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[1]

Abstract

The Netherlands have experienced an employment miracle since the 1980s. This note investigates what happened to the wage, unemployment, and non-employment structures between 1988 and 1998, when both unemployment and non-employment rates decreased markedly. Surprisingly, I find no significant changes in the wage *structures*, although there clearly was wage moderation *on average*. Although there have also been virtually no changes in the unemployment structure, the relative non-employment of older workers (due to incentives to retire) and men increased. Whereas supply effects and early retirement schemes can explain the constancy of the returns to age, the lack of an increase in the returns to education remains a puzzle in the face of well-documented skill-biased technological change in other major industrialised countries.

Keywords

earnings, flexibility, labour

JEL Classification

J21, J31, J64

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1 Introduction

The 1980s have seen divergent wage inequality and unemployment developments across the industrialised world: whereas wage inequality has been increasing substantially in the US and the UK, many continental European economies have only experienced small increases, if at all (Gottschalk and Smeeding, 1997). Although unemployment rose in many continental European economies, it fell in the Netherlands and the UK over the 1980s and 1990s (*cf.* Figure 1). For this reason, the country that had been associated with the term 'Dutch disease' in the early 1980s, suddenly became a candidate for a role model due to its 'employment miracle'. In contrast to the US or the UK, the Netherlands did not dismantle its collective bargaining system during the period when unemployment fell (Nickell and van Ours, 2000). Two agreements between employers and unions epitomise this non-Anlo-Saxon strategy to job creation: the 1982 'Wassenaar Accord' and the 1993 'New Direction Accord' (*cf.* Visser, 1998). Both agreements entailed wage moderation. However, the Dutch labour market was also reformed through a reduction in the unemployment benefit replacement ratio, an increase in part-time and flexible work contracts, and a reduction in real minimum wages, especially for youth (see also Dolado *et al.* 1996; Hartog, 1999; or Becker 2001, for a discussion of these reforms).

This note estimates changes in the Dutch wage, unemployment, and non-employment structures during the period 1988 to 1998 when Dutch unemployment decreased from around 8 to 4 percent. Given the experience of the US (and to some extend the UK) in the 1980s and 1990s, the Dutch unemployment decrease raises the question whether it was achieved by increasing returns to skill in the face of relative demand shocks against the low skilled. Surprisingly, I do not find changes in the wage and unemployment structures. However, the relative non-employment

likelihood of older workers has increased. In addition, the employment rate of women has increased *ceteris paribus* relative to the one of men.

The Dutch experience cannot be explained by a redistribution of work hours either, as I show that not only employment, but also the total number of hours worked increased. Hence, the Dutch programme to reduce working time (*Arbeidsduurverkorting, ADV*) cannot be blamed to have produced the 'Dutch employment miracle' as a statistical artifact. Instead, the increase in employment was real.

This note is structured as follows. Section 2 describes the data set. Changes in wage, unemployment, and non-employment structures are estimated in Section 3. Section 4 concludes.

2 Data

I use a representative panel data set by the Institute for Labor Studies (OSA), namely the *OSA Labour Supply Panel*. A documentation in English of this data source can be found on the internet page http://pi0326.uvt.nl/index.htm. The survey has around 4,500 observations each year since 1988 and is conducted biannually up to 1998 (there also exist surveys for 1985 and 1986, but I do not use them here as they would raise problems in terms of comparability over time). Due to panel attrition, the survey includes a refreshment sample in each wave to keep the number of respondents roughly constant.

For the analysis of changes in wage, unemployment, and non-employment structures, I use three samples from the OSA Labour Supply Panel. The *wage sample* consists of persons with valid hourly wage information, as well as valid information on the age, education, gender, and region variables. The *unemployment regression sample* includes all people in the labour force, whereas the *non-employment regression sample* consists of all persons aged between 16 and 65.

Means across time for the *non-employment regression sample* are provided Table 2. Some variation over time in the means is a reflection of the fact that the survey does not contain weights.

Otherwise, the data exhibit familiar trends: the data show a slower increase in the average hourly wage after the 1992 wave (log hourly wages are 2.70, 2.74, 2.77, 2.79, 2.79, and 2.81 for the years 1988, 1990, 1992, 1994, 1996, and 1998, respectively). This reflects the 'New Direction Accord' of 1993 (*cf.* Visser, 1998; Hartog, 1999). Table 3 and Table 4 demonstrate that it was not only the unemployment rate, but also the non-employment rate which decreased substantially during the observation period (unemployment and non-employment rates by subgroup can also be found in Table 3 and Table 4). The fact that the non-employment rate in my sample falls from 39 to 28 percent within a decade justifies the terminology of a 'Dutch employment miracle'. However, as mentioned in the introduction, the 1980s and 1990s were a period of increasing part-time and temporary labour contracts in the Netherlands. For this reason, I also measure non-employment in terms of '38 minus contract and overtime hours worked per week'. I choose the number '38' to represent full-time work. For example, a person working 20 hours a week is counted as '18 hours non-working'. Table 5 summarises the such defined 'non-work hours per week' by subgroup. As can be seen from the non-work hours in the whole sample, they also decreased from 17.6 to 14.4 hours per week. This suggests that in spite of the increase in part-time employment in the Netherlands, the economy experienced a quantitative increase in hours of employment, not just a redistribution of hours of work among the working age population.

The changes in the wage, unemployment and non-employment structures during the period of the 'Dutch employment miracle' are investigated econometrically in the following section.

3 Changes in the Wage, Unemployment, and Non-Employment Structures

To describe changes in the wage, unemployment and non-employment structures, I estimate standard log-linear wage and probit unemployment (or non-employment) regressions on the samples mentioned in the previous section (non-employment measured in terms of 'non-work hours' is estimated by ordinary least squares in a linear model, *cf.* Puhani, 2003).

Theoretical Justification

The empirical approach consists of a classification of labor market characteristics into whether they are associated with increasing or decreasing demand over the observation period, as well as whether they are connected to a loosening or tightening of relative wage rigidities. In the light of the recent literature on skill-biased technological change, one might raise the hypothesis that the 'Dutch employment miracle' could have been related to a more flexible and widening wage structure, which in turn might have made the unemployment structure more equal.

In order to make out increasing and decreasing labour markets, I develop a model that shows how 'net demand shocks' can be identified from the observation of wage and unemployment/non-employment changes. The framework rests on a neoclassical model of the labour market:

$$S_t = S_t\left(\mathcal{W}_t, \mathcal{Z}_t\right) \qquad (L\times 1 \text{ vector of labour supplies})$$

$$D_t = D_t\left(\mathcal{W}_t, \mathcal{Z}_t,\right) \qquad (L\times 1 \text{ vector of labour demands})$$

where D_t and S_t denote vectors of labour demand and supply for L different labour markets, respectively. $\mathcal{W}_t$ is a vector of wage rates (later proxied by earnings) and $\mathcal{Z}_t$ is a vector of demand and/or supply 'shift factors', like the size of the labour force, technological change or foreign demand.

Unemployment or non-employment can arise due to a real wage rigidity that causes quantity rationing (*i.e.* the failure of the market to clear). Unemployment due to rigid wages can be expressed as a function of the vector of wage rates and supply/demand shift factors as

$$\mathcal{U}_t = \frac{\left(S_t - D_t\right)}{S_t} = 1 - \frac{D_t\left(\mathcal{W}_t, \mathcal{Z}_t\right)}{S_t\left(\mathcal{W}_t, \mathcal{Z}_t\right)} = \mathcal{U}_t\left(\mathcal{W}_t, \mathcal{Z}_t\right) \tag{1}$$

($L\times 1$ vector of latent unemployment rates).

