 2015) is based on the actual involvement of the men in the private sphere, the framework by Esping-Andersen and Billari (2015) revolves around changing norms and attitudes. Both frameworks, however, present an alternative to the SDT and reject the idea that having children has become less important and that fertility will remain at very low levels. They rather promote the idea that there are obstacles for families (especially women) to realise their desired number of children if there is a lack of gender-egalitarian norms and/or an unequal division of housework.

I will test whether changing gender norms or the division of housework have an impact on fertility. For the variable of housework, I will test different models for gender equality (equal division of housework) and gender equity (perceived fairness of the division of housework). I will compare two country groups with different characteristics and assess to what extent the frameworks of Goldscheider et al. (2015) and Esping-Andersen & Billari (2015) hold for these two country groups. Three hypotheses emerge for this paper:

Hypothesis I: *Couples exhibit higher fertility when the man is doing an equal share of the housework or more*

Hypothesis II: *Couples exhibit higher fertility when the woman perceives the division of housework as fair*

Hypothesis III: *Men with more egalitarian gender attitudes have a higher number of children*

4 Descriptive statistics on the countries of interest

4.1 General characteristics

I will look at two groups of countries in Europe in my analysis. The group of the Northern countries includes Denmark, Finland, Sweden, and Norway. The group of the continental countries includes Austria, Germany, and Switzerland. These countries are selected from the list of countries that are included in the data set at hand. Esping-Andersen (1990) made a similar distinction in his book when he looked at the welfare regimes of European countries. He separated the countries by the different characteristics of their welfare regimes. The Northern countries are characterised by a social-democratic welfare system, which puts a stronger focus on the individual. The continental countries lean more towards a conservative corporatist welfare regime, which concentrates on the family as a unit to a large extent (see Epsing Andersen, 1990). In this study, the Northern group acts as the more progressed group in terms of fertility and female labour force participation (see Chapter 4.2). This early development might be attributed to the welfare regime to a certain extent. The continental group with its differing welfare regime acts as a comparison to the Northern group.

The Southern European countries are not included as the development of their fertility and female labour force participation rates differed to quite a large extent from the other two country groups. To see an effect of the involvement of the men in the household, gender equality needs to be at a certain level. Compared to the other two groups the group of the Southern countries (such as Greece, Italy, and Spain) exhibit lower fertility rates and lower female labour force participation rates (World Bank, 2019 & 2022).

4.2 Fertility

In figure 4.1, the fertility development of all the countries of interest is depicted from the year 1960 to 2012 (which is the year in which the data was collected that will be used for this study). Here the strong decrease in the fertility rates in the 1960s and 1970s, which was described earlier, and the following fluctuations are very visible. The group of the Northern countries witnessed relatively high fertility over the past decades starting in the late 1980s (though there were some fluctuations, especially in the case of Sweden). The fertility rates of the continental countries, however, were below those of the Northern countries for most of this period and a

clear divergence is visible starting in the year 2000. While the Northern countries exhibited a total fertility rate of around 1.8 children per woman in the year 2005, the countries of the continental group exhibited fertility rates between 1.34 (Germany) and 1.42 (Switzerland) in the same year (World Bank, 2019a).

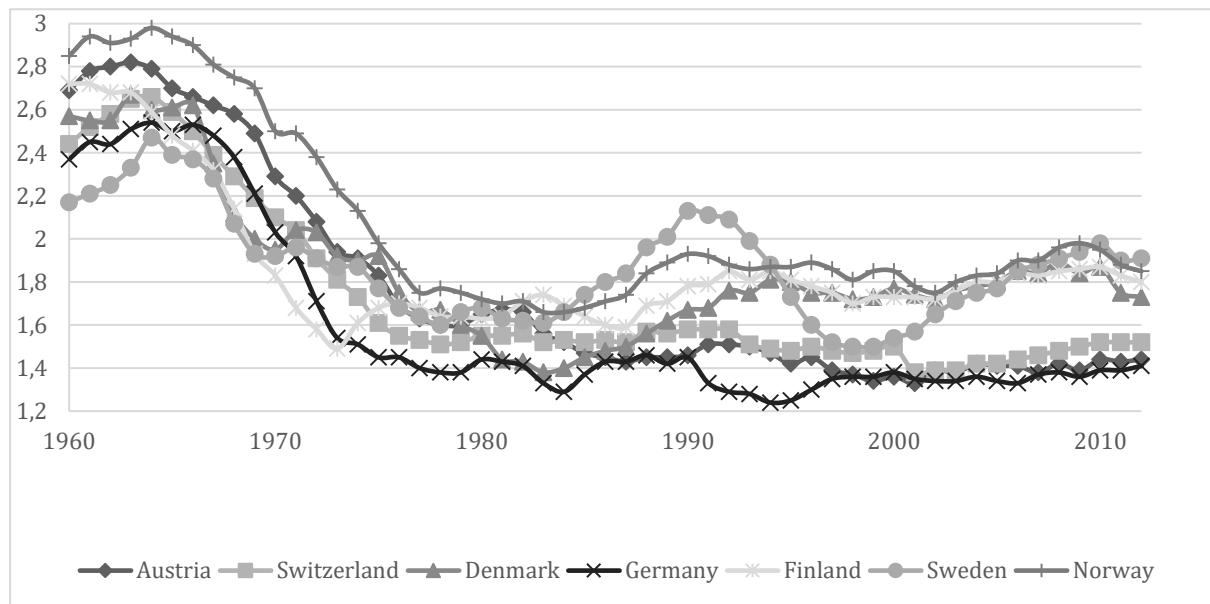


Figure 4.1 Development of the Total Fertility Rate Austria, Denmark, Finland, Germany, Norway, Sweden, and Switzerland from the year 1960 to 2010 (World Bank, 2019a)

4.3 Female labour force participation and Gender equality

The female proportion in the labour force has increased in all of the countries of interest since 1990 (see figure 4.2). However, it is visible that the group of the Northern Countries exhibited higher proportions of women in the labour force throughout the shown period of time. In Sweden and Finland, 47.44 percent and 48.04 percent of the total labour force were female in 2012 (year of data collection for the main data set used in this thesis). These countries exhibit the largest proportions of women in the labour force in all of Europe. It can also be observed that within the previously defined country groups, the participation rates have developed in a similar manner. In 2019 the proportions of all countries had approached similar levels although those of the continental countries were still slightly lower. However, the Northern countries had reached their high levels at a much earlier point in time compared to the continental countries (World Bank, 2022a).

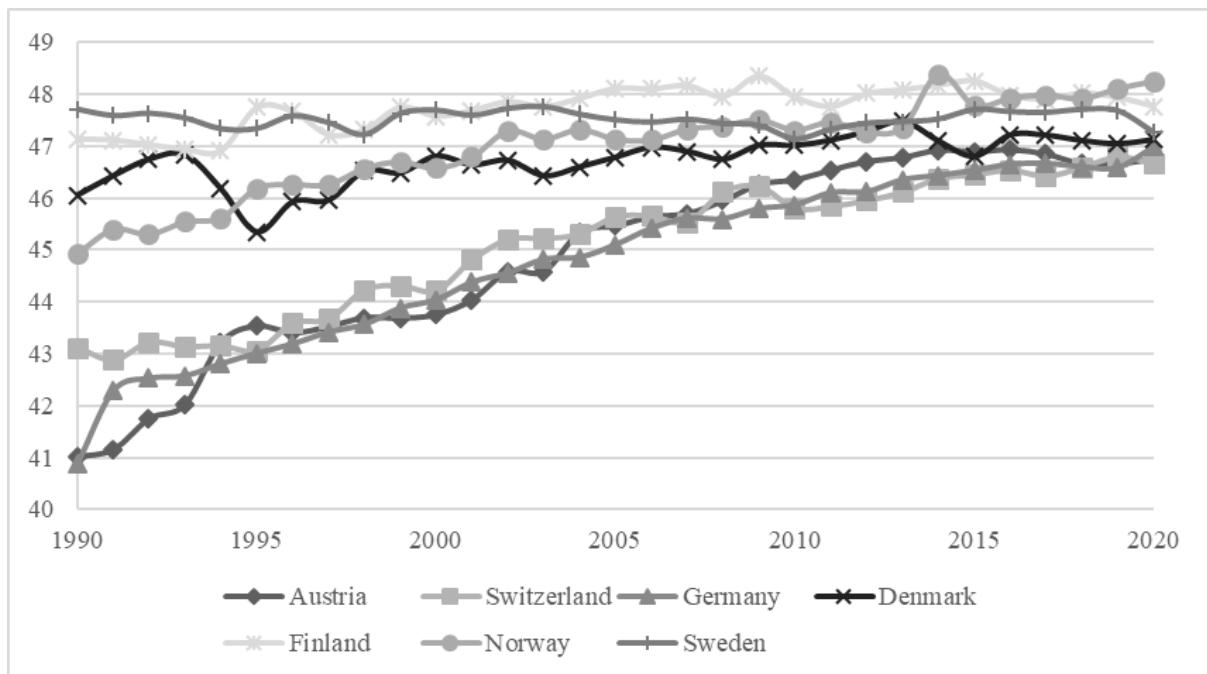


Figure 4.2 Development of the proportion of labour force that is female for Austria, Denmark, Finland, Germany, Norway, Sweden, and Switzerland from the year 1990 to year 2020 (in percent) (World Bank, 2022a)

As I mentioned before Sweden has had the highest score on the Gender Equality Index of the European Union since the year 2010. The remaining countries of this group had scores that were also in the top 30 percent of all EU countries (European Institute for Gender Equality (EIGE), 2021). Therefore, they present a good opportunity to assess the effect of gender-egalitarian attitudes and division of housework on fertility.

Overall, combining the observations of these countries to make two larger groups facilitates a comparison between two country groups that witnessed a similar development regarding female labour force participation and fertility within their group, but which differ in their development across groups. Due to the similar characteristics of the countries in each group, I can furthermore increase my sample size by grouping them together and comparing these two larger groups. I will elaborate on this further in chapter 5.

5 Data & Method

5.1 Data set

I will use a cross-sectional data set for my study. It stems from the International Social Survey Programme (ISSP) supervised by the GESIS institute. This research institute is financed by the Federal Government of Germany. I will specifically use the module "Changing Gender Roles IV" from the year 2012, which is the newest available version. The data set was directly downloaded from the GESIS Data archive on their website (source of the data set: https://search.gesis.org/research_data/ZA5900). It contains observations on 24 countries and was collected through interviews. A standardised questionnaire was used in order to make the observations of different countries comparable. The mode of data collection differed between countries. Some conducted face-to-face interviews, others used postal surveys or web surveys (GESIS, 2016).

