

Aumaitre, Ariane

Working Paper

Three Tales of Gender Equality in a Post-Industrial World

LIS Working Paper Series, No. 849

Provided in Cooperation with:

Luxembourg Income Study (LIS)

Suggested Citation: Aumaitre, Ariane (2022) : Three Tales of Gender Equality in a Post-Industrial World, LIS Working Paper Series, No. 849, Luxembourg Income Study (LIS), Luxembourg

This Version is available at:

<https://hdl.handle.net/10419/283856>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

LIS

Working Paper Series

No. 849

Three Tales of Gender Equality in a Post-Industrial World

Ariane Aumaitre

October 2022



CROSS-NATIONAL
DATA CENTER
in Luxembourg

Luxembourg Income Study (LIS), asbl

Three tales of gender equality in a post-industrial world*

Ariane Aumaitre[†]

European University Institute; ariane.aumaitre@eui.eu

Abstract

The last decades have witnessed an unprecedented increase in women's economic independence through higher educational attainment, labor force participation and an increase in the share of female-led households. However, up to date there is a gap in the literature concerning how this increase in independence has translated into women's living standards, measured through disposable income. Using a combination of descriptive analysis, OLS regression and RIF regression based decomposition, this paper has unpacks the relationship between economic independence and living standards, and the driving factors behind it. The analysis unfolds three stories regarding the relationship between increasing economic independence for women across developed economies and women's economic wellbeing. First, a story of *emancipation* for women at the top of the income distribution, who have seen an increase in their living standards. This is especially the case for highly educated women in dual earner couples. Secondly, a story of *compensation* and stability of living standards for women at the middle of the income distribution, whose entrance in the labor force manages to balance, at the household level, the decrease in male earnings witnessed during the last decades. And, finally, a story of *undelivered promises* for women at the bottom of the income distribution, who have experienced a relative loss in their economic wellbeing, especially when belonging to non-traditional family structures such as single mother households. From a welfare state perspective, the analysis suggests that traditional welfare regime classifications cannot fully explain differences in living standards among women.

Keywords: women, inequality, income distribution, welfare states

*The research leading to these results has received funding from the EU's Horizon 2020 research and innovation programme under grant agreement No 730998, InGRID-2 – Integrating Research Infrastructure for European expertise on Inclusive Growth from data to policy

[†]This working paper is one of the chapters of the author's PhD Dissertation, supervised by Anton Hemerijck and Juho Härkönen at the European University Institute in Florence, that has not yet be defended. I would like to thank both of my supervisors for their insights and guidance while writing this chapter, as well as Álvaro Canalejo, Nerea Gándara, Klarita Gërxhani, Luis Guirola, Sergi Martínez, María Sánchez-Domínguez, Fergal Treanor and Eva Zschirnt for comments and insights throughout the drafting process. I would also like to thank the LIS and LISER teams for welcoming me for a research stay that helped bringing the analysis together, and for their support during this process.

1 Introduction

The last decades have witnessed a revolutionary expansion in women’s labor force participation, together with an increase in their educational attainment, average earnings and contribution to household income. However, across developed economies, women still confront higher poverty rates, face persistent gender pay gaps, and are in a more vulnerable economic position than men. Has the increase in female labor force participation been translated into a better economic position for women? Has this process been the same for women across the income distribution? And which country differences do we observe?

Extensive literature has broadly covered the topic of women’s entrance into the labor market (Goldin, 2006; Esping-Andersen, 2009; Fernández, 2013), as well as the determinants of the gender pay gap in advanced economies (Sigle-Rushton and Waldfogel, 2007; Goldin, 2014; Blau and Kahn, 2017). Female employment has also been studied in relation to income inequality (Nieuwenhuis et al., 2017; Kollmeyer, 2013; ?) and to household poverty (Nieuwenhuis et al., 2016). From a comparative perspective, research has looked at how different welfare regimes and policy mixes impact women’s earnings and labor force participation (Thévenon, 2011; Korpi et al., 2013). However, except for still limited exceptions like Nieuwenhuis (2015), very little is known about how the increase in female labor force participation has affected the economic position of women as a group, understood throughout this paper as the disposable household income women have access to.

This paper uses data from the Luxembourg Income Study (LIS) to trace and disentangle the evolution of women’s economic position and its relation to their labor force participation across 8 European welfare states - Austria, Belgium, Denmark, Finland, Germany, Italy, and Spain- between the 1980s and 2016. Using a RIF regression approach to decomposition, the analysis goes beyond aggregate trends, making it possible to unpack how this relationship works not only for women with average income but also for those at the 20th and 80th quantiles of the income distribution.

Results unfold three stories regarding the relationship between the increasing labor force participation of women and women’s economic position across developed economies. First, a story of *emancipation* for women at the top of the income distribution, who have seen an increase in their economic position. This is especially the case for highly educated women in dual-earner couples. Second, a story of *compensation* and stability of for women at the middle of the income distribution, whose entrance in the labor force manages to balance, at the household level, the decrease in male earnings witnessed during the last decades. Finally, a story of *deterioration* for women at the bottom of the income distribution, who have experienced a relative loss in their economic position, especially when belonging to non-traditional family structures such as single mother households. From a comparative perspective, results show a consistent direction across all countries analyzed.

The paper proceeds as follows. Section 2 draws expectations from current literature on the relationship between women’s labor force participation and their economic position and how it may vary along with the income distribution and across countries. Section 3 covers the data and methods used. Section 4 performs the analysis and discussion. Section 5 concludes.

2 Labor force participation and women's economic position: expectations from the literature

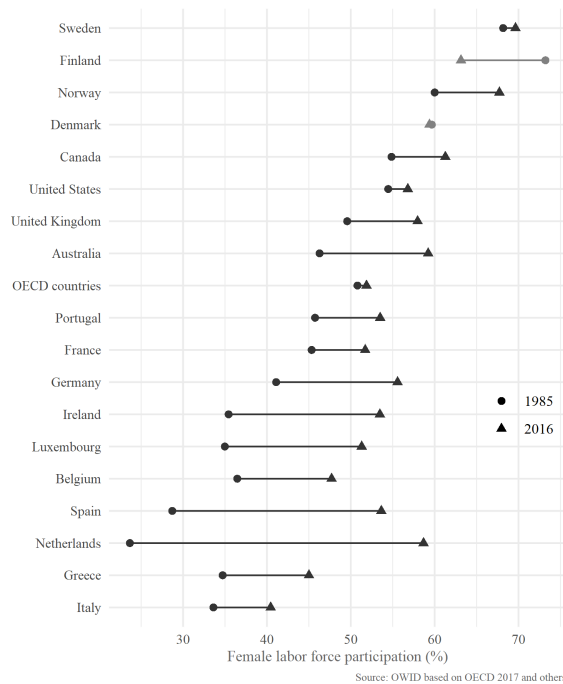
To fill the existent gap in the literature concerning the relationship between the increase in female labor force participation and women's economic position, this paper addresses the following research questions: has the increase in labor force participation materialized into a better economic position for women? Has this process been the same for women across the income distribution? And which country differences do we observe?

In what follows, this section reviews existent research on the topics of women's increased labor force participation, possible triggers of inequality among women, and reasons for country variation. This revision of the literature aims to set definitions of the main concepts and draw theoretical expectations related to the three research questions of the paper.

2.1 The labor force participation-economic position relationship

A first, intuitive starting point would entail thinking that women should be in a better economic position today than they were a few decades ago, due to higher female labor force participation (see figure 5.1), increased education rates and a higher share of contributions to household earnings.

Figure 1: Share of women in the labor force, 1985-2016



There are, however, two main factors that could interfere with this likely-to-be-positive relationship. First of all, as disposable income is measured by household income, its fluctuation will depend not only on females' income but also on the income of other household members. In this line, the transition towards post-industrial economies and less linear career paths has brought a decline both in male earnings and in the labor force participation of men, especially for those without higher education (Binder and Bound, 2019; Juhn, 1992; Moffitt, 2012; Abraham and Kearney, 2020). This trend is likely to bring overall living standards down, despite the increase in women's earnings.

Secondly, the barriers faced by women in labor markets such as persistent gender pay gaps, vertical and horizontal segregation into less paid positions or high rates of precarity can also interfere with the way in which higher employment rates translate into living standards. According to 2016 data from the eight countries analyzed in this paper, more than half of the people under the poverty line (54%) are women. Poverty rates are higher among women (17,9% on average) than among men (15,8%). Regarding family structures, 66% of single-parent households are headed by women, of which 31% are below the poverty line.

Beyond trends for women as a group, the labor force participation - economic position relationship may vary across the income distribution, as well as by country. The next two subsections review existing literature to draw expectations on these two elements.