In practice frictional unemployment may be higher for some groups than for others. In order to net out this effect, it is useful to observe *changes* in unemployment and wages between two points in time t (1988 in this paper) and $t+\tau$ (from 1990 to 1998 in this paper). Using a Taylor expansion one obtains

$$\Delta_t^{t+\tau}\mathcal{U}^l \approx \underbrace{\mathcal{U}_{\mathcal{W}}^{l,l} \cdot \Delta_t^{t+\tau}\mathcal{W}^l}_{\text{own wage effect}} + \underbrace{\underbrace{\sum_{j\neq l} \mathcal{U}_{\mathcal{W}}^{l,j} \cdot \Delta_t^{t+\tau}\mathcal{W}^j}_{\text{cross wage effects}} + \underbrace{\sum_{j} \mathcal{U}_{\mathcal{Z}}^{l,j} \cdot \Delta_t^{t+\tau}\mathcal{Z}^j}_{\text{pure net supply shift effects}}}_{\text{net supply shift effects}} \tag{2}$$

where $\mathcal{U}_{\mathcal{W}}^{l,l}$, $\mathcal{U}_{\mathcal{W}}^{l,j}$, and $\mathcal{U}_{\mathcal{Z}}^{l,j}$ are elements of the Jacobian derivative of $\mathcal{U}$ referring to the own wage (the wage in the same labour market), the wages in other labour markets, and the demand/supply shift factors, respectively.

Economic theory allows to impose a light restriction, which is helpful for identification in the econometric analysis: if labour supply and demand schedules are 'upward' and 'downward sloping', respectively, then $\mathcal{U}_{\mathcal{W}}^{l,l}$ will be positive, because a *ceteris paribus* increase of the own-wage will increase unemployment in the corresponding labour market. $\mathcal{U}_{\mathcal{W}}^{l,l}$ will also be positive in other cases, one of them being 'backward-bending' labour supply behaviour in case the slope of the demand curve is less steep than the one of the supply curve and there is no excess demand for labour. It therefore seems innocuous to impose the restriction that $\mathcal{U}_{\mathcal{W}}^{l,l}$ is positive.

As to the sign of the cross-wage effects $\mathcal{U}_{\mathcal{W}}^{l,j}$, economic theory has little to say. This is also true for the sign of the derivative of unemployment with respect to the supply/demand shift variables, $\mathcal{U}_{\mathcal{Z}}^{l,j}$, as these variables subsume a wide range of unspecified factors. Note that no assumption is made on the size of substitution or any other demand or supply elasticities. These weak assumptions come at the price of not being able to measure demand or supply shocks and wage rigidity *quantitatively*. However, as can be deduced from equation (2), observation of the signs of the changes in wage and unemployment rates between two points in time identify the *sign* of the change in the net supply shift effect (*i.e.* the net supply shock)

$$\xi = \underbrace{\sum_{j \neq l} \mathcal{U}_{\mathcal{W}}^{l,j} \cdot \Delta_t^{t+\tau} \mathcal{W}^j + \sum_j \mathcal{U}_{\mathcal{Z}}^{l,j} \cdot \Delta_t^{t+\tau} \mathcal{Z}^j}_{\textit{net supply shift effects}}$$

in 7 out of 9 cases (distinguished by the sign of wage and unemployment changes, similarly as in Table 1 below) (*cf.* Puhani, 2003). Note that a negative net demand shock is equivalent to a positive net supply shock, *i.e.* $\xi > 0$.

However, the question when analysing Dutch wage and unemployment/non-employment *structures* is not whether our observation period exhibited negative net demand shocks in the labour market, but there were *relative* negative net demand shocks or simply changes in *relative* wages, *i.e.* in the wage *structure*. A relative negative net demand shock for a labour market *l* means that the net demand shock experienced by this market is more negative than the one affecting the reference market *r* (the latter refers to an 'average' market and is defined to be the *1988 sample mean* of the labour force in this note). Identification of relative net demand (or supply) shocks is based on observing relative wage and unemployment changes: $\Delta_t^{t+\tau} \mathcal{W}^l - \Delta_t^{t+\tau} \mathcal{W}^r$ and $\Delta_t^{t+\tau} \mathcal{U}^l - \Delta_t^{t+\tau} \mathcal{U}^r$.

The identification of relative net demand shocks also requires an additional assumption, namely $\mathcal{U}_{\mathcal{W}}^{l,l} \approx \mathcal{U}_{\mathcal{W}}^{r,r}$. Using a Taylor approximation as for the derivation of (2) one can write:

$$\begin{aligned}
&\Delta_t^{t+\tau}\mathcal{U}_{rigid}^{l} - \Delta_t^{t+\tau}\mathcal{U}_{rigid}^{r} \approx \\
&\mathcal{U}_{\mathcal{W}}^{l,l}\cdot\Delta_t^{t+\tau}\mathcal{W}^{l} - \mathcal{U}_{\mathcal{W}}^{r,r}\cdot\Delta_t^{t+\tau}\mathcal{W}^{r} + \sum_{j\neq l}\mathcal{U}_{\mathcal{W}}^{l,j}\cdot\Delta_t^{t+\tau}\mathcal{W}^{j} - \sum_{j\neq r}\mathcal{U}_{\mathcal{W}}^{r,j}\cdot\Delta_t^{t+\tau}\mathcal{W}^{j} + \\
&\sum_{j}\mathcal{U}_{\mathcal{Z}}^{l,j}\cdot\Delta_t^{t+\tau}\mathcal{Z}^{j} - \sum_{j}\mathcal{U}_{\mathcal{Z}}^{r,j}\cdot\Delta_t^{t+\tau}\mathcal{Z}^{j}
\end{aligned} \quad . \qquad (3)$$

Imposing $\mathcal{U}_{\mathcal{W}}^{l,l} \approx \mathcal{U}_{\mathcal{W}}^{r,r}$, which means that the own-wage effects on unemployment are similar in labour market *l* and reference market *r*, yields:

$$\begin{aligned}
\Delta_t^{t+\tau}\mathcal{U}^{l} - \Delta_t^{t+\tau}\mathcal{U}^{r} \approx{}& \mathcal{U}_{\mathcal{W}}^{l,l}\left[\Delta_t^{t+\tau}\mathcal{W}^{l} - \Delta_t^{t+\tau}\mathcal{W}^{r}\right] + \\
&\sum_{j\neq l}\mathcal{U}_{\mathcal{W}}^{l,j}\cdot\Delta_t^{t+\tau}\mathcal{W}^{j} - \sum_{j\neq r}\mathcal{U}_{\mathcal{W}}^{r,j}\cdot\Delta_t^{t+\tau}\mathcal{W}^{j} + \\
&\sum_{j}\mathcal{U}_{\mathcal{Z}}^{l,j}\cdot\Delta_t^{t+\tau}\mathcal{Z}^{j} - \sum_{j}\mathcal{U}_{\mathcal{Z}}^{r,j}\cdot\Delta_t^{t+\tau}\mathcal{Z}^{j}.
\end{aligned} \qquad (4)$$

Hence, by observing relative wage and unemployment changes, $\Delta_t^{t+\tau}\mathcal{W}^{l} - \Delta_t^{t+\tau}\mathcal{W}^{r}$ and $\Delta_t^{t+\tau}\mathcal{U}^{l} - \Delta_t^{t+\tau}\mathcal{U}^{r}$, and noting that equation (4) holds, even wihout knowledge of $\mathcal{U}_{\mathcal{W}}^{l,l}$, the sign of the relative net supply shock

$$\xi^{l,r} = \sum_{j\neq l}\mathcal{U}_{\mathcal{W}}^{l,j}\cdot\Delta_t^{t+\tau}\mathcal{W}^{j} - \sum_{j\neq r}\mathcal{U}_{\mathcal{W}}^{r,j}\cdot\Delta_t^{t+\tau}\mathcal{W}^{j} + \sum_{j}\mathcal{U}_{\mathcal{Z}}^{l,j}\cdot\Delta_t^{t+\tau}\mathcal{Z}^{j} - \sum_{j}\mathcal{U}_{\mathcal{Z}}^{r,j}\cdot\Delta_t^{t+\tau}\mathcal{Z}^{j}$$

(which is the negative of the relative net demand shock) can be identified. $\xi^{l,r}$ is the basis for the classification into 'increasing' ($\xi^{l,r} < 0$) or 'decreasing' ($\xi^{l,r} > 0$) markets of labour market characteristics in Table 1 as will be shown in the following subsection. If the 'Dutch employment miracle' was related to making the wage structure more flexible in the face of skill-biased

technological change, we would expect to observe classifications (4) or (9) (*cf.* Table 1) for the low-skill characteristics like young age or basic education.