As the title of this module implies, the objective was to observe the opinions regarding gender roles but also the actual roles regarding the division of housework for example. Thus it is a very suitable data set for the purpose of my study. Besides the usual demographic variables, such as age, gender, level of education, or work status the data set also contains variables on the attitude towards the distribution of paid parental leave, the division of housework, and the significance of children in life for example (GESIS, 2016).

As with all survey data, there is uncertainty about the reliability of the answers, as the respondents might not answer truthfully or overestimate certain aspects (for example regarding the housework variable respondents were asked to estimate not only their share but also the share of their partner (if they are in a relationship)). Further issues include non-response, as this can create a potential bias and data errors. Furthermore, the sample sizes for the different countries are quite small (see Chapter 6.1 Table 6.1) making it more difficult to identify small coefficients, which can be an issue when trying to measure fertility responses (Jergins, 2021).

The fact that the data set is cross-sectional and from the year 2012 (which may seem as fairly old) could be further points of criticism. However, due to availability reasons and the fact that this data set contains a lot of useful and very fitting variables for my research question, I still chose to use it. Furthermore, as mentioned before, it is the newest available version of this module.

5.2 Sample

The sample for this study includes observations on the Northern group (Denmark, Finland, Norway, Sweden) and the continental group (Austria, Germany, Switzerland). Respondents who are below the age of 18 are excluded. Furthermore, respondents who are not in a relationship were excluded, as the division of housework cannot be measured in these cases. I will focus on heterosexual couples, where the partner is present in the same household.

For the main models, I will look at women who already have at least one child, as the transition from zero to one child is influenced by a lot of different aspects which cannot all be captured in this analysis thus it would not give accurate and reliable estimates. Additionally, the transition to two children (or more) is more relevant regarding the aspect of the replacement level as Goldscheider et al. (2013) pointed out. I will exclude people above the age of 55, as only children up to the age of 17 who live in the same household were measured.

5.3 Method

As it was mentioned before I will use logistic regression models for my analysis. In these models the dependent or outcome variable is binary, thus it can only take on two values. In a logit model, the logarithm of an odds ratio is calculated (see equation 1) (Kleinbaum & Klein, 2010). Here, p equals the probability that the dependent binary variable equals 1 (in this case: that the parity (or the number of children) is higher than a certain threshold).

$$\text{logit}(p) = \log\left(\frac{p}{1-p}\right) \quad (1)$$

Logit coefficients are not very easy to compare and interpret thus the average marginal effects will be calculated. These will present the differences in the probability of the dependent variable equalling one when the independent variable in question changes by a small amount (keeping all other factors equal). As the main independent variables will not be continuous in this analysis, the average marginal effect will show the marginal difference of the probability (that the outcome variable equals one) when the independent variable switches from zero to one (Williams, 2012; Perraillon, 2019). Additionally, an Ordinary Least Squares (OLS) regression will be run as a comparison model.

The dependent variables will measure the different parity transitions. Firstly, I will compare people who have one child with people who have at least two children. Secondly, I will compare people who have two children with people who have at least three children. The dependent variable in the OLS regression will be the total number of children.

My main independent variables are supposed to capture three different aspects of the theoretical frameworks I previously described (see chapter 3). In the first two models, the main independent variable captures the perceived fairness of the division of housework thus the

previously described aspect of gender equity. This was coded as a dummy and a categorical variable. The dummy indicates whether the respondent answered that he (or in the case of a female respondent: the husband) does his fair share or more of the housework (MENHW) (see equation 2). It equals one if that is the case and zero otherwise. There will also be a separate model (Model 2) with a categorical variable of the perceived fairness of the division of housework divided into a traditional (the woman does a lot more than her fair share), middle (the woman does a bit more than her fair share), and modern (man does his fair share or more) category (HHSHARE) (see equation 4). This is done in order to test the previously described U-shaped relationship (Torr & Short, 2004, Esping-Andersen & Billari, 2015). It will not only be tested with a variable of the perceived fairness of the division of housework (capturing gender equity) but also with the actual hours of housework (capturing gender equality).

Model 1

$$\text{logit}(p) = \alpha + \beta_1 \text{MENHW} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \varepsilon_i \quad (2)$$

Adv. Model 1

$$\text{logit}(p) = \alpha + \beta_1 \text{MENHW} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \beta_6 \text{HDEGREE} + \beta_7 \text{CHILDCAREER} + \varepsilon_i \quad (3)$$

Model 2

$$\text{logit}(p) = \alpha + \beta_1 \text{HHSHARE} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \varepsilon_i \quad (4)$$

Adv. Model 2

$$\text{logit}(p) = \alpha + \beta_1 \text{HHSHARE} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \beta_6 \text{HDEGREE} + \beta_7 \text{CHILDCAREER} + \varepsilon_i \quad (5)$$

Therefore, the third model looks at the division of housework measured in hours (*RatioHouseworkHrs*) (see equation 6). This is supposed to capture the effect of gender equality. It is also separated into a traditional, an intermediate, and a modern division of housework following Esping-Andersen & Billari (2015) and Torr & Short (2004). In this case, the hours of the respondent were divided by the housework hours of the spouse to build a ratio. Then it was split up into tertiles (circa 33% of the observations in each group). This was done in order to have enough observations in each group to allow a more meaningful analysis. As this will only be analysed for the female group a high ratio implies a less involved man and a low ratio implies a more involved man. For the Northern countries the lowest tertile stands for a more involved man (modern group), the middle tertile is the intermediate (or middle) group in which the woman does a bit more than the man and the highest tertile captures the effect of a traditional household in which the man is a lot less involved in housework. The variable for the actual hours of housework was constructed a bit differently for the continental group in order to make the results comparable. Female respondents in the group with a more involved man in the household had a housework hours ratio which was below 1.28. The middle group lies between 1.28 and 4. The traditional group starts at a ratio of 4.

Model 3

$$\text{logit}(p) = \alpha + \beta_1 \text{RatioHouseworkHours} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \varepsilon_i \quad (6)$$

Adv. Model 3

$$\text{logit}(p) = \alpha + \beta_1 \text{RatioHouseworkHours} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \beta_6 \text{HDEGREE} + \beta_7 \text{CHILDCAREER} + \varepsilon_i \quad (7)$$

In the fourth model (see equation 8) the independent variable will be the preferred division of paid parental leave (PREFLEAVEDIV), which is supposed to capture the gender attitudes factor in fertility decisions. The respondents were asked to imagine a couple in a similar working situation, who are both eligible for paid leave. Then they were asked how the paid leave should be divided between the mother and the father (GESIS, 2016). The variable will be a dummy that equals one if a male respondent thinks that the father should take half or more if possible and zero otherwise. This model will only be run with the sample of male respondents as it is the change in their attitudes that is expected to influence fertility positively.

Model 4

$$\text{logit}(p) = \alpha + \beta_1 \text{PREFLEAVEDIV} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \varepsilon_i \quad (8)$$

Adv. Model 4

$$\text{logit}(p) = \alpha + \beta_1 \text{PREFLEAVEDIV} + \beta_2 \text{AGE} + \beta_3 \text{AGE2} + \beta_4 \text{EDUCYRS} + \beta_5 \text{EMPLOYSTAT} + \beta_6 \text{HDEGREE} + \beta_7 \text{MOTHWORK} + \varepsilon_i \quad (9)$$

In all of the models I will control for age, age squared, years of education (EDUCYRS), and the current employment status of the respondent (EMPLOYSTAT) (a dummy variable that equals one if the respondent is currently in paid work and zero otherwise). This is taken as a baseline model. ε_i is the error term, which accounts for the uncertainty due to unobserved factors. More controls will be added in an advanced specification. The first is the highest degree of the respondent (HDEGREE). Degree levels are reported as a categorical variable with three different values (secondary education, post-secondary non-tertiary, and tertiary education). Primary education was excluded due to a very small number of observations (see Appendix Tables A.1 and A.2) as it could not produce reliable estimates when running the models. This control variable is added in all of the advanced models.

Other more advanced controls include whether the respondent had a working mother (MOTHWORK) and whether children are viewed as a career obstacle (CHILDCAREER). Both will be dummy variables. As the dummy variable of the working mother is related to the development of gender attitudes of men (see Gold & Andres, 1978), and these, in turn, might have a positive influence on fertility (which is the objective of this study), it will only be included for the model on gender attitudes (see equation 8 and 9) which will be analysed for the group of the male respondents. The variable measuring whether children are seen as a career

obstacle will only be included for the female groups (equations 2-7). As it was mentioned before, having children is related to opportunity costs (see Becker, 1991). Having children might impose costs on the career of the mother (see Adda et al., 2017) thus it can decrease her fertility intentions.

The regressions will be run separately for each country group. The housework division models will only be run for women, as it is their childbearing intention that is influenced by a double burden. The model concerning the gender attitudes will only be run for men, as it is the change of their gender attitudes that might influence fertility positively. I will run separate regression for each of the dependent variables and each of the main independent variables. I will run the baseline version first and then add the more advanced controls. The OLS regressions (that will be run for comparison) will be set up the same way as the logit models except that the dependent variable will be the total number of children. Finally, for a selected model I will repeat the regression, but restrict the sample to couples who both worked for pay when at least one of their children was under school age, as then the double burden for the woman might be the largest, thus her fertility intentions might be impacted more strongly by a more involved man in the household.

6 Analysis

6.1 Descriptive Analysis

In Table 6.1 the number of respondents (already adapted to the sample restrictions) for each country is shown. Germany, Denmark, and Norway have the highest numbers of respondents. Overall, it is distributed quite evenly. When adding all the country groups together, there were 1,653 respondents in the continental group and 2,082 respondents in the group of the Northern countries.