2.2 Inequality among women

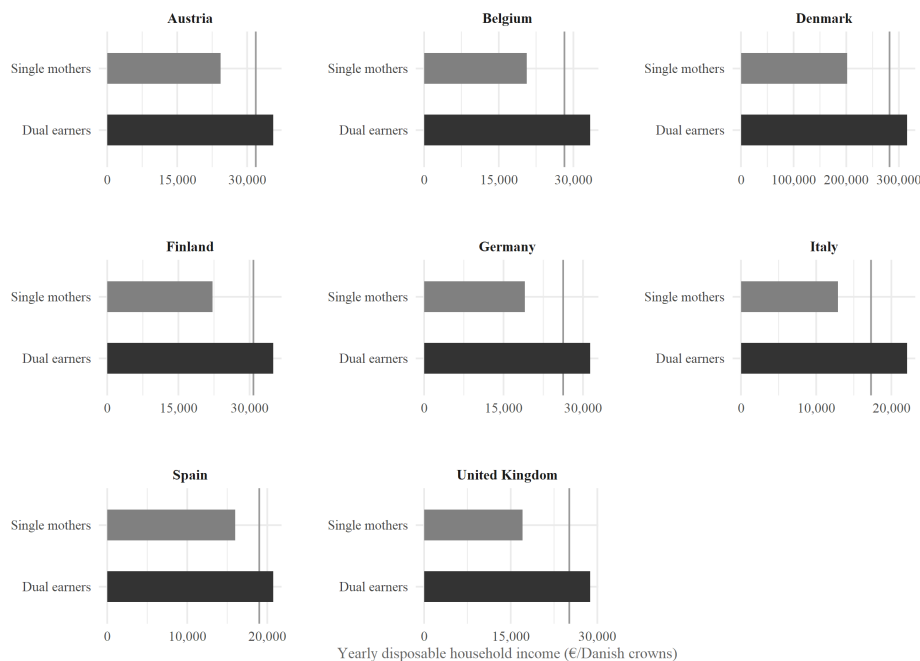
The impact that the increase in female labor force participation has had on women's economic position is likely to be different for women at different points of the income distribution, with some women benefiting and others lagging behind in this process. This divergence would be driven by the interconnectedness between women's entrance into the labor market and other socio-economic transformations such as changes in family structure, the overall increase in precarity or overall increases in inequality. From this list, the strong correlation that has emerged between the family structure one belongs to and one's position at the income distribution places changing families as the main potential driver of inequality among women coming from existent research.

The increase in labor force participation of married and cohabiting women has led to an increase in the share of dual-earner families. Simultaneously, the share of single women, female-breadwinner and single-mother households has also increased. Single female households are now an 8.3% of households in the EU, a percentage that has increased every year during the last ten years. Furthermore, single-mother families represent 4.7% of EU households, with 16.4% of children living in this kind of structure, a situation that applies to more than one out of five children in ten EU countries (Eurostat, 2018).

The rise in new family structures is not neutral concerning women's living standards. On one side, dual-earner families typically fare better than other types of households across developed countries (Nieuwenhuis et al., 2016). On the other extreme, female breadwinner couples have been shown to fare worse than male breadwinner families (Kowalewska and Vitali, 2019), while single mother households are considered one of the most vulnerable kinds of family structures, with 45% of them being at risk of poverty in the EU (Eurostat, 2018). Single motherhood has, in fact, been

put forward as one of the explanations for rising inequality in developed economies (Kollmeyer, 2013). Figure 5.2 shows the average disposable household income for women in single mother and dual-earner families ¹ in relation to the average income of females in their working age (24-65). For all countries in the sample, single mother's income is below average disposable income for women, while that of dual earners is above.

Figure 2: Average income for dual earner and single mother households



In this line, some authors have hypothesized that, due to marital homogamy, the increase in female labor force participation would lead to an increase in economic inequality and could be detrimental to the living conditions of women from lower socio-economic strata (Esping-Andersen, 2009). This view, however, has been challenged by a growing literature that finds no detrimental impact of female employment on overall income inequality, and nor does a high correlation between spouses' earnings (Nieuwenhuis et al., 2017; Breen and Salazar, 2011; Kollmeyer, 2013). Existent literature, however, has focused on the impact of women's employment on overall inequality rather than on women specifically. Thus even if homogamy does not rise overall inequality, it is still possible that women in dual-earner families may have a comparative living standards advantage over single-earner families headed by women.

Drawing from the above, it may be expected that the interaction between economic independence

¹In the figure, single-mother households are defined as those headed by a female aged 24-65 reporting as her household type "one parent with children". Dual-earner families are defined as those with at least one female in her working age, where the number of household members with labor income is equal to two.

and changing family structures will have a positive impact on the living standards of women in dual-earner couples (especially among the highly educated), but could hit especially hard the living standards of vulnerable households such as single-mother families. However, it should be noted that changing family structures and increasing economic independence do not operate in a void, and their effect on women's living standards is also likely to change depending on the policy context where they operate. The following subsection will cover expectations related to country variation.

2.3 Cross-country differences: the role of the welfare state

Welfare state regimes and social policy mixes can affect the impact of employment on women's economic position in two main ways. On the one hand, these include adaptation in terms of care provision to the incorporation of women into the labor force and, on the other hand, adaptation to the emergence of new social risks, among whom there is a high incidence of certain groups of women. While most welfare states have by now undergone some kind of recalibration process to adapt to new realities, including women's new roles (Bonoli, 2013; Bonoli and Natali, 2013; Ferrera and Rhodes, 2013; Hemerijck, 2013), the degree of welfare state adaptation to a post-industrial socio-economic reality can be fundamental to determine the relationship between women's entrance into the labor market and their economic position.

The first way welfare states can influence this relationship is related to the provision of care in a context of changing family structures. With the massive incorporation of women, and especially mothers, into paid work, the family can no longer fulfill the function of caring for the dependent, generating tensions on the relationship between the state and the family in the provision of care services (Esping-Andersen, 2009; Pfau-Effinger and Rostgaard, 2011). In this line, familism has been identified as a critical welfare state dimension explaining women's outcomes, especially those of mothers. While the earnings of mothers have substantially increased during the last decades, they are still lower than those of women without children. Albeit large country variation (Keck and Saraceno, 2013), women with children are less likely to be in the labor force (Cohany and Sok, 2007) and those who have lower earnings (Kleven et al., 2019; Sigle-Rushton and Waldfogel, 2007). These effects, however, seem to be mediated by policy. More particularly, an adequate provision of family policies and care services can lead to women working more and having better outcomes. Policy mixes combining long parental leaves with generous childcare provision can increase the labor supply of mothers (Keck and Saraceno, 2013). The effect of childcare has been proved especially positive for low educated mothers (Keck and Saraceno, 2013) and low skilled young women (Rovny, 2014).

Secondly, the last few decades have witnessed the emergence of an array of 'new social risks' such as low-skilled workers, long-term unemployed, people in precarious employment or single-parent families, (Bonoli, 2005; Taylor-Gooby, 2004; Hemerijck, 2013). The high incidence of this new kind of risks among women could hinder a potential increase in their living standards, especially in the absence of welfare state adaptation. First, due to changing family structures, welfare systems that used to rely on securing the income of a male breadwinner may be insufficiently prepared for covering the needs of women in non-traditional households such as single-mother families Esping-Andersen (1999). Secondly, the high incidence of precarity among women and the persistence of gender pay gaps can make women a 'new social risk' in developed welfare states. Women also face

persistent pay gaps in the labor market as well as labor market segregation, both horizontal and vertical (Blau and Kahn, 2017).

Existent literature finds common patterns in welfare states that have adapted their care provision and those that have adapted to the emergence of new social risks. Nordic countries are considered to have been the first ones in undertaking a recalibration process, with the Continental regime increasingly doing so (Hemerijck, 2013). On the other hand, Southern European countries have remained more reluctant towards reform (Bonoli, 2013). In terms of care provision, especially relevant for women’s economic emancipation, Thévenon (2011) finds that Nordic countries offer substantial help for combining work and family, with Anglo-Saxon countries lagging behind in the provision of public services, the Southern cluster offering limited assistance and Continentals moving increasingly away from familialism. In a similar line, Korpi et al. (2013) identify three family policy clusters, with Nordics falling into an ‘earner-carer’ model that enhances women’s opportunities, Anglo-Saxon relying more on the market for the provision of services, and Continentals and Italy still relying more on the family as the provider of care services.

Current research thus points quite clearly towards the expectation that women’s economic position should have increased more in countries that have adequately adapted the provision of care services to the changing realities of families and women employment; and which have adapted their policy mixes to the emergence of a new array of social risks. Drawing from the welfare state literature (Esping-Andersen, 2009; Hemerijck, 2013), this would entail a more positive relationship in Nordic countries, an ameliorating one in the Continental regime, with lower coefficients expected in Anglo-Saxon and Southern countries.

3 Data and methods

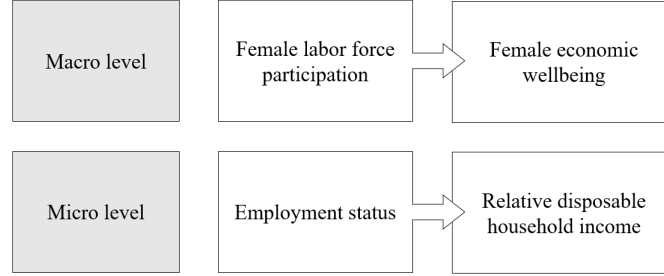
3.1 Three measurement challenges

Testing the effect of the increase in female labor force participation on women’s economic position as a group entails three measurement challenges. First, the operationalization of a macro-level phenomenon into a micro-level relationship. Second, the comparison of income levels between very different countries and points in time. And finally, being able to capture the fact that effects may differ for women at different points of the income distribution.

The effect of female labor force participation on women’s economic position can be thought of as a macro-level phenomenon that could be studied by measuring employment rates at a given country and point in time in relation to the evolution of women’s average income. However, given the potential sources of inequality among women discussed in section 2.2, any comprehensive approach should turn to the micro-level to be able to capture differences both regarding the direction of the relationship and the variables that predict women’s economic position. Figure 3 summarizes the approach followed in this paper to ‘translate’ this process from the macro to the micro-level.

Following this diagram, the increase in female labor force participation is operationalized at the individual level through employment status. At the same time, the notion of economic position is

Figure 3: Research design from the macro to the micro level



captured through an individual's relative disposable household income, computed as a ratio between an individual's disposable household income and the average disposable income of the population at that point in time, so that the value for a person at the average will be 1.