Empirical Implementation

In order to take the above concepts to individual data, I define a labour market l by its characteristics $\mathbf{x}_l$ (*e.g.* age, education, gender, region; the subscript l will be dropped hereafter), and denote the reference labour market r by $\bar{\mathbf{x}}$ (the 1988 sample mean of the labour force). $\mathcal{W}$ and $\mathcal{U}$ are defined as expected values of the labour earnings W and the unemployment indicator $U = 1(\textit{unemployed})$, respectively. $1(\bullet)$ is the indicator function which takes on value *1* if the argument is true and *0* otherwise. Hence I define

$$\left[\Delta_t^{t+\tau}\mathcal{W}^l - \Delta_t^{t+\tau}\mathcal{W}^r\right] \equiv E\left[W_{t+\tau} - W_t \middle| \mathbf{x}\right] - E\left[W_{t+\tau} - W_t \middle| \bar{\mathbf{x}}\right]$$

$$\left[\Delta_t^{t+\tau}\mathcal{U}^l - \Delta_t^{t+\tau}\mathcal{U}^r\right] \equiv E\left[U_{t+\tau} - U_t \middle| \mathbf{x}\right] - E\left[U_{t+\tau} - U_t \middle| \bar{\mathbf{x}}\right].$$

In order to identify labour market characteristics associated with relative earnings or unemployment changes, I parameterise the distributions of W and U in the following way:

$$E\left[\ln W_t \middle| \mathbf{x}\right] = \mathbf{x}\boldsymbol{\beta}_t$$

$$E\left[U_t \middle| \mathbf{x}\right] = \Phi\left(\mathbf{x}\boldsymbol{\gamma}_t\right)$$

where $\Phi(\bullet)$ denotes the cumulative distribution function of the standard normal distribution. A transformed version of the (dummy variable) coefficients of these non-linear parametric regression models forms the basis for the classification of each labour market characteristic x_k (*e.g.* young age or low level of education) to its contribution to relative earnings and

unemployment changes. This contribution is measured by the changes in the transformed (denoted by an asterisk) coefficients over time: $\left(\beta^*_{t+\tau,k} - \beta^*_{t,k}\right)$ and $\left(\gamma^*_{t+\tau,k} - \gamma^*_{t,k}\right)$, respectively. The transformed coefficients (as well as their standard errors) are calculated as in Haisken-De New and Schmidt (1997): $\boldsymbol{\beta}^*_t = (\mathbf{I} - \mathbf{W})\boldsymbol{\beta}_t$, $\boldsymbol{\gamma}^*_t = (\mathbf{I} - \mathbf{W})\boldsymbol{\gamma}_t$, where **I** is the identity matrix and **W** is a matrix containing weights, which in my case are the *base period* (1988) *sample means*. This transformation sets the 'base category' for all dummy variables equal to the *base period sample mean*. It can be shown that due to the non-linearity of the log-linear wage regression and the probit model, this transformation is necessary to interpret changes in the coefficients over time as contributions to rising relative wages or unemployment likelihoods. Hence, instead of classifying each conceivable labour market defined by all dummy variable groups, one can just classify each labour market characteristic x_k into one of the nine cells defined in Table 1, depending on whether it contributed to rising, constant, or falling relative earnings or unemployment likelihood. This is the approach taken in the following subsection.

Results for the Netherlands

The classification results for the Netherlands are summarised in Table 6 to Table 8. Classifications are undertaken on the basis of two-sided *t*-tests of the null hypothesis that there have been no changes in the wage or unemployment coefficients for a labour market characteristic (like young age) between the base year 1988 and the indicated year at the top of each column of the table. Sizes of 5 percent of these *t*-tests correspond to a *level* of 10 percent (which is the upper bound of the true size, the lower bound being 5 percent) of the Bonferroni joint test of the null hypothesis $\left(\hat{\beta}^*_{t+\tau,k} - \hat{\beta}^*_{t,k}\right) = \left(\hat{\gamma}^*_{t+\tau,k} - \hat{\gamma}^*_{t,k}\right) = 0$. As I do not want the level of the

joint test to exceed 10 percent, I only consider 5 percent critical values for the *t*-statistics. The cross-sectional regression results and the tests on the changes in the coefficients over time that form the basis of these classification tables are reported in the Internet Appendix. Moreover, Figure 3 and Figure 4 provide graphical exhibitions of the regression coefficients of the age and education variables.

Table 6 exhibits virtually no adjustments in either the wage or the unemployment structures for low-skilled workers (young age or basic education). Especially, we do not observe classifications (4) and (9) for these groups as hypothesised above in this section. This means that the 'Dutch employment miracle' has not been caused by a more flexible wage structure at the lower end of the skill distribution. Considering the classification results for the 'non-employment' and 'degree of non-employment' regressions in Table 7 and Table 8, it is shown that this is a robust result. In addition, the point estimates of the age and education wage structures as displayed in Figure 3a and Figure 4a do not exhibit major changes, either.

As Figure 2 illustrates, the predicted wage and unemployment patterns for my reference market (the *1988 sample mean* of the labour force) follow the pattern described for the raw sample averages in the previous section: unemployment decreases over the observation period and real wages exhibit wage moderation in the 1990s and even fall after 1994. Both the fall in the average unemployment rate and the rise in the average real wage rate (over the whole period) are statistically significant.

The only change in the unemployment *structure* that shows up at the end of the observation period is the rise in the relative unemployment likelihood of the oldest group of workers (aged 56-65). Indeed, the classifications in Table 7 demonstrate that relative non-employment rates have – *ceteris paribus* – clearly increased for this age group. This is consistent

with the evidence provided in Hartog (1999) that older workers were given increased incentives to leave the labour force. The table also shows how this development is mirrored in the relative non-employment decrease of workers aged 26-35. Hence, this age group has benefited most from the 'Dutch employment miracle' (at least up to 1996). There is also some weak indication that persons with a higher level of education have achieved higher employment gains than other qualification groups (Figure 4b displays the point estimates across time graphically). Perhaps not surprisingly, Table 7 shows that women increased their employment rates relative to men over the decade. This may be due to the fact that the Dutch labour market reforms provided increased opportunities for part-time employment. However, when I measure non-employment in terms of the 'hours not worked' (see the explanation in the previous section), it also turns out that women were able to – *ceteris paribus* – increase their total work hours in relation to men (*cf.* the classification results in Table 8). Not only does it seem that part-time employment opportunities have eased the labour force entry of women, Hartog (1999) also provides evidence that the share of part-time workers among men has increased between 1987 and 1995.

4 Conclusions

The Netherlands have undoubtedly experienced an 'employment miracle' in the 1980s and 1990s, especially when compared to other continental European economies during the same period. The previous literature mentions wage constraints and supply side policies like reduced social security (*e.g.* unemployment benefits) plus an increase in part-time employment as the driving forces for this development.

This note has investigated what happened to the wage, unemployment, and non-employment *structures* during the time of the 'Dutch employment miracle'. Surprisingly, there have been no significant changes in the educational wage nor the unemployment structures.

However, the relative non-employment rates of older workers and males increased. Given the widespread evidence of skill-biased technological change in the US (*cf.* Acemoglu, 2002), one might have expected some increases in the returns to skill (age and education) in an economy with a successful employment record. Whereas the constant returns to age may be explained by the decreasing supply of young workers in the Dutch economy between 1988 and 1998 (or the effective incentives for older workers to leave the labour force), the constant returns to education remain a puzzle.