Table 6.1 Number of respondents for each country in the analytical sample

Country ISO 3166 Code (see V3 for codes for the sample)	Freq.	Percent	Cum.
AT-Austria	464	12.42	12.42
DK-Denmark	625	16.73	29.16
FI-Finland	467	12.50	41.66
DE-Germany	678	18.15	59.81
NO-Norway	590	15.80	75.61
SE-Sweden	400	10.71	86.32
CH-Switzerland	511	13.68	100.00
Total	3735	100.00	

6.1.1 Northern countries

942 respondents were male and 1140 respondents were female in the Northern group (see Table B.1, Appendix B). About 61 percent of the respondents reported having children (below the age of 18 and who live in the same household) (see Table B.2, Appendix B). The mean age was 40.547 years and the respondents in this group had 1.288 children on average (Table, B.3, Appendix B). About 59 percent of the respondents in the Northern countries reported that the man is doing his fair share of more of the housework (see Table B.4, Appendix B).

In Table 6.2 the highest educational degrees of the respondents from the Northern countries are presented. About 57 percent have tertiary education, and about 20 percent pursued post-secondary education that is non-tertiary (e.g. apprenticeship). Circa 23 percent have finished

secondary education. Looking at the two gender groups, a similar distribution can be observed (see Tables B.5 and B.6, Appendix B).

Table 6.2 Distribution of highest degree of respondents from the Northern countries

Highest degree	Freq.	Percent	Cum.
secondary education	465	22.99	22.99
post secondary non-tertiary	410	20.27	43.25
tertiary	1148	56.75	100.00
Total	2023	100.00	

*Table 6.3 Distribution of the parity transitions
(One to more children) (female respondents,
Northern Countries)*

One to more	Freq.	Percent	Cum.
1 child	224	32.32	32.32
More than 1 child	469	67.68	100.00
Total	693	100.00	

*Table 6.4 Distribution of the parity
transitions (Two to more children)
(female respondents, Northern Countries)*

Two to more	Freq.	Percent	Cum.
2 children	291	62.05	62.05
More than 2 children	178	37.95	100.00
Total	469	100.00	

In the group of the female respondents from the Northern countries, about 68 percent reported having more than one child. Almost 38 percent reported that they have more than two children (Tables 6.3 and 6.4). Regarding the division of housework, about 52 percent of the female respondents in this group reported that their male spouse is doing his fair share or more of the housework. Only 17 percent of the female respondents reported that they do “much more than their fair share” of the housework and about 30 percent said that they do “a bit more than their fair share” (GESIS, 2016, p. 139) (see Table 6.5). Following Torr & Short (2004) the latter two groups are considered traditional and intermediate (middle group). A household in which the man does his fair share or more is considered modern. Regarding the preferred division of leave, 47.5 percent of the male respondents in the Northern group stated that the father should take half or more (see Table B.7, Appendix B).

*Table 6.5 Perceived fairness of household work division
(Northern Countries)*

Perceived division of housework shares	Freq.	Percent	Cum.
traditional	200	17.54	17.54
intermediate	344	30.18	47.72
modern	596	52.28	100.00
Total	1140	100.00	

6.1.2 Continental countries

In the group of the continental countries 772 respondents were male and 881 female (see Table C.1, Appendix C). The mean age was 40.98 and the respondents had on average 0.898 children (see Table C.2, Appendix C). This is almost 0.4 lower compared to the group of the Northern countries. About 52 percent reported that they have children below the age of 18 who live in the same household (see Table C.3, Appendix C). This is about 9 percentage points lower compared to the group of the Northern countries. In the group of the continental countries, about 48% of the respondents stated that the man is doing his fair share or more of the housework (see Table C.4, Appendix C).

The distribution of education levels is a bit different for the group of the continental countries compared to the Northern countries. Only 24 percent have finished a tertiary education (compared to 57 percent in the Northern countries). About 49 percent have pursued post-secondary but non-tertiary education and about 26.5 percent have finished secondary education (looking at the gender groups separately, a similar distribution could be observed) (see Table 6.6). As can be noticed, the share of people who have done an apprenticeship and/or vocational school etc. is a lot higher compared to the Northern countries.

Table 6.6 Distribution of highest degree of respondents from the continental countries

Highest degree	Freq.	Percent	Cum.
secondary education	421	26.54	26.54
post secondary non-tertiary	780	49.18	75.73
tertiary	385	24.27	100.00
Total	1586	100.00	

Looking only at the female respondents (who have a spouse) in the group of the continental countries, about 53 percent reported that they have more than one child (see Table 6.7). About 25 percent reported that they have more than two children (see Table 6.8). In the first case, the share is about 15 percentage points lower, and in the latter case, there is a difference of about 13 percentage points compared to the group of the Northern countries.

Table 6.7 Distribution of the parity transitions (One to more children) for female respondents from the continental countries

One to more	Freq.	Percent	Cum.
1 child	214	46.93	46.93
More than	242	53.07	100.0
1 child			0
Total	456	100.00	

Table 6.8 Distribution of the parity transitions (Two to more children) for female respondents from the continental countries

Two to more	Freq.	Percent	Cum.
2 children	182	75.21	75.21
More than	60	24.79	100.00
2 children			0
Total	242	100.00	

Almost 39 percent of the female respondents with a spouse stated that their spouse does his fair share or more of the housework. About 27.6 percent stated that their spouse is doing much less than his fair share of the housework (traditional group). This leaves 33.71 of the respondents who have an intermediate division of housework in which the woman does a bit more than the man (see Table 6.9). Thus the share of women who perceive it as a traditional division of housework is ten percent higher compared to the Northern Countries and the share of women who perceive it as a modern division is about 13 percent lower. Concerning the actual hours of housework, about 18 percent had a housework hour ratio below 1.28 (modern group), about 40 percent belonged to the intermediate group and about 42 percent to the traditional group (see Table 6.9).

Table 6.9 Division of Housework (continental Countries)

	Perceived division			Ratio of Housework Hours		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
traditional	243	27.58	27.58	373	42.34	42.34
intermediate	297	33.71	61.29	350	39.73	82.07
modern	341	38.71	100.00	158	17.93	100.00
Total	881	100.00		881	100.00	

About 36 percent of the male respondents in the continental group stated that the father should take half or more of the paid leave when parents are in a similar working situation and both are eligible for paid leave (see Table C.5, Appendix C). This is about 9 percentage points lower in comparison to the Northern countries.

6.2 Results

6.2.1 Housework division in the Northern countries

In Table 6.10 the average marginal effects of the main dependent variables for the division of housework are presented for each of the dependent variables on fertility. The sample was restricted to women in the Northern countries. For the total number of children as a dependent variable OLS estimates are presented. In the baseline models control variables for age, age squared, years of education, and employment status were included. In the advanced model, the categorical variable for the highest educational degree was added and the dummy variable on children being seen as a career obstacle ("CHILDCAREER") (see Tables D.1-D.4, Appendix D).

For the second main independent variable (that divides the perceived fairness of the division into three groups ("HHSHARE")) the traditional group was used as a base group (hence it was omitted), thus only the differences between the middle group and the traditional group, and the modern group and the traditional group are reported. The same was done for the variable of the ratio of the actual hours of housework ("Ratio of housework hours"). As this was divided into tertiles the lowest group represents a high involvement of the man in the household. The highest tertile (which is the equivalent to the traditional group of the "HHSHARE" variable) acts as a base group in this case.

Table 6.10 Regression output fertility on housework (female respondents, Northern countries)

NORTHERN COUNTRIES		Average marginal effects		OLS
		(1) One to more	(2) Two to more	(3) Total children
MENHW	Model 1	-0.0326 (-0.98)	0.0410 (0.92)	0.0336 (0.40)
	Adv. model 1	-0.0351 (-1.03)	0.0518 (1.16)	0.0477 (0.55)
HHSHARE	Model 2			
	Middle group	-0.0351 (-0.78)	-0.0503 (-0.80)	-0.151 (-1.35)
Ratio of housework hours (Respondent/Spouse)	Modern group	-0.0543 (-1.25)	0.00952 (0.16)	-0.0607 (-0.50)
	Adv. Model 2			
	Middle Group	-0.0394 (-0.86)	-0.0348 (-0.55)	-0.139 (-1.24)
	Modern Group	-0.0597 (-1.34)	0.0298 (0.49)	-0.0399 (-0.32)
Model 3				
	Middle group	-0.0541 (-1.33)	-0.0196 (-0.36)	-0.108 (-0.99)
Lowest tertile/ modern group				
		0.000782 (0.02)	0.0488 (0.87)	-0.0168 (-0.16)
Adv. Model 3				
	Middle Group	-0.0585 (-1.43)	-0.0112 (-0.20)	-0.107 (-0.97)
Lowest tertile/ modern group				
		-0.000172 (-0.00)	0.0720 (1.27)	-0.000708 (-0.01)

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Note: Summary Table of the main coefficients thus different number of observations for each of the specifications (for Model 1 see Table D.1 and D.2 (OLS), for Model 2 see Table D.3, for Model 3 see Table D.4, Appendix D)

None of the coefficients were reported as significant. However, this does not necessarily mean that there is no relationship. As Bernardi et al. (2017) have pointed out, one needs to differ between statistical and social significance when analysing sociological hypotheses. A small sample size can lead to estimates being statistically insignificant quite easily, however this does not necessarily mean that there is no effect (see Bernardi et al., 2017). Thus, I will proceed by comparing the magnitude and the sign of the coefficients as this can still give suggestive evidence about the social significance of these relationships. Additionally, a discussion of the estimates in light of the previous literature can help to identify relationships that might be of social significance (Bernardi et al., 2017). This discussion will follow in chapter 7.

Some differences between the models could be observed. The average marginal effect of an involved man in the household on the probability of having more than one child ("One to more") was reported negative for all of the main independent variables with the exception of the average marginal effect of having a low housework hours ratio (hence a highly involved man). However, due to the size of it, this is negligible. The size of the coefficients grew when adding the advanced controls except for the housework hours ratio.

Viewing a child as a career obstacle had no significant effect in all cases (see Tables D.1-D.4, Appendix D), thus no clear relationship can be confirmed. However, the sign of the estimates changes from positive to negative when looking at higher parities. This might indicate that having two children is usually a norm that is not strongly influenced by this factor but it might play a role in having more than two children. Similar mechanisms could be observed for the main independent variable. This will be discussed in more detail later on.

The marginal effects on the probability of having more than two children (column 2, Table 6.10) were positive (although not significant) for all the values indicating a highly involved husband. The size of the margins is again larger for the advanced models. Furthermore, the previously described U-shaped relationship (e.g. Torr & Short) is visible for both the perceived division ("HHSHARE") and the housework hours ratio. While the modern groups indicate a higher marginal effect on the probability of having more than two children, the middle groups differ by -0.0348 (-0.0112) percentage points from the traditional groups. Thus both, having a traditional and having a modern division or perceiving it as such, might have a higher impact on the probability of having more than two children than an intermediate division.