The choice of relative disposable income as the dependent variable at the individual level seeks to overcome the second challenge raised above, namely the need to compare women's income in very different countries and points in time. Using a relative measure of income builds on Myle's (2002) idea of Fixed Relative Positions among social groups and has two essential advantages. First, it makes individuals comparable in a context of important geographical and country variation, minimizing the noise coming from different economic contexts. Second, it manages to capture women's economic position in relation to the rest of the population, providing information both on living standards and on the spread of the income distribution.

Despite the measurement limitations of household income, such as the fact that income may not be shared equally across household members, (?), it is still considered as the best indicator one can have of economic wellbeing when compared to other alternatives (?). By combining the use of micro-level data with a comparative welfare state approach, this paper follows the line of Nieuwenhuis (2015) in developing a micro-to-macro analysis on the topic of female incorporation into the labor force and their living standards.

Finally, the last challenge is related to capturing the effect of employment not only for the average female but also for women along the income distribution, to account for the possible heterogeneity of effects. The analysis overcomes this challenge by focusing not only on the outcomes of women with an average income but also of those at the 20th and 80th quantiles of the income distribution, through the use of a RIF regression approach to decomposition, following Firpo et al. (2009).

3.2 Data and variables

This paper builds on data from the Luxembourg Income Study (LIS). LIS data offers standardized income and socio-economic data for a large sample of developed economies and is the income database that allows to cross-nationally compare countries further back in time. LIS data allows measuring both the outcome variable -relative disposable household income- and the explanatory

variables, including employment status, household composition, number of earners in the household, education and age.

The analysis looks at 8 Western European countries which cover the four welfare state regimes: Nordic (Denmark and Finland), Continental (Austria, Germany and Belgium), Anglo-Saxon (United Kingdom) and Southern (Spain and Italy). Data comes from waves II (collected around 1985)² and X (collected in 2016). This choice of countries aims to provide enough institutional and policy variation to capture whether the relationship between employment and relative income shows significant cross-country heterogeneity. The first part of the analysis -a descriptive assessment of the evolution of women’s economic position- uses data from all eight countries. Spain and the UK are dropped for the decomposition analysis due to missing household composition and education data in the 1980s dataset. Since the focus of the analysis is to understand better the relationship between women’s economic independence and their living standards, the sample consists of only women in their working age (18-65).

The outcome variable, relative disposable household income, is computed as a ratio between an individual’s disposable household income equivalized by household size³, and the average equivalized disposable income of the population at that point in time, so that the value for a person at the average will be 1.

Table 1: Summary statistics for the sample

| | Austria | | Belgium | | Germany | | Finland | | Denmark | | Italy | |
|----------------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|--------------|-------------|
| | <i>1987</i> | <i>2016</i> | <i>1985</i> | <i>2016</i> | <i>1985</i> | <i>2016</i> | <i>1987</i> | <i>2016</i> | <i>1987</i> | <i>2016</i> | <i>1986</i> | <i>2016</i> |
| Couple with children | 46.56 | 42.4 | 64.88 | 48.8 | 62.52 | 50.45 | 61.44 | 47.69 | 44 | 41.24 | 74.72 | 59.25 |
| Couple , no children | 24.4 | 29.7 | 23.66 | 22.36 | 22.91 | 25.68 | 26.18 | 37.1 | 29.52 | 29.74 | 14.91 | 19.11 |
| Single person | 17.6 | 18.4 | 5.71 | 12.6 | 8.23 | 10.48 | 7.86 | 10.34 | 19.01 | 17.98 | 4.12 | 10.4 |
| Single mother | 11.44 | 9.59 | 5.76 | 16.24 | 6.34 | 13.39 | 4.53 | 4.87 | 7.47 | 11.04 | 6.25 | 11.25 |
| Duar earner | 40.45 | 56.2 | 39.94 | 50.05 | 54.15 | 59.99 | 65.56 | 71.25 | 56.51 | 64.39 | 28.97 | 37.68 |
| Employed | 46.13 | 62.6 | 40.47 | 58.37 | 48.9 | 70.79 | 73.32 | 67.93 | 72.43 | 66.41 | 35.98 | 45.3 |
| Education: low | 74.06 | 13.9 | 52.67 | 23.83 | 43.54 | 12.88 | 45.26 | 11.88 | 44.91 | 32.52 | 79.87 | 39.99 |
| Education: middle | 22.46 | 64.5 | 27.53 | 35.06 | 45.6 | 59.03 | 42.85 | 40.15 | 38.09 | 33.38 | 11.28 | 44.03 |
| Education: high | 3.48 | 21.7 | 19.79 | 41.11 | 10.85 | 28.09 | 11.88 | 47.97 | 16.99 | 34.11 | 8.85 | 15.98 |

The main predictor of relative income, employment status, is operationalized through a dummy variable coded 1 when the person is employed. While the analysis would gain from adding a more nuanced measure of employment, such as accounting for part-time work or being active in the labor market, the scarcity of data from the 1980s does not make this breakdown possible.

Beyond employment, the analysis includes family structure, number of earners, education and age acting as predictor and control variables. Family structure is captured through a ‘families’ categorical variable, where couples with children are the reference category, and the other categories cover couples with no children, single-mother and single-person households. Couple households also include families with other relatives living in the households. Family structures that do not fit into any of these categories are excluded from the analysis. In addition to family composition,

²From wave II, data are from 1984 for Germany, 1985 for Belgium and Spain, 1986 for Italy and the UK, and 1987 for Denmark, Austria and Finland. All data from wave X come from 2016

³income is equivalized by dividing household disposable income by the square root of the number of household members, following the approach by ?

the analysis includes a 'dual earner' dummy variable, coded as 1 when the number of household members with labor income is two or more⁴. As a well-known predictor of income, the model includes education in three levels -low, medium and high-, with low education being the reference category. Finally, both age and age squared are included as control variables. To have a meaningful zero for the age categories, the variable is computed as the actual age minus the minimum age so that zero corresponds to 18 years old.

As a summary of sample characteristics at the two points in time captured in the analysis, Table 5.1 presents descriptive statistics for all variables included in the analysis.

3.3 Methods

The analysis is divided into two parts: a first step performing a descriptive analysis of the evolution in women's economic positions between the 1980s and 2016, and a second step where a RIF regression approach to decomposition is used to unpack, at the individual level, how the increase in female employment has impacted women's economic position.

The first part of the analysis traces, at the aggregate level, the evolution in the economic position of women between the 1980s and 2016, providing a descriptive overview. Beyond trends at the average, the analysis breaks down this evolution by employment status and position at the income distribution. This descriptive first stage allows having a group-based overview of the evolution of economic positions and acts as a partial, macro-level answer to this paper's first research question, namely whether the increase in female labor force participation has led to a better economic position for women.

On a second step, the analysis follows the approach proposed by Firpo et al. (2009) of combining the use of RIF regression with an Oaxaca-Blinder decomposition approach (Oaxaca, 1973). The decomposition analysis compares each country with itself in the past, using the recentered influence function of the mean, the 20th and the 80th percentile of the relative income variable as the outcome.

Choosing a decomposition-based methodology allows answering the first research question of the paper at the individual level by revealing the effect that the variation on the share of employed women between the 1980s and 2016 has had on their relative income; as well as if the effect of employment itself has changed over time (this applies not only to employment but also to the rest of predictors). Building on the variables described in section 3.2, the decomposition is based on the following linear model:

$$RelativeIncome = \alpha + \beta_1 Employed + \beta_2 FamilyStructure + \beta_3 DualEarner + \beta_4 Education + \beta_5 Age + \beta_6 Age^2 \quad (1)$$

Building from this model and the specifications in Jann (2008) , the Oaxaca-Blinder decompo-

⁴It should be noted that this measure does not account for whether one of the two incomes comes from part-time employment

sition looks as follows:

$$R = [E(X_{1985}) - E(X_{2016})]' \beta * + [E(X_{2016})'(\beta_{1985} - \beta *) + E(X_{1985}) - E(X_{2016})'(\beta * - \beta_{2016})] \quad (2)$$

Where R is the mean outcome difference between the two groups, X is a vector of the predictors from (5.1) and β contains all the coefficients. In the above equation, the first component represents the variation in relative income coming from a change in the distribution of the predictors (endowment effect or explained part). The second component represents the differences over time in these predictors' effect on economic position (coefficient effect or unexplained part).

To be able to go beyond changes at the average and test the relationship for women at the top and the bottom of the income distribution, the next step consists of extending the decomposition to the 20th and 80th quantiles of the income distribution. This is achieved using the recentered function of the unconditional 20th and 80th quantiles instead of the mean as an outcome. For a quantile q_τ , the RIF function is computed in the following way:

$$RIF(I; q_\tau) = q_\tau + \frac{\tau - D(I \leq q_\tau)}{f_I(q_\tau)} \quad (3)$$

Where D is an indicator function, $f_I(\cdot)$ is the density of the marginal distribution of scores. Given this definition, the RIF decomposition consists of computing the regression from equation (5.1) with the RIF for the quantiles of interest as a dependent variable and performing the Oaxaca-Blinder decomposition from equation (5.2). In this setting, the RIF decomposition at the mean is the same as doing Oaxaca-Blinder with relative income as the dependent variable.

4 Analysis

4.1 Aggregate trends on women's economic position

This section will provide a first, macro-level answer to the three research questions of this paper by showing trends in women's economic position from the 1980s until 2016, de-aggregated by country and women's position at the income distribution. The aim is to provide a broad perspective on overall trends for women's relative income in the context of growing female labor force participation. Furthermore, this will allow having a first outlook on cross-country trends on the effect of increased employment together with a preliminary test on whether trends differ for women across the income distribution.