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Table 1: Relative Wage and Unemployment Behaviour and Labour Market Classification

	Contributing to a relative unemployment decrease $\left(\gamma^*_{t+\tau,k} - \gamma^*_{t,k}\right) < 0$	Contributing to a constant relative unemployment $\left(\gamma^*_{t+\tau,k} - \gamma^*_{t,k}\right) = 0$	Contributing to a relative unemployment increase $\left(\gamma^*_{t+\tau,k} - \gamma^*_{t,k}\right) > 0$
Contributing to a relative wage increase $\left(\beta^*_{t+\tau,k} - \beta^*_{t,k}\right) > 0$	*(7):* $\xi^{l,r} < 0$ *weakly adjusting in increasing market relative to the reference market*	*(6):* $\xi^{l,r} < 0$ *strongly adjusting in increasing market relative to the reference market*	*(1):* $\xi^{l,r} = ?$ *strongly rigid (wage push) relative to the reference market*
Contributing to a constant relative wage $\left(\beta^*_{t+\tau,k} - \beta^*_{t,k}\right) = 0$	*(8):* $\xi^{l,r} < 0$ *weakly rigid in increasing market relative to the reference market*	*(5):* $\xi = 0$ *stable in stable market relative to the reference market*	*(2):* $\xi^{l,r} > 0$ *weakly rigid in decreasing market relative to the reference market*
Contributing to a relative wage decrease $\left(\beta^*_{t+\tau,k} - \beta^*_{t,k}\right) < 0$	*(9):* $\xi^{l,r} = ?$ *converging (wage pull) relative to the reference market*	(4): $\xi^{l,r} > 0$ *strongly adjusting in decreasing market relative to the reference market*	(3): $\xi^{l,r} > 0$ *weakly adjusting in decreasing market relative to the reference market*

Note: The terminology 'increasing market' refers to a positive relative net demand shock (which is the same as a negative relative net supply shock $\xi^{l,r} < 0$ for labour market *l* with respect to the reference market *r* as defined in Section 3). Increasing markets relative to the reference market are identified in cases (6), (7), and (8). Analogously, a 'decreasing market' is equivalent to a negative net demand shock. Decreasing markets relative to the reference market are identified in cases (2), (3), and (4). In cases (1) and (9), the sign of the net demand shock cannot be identified, $\xi^{l,r} = ?$. In case (5), there is no such shock. See also the theoretical discussion in Section 3.

Table 2: Sample Means for OSA Non-Employment Regressions (Percent for Dummy Variables)

Variable	1988	1990	1992	1994	1996	1998
Not employed	39	37	36	34	31	27
Age						
16-25	14	18	14	12	12	9
26-35	30	26	24	23	24	23
36-45	28	27	27	26	25	29
46-55	10	10	12	14	14	13
56-65	19	20	24	25	26	26
Education						
Basic	57	54	54	52	46	42
Secondary	28	32	32	33	35	38
Degree	15	14	14	15	19	21
Gender						
Male	49	49	48	49	49	48
Female	51	51	52	51	51	52
Region of Residence						
Cities	10	11	10	10	10	9
West-Nederland	25	26	28	29	29	28
Noord-Nederland	13	12	12	12	12	12
Oost-Nederland	20	21	20	21	21	23
Zuid-Nederland	27	27	26	25	26	25
Border Towns	4	4	3	3	3	3
# observations	4,061	4,003	4,093	4,206	4,188	4,346

Source: OSA Labour Supply Panel; own calculations.

Table 3: Sample Unemployment Rates by Subgroup (Percent)

Variable	1988	1990	1992	1994	1996	1998
Total sample	9.0	6.1	5.8	7.1	6.3	4.4
Age						
16-25	12.4	7.0	7.9	10.5	7.6	4.5
26-35	9.5	5.4	4.6	8.4	6.4	4.5
36-45	8.8	6.9	6.5	6.5	6.1	3.8
46-55	6.8	4.8	5.7	3.9	5.9	4.1
56-65	4.9	4.9	3.8	5.1	5.2	5.7
Education						
Basic	10.6	6.5	5.5	7.8	7.3	6.4
Secondary	6.6	4.9	6.2	6.8	5.8	3.6
Degree	8.7	7.1	5.7	5.8	5.2	2.9
Gender						
Male	6.9	4.1	3.9	5.3	4.0	2.4
Female	12.8	9.4	8.6	9.5	9.3	6.9
Region of Residence						
Cities	12.6	8.1	7.7	9.2	8.5	5.9
West-Nederland	8.1	4.6	3.7	5.7	5.1	3.4
Noord-Nederland	10.7	7.8	10.0	10.0	6.0	7.0
Oost-Nederland	9.6	6.5	5.7	5.8	6.9	5.3
Zuid-Nederland	8.0	6.3	6.0	7.9	6.9	3.1
Border Towns	5.7	1.8	1.3	4.1	2.2	3.3
# observations	2,711	2,703	2,770	2,983	3,102	3,296

Source: OSA Labour Supply Panel; own calculations.

Table 4: Sample Non-Employment Rates by Subgroup (Percent)

Variable	1988	1990	1992	1994	1996	1998
Total sample	39.3	36.6	36.2	34.1	30.6	27.5
Age						
16-25	26.6	20.3	19.4	17.3	12.2	10.0
26-35	36.2	28.7	25.9	22.9	18.5	17.7
36-45	34.9	34.1	29.1	28.1	24.1	19.5
46-55	36.6	36.2	37.9	25.2	24.9	22.4
56-65	61.7	65.1	63.6	63.4	59.4	53.3
Education						
Basic	47.1	44.4	44.0	43.0	41.3	39.0
Secondary	31.9	29.7	30.1	27.2	23.2	22.3
Degree	23.4	22.2	20.6	18.9	18.1	14.0
Gender						
Male	18.4	16.3	18.6	19.6	17.0	14.3
Female	58.9	55.9	52.6	48.0	43.5	39.9
Region of Residence						
Cities	40.0	39.0	41.6	39.4	31.2	30.7
West-Nederland	36.0	33.0	32.3	29.9	27.9	24.7
Noord-Nederland	42.7	39.5	41.1	37.0	31.6	30.6
Oost-Nederland	40.9	36.4	36.4	33.2	30.2	27.5
Zuid-Nederland	40.1	38.6	35.6	34.9	33.0	27.7
Border Towns	34.3	32.1	38.7	45.3	32.0	30.4
# observations	4,061	4,003	4,093	4,206	4,188	4,346

Source: OSA Labour Supply Panel; own calculations.

Table 5: Sample Non-Employment Degrees in Hours Per Week by Subgroup

Variable	1988	1990	1992	1994	1996	1998
Total sample	17.5	16.5	16.6	16.3	15.5	14.5
Age						
16-25	12.3	9.9	9.8	9.1	7.3	6.7
26-35	16.3	13.7	12.9	12.2	11.3	11.2
36-45	16.5	16.3	15.1	15.1	14.2	12.1
46-55	16.6	16.5	17.8	13.7	14.3	13.4
56-65	25.1	26.1	25.6	26.2	24.8	23.1
Education						
Basic	20.3	19.5	19.6	19.6	19.4	18.7
Secondary	14.6	13.5	14.1	13.8	12.9	12.9
Degree	12.2	11.4	11.3	10.5	10.8	9.0
Gender						
Male	7.7	6.9	7.8	8.3	7.5	6.7
Female	26.7	25.6	24.9	24.0	23.1	21.8
Region of Residence						
Cities	17.7	17.6	18.3	17.9	15.3	15.2
West-Nederland	16.4	15.2	15.7	15.0	14.6	13.5
Noord-Nederland	18.9	17.3	18.3	17.5	16.5	15.5
Oost-Nederland	18.2	16.5	16.6	16.2	15.6	14.7
Zuid-Nederland	17.6	17.1	16.3	16.5	15.9	14.6
Border Towns	15.0	14.3	16.5	19.0	15.2	14.5
# observations	4,061	4,003	4,093	4,206	4,188	4,346

Source: OSA Labour Supply Panel; own calculations.

