Why Dutch women work part-time: A Oaxaca-decomposition of differences in European female part-time work rates

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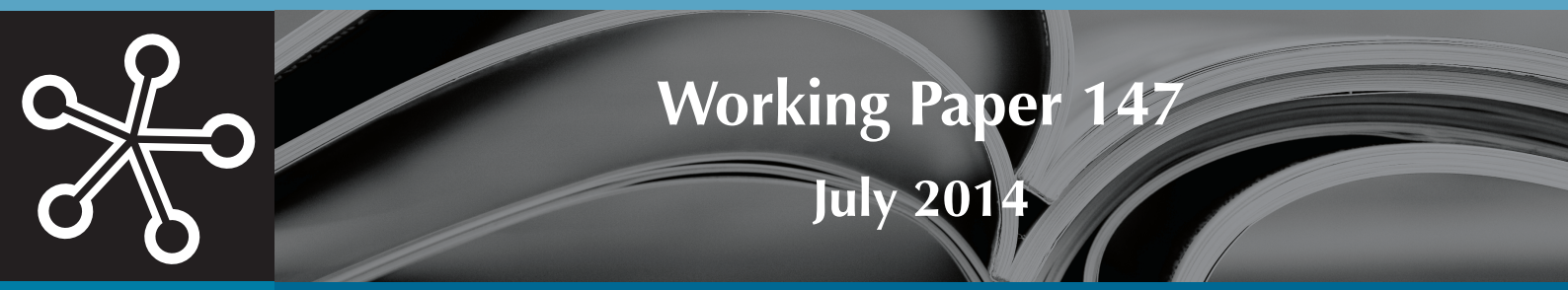

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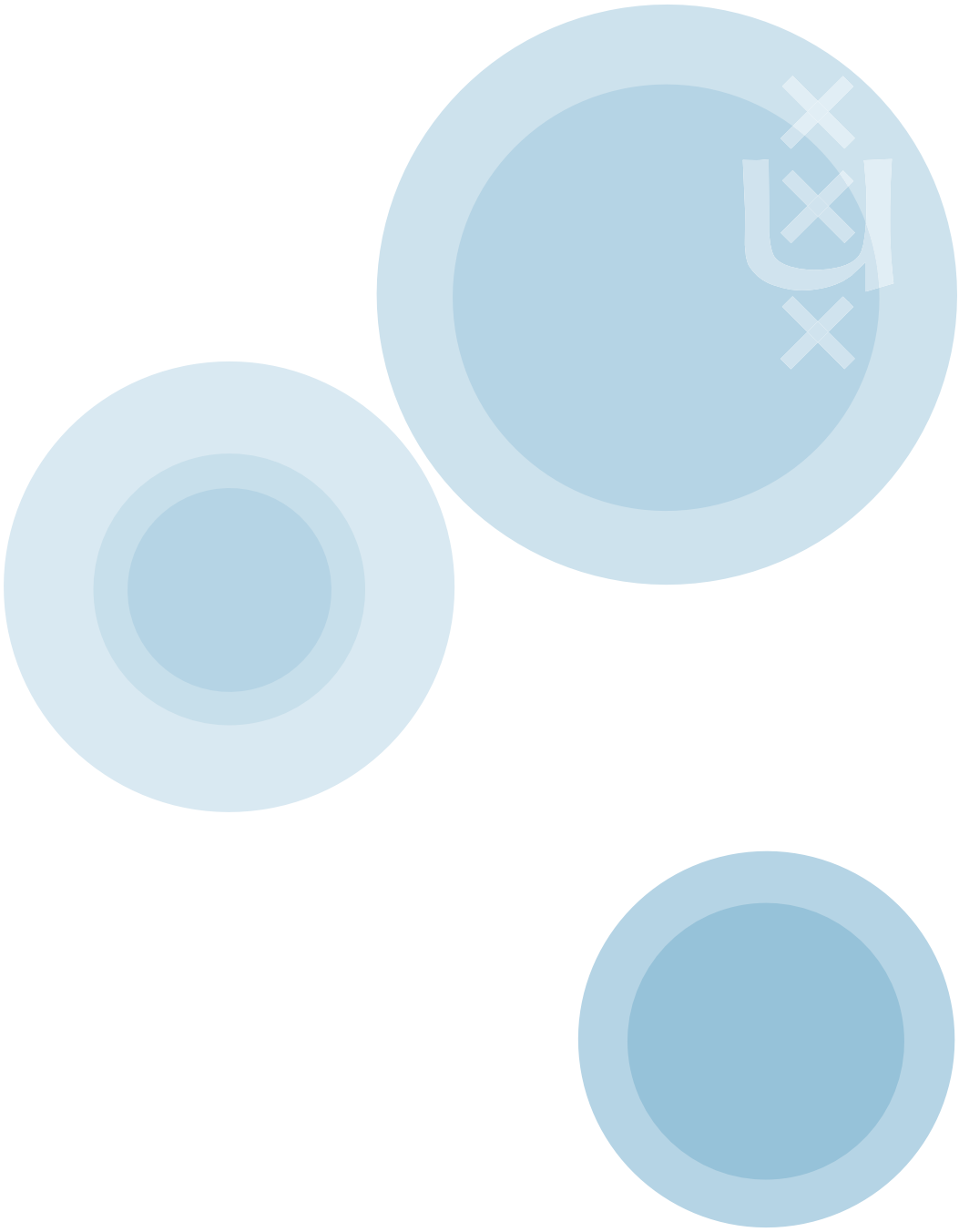

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A Oaxaca-decomposition of differences in European female part-time work rates

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Abstract

We analyze differences in female part-time work rates across countries using European Social Survey data for 2012 to study composition and selectivity effects by means of Oaxaca-decompositions. A novel treatment of the selection term distinguishes the effect of country differences in employment rates from the effect of pure selectivity. We find that demand-side factors are more important than supply-side factors in explaining differences in part-time work rates, that overall composition effects are small and that employment positively selects women into part-time work.

1 Introduction

Female part-time work rates differ substantially across European countries. In Germany 38 percent of all female employees work part-time, while the corresponding figures are less than 5 percent in the Czech Republic, Germany's neighbouring country in the east, and almost 60 percent in the Netherlands, its neighbour in the west (OECD 2012, women aged 25-54). The central aim of this paper is to study the reasons for this large geographical variation.

The availability of part-time work is important to economies in many respects. Employers benefit from part-time work if they face short-term fluctuations in demand. Part-time work arrangements also increase labour supply if the opportunity cost of full-time work of some workers is too high, for example because of the value attached to household work or leisure time. The increasing participation of women in paid work combined with persistent gender roles in families in which women are often secondary earners (Tijdens, 2002), explain the predominance of women among part-time workers. A better understanding of part-time work patterns is also important because female part-time work incidence has been associated with vertical sex segregation (Blau & Kahn, 2013).

There are three types of potential explanations for geographical variations in part-time work rates: demand-side factors, supply-side factors and country-level ideological contexts, historical factors and institutions (Rosenfeld & Birkelund, 1995; Blossfeld & Hakim, 1997). Cross-country differences in individual-level workforce characteristics, either supply- or demand-related, give rise to what we refer to as composition effects in part-time work rates. For example, countries with relatively low rates of fertility could be expected to have comparatively lower rates of part-time work among women. In the Netherlands the total fertility rate stands at 1.76 as opposed to only 1.36 in Germany (Eurostat, 2011), so the observed difference in female part-time work rates between the Netherlands and Germany could at least to some extent be attributable to this difference in fertility rates and the associated time constraints resulting from child care. Apart from such factors as fertility that affect the supply-side of the labour market, demand-side factors may also be involved. Part-time work is more beneficial in certain economic activities and companies. For example, in Germany more women are employed in manufacturing than in the Netherlands. Because manufacturing has a higher demand for full-time workers, this difference in sectoral composition between the Netherlands and Germany could to some extent explain the observed gap in part-time work between these countries. This study aims to evaluate the overall importance of such composition effects in explaining part-time work rate

differences, to quantify the contributions of each factor and to compare the importance of factors related to labour supply with demand-side factors.

Cross-country differences in part-time work rates could also be related to differences in employment rates and the way women are selected into employment. The low rate of part-time work in a Southern-European country such as Spain relative to the Netherlands might simply reflect the higher participation rate among Dutch women if the Spanish counterparts of the Dutch part-time workers decide not to participate at all. After all, working part-time and not-participating in the labour market are closely related concepts. Decisions on labour market participation involve both a qualitative ('to participate or not') and a quantitative ('how much participation') aspect. Our initial working hypothesis was that countries with high employment rates would have - ceteris paribus - higher part-time rates (we expected a substantial positive effect). The counterparts of the Dutch workers who do not participate in Spain are likely to have higher time constraints from family obligations and lower potential wages (excluding them from the Spanish labour market), which at the same time increases their likelihood of part-time work. Since the seminal work of Heckman (1979) it has become standard to also consider the role of unobserved variables (e.g. 'ability') in selection effects. Firstly, selectivity produces bias in OLS estimates. For example, those low-educated women who do participate in a very selective labour market can be assumed to score high on unobserved characteristics, so that the effect of schooling in a wage model estimated for a selective sample, will be underestimated. This issue of selectivity is important in a study of composition effects. After all, if one wants to quantify the contribution of country differences in educational levels, that requires an unbiased estimate of the effect of schooling. Secondly, countries may differ in the degree of selectivity of their labour markets. This issue is related to country differences in employment rates but the effects are by no means the same: even countries with identical employment rates may be very different in the way workers are selected into employment. In this study we not only wish to estimate the relation between employment rates and part-time work rates, but also the role of country differences in selectivity effects. We do this by developing a new decomposition that allows to distinguish the effect of country differences in employment rates from the effect of country differences in selectivity.

We used data for 2012 from the European Social Survey to decompose the difference in part-time work rates between Dutch women and women in 15 other European countries using a Oaxaca-framework. The selected countries involve both Western European countries, with generally high part-time work rates (particularly the Netherlands), and Eastern European countries, where part-time work is rare. Southern

European and Nordic countries are somewhere in the middle in terms of part-time work rates, but they differ substantially in term of employment rates, which makes them useful to study the effects of selection into employment. Our main findings are that employment positively selects women into part-time work. This indicates that unobserved characteristics that increase the chance of female participation, also increase the chance of part-time work. We also find some substantial composition effects mainly at the demand-side of the labour market, although the overall composition effects are limited.

The next section discusses the data and methods used to estimate the composition and selection effects in cross-country differences in part-time work rates. Section 3 presents the results and in section 4 we discuss the main results.

2 Data and methodology

Data

All analyses are based on 2012 data from the European Social Survey (ESS Round 6, edition 1.2). These are cross-sectional data on European national samples of all persons aged 15 and over, so the sampling frame also contains non-workers. From these data we selected the women aged between 18 and 65 years old from all available 16 countries in Western Europe, Eastern Europe, Southern Europe and Scandinavia.