Figure 5.4 presents country trends on the evolution of the economic position of women as a group, together with the evolution of economic positions when focusing only on women in employment.

On average, the economic position of working-age women as a whole has remained essentially unchanged from the 1980s, with almost no variation in any of the eight countries in the sample -note that the y axis starts at 90% of average income. Women's economic position is systematically below the average of the population, although very close to the mean. Looking at cross-country differences,

Figure 4: Economic position of all women and women in employment



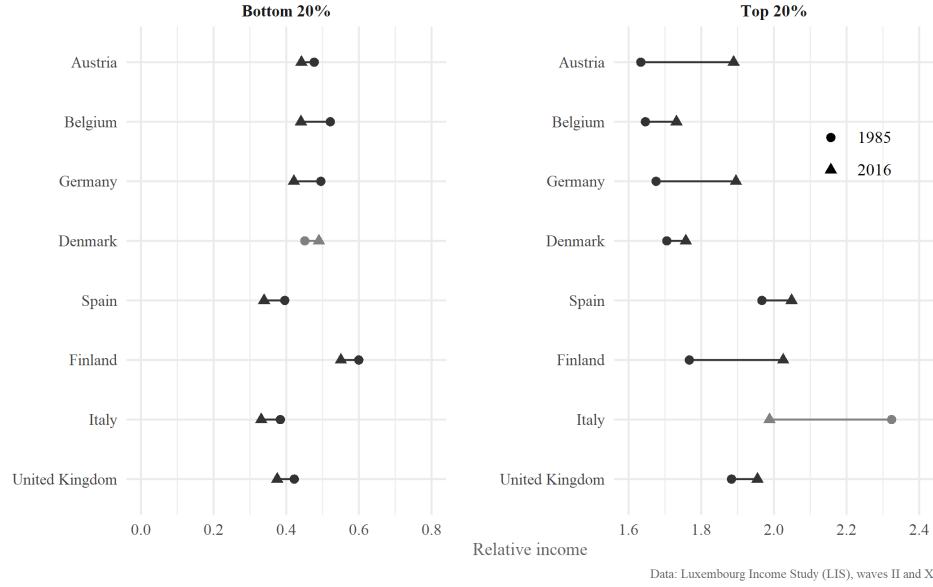
living standards increase, albeit by little, in Austria, Denmark and Finland. However, in general lines, it does not seem from average numbers that women's increased labor force participation has had a strong effect on women's relative income.

The relative income of employed women shows more substantial variation in all countries. In line with trends for all women, an increase is only present in Austria, Denmark and Finland; while in all other countries working women currently fare worse off in relation to the average income of the population than they did in the 1980s.

These trends go in line with the theoretical expectation that rising employment levels may not have been enough as a driving force to increase women's economic position as measured by household disposable income. This can be related to changes in the labor market on the one hand, including a context of less stable working careers and declining male wages, and on the other hand to the disadvantaged position that women face in the labor market for women.

The relationship between increasing labor force participation and women's economic position is thus not necessarily straightforward and shows substantial country variation. In line with the expectations derived from the literature, this relationship may differ when focusing on different subgroups of working-age women. To overcome possible 'aggregation paradoxes' (Nieuwenhuis, 2015; Nieuwenhuis et al., 2016) and acknowledge the increasing multi-dimensionality of risks in post-industrial welfare states (Bonoli and Natali, 2013), it is necessary to break down the employment - relative income relationship by focusing on specific groups. Taking these challenges into account, Figure 5.5 breaks down the changes in relative income by women's position in the income distribution.

Figure 5: Economic position of women across the income distribution



The data shown in Figure 5.5 entail a first approximation to answering the second research question of the paper, namely whether the labor force participation - economic position relationship is different for women at different points of the income distribution. Indeed, data show women at the bottom 20% of the income distribution being worse off everywhere compared to the 1980s with the sole exception of Denmark, and women at the top 20% of the income distribution being systematically better off the only exception of Italy.

The divergent trend in Denmark would go in line with expectations on cross-country differences derived in section 2.3. As a Nordic country, Denmark has shown strong adaptation to post-industrial transformations in terms of care and work-life balance policies and adaptation and recalibration to the emergence of new social risks. The case of Italy for the Top 20% is more striking, although two nuances can help explain this pattern. First, the relative income of women at the top 20% in wave II is the highest value of the series for all countries, suggesting that this may be a time-specific outlier. Second, this trend comes together with an also substantial decline in the economic position of working women (see Figure 4), which suggests that the meager female labor participation in Italy in the 1980s -one of the lowest values in Figure 1- entailed strong selection into this group.

Coming back to the primary trend visible in the data, the opposing evolution in economic positions followed by women at different extremes of the income distribution can be seen as an indicator of the emergence of winners and losers of the economic independence among women. The micro-level analysis in the following subsection will be key for identifying the driving factors behind this tendency.

The macro-level analysis has raised three main takeaways. First, despite increased economic

independence, women as a group show minimal variation in the evolution of their economic position compared to the average of the population. Second, this apparent stability at the mean hides significant variation among women. While the living standards of the women at the top 20% of the income distribution have increased, those of women at the bottom have gone down, suggesting that overall stillness hides an increase in inequality. Finally, the analysis also shows country differences. As expected from the literature, in Nordic and some Continental countries, the evolution of women's relative income shows a more positive trend, in line with increased labor force participation. The remaining analysis will explore further both country variation and variation among groups of women.

4.2 Employment status and relative income at the individual level

After providing a first, macro-level analysis of the relationship between female labor force participation and the economic position of women as a group, this subsection presents the results of the RIF decomposition part of the analysis. This will allow disentangling which part of changes in women's economic position comes changes in the composition of women as a group -such as increased employment and higher education or changing family structures- and which part comes from changes in the effect of specific variables.

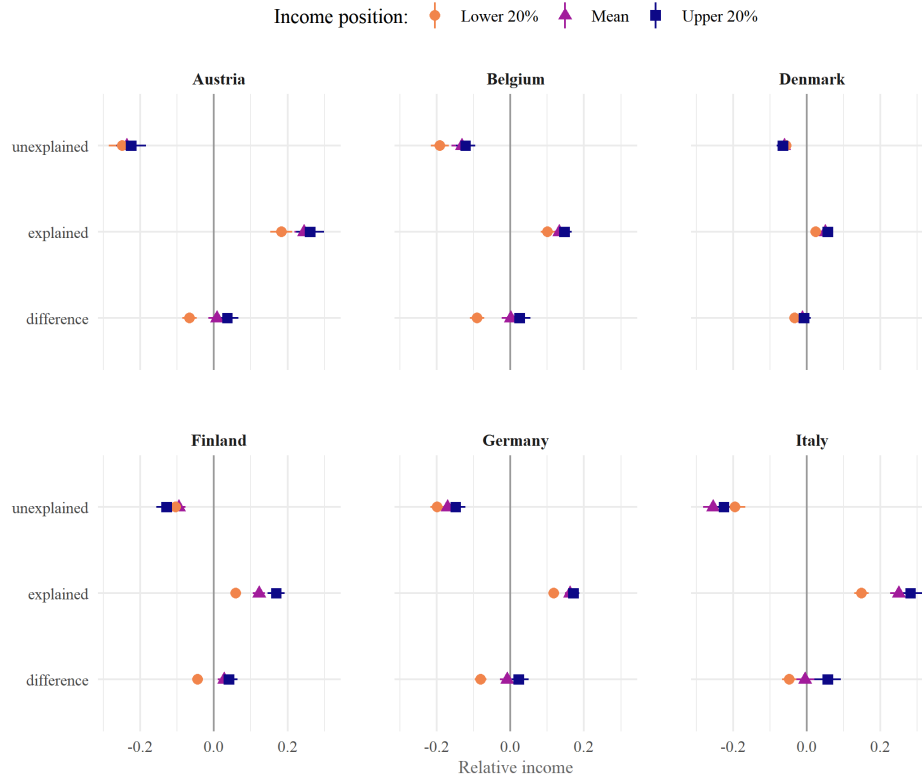
Figure 5.6 shows the overall results of the decomposition for the six countries present in this part of the analysis (as mentioned in section 5.3.2, Spain and the UK have not been included in this part due to missing data on predictor variables). The full tables of results can be found in the Appendix. For readability purposes, the sign of all coefficients has been reversed as advised in Rios Avila (2019), entailing that any coefficient above zero represents an improvement in women's 2016 relative position in comparison to the 1980s, while negative coefficients represent a decline in their position.

Beyond country particularities, three takeaways arise from this figure. First, that as already hinted by the macro-level analysis, differences between 2016 and 1985 are very small in all cases. This is striking by itself, given that women today work more, are more educated and have overall gained higher economic independence. Second, the 'explained' part -this is, the changes in women's endowments- drives women's relative income to be better off. This would be the expected positive effect of economic independence. This positive effect, however, seems to be countered by the changes in the effect of predictors, that counterweights the explained coefficient, leading to a 'stagnation' of women's economic position

Furthermore, as expected from the literature and already hinted in the descriptive analysis, coefficients show differences across the income distribution, with women at the bottom 20% showing a decline with respect to the 1980s, and women at the top 20% showing an improvement. In addition, even if changes on endowments -this is, the fact that women have higher employment rates and are better education- have a positive impact for all women, this pattern is particularly strong in all countries for women at the top of the income distribution. In the three Continental countries, the negative coefficient of the unexplained part (changes in coefficients) is also stronger for women at the bottom, which hints towards unequalizing trends.