Table 6: Classification Summary (with Unemployment Regressions)

Variable	1990	1992	1994	1996	1998
1988 sample mean	7	7	7	7	7
Age					
16-25	○	6	○	○	○
26-35	○	8	○	○	○
36-45	○	○	○	○	○
46-55	○	○	○	○	○
56-65	○	○	○	○	2
Education					
Basic	○	8	○	○	○
Secondary	○	2	○	○	○
Degree	○	○	○	○	○
Gender					
Male	○	○	○	○	○
Female	○	○	○	○	○
Region of Residence					
Cities	○	○	○	○	○
West-Nederland	○	○	○	○	○
Noord-Nederland	○	2	○	○	○
Oost-Nederland	○	○	○	○	○
Zuid-Nederland	○	○	○	○	○
Border Towns	○	○	6	○	○

Note: The classification codes are as follows: (1): strongly rigid (rising relative wage and rising relative unemployment); (2): weakly rigid in a decreasing market (constant relative wage and rising relative unemployment); (3): weakly adjusting in a decreasing market (falling relative wage and rising relative unemployment); (4): strongly adjusting in a decreasing market (falling relative wage and constant relative unemployment); (○ = 5): stable in a stable market (constant relative wage and constant relative unemployment); (6): strongly adjusting in an increasing market (rising relative wage and constant relative unemployment); (7): weakly adjusting in an increasing market (rising relative wage and falling relative unemployment); (8): weakly rigid in an increasing market (constant relative wage and falling relative unemployment); (9): converging (falling relative wage and falling relative unemployment); note that for the *1988 sample mean*, the classification refers to absolute, not relative wage and unemployment changes, for the other characteristics, the relative wage and unemployment changes refer to the *1988 sample mean*.

Source: OSA Labour Supply Panel; own calculations.

Table 7: Classification Summary (with Non-Employment Regressions)

Variable	1990	1992	1994	1996	1998
1988 sample mean	7	7	7	7	7
Age					
16-25	○	6	○	○	○
26-35	8	8	8	8	○
36-45	○	○	○	○	○
46-55	○	2	○	○	○
56-65	2	2	2	2	2
Education					
Basic	○	○	○	○	○
Secondary	2	2	○	○	○
Degree	○	○	○	○	8
Gender					
Male	○	○	2	2	2
Female	○	○	8	8	8
Region of Residence					
Cities	○	2	2	○	○
West-Nederland	○	○	○	○	○
Noord-Nederland	○	○	○	○	○
Oost-Nederland	○	○	○	○	○
Zuid-Nederland	○	○	○	○	○
Border Towns	○	○	1	○	○

Note: The classification codes are as follows: (1): strongly rigid (rising relative wage and rising relative non-employment); (2): weakly rigid in a decreasing market (constant relative wage and rising relative non-employment); (3): weakly adjusting in a decreasing market (falling relative wage and rising relative non-employment); (4): strongly adjusting in a decreasing market (falling relative wage and constant relative non-employment); (○ = 5): stable in a stable market (constant relative wage and constant relative non-employment); (6): strongly adjusting in an increasing market (rising relative wage and constant relative non-employment); (7): weakly adjusting in an increasing market (rising relative wage and falling relative non-employment); (8): weakly rigid in an increasing market (constant relative wage and falling relative non-employment); (9): converging (falling relative wage and falling relative non-employment);
note that for the *1988 sample mean*, the classification refers to absolute, not relative wage and non-employment changes, for the other characteristics, the relative wage and non-employment changes refer to the *1988 sample mean*.
Source: OSA Labour Supply Panel; own calculations.

Table 8: Classification Summary (with Degree of Non-Employment Regressions)

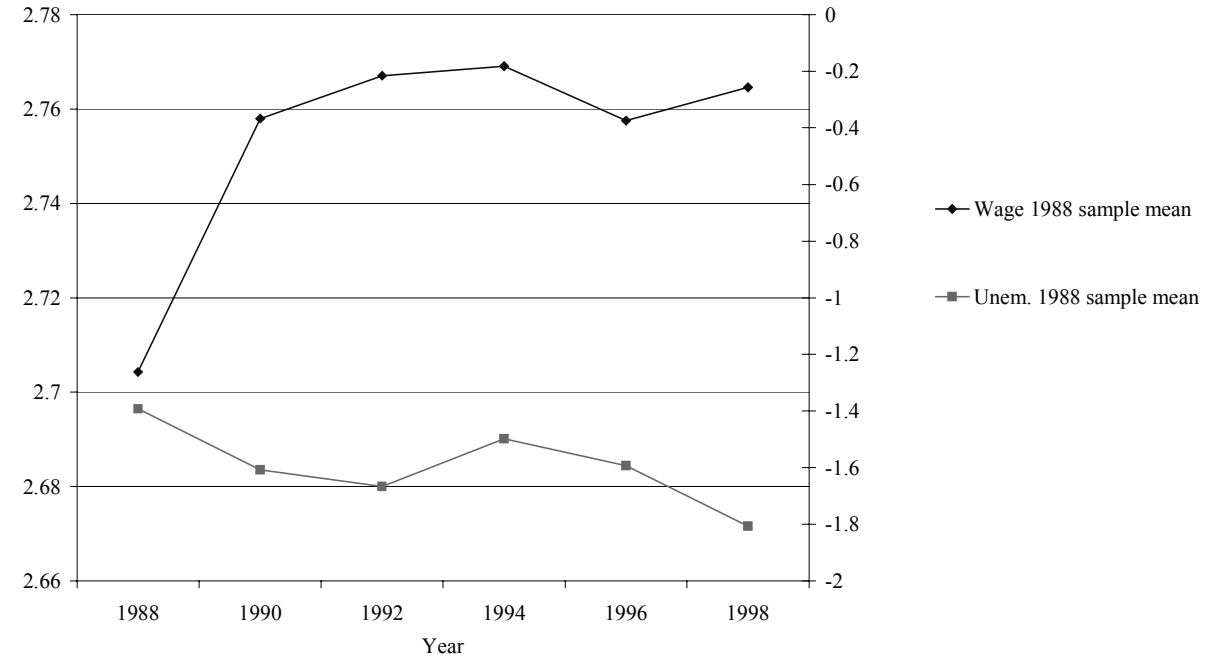
Variable	1990	1992	1994	1996	1998
1988 sample mean	7	7	7	7	7
Age					
16-25	○	6	○	8	○
26-35	8	8	8	8	○
36-45	2	○	○	○	○
46-55	○	2	○	○	○
56-65	2	2	2	2	2
Education					
Basic	○	○	○	○	○
Secondary	○	2	○	○	○
Degree	○	○	8	○	○
Gender					
Male	○	2	2	2	2
Female	○	8	8	8	8
Region of Residence					
Cities	2	2	2	○	○
West-Nederland	○	○	○	○	○
Noord-Nederland	○	○	○	○	○
Oost-Nederland	8	○	○	○	○
Zuid-Nederland	○	○	○	○	○
Border Towns	○	○	6	○	○

Note: The classification codes are as follows: (1): strongly rigid (rising relative wage and rising relative non-employment); (2): weakly rigid in a decreasing market (constant relative wage and rising relative non-employment); (3): weakly adjusting in a decreasing market (falling relative wage and rising relative non-employment); (4): strongly adjusting in a decreasing market (falling relative wage and constant relative non-employment); (○ = 5): stable in a stable market (constant relative wage and constant relative non-employment); (6): strongly adjusting in an increasing market (rising relative wage and constant relative non-employment); (7): weakly adjusting in an increasing market (rising relative wage and falling relative non-employment); (8): weakly rigid in an increasing market (constant relative wage and falling relative non-employment); (9): converging (falling relative wage and falling relative non-employment);
note that for the *1988 sample mean*, the classification refers to absolute, not relative wage and non-employment changes, for the other characteristics, the relative wage and non-employment changes refer to the *1988 sample mean*.
Source: OSA Labour Supply Panel; own calculations.