We constructed a dummy variable for part-time work based on the 30 usual working hours per week threshold, which is also used by the OECD (Van Bastelaer, Lemaître, & Marianna, 1997). The ESS uses random sampling methods in every round, although some groups and regions have higher chances of selection for which we correct using design weights. In order to cross-validate the representativity of our micro-data, we compared the part-time work and employment rates from our sample with published figures from the OECD, which are based on a different source. The comparison, shown in appendix figure A.1, broadly confirms the representativity of our data (although in the specific cases of Portugal and Ireland we appear to be overestimating part-time work rates).

Figure 1: Female part-time work rates, 2012

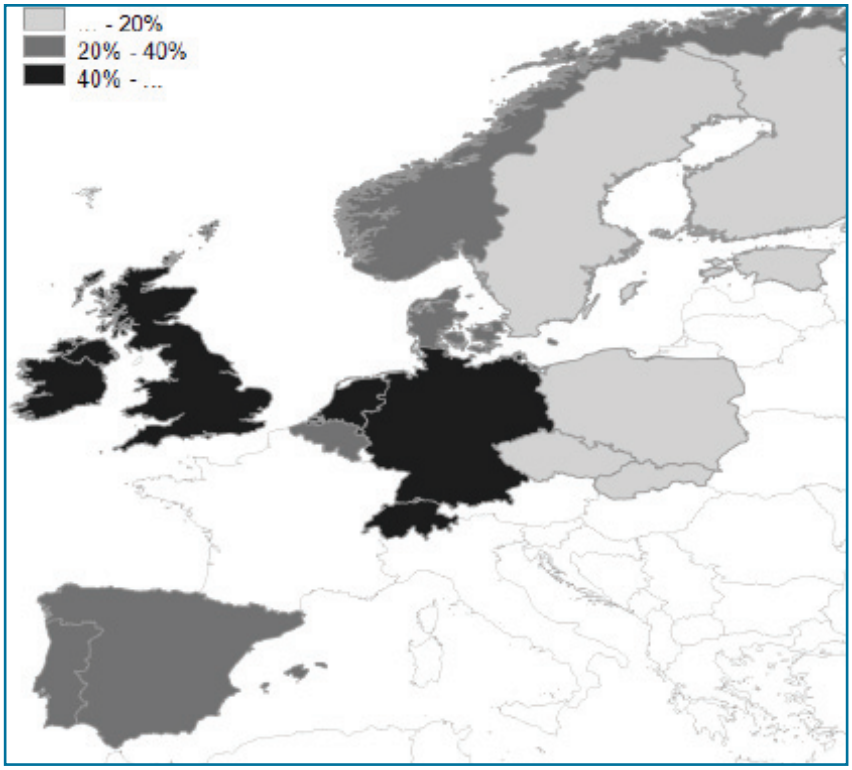


Figure 1 presents a geographical view of the part-time work rates in our sample. The map demonstrates a clear pattern: all countries with female part-time rates above 40 percent are situated in Western-Europe, whereas all the Eastern European countries have rates below 20 percent. Southern European and Northern European countries are somewhat in the middle. Among those countries with part-time rates above 40 percent, the Netherlands is exceptional in that its part-time rate stands at 60.9 percent while the other countries in the top group range between 40 and 45 percent (for the exact numbers, see down: Table 4). This naturally raises the question central in this study: why are so many women in the Netherlands working part-time?

Decomposition

In order to analyse the gap in part-time work rates between the Netherlands and other European countries, we adopt a Oaxaca-approach (Oaxaca, 1973) to perform a series of pairwise decompositions to estimate how a range of explanatory country characteristics contributes to this raw gap. We do pairwise decompositions because our aim is to analyse differences between 16 countries while the Oaxaca-framework only allows us to analyse differences between two groups. Our solution is to perform 15 pairwise decomposition with the Netherlands as the reference category because it has the highest rate of part-time work. Oaxaca decomposed the raw difference in observed outcomes Y of two groups, which for convenience we denote NL (the Netherlands) and O (Other country), as:

$$\bar{Y}_{NL} - \bar{Y}_O = \sum_{j=l}^{k} (\bar{X}_{NL,j} - \bar{X}_{O,j}) \cdot \hat{\beta}_j + U \qquad (1)$$

where X_j are the explanatory variables, β_j are the effects of X_j on Y in a linear model and U is the unexplained residual. The first term at the right-hand side of (1) is the total part of the gap in outcomes that can be explained by differences in characteristics between both groups. The contribution of a single explanatory variable X_j to the total explained part is $(\bar{X}_{NL,j} - \bar{X}_{O,j}) \cdot \hat{\beta}_j$, so it is immediately clear from (1) that the sum of all contributions equals the total explained part, which is what decompositions intend to do.

The Oaxaca-decomposition is a unique method to disentangle multivariate composition effects in outcome differences between groups. Oaxaca (1973) introduced it to study wage discrimination. The interest of many scholars in the issue of discrimination has no doubt contributed to the popularity of the method. However, in our view the close association between Oaxaca-decompositions and discrimination studies also

involved a cost. In discrimination studies the unexplained residual is often interpreted as an estimate for the amount of discrimination. This interpretation is much debated, especially by those who are sceptical of discrimination theories. Because discrimination is a sensitive issue it has become standard practice of scholars applying a decomposition method to state that their unexplained residual not only subsumes the discrimination effect but also the effect of unobserved variables and that the unexplained residual overestimates the discrimination effect in the presence of omitted variables (Blau & Kahn, 1997, 2007; Jann, 2008). This idea has seriously undermined the credibility of the Oaxaca-framework and has led some to abandon it altogether and search for alternatives, such as experimental methods (Azmat & Petrongolo, 2014). We agree that experimental designs are powerful and allow for strong causal inferences, but in some cases experiments are not feasible and observational data is then the best we have. More importantly, we feel that the criticism of the Oaxaca-framework based on omitted variables, is somewhat exaggerated. The idea that the estimate of the discrimination effect is upwardly biased, results in part from a false analogy with the R^2 -statistic (the *explained* variance) which, contrary to the *explained* part in Oaxaca-decompositions, necessarily increases as additional explanatory variables are added to a model. The bias in the unexplained residual resulting from an omitted variable has no *a priori* direction, it could be either positive or negative. For example, omitting educational controls in a study of gender wage gaps would lead to an underestimate of the discrimination effect because working women are higher educated than their male counterparts in many advanced economies today. The problem of omitted variable bias in decompositions is therefore largely equivalent to that in any other regression model. It is a serious issue and future research may re-adjust earlier conclusions by adding relevant variables, but it would be absurd to abandon regression analysis on the grounds that no infinite number of explanatory variables is available for inclusion in the model. To be precise on the assumptions of this study, we should add that unobserved variables in decompositions not just produce potential bias in the unexplained residual, but also in the contribution of any explanatory variable to the explained part (if that variable is correlated with the omitted one).

In this study we will not decompose the difference in group means for a continuous variable but for a binary variable indicating part-time work of which the arithmetic mean equals the part-time work rate. The $\hat{\beta}_j$ coefficients in the decomposition equation (1) will be estimated using a linear probability model (LPM), which is a linear model applied to a binary dependent variable. We prefer the LPM over the traditional logit or probit models because this allows us to apply the standard Oaxaca-framework for linear decompositions, because the coefficients of the LPM model are easy to interpret in terms of probabilities,

because the logit and probit alternatives have certain disadvantages such as greater risks of omitted variable bias (Mood, 2010) and because we feel that the usually cited drawbacks of the LPM such as heteroscedasticity can be fixed. The main advantage of the standard (linear) Oaxaca-decomposition is that the sum of the contributions of all explanatory variables exactly equals the total explained part and that these contributions are easy to calculate and convey. This is not the case with the non-linear alternatives to the Oaxaca-decomposition proposed by Yun (2004) and Fairlie (2005). Nevertheless, we repeated our analysis using a logit model and a non-linear decomposition to check that the results are similar.

A technical decision in decompositions is for which group the $\hat{\beta}_j$ coefficients are estimated. In his original study, Oaxaca (1973) showed that choosing either the male or female regression coefficients as weights in a gender wage gap decomposition, may seriously affect the results. An alternative, suggested by Neumark (1988), is to estimate the coefficients using the full sample in which both groups are pooled. In the same spirit we estimate our coefficients from a part-time work model in which all countries are pooled and to which we added country dummies to avoid the potential bias that would otherwise result (Fortin, 2008). We will explore the sensitivity of our results to this choice by also presenting the results if coefficients are based on a sample of Dutch women only.

Selection effects

We correct for possible selection bias in the decomposition coefficients using the two-step procedure proposed by Heckman (1979). Because we estimate the part-time work function using only a sample of employed women, the estimated effects of the explanatory variables may be biased if selection into employment is non-random. Sartori (2003) rightly points out that the reasons for selection bias are often misunderstood. For example, highly educated women are more likely to be in the labour force but the mere fact that the sample of workers mainly consists of educated women does not produce bias. Selection bias only arises if an *unobserved* variable (e.g. ability) is correlated with both the outcome (e.g. wage) and the explanatory variable of interest (e.g. education): the low-educated women who do work are likely to score high on ability so that the effect of education will be underestimated. Similar problems arise in the estimation of part-time work functions: those women with young children who do work are likely to score high on ability, so that the estimated effect of young children on the probability of working part-time could be biased.

Heckman (1979) reconceptualized selection bias as a form of omitted variable bias, which can be corrected by adding a control to the model that reflects the probability of selection into employment. More formally, if OLS is used to model an outcome of interest Y_i of an individual i in the working population as:

$$Y_i = \vec{\beta}' \vec{X}_i + \epsilon_i \quad (2)$$

where $\vec{X}_i$ is a vector of observed explanatory variables. If we assume that the work decision depends on a latent variable U_i that measures to utility of entering the labour market, then the equation determining the selection into employment is given by:

$$U_i = \vec{\gamma}' \vec{W}_i + u_i \quad (3)$$

where $\vec{W}$ is a vector of factors that determine the participation decision. If we further assume that women decide to participate if $U_i > 0$, then Heckman showed the outcome among the selected is:

$$E[Y_i \mid U_i > 0] = \vec{\beta}' \vec{X}_i + E[\epsilon_i \mid u_i > -\vec{\gamma}' \vec{W}_i] \quad (4)$$

$$= \vec{\beta}' \vec{X}_i + \beta_\lambda \lambda_i + \nu_i \quad (5)$$

where λ_i is the 'Inverse Mill's Ratio' (IMR), which essentially is a decreasing function of the employment probability of individual *i*. Equation (5) clarifies Heckman's idea of understanding selection bias as a form of omitted variable bias: if λ_i and one of the variables in $\vec{X}_i$ are correlated, then the OLS estimate in (2) is biased. Equation (4) makes clear that selection bias arises when ϵ_i an u_i are not independent. If an unobserved factor determines both the outcome (so that it ends up in ϵ_i) and the participation decision (so that it ends up in u_i), then ϵ_i and u_i are correlated which results in selection bias. The two-step procedure to correct for selection bias involves estimating the λ_i in the first step and adding these estimates to model (2) in the second step to obtain consistent estimates for $\vec{\beta}'$.