Figure 5.7 unpacks the above information by disentangling endowment effects (the 'explained'

Figure 6: RIF decomposition overall estimates

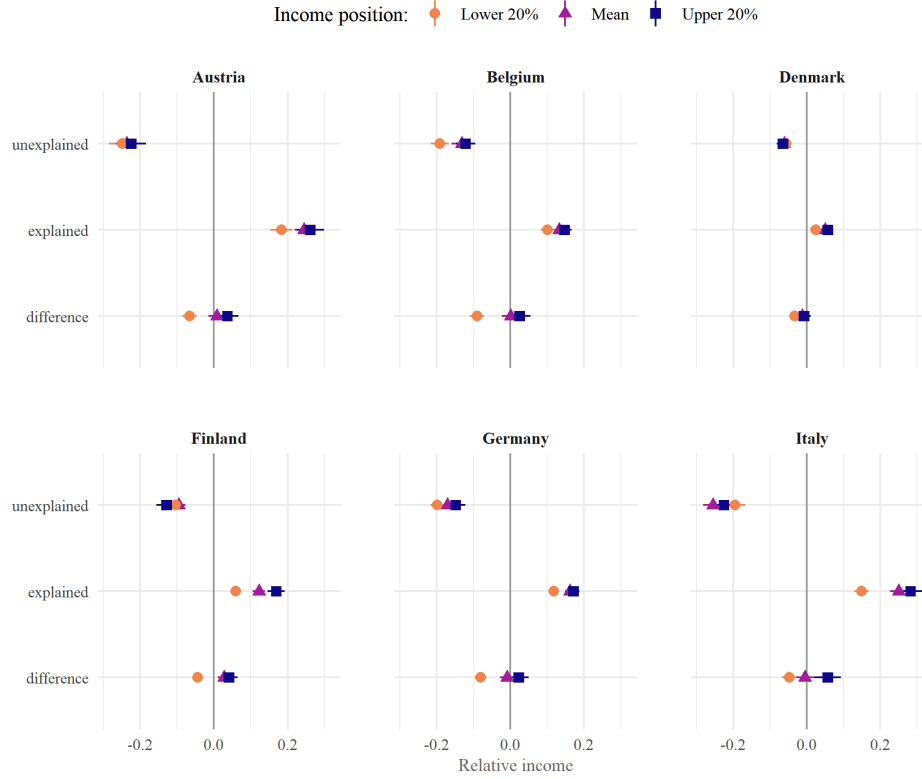


part of the decomposition) by predictor variables. It should be noted that the effects of family types should be read as a difference from the baseline category, which is, in this case, low educated women with children out of employment living in male breadwinner family structures.

Focusing on the effect of the changing share of employed women, results show positive effects everywhere with the only exception of the Nordic countries. The explanation for this divergence is likely to lie on the different starting points (for reference, see Table 1 in section 4). While Continental countries and Italy witness an increase in the share of employed women between the 1980s and 2016, the opposite happens in Denmark and Finland, where female employment was already high in the 1980s. Taking this divergence into account, what these results show is that women are better off in terms of relative income when having higher employment rates. As for cross-country differences, while all 5 countries show similar effects across the income distribution, Belgium stands out as the only case where women at the bottom benefit significantly less from employment than women at the top.

Results also highlight how the increase in the share of single mothers has made women worse off in all countries with the sole exception of Austria, showing little variation across income quantiles, something that may be due to the high density of single mothers at the bottom of the income

Figure 7: RIF decomposition endowment effects

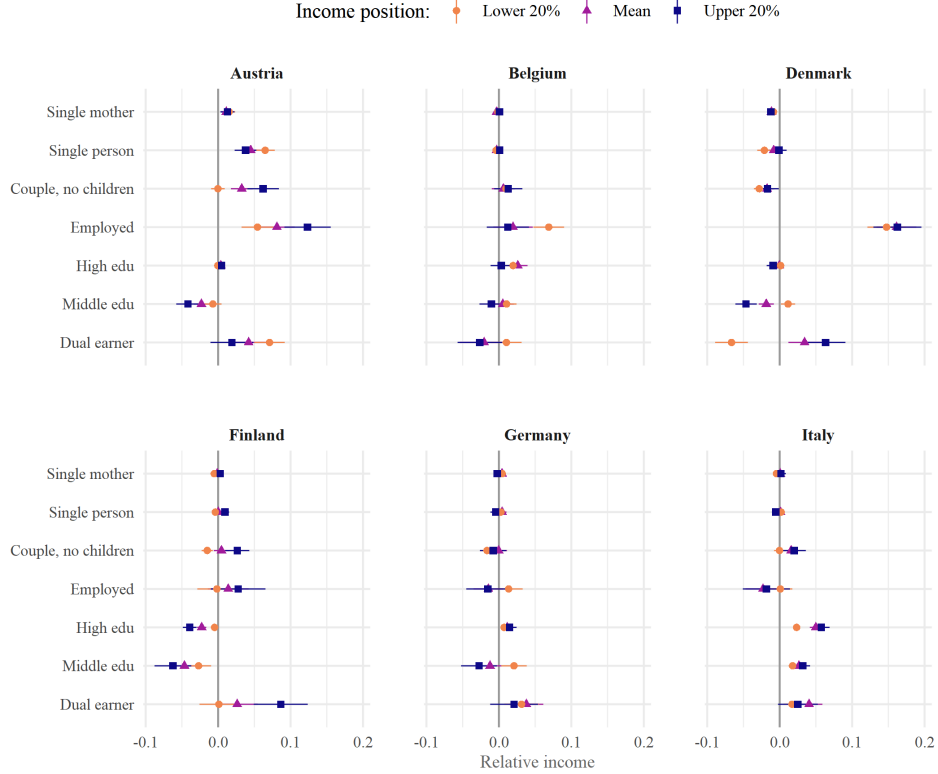


distribution. At the other side of the spectrum, the also increasing share of dual-earner families improves the relative position of women everywhere, hinting at unequalizing effects across income quantiles in Austria, Belgium and Italy. Together with the negative coefficients for nontraditional families such as single-mother or single-person households, this evidence supports the expectation that changing families do indeed have an unequalizing effect among women. This goes in line with the main expectation in terms of differences among women, namely that inequality driven by changing family structures could impact the relationship between women's labor force participation and their economic position, leading to different outcomes depending on an individual's family and income category.

All in all, the unpacking of endowment effects shows that the increase in the share of women employed and with higher education has driven up women's relative income, but that, as expected from the literature, changing family structures and their unequal distribution across income quantiles may generate winners and losers of economic independence among women.

Moving to changes in coefficient effects -the unexplained part-, Figure 5.8 disentangles whether the effect of the predictor variables has undergone significant changes from the 1980s to 2016.

Figure 8: RIF decomposition coefficient effects



Although not captured in the plot due to large differences with the rest of the effects, the first thing that should be noted about coefficient effects is the role of the intercept, which has a negative sign in all countries (see the appendix). This entails first that male breadwinner families fare significantly worse off today than they did in the 1980s, but also that effects that seem to be zero in the above plot also entail negative outcomes for women when taking into account the intercept. This is the case, for example, for the single mother category, which is close to zero in all countries, but entails a negative change in effect if added to the intercept. The same applies to the single person predictor, albeit slight differences in the case of Austria.

Changes in the effect of being employed show substantial country variation. Coefficients are nonsignificant in most cases, with the exception of Denmark, Austria and the mean and bottom 20% regressions in Belgium, where the effects of employment are significant with a positive sign. In this line, it should be noted that both Denmark and Austria showed an improvement in the relative position of working women in the macro-level analysis.

Once again, differences arise when comparing different types of new family structures, as the effect of being part of a dual-earner couple has increased almost everywhere, although countries show important differences across the income distribution. In all three Continental countries, this

change in effect is more positive for women at the top 20%, with the reverse being true in Nordic countries. Italy barely shows any differences.

Overall, it seems that what is driving the endowments effect down and thus hindering the translation of increased economic independence into higher living standards are family structures, with a negative change in coefficients of being part of a single mother, male breadwinner or single-earner couple. This seems to be the case in all countries in the sample and supports the expectation that, indeed, economic emancipation may be having a different effect for women depending on the type of family they live in or the extreme of the income distribution they belong to.

5 Conclusion

The last decades have witnessed an unprecedented increase in women's economic independence through higher educational attainment, labor force participation and an increase in the share of female-led households. However, up to date, there is a gap in the literature concerning how the increase in female labor force participation has translated into women's economic position, measured through disposable income. Using a combination of descriptive analysis and RIF regression based decomposition, this paper has aimed to unpack the relationship between employment status and relative economic position, and how this relationship varies by country and women's position in the income distribution.

Depending on where in income distribution one looks at, three different employment -relative income patterns emerge, narrating three different stories. A story of emancipation for women at the top 20% of the income distribution, who have seen an increase in their living standards during the last decades. A story of compensation for women at the middle of the distribution, who manage to compensate with their income. And a story of undelivered promises for women at the bottom 20%, who, despite increasing economic independence, have seen a deterioration of their living standards.

The decomposition analysis shows that both employment and higher education levels entail an improvement in women's economic position. However, the effect of this relationship is mediated by changing family structures that create winners and losers. Notably, economic independence seems to ameliorate the relative position of women in dual-earner couples while worsening the living standards of single mothers. The unequal distribution of these family structures across the income distribution raises important concerns for inequality among women.

The relevance of this analysis is threefold. First, it has shown that despite the increase in female labor force participation, women as a group have not seen an improvement in their economic position in society, as measured by disposable household income. Second, it has shown the importance of going beyond aggregate indicators, as the apparent stability of living standards hides important differences among women depending on the extreme of the income distribution a woman belongs to. Finally, it has highlighted the weaknesses of traditional classifications of welfare state regimes to explain cross-country differences in women's living standards.