The coefficients of the OLS regression with the total number of children as the dependent variable (column 3, Table 6.10) were also positive (although also not significant) for the case of the dummy indicating that the man is doing his fair share or more of the housework (MENHW). The reported coefficients for the OLS regression were estimated on a sample in which women without children were excluded. In a first step, the regression was run without excluding women without children. This presented a negative coefficient (see Table D.2, Appendix D). Excluding these women led to a positive coefficient. For the other two main independent variables, the coefficients were negative. However, the size of the coefficients of the modern group and the lowest tertile are both a lot smaller than the coefficients for the middle groups for both variables. This indicates that the differences between the traditional group and

the middle group and between the group in the highest tertile of the housework hours ratio and the group in the middle tertile might be a lot smaller for a very involved man compared to an intermediate division.

The estimates for differences in marginal effects of the highest degrees were not significant in most of the different specifications (see Tables D.1-D.4, Appendix D). Only for the comparison of mothers with two children with mothers who had more than two children ("two to more"), the marginal effect of having tertiary education was significantly different from the marginal effect of having a secondary education. This was the case for all of the three main independent variables measuring the division of housework. In general, it cannot be confirmed whether highly educated mothers tend to have more children (as they might adapt gender-egalitarian attitudes faster (see Esping-Andersen, 2017)). The estimates of the different degree levels do not differ from each other by a large amount and they are only significant for one of the cases, which was mentioned above.

As many specifications have been tested already which lead to differing results, a classical sensitivity analysis was not deemed sensible in this case. However, the specifications regarding the transition to more than two children were repeated for two of the main independent variables: the dummy variables for the perceived division of housework ("MENHW") and the ratio of housework hours. This time the sample was restricted to couples who both worked full time for pay when one of their children was under school age. This should be a situation in which the double burden is felt the strongest by women and this might also be a point in time in which future fertility decisions are being made.

The results are presented in Table 6.11 and Table 6.12. The first two columns present the average marginal effects of the originally estimated models, and the two columns on the right handside present the marginal effects for the restricted sample. It is visible that the marginal effects in the restricted sample have a higher magnitude than the marginal effects in the original estimation, however, they were not reported as significant. This is the case for both of the main independent variables. The marginal effects of the housework hours ratio for the restricted sample are a bit larger in magnitude in comparison to the other models.

Table 6.11 Comparison with restricted sample of marginal effects of logit regression of “Two to more” on perceived fairness of the division of household (dummy variable) (Northern countries)

	Original models	Dual-income couples when child was under school age		
	Two to more			
MENHW	0.0410 (0.92)	0.0518 (1.16)	0.0911 (1.47)	0.0935 (1.49)
AGE	0.0823* (2.28)	0.0902* (2.37)	0.142* (2.47)	0.166** (2.90)
AGE2	-0.00113* (-2.42)	-0.00124* (-2.52)	0.00195** (-2.61)	-0.00227** (-3.04)
EDUCYRS	-0.00729 (-1.21)	-0.00315 (-0.47)	0.00385 (-0.37)	-0.00265 (-0.23)
EMPLOYSTAT	-0.0684 (-1.03)	-0.0619 (-0.88)	0.000455 (-0.00)	-0.0226 (-0.19)
1. SECONDARY EDUCATION		0 (.)		0 (.)
2. POST-SECONDARY NON-TERTIARY		-0.152 (-1.91)		-0.131 (-1.07)
3. TERTIARY EDUCATION		-0.154* (-2.21)		-0.0917 (-0.82)
CHILDCAREER		-0.0125 (-0.27)		-0.0396 (-0.60)
N	469	460	224	220

t statistics in parentheses

* p<0.05, **p<0.01,

***p<0.001

Table 6.12 Comparison with restricted sample of marginal effects of logit regression of “Two to more” on housework hours ratio (Northern countries)

	Original models	Dual-income couples when child was under school age		
	Two to more			
1.LOW HOUSEWORK HRS RATIO	0.0488 (0.87)	0.0720 (1.27)	0.110 (1.36)	0.117 (1.44)
2.MIDDLE HOUSEWORK HRS RATIO	-0.0196 (-0.36)	-0.0112 (-0.20)	-0.0534 (-0.68)	-0.0545 (-0.69)
3.HIGH HOUSEWORK HRS RATIO	0 (.)	0 (.)	0 (.)	0 (.)
AGE	0.0952** (2.65)	0.103** (2.76)	0.142* (2.53)	0.164** (2.92)
AGE2	-0.00131** (-2.82)	-0.00142** (-2.96)	-0.00194** (-2.65)	-0.00225** (-3.06)
EDUCYRS	-0.00942 (-1.48)	-0.00403 (-0.58)	-0.00145 (-0.14)	0.00108 (0.09)
EMPLOYSTAT	-0.0900 (-1.23)	-0.0661 (-0.87)	-0.0354 (-0.28)	-0.0390 (-0.30)
1.SECONDARY EDUCATION		0 (.)		0 (.)
2. POST-SECONDARY NON-TERTIARY		-0.160 (-1.89)		-0.122 (-0.98)
3. TERTIARY EDUCATION		-0.185** (-2.58)		-0.102 (-0.90)
CHILDCAREER		-0.0127 (-0.26)		-0.0122 (-0.18)
N	442	435	220	217

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

6.2.2 Housework division in the continental countries

The table for the continental countries and the models are organised in the same way as the results table for the Northern countries. For the group of the continental countries, a different result pattern is visible (see Table 6.13). All coefficients are not significant as was the case for the Northern countries. The average marginal effects are all negative again for all the models that compare women with one child with women who have at least two children ("One to more"). The marginal effects on the probability of having two children ("Two to more") have a positive sign again except for the categorical variable measuring the perceived fairness of the division of the housework ("HHSHARE"). Here, only the estimate for the advanced Model 2 is positive. However, the size of these marginal effects (all close to zero) and the changing sign for one of the specifications show the instability of the results. Regarding the positive estimates for Model 1 and 3 (and their advanced specifications) for the transition from "Two to more", the magnitude is quite different. The estimates for Model 1 are quite close to zero. The estimates for Model 3 show quite a large difference in magnitude when comparing the middle group with the lowest group. However, in this case, both are positive which means that a traditional division of housework (the highest tertile) might have a lower marginal effect on the probability of having more than two children than having an intermediate or modern division of housework hours.

The coefficients of the OLS regression are negative for both of the variables which are based on the perceived division ("MENHW" and "HHSHARE") (see Table 6.13). For the third independent variable, the coefficients were positive, although very small in magnitude. They follow a similar pattern as the average marginal effects in Model 3 on the probability of having more than two children ("Two to more"). The coefficients of the modern group (the group in the lowest tertile) differ by a lot more from the traditional group (the group in the highest tertile) compared to the middle groups. Therefore, overall there is no implication of a U-shaped relationship in the case of the continental countries.

Table 6.13 Regression output fertility on housework (female respondents, continental countries)

CONTINENTAL COUNTRIES		Average marginal effects		OLS
		(1) One to more	(2) Two to more	(3) Total children
MENHW	Model 1	-0.0452 (-0.90)	0.00314 (0.05)	-0.0704 (-0.92)
	Adv. model 1	-0.0356 (-0.68)	0.0113 (0.19)	-0.0579 (-0.72)
HHSHARE	Model 2			
	Middle group	-0.0493 (-0.90)	-0.0256 (-0.38)	-0.0662 (-0.79)
	Modern group	-0.0705 (-1.23)	-0.00944 (-0.14)	-0.104 (-1.21)
	Adv. Model 2			
	Middle Group	-0.0507 (-0.90)	-0.00352 (-0.05)	-0.0546 (-0.63)
	Modern Group	-0.0617 (-1.05)	0.00959 (0.14)	-0.0862 (-0.96)
Ratio of housework hours (Respondent/Spouse)	Model 3			
	Middle group	-0.0206 (-0.42)	0.0378 (0.63)	0.00680 (0.09)
	Lowest tertile/ modern group	-0.0492 (-0.70)	0.147 (1.60)	0.0181 (0.15)
	Adv. Model 3			
	Middle Group	-0.00993 (-0.19)	0.0146 (0.23)	0.00956 (0.12)
	Lowest tertile/ modern group	-0.0330 (-0.46)	0.139 (1.56)	0.0266 (0.22)

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Note: Summary Table of the main coefficients thus different number of observations for each of the specifications (for Model 1 see Table E.1 and E.2 (OLS), for Model 2 see Table E.3, for Model 3 see Table E.4, Appendix E)

Regarding the variable of the highest degree, the estimates for having a post-secondary non-tertiary education (instead of tertiary education which was the case for the Northern countries) are significant at the 5 percent level for the transition from two to more children and also for the OLS regression measuring the total number of children. Overall a higher educational degree seems to be negatively related to having more children in the continental countries, as the marginal effect becomes more negative with an increasing educational level. The differences in the marginal effects of the highest degrees are especially large for higher parities (see Table E.1-E.4, Appendix E). The analysis on the restricted sample (only dual-income couple when one child was under school age) could not be conducted for the group of the continental countries due to an insufficient number of observations.

6.2.3 Preferred Division of Parental Leave

As stated before, for these models only male respondents were included. The results for the Northern countries are presented in Table 6.14. Almost all of the estimates of the main independent variable ("PREFLEAVEDIV") are not significant. Only the coefficient of the OLS regression model including the advanced controls is significant at the 5 percent level. However, all estimates are negative. This suggests that there is a negative relationship between a father with gender-egalitarian attitudes regarding parental leave and the number of children.

The results for the continental countries are stated in Table 6.15. As was the case for the Northern countries all estimates of the main independent variable are negative. Furthermore, all estimates are not statistically significant. Additionally, they are a bit smaller in magnitude. However, it is noticeable that while the relationship between employment status and fertility and the highest educational degree of the respondents and fertility is negative in the case of the continental countries, it is positive (in almost all cases) for the Northern countries. For example, the average marginal effect of having tertiary education on the probability of having more than one child differed by 0.18 percentage points from having only secondary education in the case of the Northern countries. This difference was reported as significant at the 1 percent level (see Table 6.14). For the continental countries the estimates for the highest degrees did not significantly differ from each other (see Table 6.15).