In order to estimate the role of country differences in employment rates and selectivity, we generate counterfactual potential part-time rates by setting λ_i equal to zero in the part-time work function. In the decompositions λ_i is treated as an ordinary explanatory variable. Its contribution is the effect of the differential selection of women into employment in two countries to the gap in part-time work rates between those countries. An alternative approach would be to adjust the part-time rates for selectivity so that the decomposition is performed on potential part-time rates (see Neuman and Oaxaca (2004) for ways of handling the selection term in decompositions), but we prefer to start from observed part-time work rates in the decomposition. In wage models it is often assumed than only women are selected into employment, in which case a selection equation is not estimated for men. Since we are comparing countries in this study, selection equations will need to be estimated for each group in the decomposition (following the example of

Neuman and Oaxaca (2005)). After heckman correction, the decomposition in (1) thus becomes:

$$\bar{Y}_{NL} - \bar{Y}_O = \sum_{j=l}^{k} (\bar{X}_{NL,j} - \bar{X}_{O,j}) \cdot \hat{\beta}_j + (\bar{\lambda}_{NL} - \bar{\lambda}_O) \cdot \hat{\beta}_\lambda + U \qquad (6)$$

We then propose to further decompose the selectivity contribution into a part that can be attributed to differences in employment rates between countries (the *employment rate effect*) and a part that can be attributed to differences in the way workers are selected into employment (the *pure selectivity effect*). This can be done by distinguishing the mean IMR $\bar{\lambda}$ in the employed or selected sample from the mean IMR $\tilde{\lambda}$ in the full sample of both employed and inactive individuals. Because the IMR is a (decreasing) function of the probability of selection into employment, $\tilde{\lambda}$ is a function of the employment rate. On the other hand, the difference between the mean IMR's in the employed and full samples $(\bar{\lambda} - \tilde{\lambda})$ depends on the degree of selectivity operating in the labour market. If the employed individuals are a random sample of all individuals, then the mean predicted probability of employment in both samples would be the same (so that $\bar{\lambda} = \tilde{\lambda}$). The employment rate effect and the pure selectivity effect can be brought into the decomposition by rewriting equation (6) as:

$$\bar{Y}_{NL} - \bar{Y}_O = \sum_{j=l}^{k} (\bar{X}_{NL,j} - \bar{X}_{O,j}) \cdot \hat{\beta}_j + \overbrace{(\tilde{\lambda}_{NL} - \tilde{\lambda}_O) \cdot \hat{\beta}_\lambda}^{\text{employm. rate effect}} + \underbrace{\left[(\bar{\lambda}_{NL} - \tilde{\lambda}_{NL}) - (\bar{\lambda}_O - \tilde{\lambda}_O)\right] \cdot \hat{\beta}_\lambda}_{\text{pure selectivity effect}} + U \qquad (7)$$

We apply this decomposition in the context of part-time work rate differences, but we see other applications as well. For example, equation 7 could also be used to analyse employment rate effects in cross-country variations in gender wage gaps, a factor that is suggested to be important (Olivetti & Petrongolo, 2008).

The independent variables included in the part-time work model include characteristics of the female respondents, of their family and their job (these are all individual-level characteristics and not country-level characteristics as we do not aim at a multilevel analysis), as well as country controls to avoid the potential bias discussed earlier. Educational levels were measured using 7 categories that broadly correspond to the levels of the ISCED-97 classification. A scale measure for personal attitudes towards the importance of career success was included, as well as a dummy variable indicating women who feel their family has difficulties to cope on present income and measures for religiousness and type of religion (the darkest

areas in figure 1 all are countries coming from a protestant tradition, which made us consider the role of religious background). Family characteristics include the number of young and older children, whether the woman cohabits with a partner and the employment status of the partner. The job characteristics include the duration type of the employment contract, establishment size (5 categories measuring the number of employees, which we treat as a continuous variable), a dummy variable indicating whether the woman holds supervisory job authority and industry and occupational controls (the 21 NACE-sections and the 9 major ISCO-groups, see appendix tables A.1 and A.2). The probit equation to estimate selection into employment included variables on age, education, health, numbers of children, the presence and employment status of the partner, dummy variables indicating immigrants (based on country of birth) and respondents still living with their parents, and the employment status of the mother at respondent age 14.

3 Results and discussion

The selection equations

Tables 1 and 2 present the estimated selection equations for every country. All the coefficients in these probit regressions have the expected signs and pseudo-R^2 ranges from .14 to .35. The table presents the resulting mean Inverse Mill's Ratio's in the full sample $(\tilde{\lambda})$ and the employed sample only $(\bar{\lambda})$. These are inversely related to the mean predicted probabilities of employment in the respective samples (denoted $\tilde{p}$ and $\bar{p}$. For comparison, the table also shows the estimated female employment rate of the country concerned, calculated as the mean employment probability. The mean predicted employment probabilities from the probit model ($\bar{p}$) closely correspond to the employment rates (in a logit selection model they would have been identical).

For the Netherlands the female employment rate is .65 whereas the predicted probability of employment among the working women is .74. Obviously, $\bar{p}$ is always greater than $\tilde{p}$ (barring the limiting cases where either everyone works or the selection model explains nothing) but the difference between $\bar{p}$ and $\tilde{p}$ varies across countries. For example, this difference is much greater in Poland (.73 − .56) than in the Netherlands, which indicates that the Polish labour market is more selective.

Table 1: Selection equations: Heckman step 1 (probit regression for selection into employment) - part 1

	BE	CH	CZ	DE	DK	EE	ES	FI
Explanatory variables:								
Age	-0.03***	-0.01	-0.00	-0.02***	0.00	-0.00	0.01	-0.00
Age-squared	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
Education: ISCED I	-1.16***	-0.61		-0.50	-2.50***		-0.95***	-0.85**
Education: ISCED II	-0.75***	-0.85***	-1.15***	-0.63***	-1.38***	-0.85***	-0.60***	-0.68*
Education: ISCED IIIb	-0.75***	-0.47*	-0.57*	-0.11	-0.82**	-0.19	-0.44*	
Education: ISCED IIIa	-0.31	-0.73**	-0.25	-1.00***	-0.90**	-0.45**	-0.74**	-0.45*
Education: ISCED IV	-0.45*	0.09	-0.28	-0.17	-0.85**	-0.20	-0.28	-0.05
Education: ISCED V1	-0.15	-0.36	-0.58	0.10	-0.59*	0.06	-0.13	-0.37
Bad health	-1.14***	-1.04**	-1.05***	-0.84***	-1.45***	-0.69***	-0.47**	-2.37***
Immigrant	-0.32*	-0.08	-0.18	-0.27*	-0.96***	-0.36**	-0.10	-0.13
Lives with parents	-0.65**	-0.31	0.08	-0.21	0.54	-0.44**	-0.39*	-0.29
Children: 0-6 years old	-0.25*	-0.57***	-1.00***	-0.61***	-0.05	-0.54***	-0.12	-0.47***
Children: 7-18 years old	-0.17*	-0.18*	-0.06	-0.11	0.11	-0.12	-0.14	-0.01
Partner: Employee	0.52***	-0.17	0.23	-0.00	0.19	0.01	-0.31*	0.23
Partner: Self-employed	0.41	0.43	0.25	0.33	-0.04	0.09	-0.36	0.45*
Partner: Other	-0.22	-0.15	-0.58**	-0.22	0.09	-0.09	-0.44**	-0.14
Mother: Self-employed	0.39	-0.05	0.19	-0.02	0.01	0.21	0.16	-0.04
Mother: Not working	-0.07	-0.09	-0.24	0.06	0.32*	-0.07	-0.19	-0.03
Mother: Absent	-0.54	-0.68	-0.85	0.28	-0.62	-0.02	-0.22	-1.31
Constant	1.42***	1.90***	1.70***	1.45***	1.86***	1.53***	1.48***	1.41***
Employment rate	0.60	0.73	0.62	0.66	0.71	0.67	0.53	0.66
$\tilde{p}$ **(full sample)**	0.60	0.73	0.62	0.66	0.71	0.67	0.53	0.66
p **(employed only)**	0.73	0.77	0.77	0.74	0.80	0.74	0.62	0.75
$\tilde{\lambda}$ **(full sample)**	0.71	0.45	0.71	0.57	0.51	0.56	0.79	0.60
$\bar{\lambda}$ **(employed only)**	0.46	0.39	0.40	0.44	0.35	0.45	0.62	0.42
Pseudo R-squared	0.28	0.14	0.35	0.18	0.25	0.17	0.14	0.23
Observations	710	559	716	1058	585	940	731	780

** p<.05; ** p<.01; *** p<.001. Reference groups are Education: ISCED V2; Partner: No; Mother: employee.*

Table 2: Selection equations: Heckman step 1 (probit regression for selection into employment) - part 2

	GB	IE	NL	NO	PL	PT	SE	SK
Explanatory variables:								
Age	-0.00	-0.01	-0.01	0.01	-0.02***	-0.01	0.01	-0.02**
Age-squared	-0.00***	-0.00***	-0.00***	-0.00***	-0.01***	-0.00***	-0.00***	-0.00***
Education: ISCED I	-0.44*	-1.21***	-1.13***	-2.14**		-1.14***	-0.71	-1.13
Education: ISCED II	-0.35	-0.81***	-0.70***	-1.29***	-1.22***	-1.02***	-1.13***	-1.42***
Education: ISCED IIIb	-0.33	-0.53**	-0.30	-0.58*	-0.76***		-0.91***	-0.65***
Education: ISCED IIIa	-0.24	-0.62***	-0.50*	-0.66*	-0.85***	-0.83***	-0.34	-0.50***
Education: ISCED IV	-0.28	-0.34*	-0.27	-0.88**	-0.48	-0.92*	-0.25	-0.34
Education: ISCED V1	-0.06	0.01	0.08	-0.58*	-0.32	-0.77**	-0.18	-0.27
Bad health	-0.95***	-0.71*	-1.24***	-1.00***	-0.65**	-0.43**	-0.63*	-1.24***
Immigrant	-0.47***	-0.48***	-0.19	-0.38*		-0.26	-0.61***	0.70
Lives with parents	0.70***	-0.43**	-0.32	0.43	0.03	-0.18	-0.05	-0.15
Children: 0-6 years old	-0.43***	-0.34***	-0.25*	-0.24*	-0.42***	0.02	-0.29**	-0.94***
Children: 7-18 years old	-0.17**	-0.30***	-0.08	-0.04	-0.18*	-0.19*	-0.18*	-0.12
Partner: Employee	0.28*	0.10	0.34*	0.24	-0.14	0.12	0.29*	-0.01
Partner: Self-employed	0.37*	-0.07	0.18	0.26	0.22	0.24	0.34	0.30
Partner: Other	-0.67***	-0.27*	-0.54**	-0.13	-0.03	0.03	-0.04	-0.25
Mother: Self-employed	0.77**	0.10	-0.17	-0.08	0.07	0.03	0.17	1.15
Mother: Not working	-0.18	-0.13	-0.38**	0.01	-0.01	-0.15	-0.03	-0.03
Mother: Absent	0.24	0.17	-0.76	-0.33	0.14	-0.17	0.32	-0.73
Constant	1.34***	1.31***	1.58***	1.86***	2.10***	1.64***	1.80***	1.79***
Employment rate	0.61	0.44	0.65	0.76	0.55	0.50	0.70	0.60
$\tilde{p}$ **(full sample)**	0.61	0.44	0.65	0.76	0.56	0.50	0.70	0.60
$\bar{p}$ **(employed only)**	0.72	0.55	0.74	0.81	0.73	0.60	0.78	0.75
$\tilde{\lambda}$ **(full sample)**	0.67	0.96	0.61	0.42	0.81	0.85	0.53	0.72
$\bar{\lambda}$ **(employed only)**	0.48	0.74	0.44	0.33	0.46	0.67	0.37	0.44
Pseudo R-squared	0.20	0.15	0.22	0.19	0.31	0.14	0.24	0.29
Observations	875	1097	711	591	753	871	668	820