There are certain limitations to the analysis of this paper that should be acknowledged. First, the lack of good quality income data from before the mid-1980s has prevented the analysis from

going further back in time, although this would be highly desirable, especially in the case of the Nordic countries, where employment rates in the 1980s were already high. In addition, the analysis has been performed using data only from working-age women, excluding men from the sample. This means that potential drivers of women’s living standards that depend on men’s characteristics are not included in the analysis.

From a policy perspective, results highlight the need to take a multidimensional approach to social policy design. While the overall income position of women has remained relatively stable from the 1980s, women who are part of specific groups such as low-skilled workers, working mothers, single mothers or low educated women may require more targeted policy action.

References

- Abraham, K. G. and Kearney, M. S. (2020). Explaining the Decline in the US Employment-to-Population Ratio: A Review of the Evidence.
- Binder, A. J. and Bound, J. (2019). The declining labor market prospects of less-educated men.
- Blau, F. D. and Kahn, L. M. (2017). The gender wage gap: Extent, trends, & explanations. *Journal of Economic Literature*.
- Bonoli, G. (2005). The politics of the new social policies: Providing coverage against new social risks in mature welfare states. *Policy and Politics*.
- Bonoli, G. (2013). The Origins of Active Social Policy. In *The Origins of Active Social Policy: Labour Market and Childcare Policies in a Comparative Perspective*.
- Bonoli, G. and Natali, D. (2013). *The Politics of the New Welfare State*.
- Breen, R. and Salazar, L. (2011). Educational assortative mating and earnings inequality in the United States. *American Journal of Sociology*.
- Cohany, S. R. and Sok, E. (2007). Trends in labor force participation of married mothers of infants. *Monthly Labor Review*.
- Esping-Andersen, G. (1999). *Social foundations of postindustrial economies*. OUP Oxford.
- Esping-Andersen, G. (2009). *Incomplete Revolution: Adapting Welfare States to Women’s New Roles*. Wiley.
- Eurostat (2018). Income and living conditions Database.
- Fernández, R. (2013). Cultural change as learning: The evolution of female labor force participation over a century. *American Economic Review*.
- Ferrera, M. and Rhodes, M. (2013). *Recasting European welfare states*.
- Firpo, S., Fortin, N. M., and Lemieux, T. (2009). Unconditional Quantile Regressions. *Econometrica*.

- Goldin, C. (2006). The Quiet Revolution That Transformed Women’s Employment, Education, and Family. *American Economic Review*.
- Goldin, C. (2014). A grand gender convergence: Its last chapter. *American Economic Review*.
- Hemerijck, A. (2013). *Changing Welfare States*. Changing Welfare States. OUP Oxford.
- Jann, B. (2008). The Blinder-Oaxaca decomposition for linear regression models. *Stata Journal*.
- Juhn, C. (1992). Decline of male labor market participation: The role of declining market opportunities. *Quarterly Journal of Economics*.
- Keck, W. and Saraceno, C. (2013). The impact of different social-policy frameworks on social inequalities among women in the European Union: The labour-market participation of mothers.
- Kleven, H., Landais, C., and Søgaaard, J. E. (2019). Children and gender inequality: Evidence from Denmark. *American Economic Journal: Applied Economics*.
- Kollmeyer, C. (2013). Family structure, female employment, and national income inequality: A cross-national study of 16 western countries. *European Sociological Review*.
- Korpi, W., Ferrarini, T., and Englund, S. (2013). Women’s opportunities under different family policy constellations: Gender, class, and inequality tradeoffs in western countries re-examined. *Social Politics*.
- Kowalewska, H. and Vitali, A. (2019). Work/Family Arrangements across the OECD: Incorporating the Female-Breadwinner Model.
- Luxembourg Income Study (LIS) (2021). Database, <http://www.lisdatacenter.org> (multiple countries; July 2021 – September 2021). Luxembourg: LIS.
- Moffitt, R. A. (2012). The reversal of the employment-population ratio in the 2000s: Facts and explanations. *Brookings Papers on Economic Activity*.
- Nieuwenhuis, R. (2015). Association, aggregation, and paradoxes : on the positive correlation between fertility and women’s employment. *Demographic Research*.
- Nieuwenhuis, R., van der Kolk, H., and Need, A. (2017). Women’s earnings and household inequality in OECD countries, 1973–2013. *Acta Sociologica (United Kingdom)*.
- Nieuwenhuis, R., van Lancker, W., Collado, D., and Cantillon, B. (2016). Has the Potential for Compensating Poverty by Women’s Employment Growth Been Depleted? Technical Report 664, LIS Cross-National Data Center in Luxembourg.
- Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review*.
- Pfau-Effinger, B. and Rostgaard, T. (2011). Introduction: Tensions related to care in European welfare states. In *Care Between Work and Welfare in European Societies*, pages 1–14. Springer.
- Rios Avila, F. (2019). Recentered Influence Functions in Stata: Methods for Analyzing the Determinants of Poverty and Inequality. *SSRN Electronic Journal*.

- Rovny, A. E. (2014). The capacity of social policies to combat poverty among new social risk groups. *Journal of European Social Policy*.
- Sigle-Rushton, W. and Waldfogel, J. (2007). Motherhood and women's earnings in Anglo-American, Continental European, and Nordic Countries.
- Taylor-Gooby, P. (2004). *New Risks, New Welfare: The Transformation of the European Welfare State*.
- Thévenon, O. (2011). Family Policies in OECD Countries: A Comparative Analysis. *Population and Development Review*.

6 Appendix

Table A1: RIF Decomposition - Austria

| | P20 | | | Mean | | | P80 | | |
|---------------------|-------------|---------------|-------|-------------|---------------|-------|----------------|---------------|-------|
| | <i>coef</i> | <i>95% CI</i> | | <i>coef</i> | <i>95% CI</i> | | <i>coef</i> | <i>95% CI</i> | |
| Group 1 (t1) | 0.61*** | 0.59 | 0.63 | 1.04*** | 1.02 | 1.06 | 1.37*** | 1.34 | 1.39 |
| Group 2 (t0) | 0.68*** | 0.66 | 0.69 | 1.03*** | 1.02 | 1.04 | 1.33*** | 1.32 | 1.35 |
| difference | -0.07*** | -0.09 | -0.05 | 0.01 | -0.01 | 0.03 | 0.04 | 0.01 | 0.07 |
| explained | 0.18*** | 0.15 | 0.21 | 0.24*** | 0.22 | 0.27 | 0.26*** | 0.22 | 0.3 |
| unexplained | -0.25*** | -0.28 | -0.21 | -0.24*** | -0.26 | -0.21 | -0.22*** | -0.26 | -0.18 |
| Explained | | | | | | | | | |
| Employed | 0.03*** | 0.02 | 0.04 | 0.02*** | 0.02 | 0.03 | 0.03*** | 0.02 | 0.04 |
| Couple, no children | 0 | 0 | 0 | 0.01** | 0 | 0.01 | 0.01** | 0 | 0.01 |
| Single person | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Single mother | 0 | 0 | 0.01 | 0 | 0 | 0.01 | 0 | 0 | 0.01 |
| Dual earner | 0.05*** | 0.04 | 0.06 | 0.06*** | 0.04 | 0.07 | 0.06*** | 0.05 | 0.07 |
| Edu: middle | 0.06*** | 0.04 | 0.08 | 0.07*** | 0.05 | 0.08 | 0.06*** | 0.03 | 0.08 |
| Edu: high | 0.04*** | 0.03 | 0.05 | 0.09*** | 0.07 | 0.1 | 0.11*** | 0.09 | 0.12 |
| Age | -0.02** | -0.02 | -0.01 | -0.02 | -0.03 | 0 | -0.02 | -0.04 | -0.01 |
| Age2 | 0.02 | 0.01 | 0.03 | 0.02 | 0 | 0.03 | 0.02 | 0.01 | 0.04 |
| Unexplained | | | | | | | | | |
| Employed | 0.05*** | 0.03 | 0.08 | 0.08*** | 0.06 | 0.11 | 0.12*** | 0.09 | 0.16 |
| Couple, no children | 0 | -0.01 | 0.01 | 0.03*** | 0.02 | 0.05 | 0.06*** | 0.04 | 0.08 |
| Single person | 0.06*** | 0.05 | 0.08 | 0.05*** | 0.03 | 0.06 | 0.04*** | 0.02 | 0.05 |
| Single mother | 0.02*** | 0.01 | 0.02 | 0.01 | 0 | 0.02 | 0.01 | 0 | 0.02 |
| Dual earner | 0.07*** | 0.05 | 0.09 | 0.04** | 0.02 | 0.07 | 0.02 | -0.01 | 0.05 |
| Edu: middle | -0.01 | -0.02 | 0 | -0.02*** | -0.03 | -0.01 | -0.04*** | -0.06 | -0.03 |
| Edu: high | 0 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0.00E+00 | 0.01 |
| Age | -0.43*** | -0.56 | -0.3 | -0.39*** | -0.58 | -0.19 | -0.47*** | -0.7 | -0.24 |
| Age2 | 0.39*** | 0.3 | 0.48 | 0.36*** | 0.23 | 0.48 | 0.4*** | 0.25 | 0.55 |
| Intercept | -0.41*** | -0.48 | -0.33 | -0.4*** | -0.49 | -0.31 | -0.37*** | -0.49 | -0.25 |