The estimates for the variable of a working mother were not significant for both country groups, thus no clear conclusion can be drawn from this estimation. However, while the sign was positive in the case of the Northern countries it was negative for the continental countries. While this might be due to chance, a possible reason could also be that a working mother did not always set a positive example in terms of combining children and engaging in paid work, which might have also been due to the different welfare systems of the countries.

Table 6.14 Regression output fertility on preferred division of paid leave (Northern countries)

	(1) ONETOMORE	Adv. (1) ONETOMORE		(2) TWOTOMORE		Adv. (2) TWOTOMORE		(3) TOTALCHILDR	Adv.(3) TOTALCHILDR
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	OLS
main	-0.143	-0.0295	-0.199	-0.0397	-0.287	-0.0664	-0.342	-0.0788	-0.149
PREFLEAVEDIV	(-0.70)	(-0.70)	(-0.94)	(-0.94)	(-1.21)	(-1.22)	(-1.42)	(-1.44)	(-1.54)
AGE	0.383** (2.78)	0.0790** (2.86)	0.412** (2.97)	0.0822** (3.06)	0.246 (1.29)	0.0570 (1.30)	0.202 (1.23)	0.0465 (1.24)	0.284*** (4.30)
AGE2	-0.00521** (-3.09)	-0.00108** (-3.21)	-0.00553** (-3.25)	-0.00110*** (-3.38)	-0.00333 (-1.39)	-0.000771 (-1.42)	-0.00277 (-1.35)	-0.000640 (-1.37)	-0.00377*** (-4.67)
EDUCYRS	0.0323 (1.38)	0.00667 (1.39)	-0.00403 (-0.12)	-0.000804 (-0.12)	0.0320 (1.11)	0.00743 (1.12)	0.0204 (0.59)	0.00471 (0.60)	0.0158 (1.14)
EMPLOYSTAT	0.153 (0.35)	0.0317 (0.35)	-0.0209 (-0.05)	-0.00417 (-0.05)	0.618 (1.02)	0.143 (1.03)	0.565 (0.94)	0.130 (0.94)	0.203 (1.23)
1.SECONDARY EDUCATION		0 (.)	0 (.)			0 (.)	0 (.)		0 (.)
2. POST-SECONDARY									
NON-TERTIARY		0.432 (1.44)	0.0976 (1.46)			0.381 (0.96)	0.0851 (0.96)		0.231 (1.75)
3. TERTIARY EDUCATION		0.891** (3.01)	0.188** (2.95)			0.470 (1.31)	0.106 (1.35)		0.457*** (3.48)
MOTHWORK		0.166 (0.60)	0.0331 (0.60)			0.205 (0.60)	0.0473 (0.60)		0.0868 (0.71)
_cons	-6.401* (-2.28)	-7.023* (-2.46)		-5.738 (-1.53)		-5.146 (-1.55)		-3.369** (-2.60)	-3.350* (-2.56)
N	470	470	451	451	320	320	308	308	464

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Table 6.15 Regression output fertility on preferred division of paid leave (continental countries)

	(1) ONETOMORE		Adv. (1) ONETOMORE		(2) TWOTOMORE		Adv. (2) TWOTOMORE		(3) TOTALCHILDR	Adv.(3) TOTALCHILDR
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	OLS	OLS
main										
PREFLEAVEDIV	-0.0130 (-0.05)	-0.00295 (-0.05)	0.0213 (0.08)	0.00488 (0.08)	-0.133 (-0.40)	-0.0264 (-0.40)	-0.0538 (-0.15)	-0.0106 (-0.15)	-0.0658 (-0.70)	-0.0488 (-0.48)
AGE	0.631*** (3.94)	0.144*** (4.28)	0.555*** (3.31)	0.127*** (3.51)	-0.440 (-1.60)	-0.0876 (-1.63)	-0.487 (-1.61)	-0.0963 (-1.65)	0.149** (2.80)	0.116 (1.91)
AGE2	-0.00738* (-3.78)	-0.00168* (-4.07)	-0.00636* (-3.08)	-0.00146* (-3.24)	0.00596 (1.82)	0.00119 (1.86)	0.00654 (1.80)	0.00129 (1.86)	-0.00165* (-2.39)	-0.00123 (-1.54)
EDUCYRS	-0.0157 (-0.48)	-0.00357 (-0.48)	0.0221 (0.57)	0.00505 (0.57)	0.00684 (0.17)	0.00136 (0.17)	0.00207 (0.04)	0.000409 (0.04)	0.000261 (0.02)	0.00947 (0.66)
EMPLOYSTAT	-0.911 (-1.56)	-0.207 (-1.58)	-0.327 (-0.39)	-0.0749 (-0.39)	-2.099** (-2.89)	-0.418** (-3.09)	-1456 (-1.15)	-0.288 (-1.17)	-0.590** (-2.81)	-0.302 (-0.86)
1.SECONDARY EDUCATION			0 (.)	0 (.)			0 (.)	0 (.)		0 (.)
2. POST-SECONDARY										
NON-TERTIARY			-0.622 (-1.84)	-0.137 (-1.94)			-0.161 (-0.35)	-0.0319 (-0.35)		-0.180 (-1.39)
3. TERTIARY EDUCATION			-0.667 (-1.57)	-0.148 (-1.62)			-0.0279 (-0.05)	-0.00564 (-0.05)		-0.157 (-0.94)
MOTHWORK			-0.0381 (-0.15)	-0.00873 (-0.15)			-0.273 (-0.78)	-0.0541 (-0.78)		-0.0949 (-0.86)
_cons	-11.64*** (-3.62)		-10.88** (-3.29)		8.888 (1.58)		9.439 (1.54)		-0.868 (-0.85)	-0.492 (-0.42)
N	340	340	318	318	200	200	184	184	337	315

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

7 Discussion

7.1 Interpretation of the results

Overall almost all coefficients were not significant. This might have been largely due to the small sample size (Bernardi et al., 2017). For the variables on the division of housework (perceived fairness and housework hours ration), positive coefficients could only be found in the comparison of mothers who have two children with mothers who have more than two and for the total number of children. This might be suggestive evidence that in the case of the Northern countries having more than two children is a conscious decision that might be based on the involvement of the man in the house, while the decision of having more than one child is not necessarily based on factors like the involvement of the men in the household and more on norms or personal preferences, for example. Thus, the negative estimates for the transition from one to more children could be due to two children being the norm in Northern countries thus people who generally decide to have children are inclined to have at least two irrespective of other factors such as the involvement of the man in the household. This is also supported by the fact that the average number of children of the women in the sample of the Northern countries was 2.07 when women who did not have children (yet) were excluded (see Table F.1, Appendix F).

Furthermore, there was some suggestive evidence for a U-shaped relationship, which is in line with Torr and Short's (2004) results and Esping-Andersen and Billari's (2015) theoretical framework, that an intermediate division of housework is suboptimal for exhibiting high fertility. Thus an intermediate division of housework, which might be brought about by changing gender norms that have not yet led to complete gender equality in the private sphere, could depress fertility. A traditional division is usually still related to higher fertility. However, in most cases, the marginal effect of a modern division of household work differed positively from the marginal effect of a traditional division of housework (although not significantly).

The continental countries cannot present the same suggestive evidence, the results were quite unclear. Regarding the fact that the share of highly involved men in the household was a lot lower in these countries compared to the Northern group, there might be potential for a development towards more involvement of the men in the household which could then also increase fertility rates. Interestingly, no signs of a U-shaped relationship could be found for the continental countries. As it is not clear if these results are only due to chance (as they are statistically insignificant), it is difficult to say if this might be a pattern.

The fact that the estimates for the highest educational degree were only significant for the transition to more than two children might again be because the decision to have two children is not influenced by the factors presented in this paper. A likely reason for why it was only the estimates for tertiary education (in the case of the Northern countries) and post-secondary non-tertiary education (in the case of the continental countries) that were significant, is that these two values had the most observations respectively in each country group. Overall, the role of education remains quite unclear. The estimates presented in this thesis point towards a negative relationship between the highest degree and fertility in the continental countries, however, for the Northern countries the picture was not as clear. The differences between the different levels of degrees were not as large although there was a significant negative difference in the marginal effects between having a secondary and having tertiary education on the probability of having more than two children.

Regarding the coefficients of the attitudes towards the preferred divisions of paid parental leave, no clear pattern could be observed for both of the country groups. The positive estimates for employment status and the highest degree for the Northern countries in contrast to the negative estimates for the continental countries might be due to differences in the welfare system as employed and highly educated women in the Northern countries might have to "sacrifice" less regarding their career when they have children compared to women in the group of the continental countries, as for example childcare opportunities outside the home are more easily available in the Northern countries (see for example Goldscheider et al., 2013; Datta Gupta et al., 2006; Eydal & Rostgaard, 2011).

Overall, Goldscheider et al.'s (2015) hypothesis could not be confirmed with this cross-sectional analysis. The data was not reliable enough to draw definite conclusions. Therefore, the research question of this paper - whether an increased involvement of the men or gender-egalitarian attitudes can increase fertility - cannot be properly answered with these results, hence the hypotheses cannot be confirmed either. Nevertheless, the results presented in this thesis tend to support the division of housework as a potential predictor of very high fertility (more than two children), which could not be observed for the gender attitudes variable. Regarding the measures of the actual hours of housework (as a measure of gender equality) and the perceived fairness of the division (as a measure of gender equity), it is not possible to favour one over the other as a better predictor of higher fertility, as overall no clear pattern could be observed.

The differences in the results for the Northern and the continental countries might be due to their differing welfare systems (see Esping-Andersen, 1990) as described in chapter 2. Whether a man is highly involved in household work or not also depends on societal institutions. As McDonald (2000) already pointed out, politics need to promote gender-egalitarian behaviour in the private sphere. Social institutions that favour the male-breadwinner model will keep fertility levels low. Thus men and women as individuals need to be able to engage in paid employment and have children. Policy is an important factor that can shape gender-egalitarian attitudes and behaviour (McDonald 2000). The welfare system of the Northern countries may have played an important part in changing the relationship between female labour force participation and fertility. Therefore, changes in the welfare system of the continental countries towards a more

individualised approach that gives women and men the same opportunities to combine work and childcare might help to increase fertility levels in the analysed continental countries as well.