** p<.05; ** p<.01; *** p<.001. Reference groups are Education: ISCED V2; Partner: No; Mother: employee.*

The part-time work function

Table 3 presents the estimated part-time work function (model 1), as well as a number of alternative specifications. The effect of educational levels appears to be non-linear, with higher probabilities of part-time work for both the low and high educated. The number of children has a positive effect although the number of young children is only marginally significant. Compared to women with no partner and holding the other factors constant, the predicted probability of part-time work is 5 percentage points higher for women with an employed partner and 10 percentage points if the partner is self-employed (the category 'Partner: other' contains mainly women who's partner is unemployed). The variables relating to religion have no significant effects at the micro-level after controlling for the other explanatory variables. Perceptions of income difficulties in the family are positively correlated with part-time work and women who find it important to be successful are more likely to work full-time. Not having an employment contract increases the likelihood of part-time work and establishment size has a negative effect. We estimate that women in supervisory positions are, ceteris paribus, 10 percentage points less likely to work part-time (the overall rate of part-time work in the pooled sample is .28, so 10 percentage points is significant, not just in the statistical but also in the practical sense). Table A.3 in appendix lists the coefficients of the industry and occupation indicators in the model. The part-time work rates are much lower in managerial occupations and higher in elementary occupations than in the reference category of service and sales workers. Compared to the health-care sector, part-time rates are also substantially lower in financial services, ICT and public administrations, as well as in manufacturing and the energy industry.

We also find a positive estimated coefficient for the Inverse Mill's Ratio's ($\hat{\beta}_\lambda$). This result is somewhat surprising, especially because the participation decision and the decision to work full-time both are aspects of employment. Positive selection implies that the errors in the selection equations and the errors in the part-time work function are positively correlated. Said differently, women with unobserved characteristics which make it more likely to be selected into employment, are also more likely to work part-time. If we take the prime example of an unobserved variable, 'ability', then these results suggest that the more 'able' women more often work part-time (although the unobserved variables could be anything of course). In any case, these results suggest that the participation decision and the decision to work part-time are distinct decisions.

Model (2) presents the results of a logistic specification of the part-time work function. These coefficients can be interpreted in a similar way as those of model (1), because they represent marginal effects (evaluated at the means). The results of the logit specification are very similar to those of the LPM. We interpret this as an indication for the robustness of the LPM coefficients, which will serve as the weights in the decomposition.

Model (3) shows the part-time work function without selectivity correction. The coefficients in this model can be expected to be biased, but we include the specification to evaluate the effects of selection bias. The bias appears to be limited in most coefficients. However, the estimated effect of the number of young children roughly halves after selectivity correction from 4 to 2 percentage points. Women with young children are less likely to be selected into employment (see tables 1 and 2), so those women with young children who do work score high on unobserved factors. These unobserved factors are positively correlated with the probability of part-time work $(\hat{\beta}_\lambda > 0)$, thus the effect of the unobserved factors is picked up by the coefficient of 'young children' in OLS, which as a consequence is seriously biased upwards. This suggests that the often-observed relation between having young children and women working part-time is, at least to some extent, spurious and a result of selectivity.

Model (4) shows the LPM if the sample is limited to the Dutch women only. Many coefficient estimates in this model differ substantially from those in the pooled model (for example, $\hat{\beta}_\lambda$ is much greater). This implies that the decomposition results will be sensitive to whether the Dutch or the pooled coefficients are used to weigh the differences in mean characteristics. We will assess this sensitivity when we present the decomposition results.

Table 3: The estimated part-time work function

	(1) LPM	(2) Logit	(3) Biased LPM	(4) LPM-NL
Lambda (IMR)	0.14***	0.16***		0.39*
Education: ISCED I	-0.03	-0.05	0.04	-0.03
Education: ISCED II	-0.03	-0.04	0.03	0.02
Education: ISCED IIIb	-0.02	-0.02	0.00	0.02
Education: ISCED IIIa	-0.00	0.00	0.03	0.08
Education: ISCED IV	-0.06**	-0.07**	-0.05*	0.08
Education: ISCED V1	-0.08***	-0.08***	-0.07***	-0.01
Children: 0-6 years old	0.02	0.02*	0.04***	0.14**
Children: 7-18 years old	0.04***	0.04***	0.04***	0.10***
Partner: Employee	0.05***	0.06***	0.03*	0.24***
Partner: Self-employed	0.10***	0.11***	0.07***	0.24**
Partner: Other	-0.02	-0.02	-0.00	0.00
Religion: Roman	0.03	0.03	0.03	0.02
Religion: Protestant	0.03	0.03	0.03	0.02
Religion: Orthodox	-0.01	-0.01	0.00	-0.35
Religion: Other	0.02	0.02	0.02	0.15
Religiosity	0.00	0.00	0.00	0.01
Income feels difficult	0.07*	0.07*	0.06	0.14
Important to be successful	-0.03***	-0.03***	-0.02***	0.00
Contract: Limited	0.02	0.02	0.03	-0.12*
Contract: No	0.13***	0.10***	0.15***	0.08
Establishment size	-0.04***	-0.04***	-0.04***	-0.06**
Supervisory position	-0.10***	-0.12***	-0.11***	-0.19***
Constant	0.74***		0.78***	0.50**
Industry (21 categories)	Yes	Yes	Yes	Yes
Occupation (9 categories)	Yes	Yes	Yes	Yes
Country (16 categories)	Yes	Yes	Yes	No
(Pseudo) R-squared	0.23	0.22	0.23	0.40
Observations	6376	6376	6376	396

** p<.05; ** p<.01; *** p<.001 based on robust standard errors. Model (1) is a Linear Probability Model (LPM) for the pooled data. Model (2) presents marginal effects in a logistic specification. Model (3) is a LPM without Heckman correction. Model (4) is model (1) restricted to the Dutch sample. Reference groups are Country: NL; Education: ISCED V2; Partner: No; Religion: No; Contract: Unlimited.*

Selection effects

Our working hypothesis when we started this study was that the high part-time work incidence in the Netherlands compared to, say, Spain, to some extent results from the lower employment rate in Spain. In this section we study the effects on country differences in part-time rates of differences in employment rates and the associated differences in labour market selectivity.

Figure A.2 in the appendix shows a scatterplot of the relation between female employment rates and part-time rates. There appears to be no clear bivariate relation at the aggregate level. The graph does point to a geographical pattern in employment and part-time rates. Northern European countries are clustered at the right-hand side of the scatterplot, combining high employment rates with average part-time rates. The Southern European countries are at the opposite side of the graph. Eastern European countries are clustered at the bottom in the center, combining low part-time rates with average employment rates. West-

ern European all have relatively large part-time work rates.

Table 4 presents a series of counterfactual part-time work rates under different scenario's and the resulting gap with the Netherlands, which will be the reference country in the decompositions. Panel A repeats the observed parttime work rates in our sample (the same information was shown in the map in figure 1). The observed gap in part-time rates with the Netherlands is smallest for Germany (17.6 percentage points) and largest for the Czech Republic (57.6 percentage points).

A natural way to analyse the effects of differences in employment rates is to carry out imputations of the part-time work behaviour that could be expected for the non-working population in the counterfactual case that they would work. Panel B and C present two extreme scenario's. Panel B shows the part-time work rates that would arise if all non-workers would decide to start working full-time. This produces a decrease in part-time rates which is greatest for countries with large inactivity rates and for countries with large part-time rates (in fact, it is easy to verify that the decrease in panel B compared to panel A exactly equals the product of the part-time rate and the inactivity rate). Because of its exceptionally large part-time work rate, the decrease is largest for the Netherlands so that in this scenario the gaps in part-time work rates decline for all countries. Panel C shows the part-time rates in case all non-working women would work part-time. Under this counterfactual the part-time work rates increase for all countries and this increase (compared to panel A) can be shown to equal the product of the inactivity rate and the full-time work rate. Because the Netherlands have the lowest rate of full-time work, the increase for the Netherlands in panel C is smaller than for the other countries so that, as in panel B, the gap in part-time work rates in panel C is smaller for all countries than the observed gaps in panel A.

Panel D presents a more educated guess of the potential part-time work rates, based on imputation of predicted part-time work probabilities for the non-employed using information on observed characteristics. We estimated a LPM for part-time work using the employed sample and subsequently used this model to estimate predicted probabilities of part-time work for the nonemployed group. In this procedure we could not use the part-time work function from table 3 because it contains job characteristics, which by definition are missing for non-workers. So we used the explanatory variables from the selection equation (results not shown) and calculated the potential part-time work rate as the mean predicted probability of part-time work in the full sample. However, it should be kept in mind that the resulting estimates are biased because they only rely on observed characteristics and do not correct for selectivity. This 'naive' imputation presented in table D leads to estimates of the potential part-time work rates that are above the observed

rates for every country. The size of this increase depends on the inactivity rate and on the extent to which the inactive population in a particular country shares observed characteristics with part-time workers. For example, Belgium and Great Brittain have very similar female employment rates, but the estimated increase from observed to potential part-time work rates is greater for Belgium. The gap in part-time work rates with the Netherlands compared to observed gap in panel A decreases for some countries (particularly those countries with low employment rates like Poland), but it increases for others (like Norway that already has a high employment rate).