Figure 1: Dutch Unemployment Rate

Source: *OECD*

Figure 2: Wage and Unemployment Regressions – 1988 Sample Mean Coefficients over Time



Source: OSA Labour Supply Panel; own calculations.

Figure 3a: Wage Regression - Age Coefficients over Time

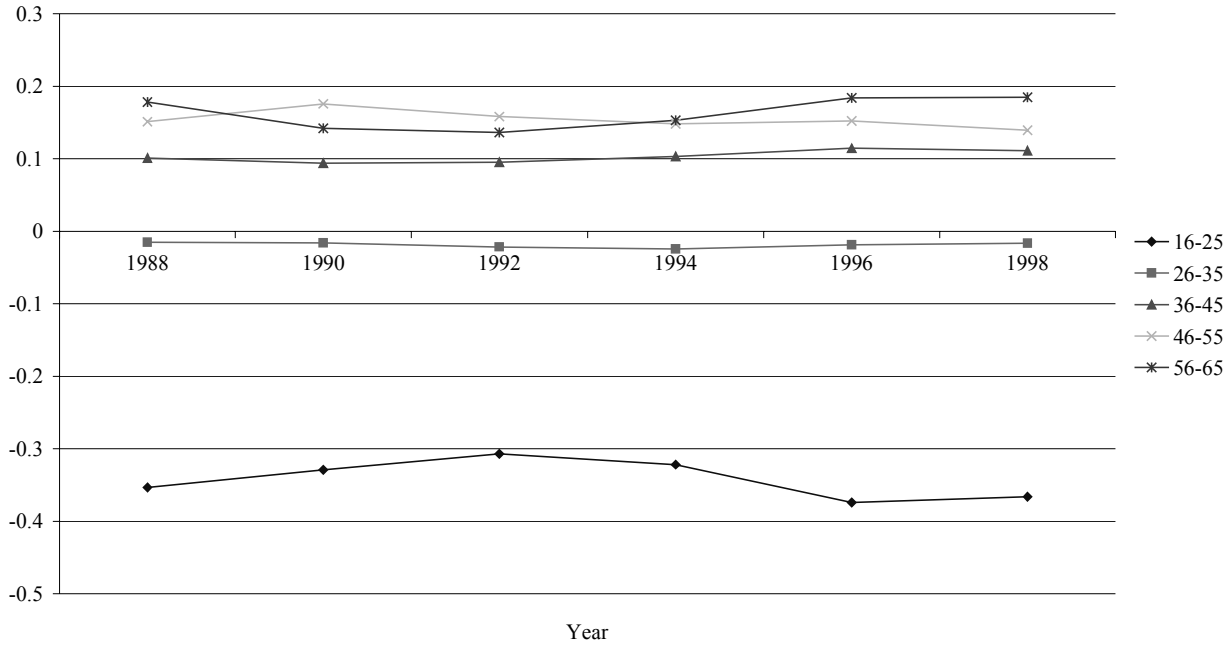
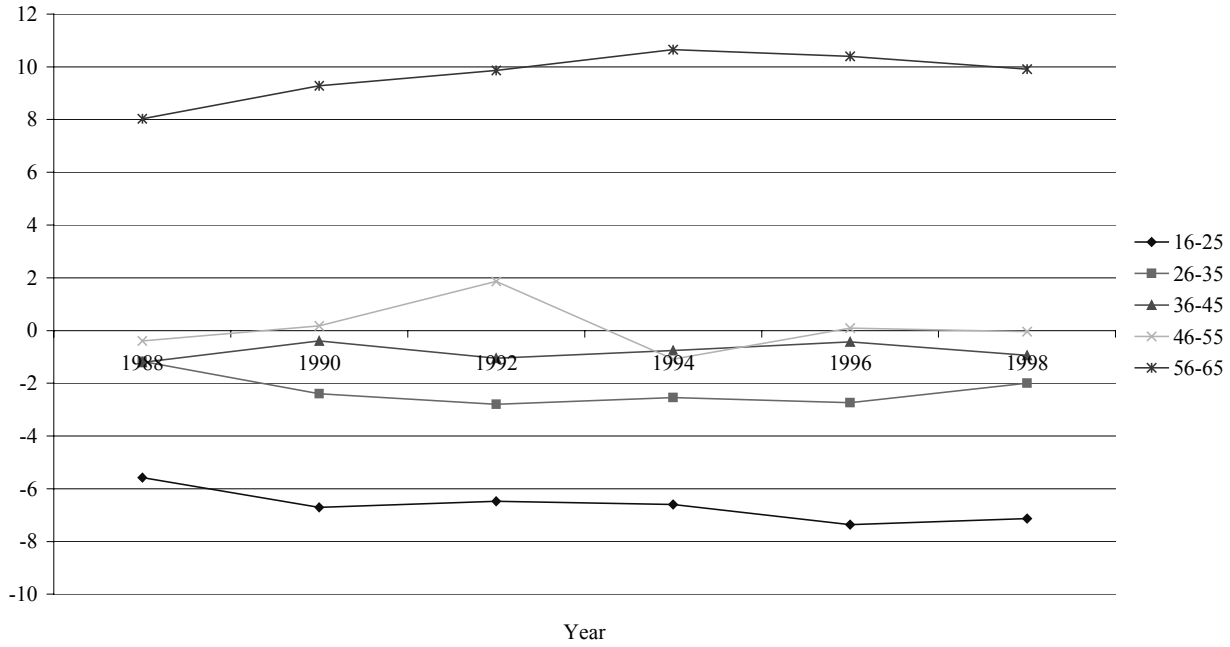


Figure 3b: Degree of Non-Employment Regression - Age Coefficients over Time



Source: OSA Labour Supply Panel; own calculations.