7.2 Limitations

Overall using a cross-sectional data set made it more difficult to capture parity transitions. Furthermore, it was not possible to observe completed fertility as only children under the age of 18 who live in the same household were reported. Thus only younger people could be included who might not be done with their childbearing years yet.

Furthermore, the way gender equality and equity was conceptualised could be a possible reason why the results cannot confirm existing hypotheses, as the conceptualisation can influence outcomes. Depending on how gender equality is conceptualised the results will lead to different conclusions (Neyer et al., 2013).

The presented models could not capture all of the factors that can determine whether a couple decides to have more children or not and these factors might have a stronger influence than increased gender equality. Other factors might for example be financial and economic insecurity (see Kohler et al., 2006). Very religious or traditional values might also influence the decision to have more children (see for example Philipov & Berghammer, 2007).

Furthermore, people without children were excluded for a large part of the analysis. This was done as there are a lot of non-measurable differences between people who decide to have children in general compared to people who do not want children. Additionally, the implications of a division of housework with or without children might be very different as the amount and the kind of housework usually changes after having the first child (Goldscheider et al., 2013) The division of housework and the gender role attitudes could not be measured before respondents had their first child in this case. In further studies, the transition to the first child could give insightful comparisons if the data set allows for controlling for changing housework divisions and attitudes.

Another limitation is that the measure of housework was quite subjective as the respondent assess his or her own amount and the one of their partners', thus it cannot capture the actual situation, although the estimation of the woman still might be a relevant indicator, as this is what she bases her future childbearing decisions on. Another issue is that the housework variable was measured at the time the survey was taken, thus the behaviour of the man might have been different in the past.

Lastly, the variable of the preferred division of parental leave (if both parents are in the same working situation and eligible for it) only captures a small aspect of gender attitudes and cannot represent that factor as a whole. A man that does not think that a father should take half of the parental leave could still have gender-egalitarian attitudes in other spheres. Nevertheless, the attitudes towards the division of parental leave can act as an indicator of how involved a man thinks he should be in caring for his children.

8 Conclusion

Two theoretical frameworks built the foundation for this thesis. The framework of the Gender Revolution proposed by Goldscheider et al. (2015) and the framework of multiple fertility equilibria through normative change (Esping-Andersen & Billari, 2015; Esping-Andersen 2017). Goldscheider et al. (2015) connected the high fertility levels in countries that also exhibited a high female labour force participation to an increasing involvement of the men in the household. This was termed the second half of the Gender revolution (the first half took place when women increasingly started to enter the work sphere).

Esping-Andersen and Billari (2015) proposed a framework of normative change toward gender-egalitarian attitudes. According to them, the low fertility levels in the second half of the twentieth century were caused by a period of normative confusion regarding gender roles when traditional gender roles slowly started to erode but gender equality in both the public and the private sphere was not reached yet. McDonald (2000) also saw a major reason for the low fertility levels in very low levels of gender equity in family institutions. Thus a move towards an egalitarian division of housework or egalitarian gender role attitudes should increase fertility. Here, a distinction between gender equity (the perceived fairness of a division) and gender equality (equal division) is important (McDonald, 2013; Neyer et al. 2013).

Some evidence on the effect of the division of housework was already found in countries like Sweden and Norway (see Goldscheider et al., 2013, Dommermuth et al., 2017). In Finland, some evidence of a positive effect of men's egalitarian gender role attitudes on fertility was found (Miettinen et al., 2011). Another study on Sweden and Norway could find a positive relationship between the uptake of parental leave and fertility (Duvander et al., 2010). A study in the United States found a U-shaped relationship between the division of housework and fertility (Torr & Short, 2004), thus a traditional and a modern division would exhibit higher fertility than an intermediate division. Miettinen et al. (2011) found a similar pattern in their study on Finland. This supported the theory of Esping-Andersen and Billari (2015). An important aspect was that looking at the different parity transitions separately produced more accurate estimates. Additionally, an effect was mostly found for second births (Goldscheider et al., 2013; Dommermuth et al., 2017; Duvander et al., 2010). Previous literature on the continental countries did not present a lot of evidence on these aspects as it usually dealt more with family policy than the actual involvement of the men in the household (see for example Lanfranconi & Valarino, 2014; Neyer & Rieck, 2009).

With the help of logistic regression models, I tested different models measuring the relationship between parity transition and the division of housework (captured both as the division of housework in terms of actual hours and the perceived fairness of the division estimated by the

female respondents who already had at least one child). The former was supposed to capture gender equality and the latter gender equity. This created the opportunity to test which is the better concept to measure a relation to fertility responses. Additionally, the variable measuring the fairness of the division was tested as both a dummy and a categorical variable to test for a potential U-shaped relationship. The models on the division of housework were only run for women who already had at least one child, as they are the ones who usually face the double burden, according to the previous literature. Thus, their fertility intentions might be influenced by an increasing involvement of the man in the household. Lastly, to test one aspect of gender-egalitarian attitudes (which were suggested to be one of the drivers of increasing fertility (Esping-Andersen 2017)) the fertility variables were regressed on the attitudes of fathers towards the preferred division of parental leave. Additionally, OLS regressions for all of the main independent variables were run as a comparison model with the total number of children as the dependent variable.

The conducted analysis has a few limitations: first of all, a cross-sectional data set did not prove itself as the most suitable data set to analyse fertility behavior. Furthermore, the division of household work could not be measured before and directly after childbirth. Another limitation was the small sample size, which also decreased due to having to exclude certain groups of people. Additionally, the measure of the division of housework was quite subjective as it was always estimated by the respondents themselves, hence especially the ratio of the housework hours might differ from the actual situation. Lastly, the preferred division of paid parental leave variable could only capture a small aspect of gender-egalitarian attitudes, thus other measures could produce different results.

Overall, there was some suggestive evidence for the Northern countries of a positive relationship between a more egalitarian division of housework and fertility but only for higher parities (transition to more than two children). In the previous literature on the Northern countries, it could already be found for lower parities as well. However, all estimates were not significant. As stated earlier, this does not necessarily mean that there is no effect (Bernardi et al., 2017). Therefore, the magnitude and the signs of the estimates were compared and they were interpreted based on what has been found in previous literature. While the marginal effects of the division of housework on the probability of having more than one child were negative they turned positive for the transition from two to more children. These results might be due to two children being a norm for parents in the Northern countries when they decide to have children at all. Furthermore, there were some signs of a U-shaped relationship, a pattern which had been found in the previous literature as well. Lastly, the role of education could not be finally determined as the results were not very clear.

Regarding the continental countries, there was not a lot of specific previous literature on the factors analysed in this thesis. The results presented in this thesis could not give actual new insights as the estimates for all of the main independent variables were also insignificant. What was noticeable was that there were no signs of a U-shaped relationship between the division of housework and fertility and - in contrast to the group of the Northern countries - there was some suggestive evidence of a negative relationship between the highest degree and higher fertility.

Overall the share of a highly involved man was a lot lower in the continental countries compared to the Northern countries, thus there is room for future developments that could impact fertility levels.

Due to the insignificance of the results, it is difficult to answer the research question of this thesis, whether the division of housework or gender-egalitarian attitudes influence fertility. Thus also the hypotheses cannot be confirmed. However, the division of housework seems to be a more promising predictor of fertility for higher parities. Whether gender equity or equality is the better measure could not be finally determined. It is not possible to favour one over the other as a better predictor of higher fertility, as overall no clear pattern could be observed.

Regarding future research on this topic, a longitudinal data set with a larger sample size that can capture the division of housework at the time of fertility intention and after having children might be able to give better insights Furthermore, different measures of gender attitudes should be explored. Incorporating all these aspects might make it possible to estimate more accurate effects, which may help to create better and more targeted policy measures to increase fertility (also in the continental countries) and thus mitigate the issues addressed at the beginning of this thesis, such as a decreasing and aging population.

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Appendix A

Table A.1 Highest degree in the group of the Northern countries

Highest degree	Freq.	Percent	Cum.
primary education or less	24	2.12	2.12
secondary education	233	20.56	22.68
post secondary non-tertiary	210	18.53	41.22
tertiary	666	58.78	100.00
Total	1133	100.00	

Only female respondents included

Table A.2 Highest degree in the group of the continental countries

Highest degree	Freq.	Percent	Cum.
primary education or less	32	3.66	3.66
secondary education	245	28.03	31.69
post secondary non-tertiary	398	45.54	77.23
tertiary	199	22.77	100.00
Total	874	100.00	

Only female respondents included

Appendix B

Table B.1 Sex Northern Countries

Sex of Respondent	Freq.	Percent	Cum.
Male	942	45.24	45.24
Female	1140	54.76	100.0
			0
Total	2082	100.00	

*Table B.2 Total Number of Children
Northern Countries*

	Freq.	Percent	Cum.
0	799	38.67	38.67
1	401	19.41	58.08
2	540	26.14	84.22
3	185	8.95	93.18
4	109	5.28	98.45
5	16	0.77	99.23
6	11	0.53	99.76
7	3	0.15	99.90
11	2	0.10	100.0
			0
Total	2066	100.00	

Table B.3 Descriptive Statistics on Age and Number of Children for the Northern Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
AGE	2082	40.547	9.44	19	55
TOTALCHILDR	2066	1.288	1.344	0	11

*Table B.4 Binary variable for division of housework
for the Northern countries*

Share of housework of men	Freq	Percent	Cum.
.			
0	857	41.16	41.16
1 (“Men is doing his fair share or more”)	1225	58.84	100.00
Total	2082	100.00	

Table B.5 Highest degree of female respondents in the Northern countries

Highest degree	Freq.	Percent	Cum.
secondary education	233	21.01	21.01
post secondary non-tertiary	210	18.94	39.95
tertiary	666	60.05	100.00
Total	1109	100.00	

Table B.6 Highest degree of male respondents in the Northern countries

Highest degree	Freq.	Percent	Cum.
secondary education	232	25.38	25.38
post secondary non-tertiary	200	21.88	47.26
tertiary	482	52.74	100.00
Total	914	100.00	

*Table B.7 Preferred division of
Parental leave (male respondents,
Northern countries)*

	Freq.	Percent	Cum.
0	390	52.49	52.49
1	353	47.51	100.00
Total	743	100.00	

Appendix C

Table C.1 Sex Continental Countries

Sex of Respondent	Freq.	Percent	Cum.
Male	772	46.70	46.70
Female	881	53.30	100.00
Total	1653	100.00	