Panel E, finally, presents the potential part-time work rates after accounting for selection bias. The counterfactual was constructed by evaluating the part time work function (model 1 in table 3) at $\lambda = 0$, which corresponds to a probability of selection into employment equal to 1. This produces a consistent estimate for the mean outcome in the full sample. The estimated potential part- time work rates in panel E are below the observed rates because the selection effect is positive (see table 3). Unobserved effects that increase the likelihood of being selected into employment, also increase the likelihood of part-time work. Those women left in the inactive part of the population score low on the unobserved characteristics associated with employment. The inactive are therefore more likely to work full-time than those that are already in the labour force. That is why our estimated potential part-time work rates are below the observed ones. The size of this decrease depends on the inactivity rate of the country concerned and on the selectivity of its labour market. Countries with high levels of inactivity (such as Spain and Portugal) have potential part-time work rates that are more below the observed rates than countries with low inactivity rates (such as Norway). The role of pure selectivity effects becomes clear in the example of Poland and Spain: these countries have very similar employment rates, but the difference between observed and potential part-time work rates is greater in Spain than in Poland. The high degree of selectivity in the Polish labour market can be seen from tables 1 and 2, which show the mean employment probabilities in the full sample $(\tilde{p})$ and in the employed sample $(\bar{p})$. Spain and Poland have very similar mean employment probabilities in the full sample (.53 and .55 respectively). However, in the employed sample the mean employment probability is .62 in Spain and .73 in Poland! Because of this selectivity, those Polish women who do work score high (higher than their Spanish counterparts) on unobserved characteristics that both increase their likelihood of employment

Table 4: Selection effects in the part-time work rates of Dutch women and women in other countries

	BE	CH	CZ	DE	DK	EE	ES	FI	GB	IE	NO	PL	PT	SE	SK
A. Observed part-time work rates:															
Part-time rate: Netherlands	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9
Part-time rate: other country	34.5	40.6	3.3	43.3	19.9	12.6	28.7	16.4	42.9	45.7	25.4	14.5	19.7	17.4	7.8
Raw difference	26.4	20.3	57.6	17.6	41.0	48.3	32.2	44.5	18.0	15.3	35.5	46.4	41.2	43.5	53.1
B. All non-participants work full-time:															
Part-time rate: Netherlands	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2
Part-time rate: other country	20.7	29.1	2.0	28.2	13.9	8.2	14.5	10.6	25.4	20.2	19.1	7.7	7.3	12.1	4.5
Raw difference	18.5	10.1	37.2	11.0	25.2	31.0	24.7	28.5	13.7	19.0	20.1	31.5	31.9	27.0	34.7
C. All non-participants work part-time:															
Part-time rate: Netherlands	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9	74.9
Part-time rate: other country	60.7	57.5	41.5	63.1	43.9	43.4	64.0	45.9	66.2	76.0	43.9	54.7	70.4	42.5	46.5
Raw difference	14.2	17.3	33.4	11.8	31.0	31.5	10.9	29.0	8.7	-1.1	30.9	20.2	4.4	32.4	28.3
D. OLS imputation (biased):															
Part-time rate: Netherlands	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0
Part-time rate: other country	37.7	42.9	6.0	46.1	22.0	15.3	33.2	19.1	45.7	50.0	26.6	20.2	23.8	19.9	11.2
Raw difference	26.3	21.1	58.0	17.9	42.0	48.7	30.8	44.9	18.3	14.0	37.4	43.8	40.2	44.1	52.8
E. Heckmann correction:															
Part-time rate: Netherlands	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
Part-time rate: other country	29.0	36.6	-2.1	37.6	15.8	7.7	21.5	11.7	37.2	38.1	21.0	9.2	11.6	12.8	1.7
Raw difference	27.1	19.5	58.2	18.5	40.3	48.4	34.6	44.4	18.8	18.0	35.1	46.9	44.5	43.3	54.4

and part-time work. Therefore, the high degree of selectivity in Poland inflates the observed part-time work rates compared to those in Spain. The exact sizes of these pure selectivity effects will be presented in the decomposition in the next paragraph (table 6).

Composition effects

Table 5 shows the mean country characteristics that were used in the decompositions. Education levels are comparatively higher in Northern Europe and low in Portugal and Spain. The number of children (we are looking at the employed sample only, not at overall fertility rates) is larger in Nordic and Western European countries and smaller in the East and South. A larger number of Spanish and Portuguese women have partners that are unemployed, which reflects the severity of the economic crisis in these countries. Portuguese (as well as British) women are also more likely to be without a partner, so that the share of women living with an employed partner is very low in Portugal. Religiosity is strongest in the Slovak Republic, while it is weakest in the neighbouring Czech Republic. The percentage of employed women saying that is difficult to cope on present family income is greatest in Eastern and Southern Europe, as well as in Britain and Ireland (although the numbers never surpass 6 percent). Eastern European women attach more importance to being succesful, whereas this is comparatively lowest in Northern Europe. The share of women working on contracts of unlimited duration is lowest in Southern Europe and in Britain and Ireland (many Irish women are working on 'no contract', which might indicate a problem of data quality for Ireland - see also figure A.1). Establishment sizes are smallest in Portugal and Spain. The share of women working in supervisory positions is comparatively lower in the East and greater in the West.

Table A.4 in appendix shows a more detailed distribution over the various industries and occupations. In the Netherlands women are much less likely than in other countries to be employed in manufacturing, while in this sector the part-time work rate is low. The more service-oriented economic structure of the Dutch economy might therefore, to some extent, explain its high part-time work rate. On the other hand, Dutch women more often work in the higher ranking occupations, where part-time rates are traditionally low, and much less in elementary occupations, where part-time rates tend to be high. So the distribution of Dutch women across occupations would lead us to expect a lower part-time rate in the Netherlands than in other countries (in the decompositions this will produce negative contributions).

Table 5: Means of the variables in the decomposition (employed women, 2012)

	BE	CH	CZ	DE	DK	EE	ES	FI	GB	IE	NL	NO	PL	PT	SE	SK
Part-time work rate	.34	.41	.03	.43	.20	.13	.29	.16	.43	.46	.61	.25	.15	.20	.17	.08
IMR (λ)	.46	.39	.40	.44	.35	.45	.62	.42	.48	.74	.44	.33	.46	.67	.37	.44
Education: ISCED I	.03	.02		.01	.00		.13	.03	.09	.03	.03	.00		.28	.01	.00
Education: ISCED II	.11	.14	.04	.08	.10	.06	.23	.04	.17	.13	.23	.07	.18	.24	.02	.02
Education: ISCED IIIb	.11	.39	.21	.47	.18	.02	.09		.11	.07	.24	.20	.15		.12	.22
Education: ISCED IIIa	.16	.08	.42	.02	.08	.27	.04	.28	.18	.20	.07	.15	.14	.26	.24	.40
Education: ISCED IV	.18	.14	.20	.19	.11	.24	.10	.30	.17	.26	.09	.11	.07	.01	.24	.03
Education: ISCED V1	.24	.09	.02	.07	.38	.16	.18	.18	.17	.16	.16	.29	.11	.07	.20	.07
Children: 0-6 years old	.26	.19	.11	.15	.25	.16	.25	.21	.22	.24	.24	.26	.24	.16	.28	.11
Children: 7-18 years old	.53	.44	.57	.40	.61	.42	.44	.52	.55	.56	.58	.57	.44	.35	.48	.43
Partner: Employee	.56	.48	.56	.48	.58	.45	.46	.49	.47	.44	.58	.56	.50	.42	.52	.48
Partner: Self-employed	.08	.10	.11	.09	.08	.09	.08	.10	.13	.12	.10	.07	.11	.03	.09	.11
Partner: Other	.07	.06	.06	.11	.11	.09	.17	.12	.06	.11	.06	.06	.09	.20	.10	.10
Religion: Roman	.29	.26	.14	.30	.01	.00	.58	.00	.12	.76	.11	.01	.89	.86	.02	.56
Religion: Protestant	.01	.23	.01	.26	.59	.05	.01	.48	.25	.02	.15	.46			.24	.08
Religion: Orthodox	.01	.01	.00	.02	.00	.19	.02	.01	.01	.01	.01	.00	.00	.01	.00	.00
Religion: Other	.03	.07	.02	.05	.05	.03	.03	.02	.09	.02	.05	.03	.01	.02	.05	.11
Religiosity	4.17	4.74	2.11	4.52	4.65	3.74	4.10	5.24	4.06	5.12	4.77	3.74	6.12	5.21	3.40	6.19
Income feels difficult	.02	.02	.05	.02	.02	.06	.05	.02	.05	.06	.01	.01	.02	.05	.01	.05
Important to be successful	2.56	2.65	2.72	2.48	2.37	2.44	2.17	1.94	2.62	2.80	2.58	2.19	2.94	2.83	2.04	3.21
Contract: Limited	.13	.07	.16	.12	.09	.07	.17	.17	.12	.18	.19	.10	.28	.10	.09	.10
Contract: No	.03	.02	.01	.04	.03	.02	.07	.01	.10	.24	.04	.03	.02	.11	.02	.01
Establishment size	2.92	2.46	2.75	2.77	3.01	2.39	2.33	2.65	3.09	2.62	2.89	2.84	2.81	2.20	2.67	2.39
Supervisory position	.30	.33	.16	.35	.28	.28	.25	.17	.40	.26	.32	.28	.17	.18	.24	.14
Industry (21 categories)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation (9 categories)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	380	347	330	605	367	546	306	457	467	433	414	398	302	283	425	406

Note: reference groups are omitted from the table (Education: ISCED V2; Partner: No; Religion: No; Contract: Unlimited).

Table 6: Decomposition of the difference in part-time work rates between Dutch women and women in other countries

	BE	CH	CZ	DE	DK	EE	ES	FI	GB	IE	NO	PL	PT	SE	SK
Female part-time work rates:															
Part-time rate: Netherlands	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9
Part-time rate: other country	34.5	40.6	3.3	43.3	19.9	12.6	28.7	16.4	42.9	45.7	25.4	14.5	19.7	17.4	7.8
Raw difference	26.4	20.3	57.6	17.6	41.0	48.3	32.2	44.5	18.0	15.3	35.5	46.4	41.2	43.5	53.1
explained	1.3	2.1	1.3	0.9	1.8	1.9	-6.8	-2.5	0.6	-8.8	1.4	-1.7	-8.1	0.2	-1.4
unexplained	25.1	18.2	56.3	16.8	39.2	46.3	39.0	47.0	17.4	24.1	34.1	48.1	49.3	43.3	54.6
Detailed decomposition:															
Education (7 categories)	0.6	-0.2	-1.0	-0.0	1.4	-0.1	0.2	0.4	0.3	0.4	0.6	-1.0	-0.9	0.4	-1.8
Partner characteristics (4 categories)	0.3	0.5	-0.0	0.6	0.2	0.8	1.0	0.6	0.2	0.6	0.3	0.3	1.7	0.4	0.4
Children	0.1	0.7	0.3	0.9	-0.2	0.8	0.5	0.3	0.2	0.1	-0.0	0.5	1.1	0.3	0.9
Religiosity and religious group	0.2	-0.7	1.4	-0.7	-1.0	1.2	-0.6	-0.8	-0.2	-1.5	-0.2	-2.1	-1.7	0.5	-1.6
Household income difficulties	-0.1	-0.1	-0.3	-0.1	-0.1	-0.3	-0.3	-0.1	-0.3	-0.3	0.0	-0.1	-0.3	-0.0	-0.3
Important to be successful (3 items)	-0.1	0.2	0.4	-0.2	-0.5	-0.4	-1.0	-1.6	0.1	0.5	-1.0	0.9	0.6	-1.4	1.6
Contract type (3 categories)	0.2	0.5	0.5	0.1	0.3	0.4	-0.5	0.4	-0.7	-2.6	0.3	0.1	-0.7	0.5	0.6
Establishment size	0.1	-1.6	-0.5	-0.4	0.4	-1.8	-2.1	-0.9	0.7	-1.0	-0.2	-0.3	-2.5	-0.8	-1.8
Supervisory position	-0.3	0.1	-1.7	0.3	-0.4	-0.5	-0.7	-1.6	0.8	-0.6	-0.4	-1.6	-1.5	-0.8	-1.9
Industry (21 categories)	0.8	1.5	2.0	1.2	0.4	1.4	1.3	0.8	0.9	0.3	-0.1	1.4	1.2	-0.0	2.3
Occupation (9 categories)	-0.3	0.3	-0.2	-0.7	-0.0	0.6	-2.0	-0.3	-0.9	-0.3	0.7	0.5	-1.8	0.2	0.3
Total selection effect	-0.3	0.7	0.6	-0.1	1.2	-0.1	-2.7	0.2	-0.7	-4.3	1.5	-0.3	-3.3	0.9	0.0
Decomposition of the selection effect:															
Employment rate effect	-1.5	2.2	-1.4	0.5	1.4	0.6	-2.7	0.1	-0.9	-5.0	2.7	-2.9	-3.4	1.1	-1.7
Pure selectivity effect	1.2	-1.4	2.0	-0.6	-0.2	-0.8	0.0	0.2	0.3	0.7	-1.2	2.6	0.2	-0.2	1.7
Observations: Netherlands	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396
Observations: other country	380	347	315	600	367	546	306	457	444	439	398	306	281	425	369