Table A2: RIF Decomposition - Belgium

| | P20 | | | Mean | | | P80 | | |
|---------------------|-------------|---------------|-------|-------------|---------------|-------|-------------|---------------|-------|
| | <i>coef</i> | <i>95% CI</i> | | <i>coef</i> | <i>95% CI</i> | | <i>coef</i> | <i>95% CI</i> | |
| Group 1 (t1) | 0.6*** | 0.58 | 0.61 | 1.04*** | 1.02 | 1.06 | 1.36*** | 1.34 | 1.39 |
| Group 2 (t0) | 0.69*** | 0.68 | 0.7 | 1.04*** | 1.03 | 1.05 | 1.34*** | 1.32 | 1.36 |
| difference | -0.09*** | -0.11 | -0.07 | 0 | -0.02 | 0.02 | 0.03 | 0 | 0.05 |
| explained | 0.1*** | 0.08 | 0.12 | 0.13*** | 0.11 | 0.15 | 0.15*** | 0.13 | 0.17 |
| unexplained | -0.19*** | -0.22 | -0.17 | -0.13*** | -0.16 | -0.1 | -0.12*** | -0.15 | -0.1 |
| Explained | | | | | | | | | |
| Employed | 0.04*** | 0.03 | 0.05 | 0.02** | 0.01 | 0.03 | 0.01 | 0 | 0.01 |
| Couple, no children | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -0.01 | 0 |
| Single person | -0.01*** | -0.02 | -0.01 | -0.01 | -0.02 | 0 | 0 | 0 | 0 |
| Single mother | -0.02*** | -0.03 | -0.01 | -0.02*** | -0.02 | -0.01 | 0 | -0.01 | 0 |
| Dual earner | 0.02*** | 0.01 | 0.03 | 0.03*** | 0.02 | 0.04 | 0.04*** | 0.03 | 0.05 |
| Edu: middle | 0.01*** | 0.01 | 0.01 | 0.01*** | 0.01 | 0.02 | 0.01*** | 0 | 0.01 |
| Edu: high | 0.05*** | 0.04 | 0.06 | 0.09*** | 0.08 | 0.11 | 0.09*** | 0.08 | 0.1 |
| Age | -0.08*** | -0.1 | -0.06 | -0.06*** | -0.09 | -0.03 | -0.03 | -0.05 | -0.01 |
| Age2 | 0.08*** | 0.06 | 0.11 | 0.07*** | 0.04 | 0.1 | 0.04*** | 0.02 | 0.06 |
| Unexplained | | | | | | | | | |
| Employed | 0.07*** | 0.05 | 0.09 | 0.02 | -0.01 | 0.05 | 0.01 | -0.02 | 0.04 |
| Couple, no children | 0.01 | 0 | 0.02 | 0.01 | -0.01 | 0.02 | 0.01 | -0.01 | 0.03 |
| Single person | 0 | -0.01 | 0 | 0 | -0.01 | 0 | 0 | 0 | 0.01 |
| Single mother | 0 | -0.01 | 0 | 0 | -0.01 | 0 | 0 | 0 | 0 |
| Dual earner | 0.01 | -0.01 | 0.03 | -0.02 | -0.05 | 0.01 | -0.03 | -0.06 | 0 |
| Edu: middle | 0.01 | 0 | 0.02 | 0.01 | -0.01 | 0.02 | -0.01 | -0.03 | 0.01 |
| Edu: high | 0.02*** | 0.01 | 0.03 | 0.03*** | 0.01 | 0.04 | 0 | -0.01 | 0.02 |
| Age | -0.53*** | -0.66 | -0.41 | -0.51*** | -0.7 | -0.31 | -0.37*** | -0.54 | -0.2 |
| Age2 | 0.34*** | 0.26 | 0.42 | 0.32*** | 0.2 | 0.43 | 0.22*** | 0.11 | 0.32 |
| Intercept | -0.11 | -0.18 | -0.04 | 0.03 | -0.09 | 0.15 | 0.04 | -0.05 | 0.12 |

Table A3: RIF Decomposition - Denmark

| | P20 | | | Mean | | | P80 | | |
|---------------------|-------------|------------|-----------|-------------|------------|-----------|-------------|------------|-----------|
| | <i>coef</i> | <i>95%</i> | <i>CI</i> | <i>coef</i> | <i>95%</i> | <i>CI</i> | <i>coef</i> | <i>95%</i> | <i>CI</i> |
| Group 1 (t1) | 0.66*** | 0.66 | 0.66 | 1.05*** | 1.04 | 1.05 | 1.34*** | 1.33 | 1.34 |
| Group 2 (t0) | 0.69*** | 0.68 | 0.71 | 1.06*** | 1.05 | 1.07 | 1.34*** | 1.33 | 1.36 |
| difference | -0.03*** | -0.05 | -0.02 | -0.01 | -0.03 | 0 | -0.01 | -0.03 | 0.01 |
| explained | 0.02*** | 0.02 | 0.03 | 0.05*** | 0.04 | 0.06 | 0.06*** | 0.05 | 0.06 |
| unexplained | -0.06*** | -0.07 | -0.04 | -0.06*** | -0.07 | -0.05 | -0.06*** | -0.08 | -0.05 |
| Explained | | | | | | | | | |
| Employed | -0.02*** | -0.02 | -0.02 | -0.01*** | -0.02 | -0.01 | -0.01*** | -0.01 | -0.01 |
| Couple, no children | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Single person | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 0 |
| Single mother | -0.01*** | -0.01 | -0.01 | -0.01*** | -0.01 | -0.01 | -0.01*** | -0.01 | 0 |
| Dual earner | 0.01*** | 0.01 | 0.01 | 0.01*** | 0.01 | 0.02 | 0.02*** | 0.01 | 0.02 |
| Edu: middle | 0*** | 0 | 0 | 0 | 0 | 0 | 0*** | 0 | 0 |
| Edu: high | 0.02*** | 0.01 | 0.02 | 0.02*** | 0.02 | 0.03 | 0.02*** | 0.02 | 0.03 |
| Age | -0.01*** | -0.02 | -0.01 | -0.01 | -0.02 | 0 | -0.01 | -0.01 | 0 |
| Age2 | 0.04*** | 0.03 | 0.05 | 0.04*** | 0.03 | 0.05 | 0.03*** | 0.03 | 0.04 |
| Unexplained | | | | | | | | | |
| Employed | 0.15*** | 0.12 | 0.17 | 0.16*** | 0.13 | 0.19 | 0.16*** | 0.13 | 0.2 |
| Couple, no children | -0.03*** | -0.04 | -0.02 | -0.02** | -0.03 | -0.01 | -0.02 | -0.03 | 0 |
| Single person | -0.02*** | -0.03 | -0.01 | -0.01 | -0.02 | 0 | 0 | -0.01 | 0.01 |
| Single mother | -0.01*** | -0.01 | 0 | -0.01*** | -0.02 | -0.01 | -0.01*** | -0.02 | -0.01 |
| Dual earner | -0.07*** | -0.09 | -0.04 | 0.03 | 0.01 | 0.06 | 0.06*** | 0.04 | 0.09 |
| Edu: middle | 0.01 | 0 | 0.02 | -0.02** | -0.03 | -0.01 | -0.05*** | -0.06 | -0.03 |
| Edu: high | 0 | 0 | 0.01 | 0 | -0.01 | 0.01 | -0.01 | -0.02 | 0.00E+00 |
| Age | -0.48*** | -0.56 | -0.4 | -0.35*** | -0.44 | -0.26 | -0.27*** | -0.39 | -0.15 |
| Age2 | 0.39*** | 0.34 | 0.45 | 0.35*** | 0.29 | 0.41 | 0.31*** | 0.24 | 0.39 |
| Intercept | -0.01 | -0.06 | 0.04 | -0.2*** | -0.26 | -0.15 | -0.25*** | -0.32 | -0.17 |

Table A4: RIF Decomposition - Finland

| | P20 | | | Mean | | | P80 | | |
|---------------------|-------------|---------------|-------|-------------|---------------|-------|-------------|---------------|-------|
| | <i>coef</i> | <i>95% CI</i> | | <i>coef</i> | <i>95% CI</i> | | <i>coef</i> | <i>95% CI</i> | |
| Group 1 (t1) | 0.64*** | 0.63 | 0.65 | 1.05*** | 1.04 | 1.06 | 1.33*** | 1.31 | 1.35 |
| Group 2 (t0) | 0.69*** | 0.68 | 0.7 | 1.02*** | 1.01 | 1.03 | 1.29*** | 1.28 | 1.3 |
| difference | -0.04*** | -0.06 | -0.03 | 0.03** | 0.01 | 0.04 | 0.04** | 0.02 | 0.06 |
| explained | 0.06*** | 0.05 | 0.07 | 0.12*** | 0.11 | 0.14 | 0.17*** | 0.15 | 0.19 |
| unexplained | -0.1*** | -0.12 | -0.09 | -0.1*** | -0.11 | -0.08 | -0.13*** | -0.16 | -0.1 |
| Explained | | | | | | | | | |
| Employed | -0.01*** | -0.02 | -0.01 | -0.01*** | -0.01 | -0.01 | -0.01*** | -0.01 | -0.01 |
| Couple, no children | 0 | 0 | 0 | 0.01*** | 0.01 | 0.01 | 0.02*** | 0.01 | 0.02 |
| Single person | -0.01*** | -0.01 | 0 | 0*** | -0.01 | 0 | 0 | 0 | 0 |
| Single mother | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dual earner | 0.01*** | 0.01 | 0.01 | 0.01*** | 0.01 | 0.02 | 0.02*** | 0.01 | 0.02 |
| Edu: middle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Edu: high | 0.05*** | 0.04 | 0.06 | 0.08*** | 0.07 | 0.1 | 0.11*** | 0.09 | 0.13 |
| Age | -0.01 | -0.02 | 0 | -0.03*** | -0.04 | -0.02 | -0.04*** | -0.06 | -0.02 |
| Age2 | 0.03*** | 0.02 | 0.05 | 0.06*** | 0.04 | 0.08 | 0.07*** | 0.05 | 0.1 |
| Unexplained | | | | | | | | | |
| Employed | 0 | -0.03 | 0.03 | 0.01 | -0.01 | 0.04 | 0.03 | -0.01 | 0.07 |
| Couple, no children | -0.02*** | -0.02 | -0.01 | 0 | -0.01 | 0.02 | 0.03 | 0.01 | 0.04 |
| Single person | 0 | -0.01 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0.02 |
| Single mother | -0.01 | -0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 |
| Dual earner | 0 | -0.03 | 0.03 | 0.03 | 0 | 0.05 | 0.09*** | 0.05 | 0.12 |
| Edu: middle | -0.03 | -0.04 | -0.01 | -0.05*** | -0.06 | -0.03 | -0.06*** | -0.09 | -0.04 |
| Edu: high | 0 | -0.01 | 0 | -0.02*** | -0.03 | -0.02 | -0.04*** | -0.05 | -0.03 |
| Age | -0.23*** | -0.32 | -0.13 | -0.37*** | -0.49 | -0.26 | -0.46*** | -0.64 | -0.29 |
| Age2 | 0.18*** | 0.12 | 0.25 | 0.26*** | 0.18 | 0.33 | 0.3*** | 0.19 | 0.41 |
| Intercept | -0.01 | -0.07 | 0.05 | 0.05 | -0.02 | 0.11 | -0.01 | -0.11 | 0.08 |