Table C.2 Descriptive Statistics on Age and Number of Children for the Continental Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
AGE	1653	40.981	9.429	19	55
TOTALCHILDR	1649	.898	1.04	0	5

Table C.3 Total Number of Children Continental Countries

	Freq.	Percent	Cum.
0	792	48.03	48.03
1	394	23.89	71.92
2	332	20.13	92.06
3	106	6.43	98.48
4	21	1.27	99.76
5	4	0.24	100.00
Total	1649	100.00	

Table C.4 Binary variable for division of housework for the Continental Countries

Share of housework of men	Freq	Percent	Cum.
.			
0	863	52.21	52.21
1 (“Men is doing his fair share or more”)	790	47.79	100.00
Total	1653	100.00	

*Table C.5 Preferred division of Parental
Leave (Male Respondents, Continental Countries)*

Preferred division of paid leave	Freq.	Percent	Cum.
0	414	63.79	63.79
1 (“Man should take half or more”)	235	36.21	100.0
Total	649	100.00	

Appendix D

Table D.1 Logit regression output fertility on perceived fairness of housework division (binary variable) (Northern countries)

	ONETOMORE		ONETOMORE		TWOTOMORE		TWOTOMORE	
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins
main								
MENHW	-0.171 (-0.98)	-0.0326 (-0.98)	-0.186 (-1.03)	-0.0351 (-1.03)	0.178 (0.92)	0.0410 (0.92)	0.229 (1.15)	0.0518 (1.16)
AGE	0.685*** (5.96)	0.131*** (6.50)	0.674*** (5.49)	0.127*** (5.90)	0.357* (2.23)	0.0823* (2.28)	0.399* (2.32)	0.0902* (2.37)
AGE2	-0.00945*** (-6.49)	-0.00181*** (-7.22)	-0.00934*** (-6.02)	-0.00177*** (-6.59)	-0.00492* (-2.37)	-0.00113* (-2.42)	-0.00548* (-2.45)	-0.00124* (-2.52)
EDUCYRS	0.0420 (1.95)	0.00802* (1.97)	0.0424 (1.82)	0.00800 (1.84)	-0.0317 (-1.20)	-0.00729 (-1.21)	-0.0139 (-0.47)	-0.00315 (-0.47)
EMPLOYSTAT	0.247 (0.96)	0.0472 (0.96)	0.357 (1.33)	0.0675 (1.33)	-0.297 (-1.02)	-0.0684 (-1.03)	-0.274 (-0.88)	-0.0619 (-0.88)
1. SECONDARY EDUCATION		0 (.)	0 (.)			0 (.)	0 (.)	
2. POST-SECONDARY								
NON-TERTIALY		-0.0789 (-0.27)		-0.0151 (-0.27)			-0.643 (-1.88)	-0.152 (-1.91)
3. TERTIARY EDUCATION			0.00496 (0.02)	0.000933 (0.02)			-0.652* (-2.23)	-0.154* (-2.21)
CHILDCAREER			0.0761 (0.41)	0.0144 (0.41)			-0.0554 (-0.27)	-0.0125 (-0.27)
_cons	-11.72*** (-5.30)		-11.58*** (-4.88)		-6.102* (-2.00)		-6.593* (-2.02)	
N	690	690	670	670	469	469	460	460

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Table D.2 OLS regression output fertility on perceived fairness of housework division (binary variable) (Northern countries)

	TOTALCHILDR	TOTALCHILDR	TOTALCHILDR
MENHW	-0.124 (-1.80)	0.0336 (0.40)	0.0477 (0.55)
AGE	0.597*** (19.05)	0.328*** (6.15)	0.330*** (5.51)
AGE2	-0.00780*** (-19.95)	-0.00450*** (-6.91)	-0.00453*** (-6.22)
EDUCYRS	0.00233 (0.23)	-0.00243 (-0.19)	0.00324 (0.24)
EMPLOYSTAT	-0.203 (-1.54)	-0.258 (-1.31)	-0.242 (-1.19)
1. SECONDARY EDUCATION		0 (.)	
2. POST-SECONDARY NON -TERTIARY		-0.171 (-1.05)	
3. TERTIARY EDUCATION		-0.181 (-1.28)	
CHILDCAREER		-0.0505 (-0.60)	
_cons	-9.223*** (-16.77)	-3.352*** (-3.45)	-3.313** (-3.03)
N	1125	682	663

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Table D.3 Regression output fertility on perceived fairness of housework division (categorical variable) (Northern countries)

	ONETOMORE		ONETOMORE		TWOTOMORE		TWOTOMORE		TOTALCHILDR	TOTALCHILDR
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	OLS	OLS
main										
0.HHSHARE	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
1.HHSHARE	-0.191 (-0.77)	-0.0351 (-0.78)	-0.217 (-0.85)	-0.0394 (-0.86)	-0.221 (-0.80)	-0.0503 (-0.80)	-0.157 (-0.56)	-0.0348 (-0.55)	-0.151 (-1.35)	-0.139 (-1.24)
2.HHSHARE	-0.290 (-1.22)	-0.0543 (-1.25)	-0.323 (-1.31)	-0.0597 (-1.34)	0.0407 (0.16)	0.00952 (0.16)	0.130 (0.48)	0.0298 (0.49)	-0.0607 (-0.50)	-0.0399 (-0.32)
AGE	0.689*** (6.00)	0.132*** (6.57)	0.679*** (5.54)	0.128*** (5.97)	0.370* (2.33)	0.0849* (2.37)	0.406* (2.38)	0.0919* (2.44)	0.330*** (6.20)	0.332*** (5.57)
AGE2	-0.00952*** (-6.53)	-0.00182*** (-7.29)	-0.00940*** (-6.07)	-0.00177*** (-6.67)	-0.00508* (-2.46)	-0.00117* (-2.52)	-0.00558* (-2.52)	-0.00126** (-2.59)	-0.00454*** (-6.95)	-0.00456*** (-6.27)
EDUCYRS	0.0427* (1.97)	0.00816* (1.99)	0.0428 (1.83)	0.00808 (1.85)	-0.0309 (-1.17)	-0.00710 (-1.18)	-0.0136 (-0.45)	-0.00308 (-0.45)	-0.00175 (-0.14)	0.00359 (0.26)
EMPLOYSTAT	0.259 (1.00)	0.0493 (1.00)	0.372 (1.38)	0.0702 (1.39)	-0.292 (-1.00)	-0.0671 (-1.00)	-0.268 (-0.86)	-0.0606 (-0.86)	-0.249 (-1.27)	-0.233 (-1.15)
1.SECONDARY EDUCATION		0 (.)	0 (.)			0 (.)	0 (.)		0 (.)	
2. POST-SECONDARY NON-TERTIARY		-0.0544 (-0.18)	-0.0104 (-0.18)			-0.622 (-1.81)	-0.147 (-1.84)		-0.154 (-0.94)	
3. TERTIARY EDUCATION		0.0253 (0.10)	0.00476 (0.10)			-0.637* (-2.17)	-0.151* (-2.16)		-0.168 (-1.18)	
CHILDCAREER		0.0755 (0.41)	0.0142 (0.41)			-0.0564 (-0.27)	-0.0128 (-0.27)		-0.0505 (-0.60)	
_cons	-11.70*** (-5.32)	-11.56*** (-4.91)		-6.208* (-2.05)		-6.657* (-2.05)		-3.320*** (-3.45)	-3.280** (-3.03)	
N	690	690	670	670	469	469	460	460	682	663

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Table D.4 Regression output fertility on the division of housework (ratio of hours) (categorical variable) (Northern countries)

	ONETOMORE		ONETOMORE		TWOTOMORE		TWOTOMORE		TOTALCHILDR	TOTALCHILDR
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	OLS	OLS
main										
1.LOW HOUSEWORK										
HRS RATIO	0.00425 (0.02)	0.000782 (0.02)	-0.000957 (-0.00)	-0.000172 (-0.00)	0.209 (0.87)	0.0488 (0.87)	0.315 (1.26)	0.0720 (1.27)	-0.0168 (-0.16)	-0.000708 (-0.01)
2.MIDDLE HOUSEWORK										
HRS RATIO	-0.281 (-1.32)	-0.0541 (-1.33)	-0.308 (-1.43)	-0.0585 (-1.43)	-0.0865 (-0.35)	-0.0196 (-0.36)	-0.0508 (-0.20)	-0.0112 (-0.20)	-0.108 (-0.99)	-0.107 (-0.97)
3.HIGH HOUSEWORK										
HRS RATIO	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
AGE	0.682*** (5.68)	0.130*** (6.15)	0.693*** (5.53)	0.130*** (5.97)	0.415** (2.59)	0.0952** (2.65)	0.458** (2.69)	0.103** (2.76)	0.329*** (5.61)	0.333*** (5.28)
AGE2	-0.00949*** (-6.24)	-0.00180*** (-6.90)	-0.00965*** (-6.09)	-0.00180*** (-6.70)	-0.00569** (-2.74)	-0.00131** (-2.82)	-0.00633** (-2.87)	-0.00142** (-2.96)	-0.00453*** (-6.32)	-0.00458*** (-5.97)
EDUCYRS	0.0474* (2.10)	0.00901* (2.14)	0.0490* (2.04)	0.00916* (2.07)	-0.0410 (-1.46)	-0.00942 (-1.48)	-0.0179 (-0.58)	-0.00403 (-0.58)	-0.00432 (-0.30)	0.00152 (0.10)
EMPLOYSTAT	0.360 (1.27)	0.0685 (1.27)	0.451 (1.54)	0.0843 (1.55)	-0.392 (-1.22)	-0.0900 (-1.23)	-0.294 (-0.86)	-0.0661 (-0.87)	-0.273 (-1.19)	-0.245 (-1.05)
1.SECONDARY EDUCATION										
	0 (.)	0 (.)					0 (.)	0 (.)		0 (.)
2. POST-SECONDARY										
NON-TERTIARY	-0.175 (-0.56)	-0.0329 (-0.56)					-0.675 (-1.86)	-0.160 (-1.89)		-0.167 (-0.95)
3. TERTIARY EDUCATION										
	-0.0605 (-0.22)	-0.0112 (-0.22)					-0.788* (-2.57)	-0.185** (-2.58)		-0.189 (-1.28)
CHILDCAREER										
	0.114 (0.60)	0.0214 (0.60)					-0.0563 (-0.26)	-0.0127 (-0.26)		-0.0280 (-0.31)
_cons	-11.75*** (-5.11)	-11.96*** (-5.00)			-6.824* (-2.24)		-7.365* (-2.29)		-3.271** (-3.12)	-3.262** (-2.94)
N	651	651	635	635	442	442	435	435	644	629