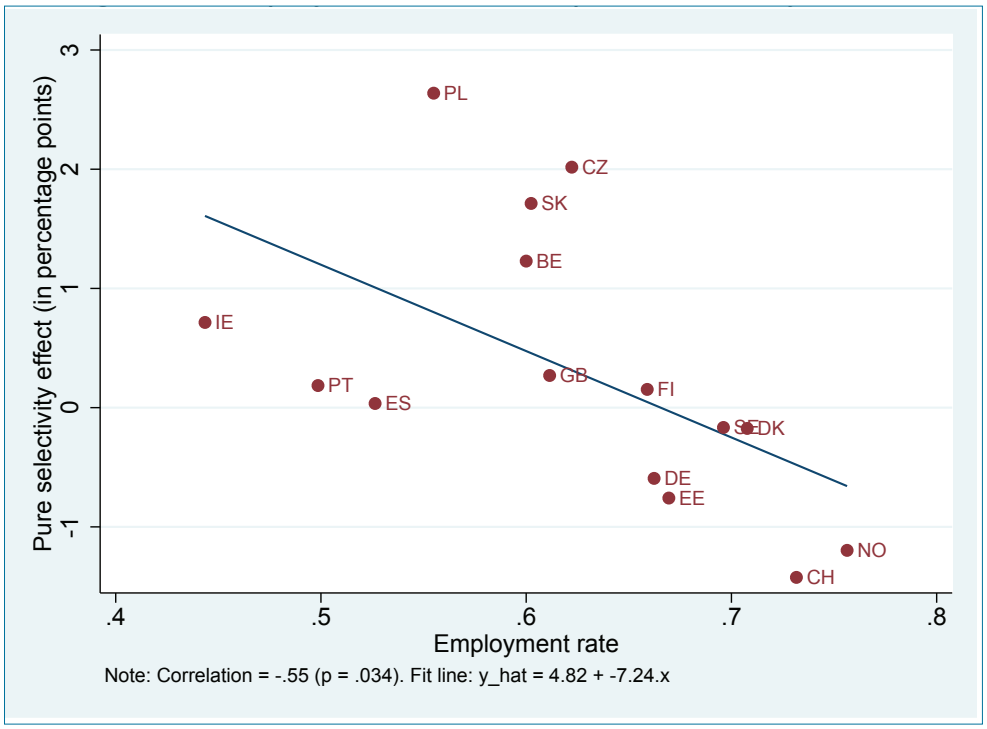
The decomposition results are summarized in Table 6. The upper panel repeats the observed part-time work rates of the Netherlands and the other countries, the difference between these rates, the total part of this gap that can be explained by composition effects and the unexplained residual. For some countries, such as Portugal, the explained part is negative which means that the gap in part-time work rates would be even greater than the observed rate if Dutch and Portuguese women would have the same characteristics. All things considered, the total explained parts in the decompositions are limited, especially if their sizes are compared to the explained parts typically found in wage gap studies. The reasonable conclusion is that composition effects are not the prime cause of gaps in part-time work rates. However, this does not imply that composition effects are unimportant because the contributions of the different explanatory variables in the detailed decomposition could be substantial while the total explained part at the same time remains limited if they cancel each other out (the contributions are either positive or negative).

The second panel in Table 6 shows the detailed decomposition, in which the contributions add up to the total explained part. The largest composition effects (explaining more than 2 percentage points) result from differences in establishment size in the cases of Portugal and Spain, the high level of religiosity in the case of Poland and from differences in industry and occupation composition in the cases of the Czech and Slovak Republics and Spain. A more detailed decomposition for the industry and occupational categories is shown in table A.5 in appendix. In the case of the Czech Republic, the industry composition effect explains 2.0 percentage points and is attributable to the larger number of women (compared to the Netherlands) employed in manufacturing and in the sector of financial services. Occupational differences explain substantial (negative) parts in the cases of Portugal and Spain, where more women work in elementary occupations and less in managerial and professional occupations.

The detailed decomposition contains seven contributions that explain more than 2 percentage points (not counting the contributions of selectivity). Only one of these is related to a personal characteristic, while the other six relate to job characteristics. We are therefore inclined to conclude that job-related (demand-side) factors appear to more important than personal (supply-side) factors in the decompositions.

Other notable, albeit smaller, composition effects are: the effects from unemployed partners in the case of Portugal (and Spain to a lesser extent), from the number of children in the cases of Portugal, Germany and the Slovak Republic, from religious differences with Ireland and Portugal (and the opposite effects in the case of the neighbouring Czech and Slovak Republics), from attitudes regarding the

Figure 2: Employment rates and pure selectivity effects



importance of being succesful in Northern Europe and from the lower number of women in supervisory positions in Eastern Europe.

Table 6 also decomposes the total selection effect in a part attributable to differences in employment rates and a part attributable to pure selectivity (equation 7). The employment rate effects are substantial in the case of countries like Norway and Portugal (having high and low employment rates respectively). The size of the pure selectivity effect is greatest in the case of Poland. We already discussed the high degree of selectivity in Poland. The results from the decomposition suggest that the difference in selectivity between the Polish and Dutch labour markets, explain 2.6 percentage points of the gap in part-time work rates between these countries.

The case of Poland illustrates an important point. The total selection effect for Poland is negligible (-0.3 percentage points) because the employment rate effect and the pure selectivity effect cancel each other out. Merely looking at the total selection effect would not reveal the effect of the extraordinary selectivity of the Polish labour market. Remember that Spain and Portugal have similar employment rates but different degrees of selectivity: the total selection effect creates the false impression that selectivity is important in the case of Spain but not in Poland. Moreover, this cancelling out or masking of the pure selectivity effect is not just a theoretical possibility. It is highly likely to occur because employment rate effects and pure selectivity effects are negatively correlated (see figure 2). The slope coefficient of the fit line suggests that an increase of the employment rate by 10 percentage points is associated with a reduction of about 0.7

percentage points of the pure selectivity effect (note that the constant term is not meaningful because it solely depends on the reference country, which is the Netherlands in this case). It is obvious that labour markets with large employment rates tend to be less selective, but it should be kept in mind that the relation is not perfect and that countries with similar employment rates can be very different in terms of selectivity (e.g. Poland versus Spain). An interesting question, which at present we are unable to answer, is why some labour markets are more selective than could be expected given their employment rate (such as Poland and the Czech Republic), while others are less selective (such as Portugal and Spain). However, the main conclusion from figure 2 is that employment rate effects and pure selectivity effects tend to cancel each other out, so that the decomposition of the total selection effect which we propose in equation 7 is a useful tool for revealing the selectivity of labour markets.

To assess the robustness of our findings we repeated the decompositions using the marginal effects of the logit model as weights and using the Yun-framework for non-linear decomposition. These produce similar results. However, the size of the contributions are sensitive to whether the part-time work function coefficients are estimated using the pooled or the Dutch sample only (these are compared in table 3). Table A.6 in appendix shows the results of the decomposition if the Dutch coefficients are used instead of those from the pooled model. Using the Dutch coefficients tends to produce larger estimates for the contributions. For example, the contribution of the pure selectivity effect in the case of Poland is 7.2 percentage points as compared to just 2.6 percentage points when the pooled coefficients are used. But in relative terms, the results are broadly similar (e.g. Poland remains the country where the pure selectivity effect is greatest).

4 Conclusion and directions for further research

We found that the composition effects in female part-time work rates are predominantly related to demand-side factors and that the total explained parts in the decompositions are small. The latter suggests that country-level ideological contexts, historical factors and institutions are important to explain geographical patterns in part-time work rates. These findings are in line with the account by Blossfeld (1997), who relates part-time work rates to the economic expansion after World War II, which produced a strong labour demand in the services sector in Western and Northern Europe and increasing participation levels among the 'reserve army' of married women. According to Blossfeld, the national contexts were crucial in shaping these development. Nordic countries had institutions and ideologies that were conducive to full-time work. Western European countries, particularly The Netherlands and West-Germany, were more conservative regarding the role of women in the family and the socialization of childcare, so that married women were absorbed into the labour market in part-time work arrangements. Similarly, the high levels of full-time participation among women in Eastern Europe seem related to their planned economies of the past and the then prevailing marxian views on the family. Future research could focus on how to include in decompositions the various historical and institutional (often multi-level) factors that appear to have played a important role in shaping the present patterns of part-time work (and employment rates), so that their contributions too can be assessed in a multivariate framework.

We also find that employment positively selects women into part-time work: women with unobserved characteristics which make it more likely to be employed, are also more likely to work part-time. There is a debate in the literature on part-time work (Blossfeld & Hakim, 1997) between scholars who have a negative appraisal of part-time work (for being vulnerable, earning low wages, resulting from structural constraints in the decision process, ...) and others who favour a positive appraisal (part-time work is often voluntary, work satisfaction is high among part-time working women, their low wages should be seen as secondary within the family, ...). Our finding of positive selection only relates to one aspect in this debate, but it is clearly more in line with the view of the optimists. Another implication is that selection bias may arise in the estimation of part-time work functions. For example, we showed that OLS tends to overestimate the effect of children on the probability of part-time work. On the treatment of the selection term in decompositions, we showed that employment rate effects and pure selection effects tend to cancel each other out. Therefore,

it is important to distinguish *both* effects if the aim is to estimate the size of selectivity effects (e.g. in gender wage gaps). Another potential avenue for future research is to investigate the reasons for the geographical variations in selectivity effects.

References

Azmat, G., & Petrongolo, B. (2014). Gender and the labor market: What have we learned from field and lab experiments? *Labour Economics*, *?*(?), ?

Blau, F. D., & Kahn, L. M. (1997). Swimming upstream: Trends in the gender wage differential in the 1980s. *Journal of Labor Economics*, 1–42.