Figure 4a: Wage Regression - Education Coefficients over Time

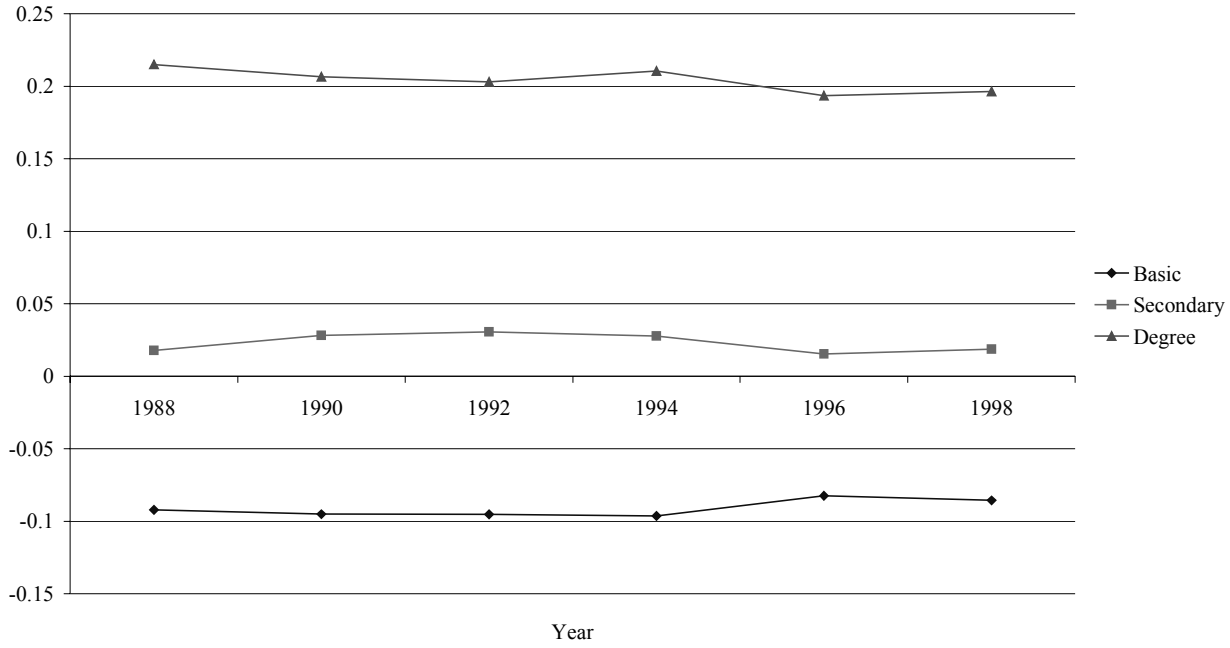
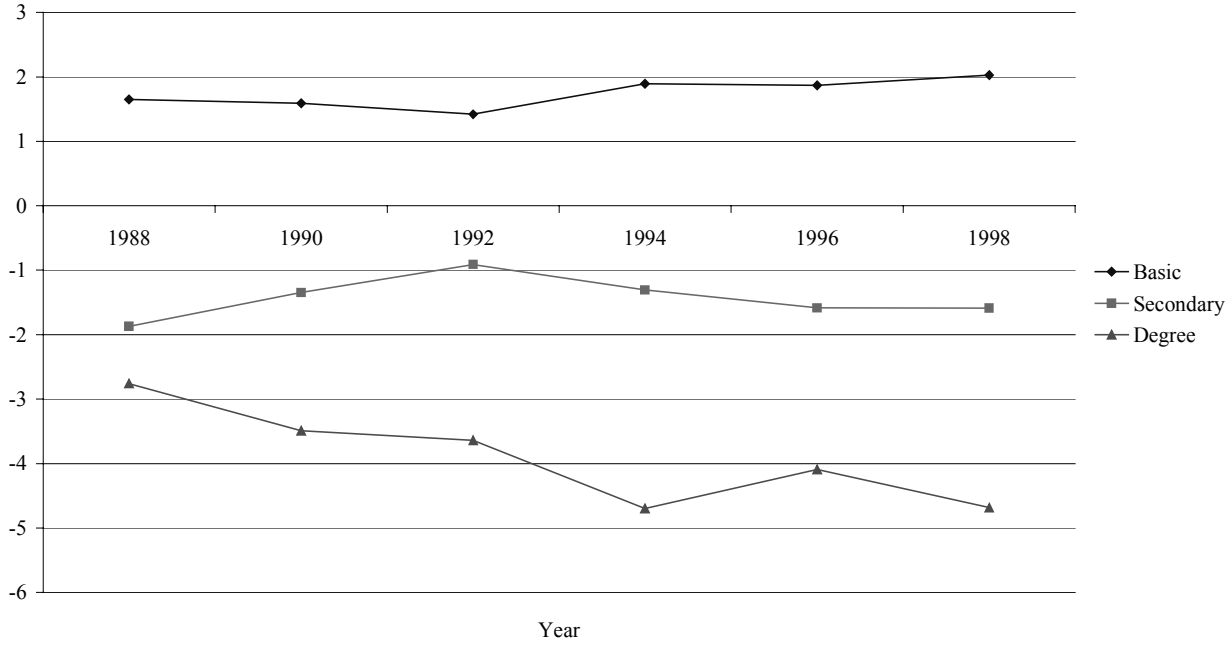


Figure 4b: Degree of Non-Employment Regression - Education Coefficients over Time



Source: OSA Labour Supply Panel; own calculations.

Internet Appendix

Table IA1: Sample Means for Wage Regressions (Percent for Dummy Variables)

Variable	1988	1990	1992	1994	1996	1998
Log hourly wage	2.70	2.74	2.77	2.79	2.79	2.81
Age						
16-25	18	23	18	15	14	12
26-35	34	31	30	29	31	27
36-45	29	27	30	29	28	32
46-55	9	9	11	15	14	13
56-65	10	10	11	12	13	15
Education						
Basic	48	45	46	43	38	34
Secondary	32	36	36	37	40	41
Degree	20	18	18	20	23	25
Gender						
Male	65	64	62	61	60	56
Female	35	36	38	39	40	44
Region of Residence						
Cities	10	11	10	9	10	9
West-Nederland	27	28	30	31	31	30
Noord-Nederland	12	11	11	11	11	11
Oost-Nederland	20	21	22	22	22	24
Zuid-Nederland	26	26	24	24	23	25
Border Towns	4	4	2	2	3	2
# observations	2,288	2,444	2,533	2,478	2,649	2,385

Source: OSA Labour Supply Panel; own calculations.

Table IA2: Sample Means for Unemployment Regressions (Percent)

Variable	1988	1990	1992	1994	1996	1998
unemployed	0.09	0.06	0.06	0.07	0.06	0.04
Age						
16-25	17	22	18	16	15	11
26-35	31	29	27	27	29	26
36-45	30	28	30	28	27	31
46-55	10	10	11	15	15	14
56-65	11	11	13	14	15	17
Education						
Basic	51	48	47	45	39	36
Secondary	30	35	36	36	39	40
Degree	19	18	17	18	22	24
Gender						
Male	64	63	60	59	57	56
Female	36	37	40	41	43	44
Region of Residence						
Cities	10	11	10	9	10	9
West-Nederland	26	27	29	30	30	29
Noord-Nederland	12	11	12	12	11	12
Oost-Nederland	20	21	20	21	21	23
Zuid-Nederland	27	26	26	25	25	25
Border Towns	5	4	3	2	3	3
# observations	2,711	2,703	2,770	2,983	3,102	3,296

Source: OSA Labour Supply Panel; own calculations.

Table IA3: Wage Regressions (Transformed Coefficients – t-values in Parentheses)

	1988	1990	1992	1994	1996	1998
1988 sample mean	2.70	2.76	2.77	2.77	2.76	2.76
	(420.9)	(428.4)	(476.5)	(468.7)	(423.9)	(393.2)
Age						
16-25	-0.35	-0.33	-0.31	-0.32	-0.37	-0.37
	-(20.6)	-(22.8)	-(21.8)	-(22.3)	-(21.0)	-(16.6)
26-35	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02
	-(1.8)	-(1.9)	-(2.8)	-(3.1)	-(2.2)	-(1.7)
36-45	0.10	0.09	0.09	0.10	0.11	0.11
	(10.1)	(10.3)	(11.1)	(11.8)	(11.7)	(12.3)
46-55	0.15	0.18	0.16	0.15	0.15	0.14
	(8.3)	(9.0)	(7.9)	(11.2)	(11.2)	(8.1)
56-65	0.18	0.14	0.14	0.15	0.18	0.18
	(9.4)	(7.1)	(7.2)	(8.8)	(11.2)	(11.1)
Education						
Basic	-0.09	-0.10	-0.10	-0.10	-0.08	-0.09
	-(14.3)	-(14.6)	-(16.2)	-(16.8)	-(13.1)	-(13.2)
Secondary	0.02	0.03	0.03	0.03	0.02	0.02
	(1.8)	(3.2)	(3.8)	(3.4)	(1.8)	(2.0)
Degree	0.21	0.21	0.20	0.21	0.19	0.20
	(16.6)	(15.3)	(15.8)	(18.5)	(16.2)	(17.3)
Gender						
Male	0.04	0.05	0.06	0.05	0.05	0.05
	(8.0)	(9.6)	(12.0)	(11.9)	(11.2)	(11.5)
Female	-0.08	-0.08	-0.10	-0.09	-0.09	-0.09
	-(8.0)	-(9.6)	-(12.0)	-(11.9)	-(11.2)	-(11.5)
Region of Residence						
Cities	0.01	0.00	0.01	-0.03	0.00	-0.03
	(0.7)	(0.2)	(0.5)	-(1.8)	(0.3)	-(1.2)
West-Nederland	0.02	0.02	0.02	0.01	0.03	0.02
	(1.4)	(2.6)	(1.7)	(1.5)	(3.0)	(2.3)
Noord-Nederland	-0.01	0.00	-0.02	-0.03	-0.02	-0.02
	-(0.5)	(0.1)	-(1.5)	-(1.8)	-(1.0)	-(1.2)
Oost-Nederland	-0.01	-0.04	-0.02	-0.01	-0.02	-0.01
	-(1.2)	-(3.1)	-(1.8)	-(1.3)	-(1.8)	-(0.9)
Zuid-Nederland	-0.01	0.00	-0.01	0.00	-0.01	0.00
	-(0.7)	-(0.3)	-(0.8)	-(0.2)	-(1.4)	-(0.2)
Border Towns	0.01	0.02	0.09	0.14	0.05	0.04
	(0.4)	(0.5)	(2.5)	(2.9)	(1.6)	(1.0)
R^2	0.36	0.36	0.37	0.38	0.35	0.34
# observations	2,288	2,444	2,533	2,478	2,649	2,385

Source: OSA Labour Supply Panel; own calculations.