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Appendix E

Table E.1 Logit regression output fertility on perceived fairness of housework division (binary variable) (continental countries)

	ONETOMORE		ONETOMORE		TWOTOMORE		TWOTOMORE	
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins
main								
MENHW	-0.195 (-0.90)	-0.0452 (-0.90)	-0.155 (-0.68)	-0.0356 (-0.68)	0.0176 (0.05)	0.00314 (0.05)	0.0661 (0.19)	0.0113 (0.19)
AGE	0.594*** (4.58)	0.138*** (5.04)	0.660*** (4.83)	0.151*** (5.40)	0.121 (0.49)	0.0216 (0.49)	0.385 (1.53)	0.0658 (1.53)
AGE2	-0.00760*** (-4.61)	-0.00176*** (-5.08)	-0.00840*** (-4.84)	-0.00193*** (-5.41)	-0.00108 (-0.34)	-0.000192 (-0.34)	-0.00419 (-1.29)	-0.000716 (-1.29)
EDUCYRS	0.0594* (2.10)	0.0138* (2.13)	0.0739 (1.79)	0.0169 (1.82)	0.0104 (0.23)	0.00186 (0.23)	0.0979 (1.39)	0.0167 (1.41)
EMPLOYSTAT	-0.631** (-2.72)	-0.146** (-2.79)	-0.532* (-2.20)	-0.122* (-2.25)	-0.842* (-2.57)	-0.150** (-2.66)	-0.924** (-2.65)	-0.158** (-2.76)
1. SECONDARY EDUCATION		0 (.)	0 (.)				0 (.)	0 (.)
2. POST-SECONDARY								
NON-TERTIARY		-0.382 (-1.41)		-0.0861 (-1.44)			-0.871* (-2.02)	-0.167* (-1.99)
3. TERTIARY EDUCATION		-0.415 (-1.04)		-0.0937 (-1.06)			-1.244 (-1.78)	-0.221 (-1.95)
CHILDCAREER		0.405 (1.95)		0.0928* (1.99)			0.111 (0.33)	0.0191 (0.33)
_cons	-11.30*** (-4.54)		-12.87*** (-4.81)		-3.787 (-0.80)		-9.708* (-1.98)	
N	450	450	422	422	238	238	222	222

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Table E.2 OLS regression output fertility on perceived fairness of housework division (binary variable) (continental countries)

	TOTALCHILDR	TOTALCHILDR	TOTALCHILDR
MENHW	-0.240*** (-3.91)	-0.0704 (-0.92)	-0.0579 (-0.72)
AGE	0.366*** (15.22)	0.197*** (4.91)	0.236*** (5.99)
AGE2	-0.00482*** (-15.92)	-0.00247*** (-4.83)	-0.00295*** (-5.83)
EDUCYRS	0.0243* (2.38)	0.0247* (2.24)	0.0400* (2.49)
EMPLOYSTAT	-0.436*** (-5.59)	-0.310*** (-3.50)	-0.281** (-3.03)
1. SECONDARY EDUCATION		0 (.)	
2. POST-SECONDARY NON-TERTIARY		-0.194* (-2.05)	
3. TERTIARY EDUCATION		-0.273 (-1.90)	
CHILDCAREER		0.118 (1.60)	
_cons	-5.498*** (-11.73)	-2.146** (-2.83)	-3.081*** (-4.02)
N	873	450	422

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Table E.3 Regression output fertility on perceived fairness of housework division (categorical variable) (continental countries)

	ONETOMORE		ONETOMORE		TWOTOMORE		TWOTOMORE		TOTALCHILDR	TOTALCHILDR
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	OLS	OLS
main										
0.HHSshare	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
1.HHSshare	-0.214 (-0.90)	-0.0493 (-0.90)	-0.223 (-0.90)	-0.0507 (-0.90)	-0.144 (-0.38)	-0.0256 (-0.38)	-0.0208 (-0.05)	-0.00352 (-0.05)	-0.0662 (-0.79)	-0.0546 (-0.63)
2.HHSshare	-0.306 (-1.23)	-0.0705 (-1.23)	-0.271 (-1.04)	-0.0617 (-1.05)	-0.0521 (-0.14)	-0.00944 (-0.14)	0.0556 (0.14)	0.00959 (0.14)	-0.104 (-1.21)	-0.0862 (-0.96)
AGE	0.594*** (4.57)	0.137*** (5.03)	0.661*** (4.80)	0.151*** (5.37)	0.120 (0.48)	0.0213 (0.48)	0.384 (1.53)	0.0657 (1.53)	0.196*** (4.91)	0.236*** (5.95)
AGE2	-0.00760*** (-4.61)	-0.00176*** (-5.07)	-0.00841*** (-4.81)	-0.00192*** (-5.38)	-0.00106 (-0.33)	-0.000189 (-0.33)	-0.00418 (-1.29)	-0.000715 (-1.28)	-0.00247*** (-4.83)	-0.00294*** (-5.79)
EDUCYRS	0.0619* (2.18)	0.0143* (2.22)	0.0781 (1.87)	0.0179 (1.90)	0.0121 (0.27)	0.00215 (0.27)	0.0983 (1.40)	0.0168 (1.42)	0.0255* (2.32)	0.0410* (2.55)
EMPLOYSTAT	-0.624** (-2.68)	-0.144** (-2.75)	-0.525* (-2.17)	-0.120* (-2.21)	-0.838* (-2.54)	-0.149** (-2.63)	-0.923** (-2.63)	-0.158** (-2.74)	-0.308*** (-3.45)	-0.278** (-2.97)
1.SECONDARY EDUCATION		0 (.)	0 (.)			0 (.)	0 (.)		0 (.)	
2. POST-SECONDARY										
NON-TERTIARY		-0.393 (-1.45)	-0.0884 (-1.48)			-0.871* (-2.02)	-0.167* (-1.99)		-0.196* (-2.07)	
3. TERTIARY EDUCATION		-0.439 (-1.09)	-0.0987 (-1.11)			-1.247 (-1.79)	-0.222 (-1.95)		-0.278 (-1.93)	
CHILDCAREER		0.417* (1.99)	0.0953* (2.03)			0.112 (0.34)	0.0192 (0.34)		0.121 (1.62)	
_cons	-11.24*** (-4.50)	-12.83*** (-4.76)		-3.705 (-0.78)		-9.693* (-1.98)	-2.121** (-2.79)		-3.060*** (-3.97)	
N	450	450	422	422	238	238	222	222	450	422

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Table E.4 Regression output fertility on the division of housework (ratio of hours) (categorical variable) (continental countries)

	ONETOMORE		ONETOMORE		TWOTOMORE		TWOTOMORE		TOTALCHILDR	TOTALCHILDR
	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	logit coeff.	margins	OLS	OLS
main										
1.LOW HOUSEWORK										
HRS RATIO	-0.212 (-0.70)	-0.0492 (-0.70)	-0.144 (-0.46)	-0.0330 (-0.46)	0.771 (1.69)	0.147 (1.60)	0.751 (1.61)	0.139 (1.56)	0.0181 (0.15)	0.0266 (0.22)
2.MIDDLE HOUSEWORK										
HRS RATIO	-0.0891 (-0.42)	-0.0206 (-0.42)	-0.0433 (-0.19)	-0.00993 (-0.19)	0.223 (0.63)	0.0378 (0.63)	0.0909 (0.23)	0.0146 (0.23)	0.00680 (0.09)	0.00956 (0.12)
3.HIGH HOUSEWORK										
HRS RATIO	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
AGE	0.598*** (4.59)	0.138*** (5.06)	0.661*** (4.83)	0.152*** (5.40)	0.115 (0.46)	0.0203 (0.46)	0.390 (1.55)	0.0659 (1.55)	0.197*** (4.88)	0.236*** (5.96)
AGE2	-0.00766*** (-4.64)	-0.00178*** (-5.12)	-0.00843*** (-4.85)	-0.00193*** (-5.42)	-0.000951 (-0.30)	-0.000167 (-0.30)	-0.00420 (-1.28)	-0.000711 (-1.28)	-0.00248*** (-4.82)	-0.00295*** (-5.80)
EDUCYRS	0.0574* (2.05)	0.0133* (2.08)	0.0719 (1.76)	0.0165 (1.78)	0.00254 (0.06)	0.000447 (0.06)	0.0879 (1.28)	0.0149 (1.30)	0.0226* (2.04)	0.0375* (2.34)
EMPLOYSTAT	-0.588* (-2.54)	-0.136** (-2.60)	-0.503* (-2.09)	-0.115* (-2.12)	-0.935** (-2.72)	-0.165** (-2.86)	-1.011** (-2.74)	-0.171** (-2.90)	-0.304*** (-3.40)	-0.277** (-2.97)
1.SECONDARY EDUCATION				0 (.)	0 (.)		0 (.)	0 (.)		0 (.)
2. POST-SECONDARY										
NON-TERTIARY		-0.393 (-1.45)		-0.0886 (-1.49)			-0.883* (-2.03)	-0.166* (-2.01)		-0.195* (-2.06)
3. TERTIARY EDUCATION				-0.421 (-1.05)	-0.0951 (-1.07)		-1.219 (-1.77)	-0.215 (-1.92)		-0.267 (-1.85)
CHILDCAREER		0.390 (1.88)		0.0894 (1.91)		0.167 (0.49)	0.0282 (0.49)		0.114 (1.53)	
_cons	-11.34*** (-4.54)		-12.86*** (-4.81)		-3.775 (-0.79)		-9.870* (-2.02)	-2.144** (-2.79)		-3.063*** (-3.97)
N	450	450	422	422	238	238	222	222	450	422

t statistics in parentheses

* p<0.05, **p<0.01, *** p<0.001

Appendix F

Table F.1 Total number of children, female respondents (Northern countries)

Variable	Obs	Mean	Std. dev.	Min	Max
Total number of children	685	2.074	1.127	1	11

Note: women without children excluded