Blau, F. D., & Kahn, L. M. (2007). The gender pay gap have women gone as far as they can? *The Academy of Management Perspectives*, *21*(1), 7–23.

Blau, F. D., & Kahn, L. M. (2013). Female labor supply: Why is the united states falling behind? *American Economic Review*, *103*(3), 251–56.

Blossfeld, H.-P. (1997). Women's part-time employment and the family cycle: A cross national comparison. In *Between equalization and marginalization. women working part-time in europe and the united states of america* (p. 315–325).

Blossfeld, H.-P., & Hakim, C. (1997). *Between equalization and marginalization: women working part-time in europe*. Oxford University Press.

Fairlie, R. W. (2005). An extension of the blinder-oaxaca decomposition technique to logit and probit models. *Journal of Economic and Social Measurement*, *30*(4), 305–316.

Fortin, N. M. (2008). The gender wage gap among young adults in the united states the importance of money versus people. *Journal of Human Resources*, *43*(4), 884–918.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica: Journal of the econometric society*, 153–161.

Jann, B. (2008). The blinder-oaxaca decomposition for linear regression models. *The Stata Journal*, *8*(4), 453–479.

Mood, C. (2010). Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review*, *26*(1), 67–82.

Neuman, S., & Oaxaca, R. L. (2004). Wage decompositions with selectivity-corrected wage equations: A methodological note. *The Journal of Economic Inequality*, *2*(1), 3–10.

Neuman, S., & Oaxaca, R. L. (2005). Wage differentials in the 1990s in israel: endowments, discrimination, and selectivity. *International Journal of Manpower*, *26*(3), 217–236.

Neumark, D. (1988). Employers' discriminatory behavior and the estimation of wage discrimination. *Journal of Human resources*, 279–295.

Oaxaca, R. (1973). Male-female wage differentials in urban labor markets. *International Economic Review*, *14*(3), 693–709.

Olivetti, C., & Petrongolo, B. (2008). Unequal pay or unequal employment? a cross-country analysis of gender gaps. *Journal of Labor Economics*, *26*(4), 621–654.

Rosenfeld, R. A., & Birkelund, G. E. (1995). Women's part-time work: A crossnational comparison. *European Sociological Review*, *11*(2), 111–134.

Sartori, A. E. (2003). An estimator for some binary-outcome selection models without exclusion restrictions. *Political Analysis*, *11*(2), 111–138.

Tijdens, K. G. (2002). Gender roles and labor use strategies: women's part-time work in the european union. *Feminist Economics*, *8*(1), 71–99.

Van Bastelaer, A., Lemaître, G., & Marianna, P. (1997). The definition of part-time work for the purpose of international comparisons. *OECD Labour Market and Social Policy Occasional Papers, No. 22. OECD Publishing*.

Yun, M.-S. (2004). Decomposing differences in the first moment. *Economics letters*, *82*(2), 275–280.

Appendix

Figure A.1: Data representativity checks: employment and part-time work rates

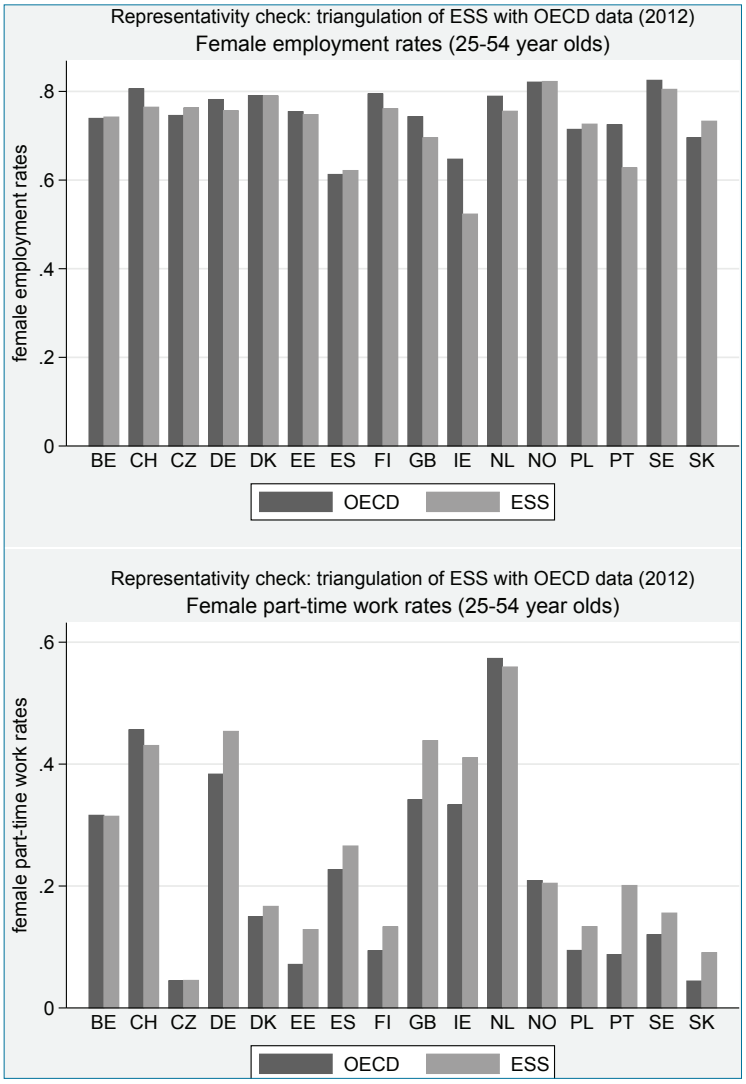


Figure A.2: Female employment rates and part-time work rates, 2012

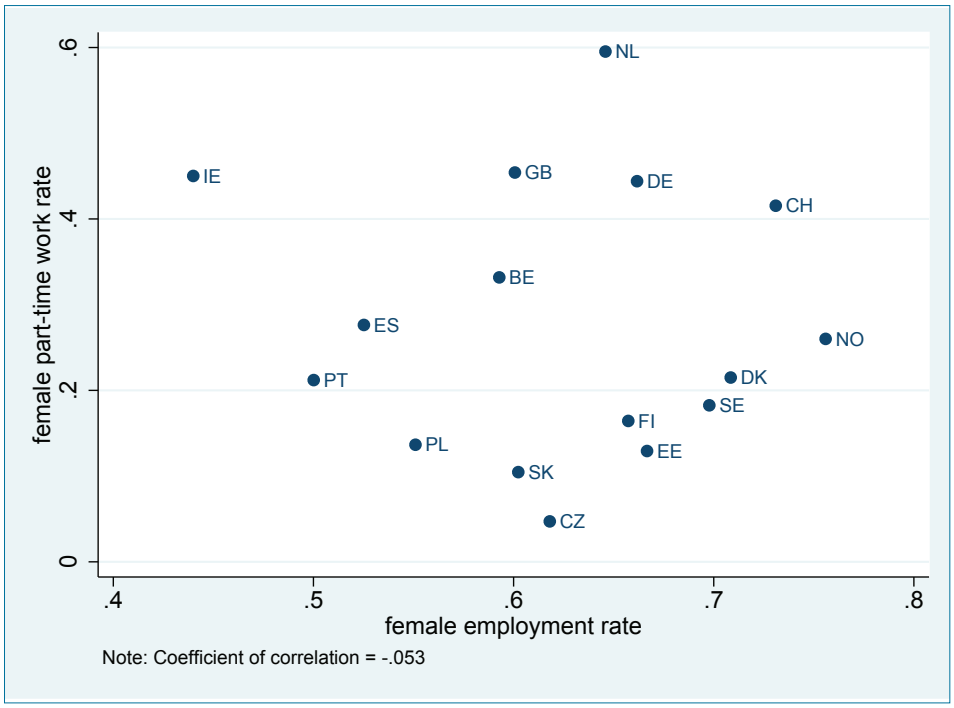


Table A.1: Industry categories (NACE-sections)

Category	Section	Title
1	A	Agriculture, forestry and fishing
2	B	Mining and quarrying
3	C	Manufacturing
4	D	Electricity, gas, steam and air conditioning supply
5	E	Water supply; sewerage, waste management and remediation activities
6	F	Construction
7	G	Wholesale and retail trade; repair of motor vehicles and motorcycles
8	H	Transportation and storage
9	I	Accommodation and food service activities
10	J	Information and communication
11	K	Financial and insurance activities
12	L	Real estate activities
13	M	Professional, scientific and technical activities
14	N	Administrative and support service activities
15	O	Public administration and defence; compulsory social security
16	P	Education
17	Q	Human health and social work activities
18	R	Arts, entertainment and recreation
19	S	Other service activities
20	T	Activities of households as employers
21	U	Activities of extraterritorial organisations and bodies

Table A.2: Occupational categories (major ISCO groups)

Category	ISCO group	Title
1	1	Legislators, senior officials and managers
2	2	Professionals
3	3	Technicians and associate professionals
4	4	Clerks
5	5	Service workers and shop and market sales workers
6	6	Skilled agricultural and fishery workers
7	7	Craft and related trades workers
8	8	Plant and machine operators and assemblers
9	9	Elementary occupations

Table A.3: Coefficients of the industry and occupational variables in the part- time work function

	(1) LPM
industry==1	-0.10
industry==2	-0.21*
industry==3	-0.08***
industry==4	-0.23***
industry==5	0.11
industry==6	-0.02
industry==7	-0.04
industry==8	-0.07*
industry==9	-0.04
industry==10	-0.11***
industry==11	-0.10***
industry==12	-0.04
industry==13	-0.01
industry==14	0.01
industry==15	-0.11***
industry==16	0.01
industry==18	0.05
industry==19	-0.04
industry==20	-0.05
industry==21	0.30*
occupation==1	-0.10***
occupation==2	-0.07***
occupation==3	-0.04*
occupation==4	-0.02
occupation==6	-0.15
occupation==7	-0.09**
occupation==8	-0.06
occupation==9	0.10***
Observations	6376

* p<.05; ** p<.01; *** p<.001 based on robust standard errors. All other variables (see Table 3) are included. Reference groups are omitted from the table (Industry: 17; Occupation: 5). See tables A.1 and A.2 for category information.