Table A5: RIF Decomposition -Germany

| | P20 | | | Mean | | | P80 | | |
|---------------------|-------------|------------|-----------|-------------|------------|-----------|-------------|------------|-----------|
| | <i>coef</i> | <i>95%</i> | <i>CI</i> | <i>coef</i> | <i>95%</i> | <i>CI</i> | <i>coef</i> | <i>95%</i> | <i>CI</i> |
| Group 1 (t1) | 0.57*** | 0.56 | 0.58 | 1.02*** | 1.01 | 1.03 | 1.35*** | 1.33 | 1.37 |
| Group 2 (t0) | 0.65*** | 0.64 | 0.67 | 1.03*** | 1.01 | 1.04 | 1.33*** | 1.31 | 1.35 |
| difference | -0.08*** | -0.1 | -0.07 | -0.01 | -0.03 | 0.01 | 0.02 | 0 | 0.05 |
| explained | 0.12*** | 0.11 | 0.13 | 0.16*** | 0.15 | 0.18 | 0.17*** | 0.15 | 0.19 |
| unexplained | -0.2*** | -0.22 | -0.18 | -0.17*** | -0.19 | -0.15 | -0.15*** | -0.17 | -0.12 |
| Explained | | | | | | | | | |
| Employed | 0.03*** | 0.02 | 0.04 | 0.03*** | 0.02 | 0.03 | 0.03*** | 0.02 | 0.03 |
| Couple, no children | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 |
| Single person | 0** | 0 | 0 | 0*** | 0 | 0 | 0*** | -0.01 | 0 |
| Single mother | -0.01*** | -0.02 | -0.01 | -0.01*** | -0.01 | -0.01 | -0.01*** | -0.02 | -0.01 |
| Dual earner | 0.02*** | 0.01 | 0.02 | 0.02*** | 0.01 | 0.03 | 0.02*** | 0.01 | 0.02 |
| Edu: middle | 0.02*** | 0.02 | 0.03 | 0.02*** | 0.02 | 0.02 | 0.02*** | 0.01 | 0.02 |
| Edu: high | 0.05*** | 0.04 | 0.05 | 0.08*** | 0.07 | 0.09 | 0.1*** | 0.09 | 0.11 |
| Age | 0 | -0.01 | 0.01 | -0.01 | -0.02 | 0.01 | -0.03 | -0.05 | 0 |
| Age2 | 0.02** | 0.01 | 0.03 | 0.03*** | 0.02 | 0.05 | 0.05*** | 0.03 | 0.07 |
| Unexplained | | | | | | | | | |
| Employed | 0.01 | -0.01 | 0.03 | -0.01 | -0.03 | 0.01 | -0.02 | -0.05 | 0.01 |
| Couple, no children | -0.02*** | -0.02 | -0.01 | 0 | -0.01 | 0.01 | -0.01 | -0.03 | 0.01 |
| Single person | 0 | 0 | 0.01 | 0 | 0 | 0.01 | 0 | -0.01 | 0 |
| Single mother | 0 | 0 | 0.01 | 0 | 0 | 0.01 | 0 | -0.01 | 0 |
| Dual earner | 0.03 | 0.01 | 0.06 | 0.04** | 0.01 | 0.06 | 0.02 | -0.01 | 0.05 |
| Edu: middle | 0.02 | 0 | 0.04 | -0.01 | -0.03 | 0 | -0.03 | -0.05 | 0 |
| Edu: high | 0.01 | 0 | 0.01 | 0.01** | 0 | 0.02 | 0.01 | 0 | 0.02 |
| Age | -0.08 | -0.17 | 0.01 | -0.09 | -0.21 | 0.02 | -0.1 | -0.27 | 0.07 |
| Age2 | 0.04 | -0.02 | 0.1 | 0.07 | -0.01 | 0.14 | 0.09 | -0.02 | 0.19 |
| Intercept | -0.22*** | -0.28 | -0.16 | -0.17*** | -0.23 | -0.12 | -0.11 | -0.2 | -0.02 |

Table A6: RIF Decomposition - Italy

| | P20 | | | Mean | | | P80 | | |
|---------------------|-------------|------------|-----------|-------------|------------|-----------|-------------|------------|-----------|
| | <i>coef</i> | <i>95%</i> | <i>CI</i> | <i>coef</i> | <i>95%</i> | <i>CI</i> | <i>coef</i> | <i>95%</i> | <i>CI</i> |
| Group 1 (t1) | 0.5*** | 0.48 | 0.51 | 1.01*** | 0.99 | 1.03 | 1.43*** | 1.4 | 1.46 |
| Group 2 (t0) | 0.54*** | 0.53 | 0.55 | 1.01*** | 1 | 1.03 | 1.37*** | 1.35 | 1.39 |
| difference | -0.05*** | -0.07 | -0.03 | -0.01 | -0.03 | 0.02 | 0.06 | 0.02 | 0.09 |
| explained | 0.15*** | 0.13 | 0.17 | 0.25*** | 0.23 | 0.27 | 0.28*** | 0.25 | 0.31 |
| unexplained | -0.2*** | -0.22 | -0.17 | -0.26*** | -0.28 | -0.23 | -0.23*** | -0.26 | -0.19 |
| Explained | | | | | | | | | |
| Employed | 0.02*** | 0.01 | 0.02 | 0.02*** | 0.02 | 0.03 | 0.02*** | 0.01 | 0.03 |
| Couple, no children | 0 | 0 | 0 | 0.01*** | 0 | 0.01 | 0.01*** | 0 | 0.01 |
| Single person | 0 | 0 | 0 | -0.01*** | -0.01 | 0 | -0.02*** | -0.02 | -0.01 |
| Single mother | -0.01*** | -0.01 | -0.01 | -0.01*** | -0.01 | -0.01 | -0.01 | -0.01 | 0 |
| Dual earner | 0.03*** | 0.02 | 0.03 | 0.04*** | 0.03 | 0.05 | 0.05*** | 0.04 | 0.06 |
| Edu: middle | 0.06*** | 0.05 | 0.07 | 0.09*** | 0.08 | 0.1 | 0.1*** | 0.08 | 0.12 |
| Edu: high | 0.02*** | 0.02 | 0.02 | 0.05*** | 0.04 | 0.06 | 0.06*** | 0.04 | 0.07 |
| Age | -0.07*** | -0.1 | -0.04 | -0.14*** | -0.18 | -0.1 | -0.18*** | -0.23 | -0.13 |
| Age2 | 0.1*** | 0.07 | 0.13 | 0.2*** | 0.16 | 0.24 | 0.25*** | 0.2 | 0.3 |
| Unexplained | | | | | | | | | |
| Employed | 0 | -0.02 | 0.02 | -0.02 | -0.05 | 0 | -0.02 | -0.05 | 0.01 |
| Couple, no children | 0 | -0.01 | 0.01 | 0.02 | 0.01 | 0.03 | 0.02 | 0 | 0.04 |
| Single person | 0 | 0 | 0.01 | 0 | 0 | 0 | -0.01 | -0.01 | 0 |
| Single mother | 0 | -0.01 | 0 | 0 | 0 | 0.01 | 0 | -0.01 | 0.01 |
| Dual earner | 0.02 | 0.01 | 0.03 | 0.04*** | 0.02 | 0.06 | 0.03 | 0 | 0.05 |
| Edu: middle | 0.02*** | 0.01 | 0.02 | 0.03*** | 0.02 | 0.03 | 0.03*** | 0.02 | 0.04 |
| Edu: high | 0.02*** | 0.02 | 0.03 | 0.05*** | 0.04 | 0.06 | 0.06*** | 0.05 | 0.07 |
| Age | -0.28*** | -0.41 | -0.15 | -0.47*** | -0.64 | -0.3 | -0.66*** | -0.87 | -0.44 |
| Age2 | 0.23*** | 0.15 | 0.31 | 0.39*** | 0.29 | 0.5 | 0.53*** | 0.39 | 0.67 |
| Intercept | -0.21*** | -0.28 | -0.13 | -0.29*** | -0.38 | -0.2 | -0.21*** | -0.32 | -0.1 |