Table A.4: Means of the industry and occupational variables in the decomposition

	BE	CH	CZ	DE	DK	EE	ES	FI	GB	IE	NL	NO	PL	PT	SE	SK
industry==1	.00	.02	.03	.01		.02	.01	.02	.01	.01	.02	.00	.01	.01	.01	.03
industry==2	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
industry==3	.11	.13	.22	.12	.06	.15	.08	.08	.06	.06	.04	.04	.17	.18	.06	.15
industry==4	.01	.00	.00	.01	.00	.00	.00	.00	.01	.01	.00				.01	.01
industry==5	.01		.02	.00		.00	.00		.00	.00	.01	.00	.01			.01
industry==6	.02	.01	.04	.02	.01	.03	.01	.03	.01	.00	.01	.01	.01	.01	.01	.04
industry==7	.11	.14	.17	.13	.08	.16	.13	.09	.13	.15	.14	.14	.17	.09	.12	.15
industry==8	.02	.03	.03	.04	.02	.03	.02	.02	.02	.02	.02	.03	.03	.03	.03	.03
industry==9	.01	.07	.06	.06	.03	.05	.11	.04	.05	.06	.03	.02	.05	.08	.03	.07
industry==10	.01	.03		.03	.04	.02	.03	.04	.01	.02	.02	.02	.03	.03	.02	.04
industry==11	.06	.07	.08	.05	.03	.03	.03	.03	.05	.04	.03	.03	.04	.01	.02	.06
industry==12	.01	.00		.01	.02	.00	.01	.01	.01	.00	.01	.01	.00		.01	.00
industry==13	.06	.05	.01	.07	.04	.04	.04	.06	.04	.03	.05	.05	.04	.04	.05	.03
industry==14	.06	.01	.01	.05	.04	.03	.10	.03	.06	.05	.07	.02	.04	.05	.05	.01
industry==15	.09	.05	.05	.06	.10	.08	.07	.08	.09	.03	.06	.06	.07	.04	.04	.09
industry==16	.13	.10	.09	.09	.14	.20	.12	.12	.17	.18	.14	.16	.17	.20	.19	.13
industry==18	.03	.01	.02	.01	.01	.03	.01	.01	.02	.03	.01	.01	.04	.00	.02	.02
industry==19	.02	.03	.03	.02	.02	.02	.03	.03	.03	.07	.03	.03	.02	.04	.02	.01
industry==20	.05	.01					.07		.00	.00	.01			.06		.00
industry==21	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
occupation==1	.08	.07	.05	.03	.05	.09	.04	.03	.09	.09	.09	.04	.14		.07	.07
occupation==2	.27	.23	.15	.20	.35	.33	.24	.24	.22	.25	.21	.41	.29	.17	.28	.21
occupation==3	.20	.22	.19	.24	.09	.10	.17	.21	.14	.09	.26	.13	.13	.10	.18	.15
occupation==4	.14	.12	.20	.20	.14	.08	.10	.13	.18	.15	.14	.07	.08	.15	.09	.21
occupation==6	.00	.01	.00	.00	.01	.01	.00	.02	.00	.01	.01	.00	.00	.01	.00	.01
occupation==7	.01	.02	.08	.03	.00	.07	.02	.02	.00	.01	.01	.02	.03	.05	.02	.07
occupation==8	.02	.03	.05	.02	.01	.04	.01	.02	.01	.02	.01	.02	.04	.10	.01	.04
occupation==9	.11	.05	.07	.09	.06	.10	.20	.07	.11	.07	.08	.03	.10	.15	.04	.06
Observations	380	347	330	605	367	546	306	457	467	433	414	398	302	283	425	406

Note: reference groups are omitted from the table (Industry: 17; Occupation: 5). See tables A.1 and A.2 for category information.

Table A.5: Contribution of the industry and occupation categories in the decompositions

	BE	CH	CZ	DE	DK	EE	ES	FI	GB	IE	NO	PL	PT	SE	SK
Industry contributions:															
industry==1	-0.1	0.0	0.1	-0.1	-0.2	0.1	-0.0	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.1
industry==2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
industry==3	0.5	0.7	1.4	0.6	0.1	0.9	0.3	0.3	0.1	0.1	-0.0	1.0	1.1	0.1	0.9
industry==4	0.1	0.0	0.0	0.1	0.0	0.0	0.0	-0.0	0.2	0.1	-0.1	-0.1	-0.1	0.3	0.2
industry==5	-0.0	0.1	-0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	-0.0	0.1	0.1	-0.0
industry==6	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.1
industry==7	-0.1	0.0	0.1	-0.0	-0.2	0.1	-0.0	-0.2	-0.0	0.0	-0.0	0.1	-0.2	-0.1	0.1
industry==8	-0.0	0.1	0.1	0.1	-0.0	0.1	0.0	0.0	0.0	-0.0	0.1	0.0	0.1	0.0	0.0
industry==9	-0.1	0.1	0.1	0.1	-0.0	0.0	0.3	0.0	0.1	0.1	-0.1	0.1	0.2	-0.0	0.1
industry==10	-0.1	0.1	-0.2	0.1	0.2	-0.0	0.1	0.2	-0.1	0.0	0.0	0.1	0.1	0.0	0.2
industry==11	0.3	0.4	0.5	0.2	-0.0	0.0	0.0	0.0	0.2	0.1	-0.0	0.1	-0.1	-0.1	0.3
industry==12	-0.0	-0.0	-0.0	0.0	0.1	-0.0	0.0	0.0	0.0	-0.0	0.0	-0.0	-0.0	0.0	-0.0
industry==13	0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
industry==14	0.0	0.1	0.1	0.0	0.0	0.1	-0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1
industry==15	0.4	-0.0	-0.1	0.1	0.5	0.2	0.2	0.2	0.4	-0.2	-0.0	0.2	-0.2	-0.1	0.4
industry==16	0.0	0.0	0.0	0.0	-0.0	-0.1	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.0	0.0
industry==18	-0.1	0.0	-0.0	-0.0	-0.0	-0.1	-0.0	0.0	-0.0	-0.1	0.0	-0.1	0.0	-0.1	-0.0
industry==19	-0.0	0.0	0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.2	0.0	-0.0	0.1	-0.0	-0.1
industry==20	0.2	0.0	-0.0	-0.0	-0.0	-0.0	0.3	-0.0	-0.0	-0.0	-0.0	-0.0	0.3	-0.0	-0.0
industry==21	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0
Total contribution: industry	0.8	1.5	2.0	1.2	0.4	1.4	1.3	0.8	0.9	0.3	-0.1	1.4	1.2	-0.0	2.3
Occupation contributions:															
occupation==1	-0.1	-0.2	-0.4	-0.6	-0.4	-0.0	-0.5	-0.6	-0.0	0.0	-0.5	0.6	-0.9	-0.2	-0.2
occupation==2	0.5	0.2	-0.4	-0.1	1.0	0.9	0.2	0.3	0.1	0.3	1.4	0.6	-0.2	0.6	0.0
occupation==3	-0.3	-0.2	-0.3	-0.1	-0.7	-0.6	-0.4	-0.2	-0.5	-0.7	-0.6	-0.5	-0.7	-0.3	-0.5
occupation==4	0.0	-0.0	0.1	0.1	-0.0	-0.1	-0.1	-0.0	0.1	0.0	-0.1	-0.1	0.0	-0.1	0.1
occupation==6	-0.2	0.0	-0.2	-0.1	-0.0	-0.0	-0.2	0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
occupation==7	0.0	0.1	0.6	0.1	-0.1	0.5	0.1	0.1	-0.1	-0.0	0.0	0.1	0.3	0.1	0.5
occupation==8	0.1	0.2	0.3	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0.2	0.6	0.0	0.2
occupation==9	-0.3	0.2	0.1	-0.1	0.1	-0.2	-1.3	0.0	-0.3	0.1	0.5	-0.3	-0.8	0.3	0.2
Total contribution: occupation	-0.3	0.3	-0.2	-0.7	-0.0	0.6	-2.0	-0.3	-0.9	-0.3	0.7	0.5	-1.8	0.2	0.3

Table A.6: Decomposition using the coefficients of the Dutch part-time work function

	BE	CH	CZ	DE	DK	EE	ES	FI	GB	IE	NO	PL	PT	SE	SK
Female part-time work rates:															
Part-time rate: Netherlands	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9
Part-time rate: other country	34.5	40.6	3.3	43.3	19.9	12.6	28.7	16.4	42.9	45.7	25.4	14.5	19.7	17.4	7.8
Raw difference	26.4	20.3	57.6	17.6	41.0	48.3	32.2	44.5	18.0	15.3	35.5	46.4	41.2	43.5	53.1
explained	2.2	2.4	-0.0	2.7	1.3	9.0	-7.3	-4.2	0.2	-18.0	2.0	1.7	-14.4	-0.3	-5.0
unexplained	24.2	17.8	57.6	15.0	39.7	39.3	39.5	48.7	17.8	33.2	33.5	44.7	55.6	43.8	58.2
Detailed decomposition:															
Education (7 categories)	-0.9	-0.7	-3.5	-0.7	0.3	-2.2	0.7	-2.6	-1.0	-1.9	-0.3	-0.3	0.0	-1.9	-1.8
Partner characteristics (4 categories)	0.8	2.2	0.1	2.4	0.4	3.2	3.2	2.1	1.6	2.7	0.9	1.6	5.2	1.5	1.9
Children	0.2	2.1	1.9	3.0	-0.5	2.8	1.2	1.0	0.6	0.1	-0.3	1.3	3.4	0.3	3.3
Religiosity and religious group	1.0	-0.5	3.1	0.4	-0.6	8.2	1.1	-0.2	-0.2	-0.5	0.8	-1.7	-0.9	1.2	-2.9
Household income difficulties	-0.1	-0.1	-0.6	-0.2	-0.1	-0.7	-0.6	-0.1	-0.5	-0.7	0.0	-0.2	-0.6	-0.0	-0.6
Important to be successful (3 items)	0.0	-0.0	-0.0	0.0	0.1	0.0	0.1	0.2	-0.0	-0.1	0.1	-0.1	-0.1	0.2	-0.2
Contract type (3 categories)	-0.6	-1.2	-0.0	-0.8	-1.1	-1.3	-0.5	0.0	-1.3	-1.6	-0.9	1.2	-1.6	-1.0	-0.8
Establishment size	0.1	-2.4	-0.8	-0.7	0.7	-2.8	-3.1	-1.3	1.1	-1.5	-0.3	-0.5	-3.9	-1.2	-2.8
Supervisory position	-0.5	0.2	-3.2	0.5	-0.8	-0.9	-1.3	-3.0	1.5	-1.1	-0.8	-3.0	-2.8	-1.5	-3.6
Industry (21 categories)	3.4	1.5	5.6	1.7	-0.0	3.6	2.0	1.0	1.5	-0.4	-1.9	3.4	2.6	-0.0	4.8
Occupation (9 categories)	-0.5	-0.7	-4.2	-2.8	-0.2	-0.5	-2.8	-1.9	-1.4	-1.0	0.6	1.0	-7.0	-0.2	-2.4
Total selection effect	-0.8	2.0	1.6	-0.3	3.2	-0.4	-7.3	0.6	-1.8	-11.8	4.0	-0.8	-8.9	2.5	0.1
Decomposition of the selection effect:															
Employment rate effect	-4.2	5.9	-3.9	1.3	3.7	1.7	-7.4	0.2	-2.5	-13.8	7.3	-8.0	-9.4	2.9	-4.6
Pure selectivity effect	3.4	-3.9	5.5	-1.6	-0.5	-2.1	0.1	0.4	0.7	2.0	-3.3	7.2	0.5	-0.5	4.7
Observations: Netherlands	396	396	396	396	396	396	396	396	396	396	396	396	396	396	396
Observations: other country	380	347	315	600	367	546	306	457	444	439	398	306	281	425	369

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