Table IA4: Unemployment Regressions (Transformed Coefficients – t-values in Parentheses)

	1988	1990	1992	1994	1996	1998
1988 sample mean	-1.39	-1.61	-1.67	-1.50	-1.59	-1.81
	-(39.2)	-(38.7)	-(37.3)	-(39.5)	-(38.6)	-(37.0)
Age						
16-25	0.20	0.08	0.15	0.20	0.08	-0.03
	(2.7)	(1.0)	(1.9)	(2.6)	(1.0)	-(0.3)
26-35	0.07	-0.05	-0.11	0.11	0.01	0.03
	(1.4)	-(0.8)	-(1.6)	(2.0)	(0.2)	(0.5)
36-45	-0.01	0.08	0.06	-0.07	-0.03	-0.06
	-(0.2)	(1.4)	(1.0)	-(1.2)	-(0.5)	-(1.0)
46-55	-0.17	-0.11	0.04	-0.30	-0.02	-0.07
	-(1.5)	-(0.9)	(0.4)	-(2.9)	-(0.2)	-(0.7)
56-65	-0.32	-0.11	-0.14	-0.16	-0.05	0.18
	-(2.8)	-(0.9)	-(1.2)	-(1.6)	-(0.6)	(2.0)
Education						
Basic	0.13	0.05	-0.01	0.08	0.08	0.17
	(3.8)	(1.2)	-(0.3)	(2.1)	(2.3)	(4.2)
Secondary	-0.21	-0.13	0.01	-0.07	-0.07	-0.16
	-(3.9)	-(2.1)	(0.1)	-(1.4)	-(1.4)	-(2.6)
Degree	-0.01	0.08	0.02	-0.09	-0.10	-0.20
	-(0.1)	(1.0)	(0.2)	-(1.1)	-(1.4)	-(2.4)
Gender						
Male	-0.12	-0.15	-0.14	-0.11	-0.16	-0.19
	-(4.9)	-(5.3)	-(5.0)	-(4.1)	-(6.0)	-(6.4)
Female	0.22	0.27	0.25	0.19	0.28	0.33
	(4.9)	(5.3)	(5.0)	(4.1)	(6.0)	(6.4)
Region of Residence						
Cities	0.21	0.19	0.18	0.18	0.18	0.20
	(2.2)	(1.8)	(1.6)	(1.7)	(1.8)	(1.7)
West-Nederland	-0.07	-0.14	-0.19	-0.11	-0.10	-0.12
	-(1.2)	-(2.0)	-(2.7)	-(1.8)	-(1.7)	-(1.7)
Noord-Nederland	0.10	0.16	0.35	0.20	0.00	0.28
	(1.1)	(1.6)	(3.7)	(2.3)	(0.0)	(2.9)
Oost-Nederland	0.06	0.05	0.03	-0.10	0.05	0.09
	(0.8)	(0.7)	(0.4)	-(1.3)	(0.7)	(1.2)
Zuid-Nederland	-0.06	0.04	0.05	0.06	0.07	-0.14
	-(1.1)	(0.6)	(0.7)	(1.0)	(1.1)	-(1.9)
Border Towns	-0.23	-0.50	-0.64	-0.25	-0.42	-0.09
	-(1.3)	-(1.8)	-(1.7)	-(1.0)	-(1.4)	-(0.3)
Log likelihood	-790.56	-593.83	-583.04	-735.28	-699.75	-556.08
# observations	2,711	2,703	2,770	2,983	3,102	3,296

Source: OSA Labour Supply Panel; own calculations.

Table IA5: Non-Employment Regressions (Transformed Coefficients – t-values in Parentheses)

	1988	1990	1992	1994	1996	1998
1988 sample mean	-0.35	-0.44	-0.52	-0.56	-0.69	-0.80
	-(15.5)	-(18.9)	-(21.9)	-(23.9)	-(27.4)	-(30.0)
Age						
16-25	-0.40	-0.54	-0.48	-0.46	-0.55	-0.59
	-(6.6)	-(9.1)	-(7.5)	-(6.9)	-(7.3)	-(7.0)
26-35	-0.09	-0.23	-0.24	-0.21	-0.25	-0.19
	-(2.7)	-(6.5)	-(6.6)	-(5.6)	-(6.4)	-(4.7)
36-45	-0.16	-0.09	-0.17	-0.12	-0.11	-0.13
	-(4.7)	-(2.5)	-(4.7)	-(3.4)	-(2.8)	-(3.4)
46-55	-0.06	0.01	0.13	-0.17	-0.05	-0.05
	-(0.8)	(0.2)	(2.2)	-(3.0)	-(0.8)	-(0.9)
56-65	0.72	0.90	0.93	0.94	0.99	0.95
	(14.7)	(18.3)	(20.7)	(22.2)	(23.0)	(22.3)
Education						
Basic	0.16	0.13	0.13	0.17	0.18	0.21
	(8.2)	(6.5)	(6.4)	(8.9)	(9.1)	(10.3)
Secondary	-0.15	-0.07	-0.05	-0.11	-0.14	-0.16
	-(4.2)	-(1.9)	-(1.3)	-(3.0)	-(4.1)	-(4.7)
Degree	-0.32	-0.36	-0.39	-0.46	-0.41	-0.47
	-(5.7)	-(5.9)	-(6.2)	-(7.8)	-(7.4)	-(8.7)
Gender						
Male	-0.64	-0.66	-0.58	-0.49	-0.50	-0.51
	-(26.7)	-(26.3)	-(23.9)	-(20.8)	-(20.4)	-(20.8)
Female	0.60	0.62	0.55	0.46	0.47	0.49
	(26.7)	(26.3)	(23.9)	(20.8)	(20.4)	(20.8)
Region of Residence						
Cities	-0.08	0.04	0.11	0.12	-0.01	0.08
	-(1.2)	(0.6)	(1.7)	(1.7)	-(0.1)	(1.1)
West-Nederland	-0.09	-0.09	-0.11	-0.12	-0.09	-0.09
	-(2.5)	-(2.4)	-(3.1)	-(3.3)	-(2.4)	-(2.3)
Noord-Nederland	0.17	0.12	0.21	0.10	0.03	0.11
	(2.9)	(2.0)	(3.5)	(1.8)	(0.4)	(1.9)
Oost-Nederland	0.07	0.01	0.02	-0.02	0.02	0.01
	(1.6)	(0.1)	(0.5)	-(0.4)	(0.4)	(0.3)
Zuid-Nederland	0.01	0.03	-0.05	0.00	0.07	0.00
	(0.2)	(0.8)	-(1.2)	(0.1)	(1.8)	(0.1)
Border Towns	-0.11	-0.12	-0.01	0.19	-0.04	-0.08
	-(1.0)	-(1.1)	-(0.1)	(1.6)	-(0.3)	-(0.6)
Log likelihood	-2157.26	-1995.53	-2085.38	-2127.01	-1999.79	-1982.35
# observations	4,061	4,003	4,093	4,206	4,188	4,346

Source: OSA Labour Supply Panel; own calculations.

Table IA6: Degree of Non-Employment Regressions (Transformed Coefficients – t-values in Parentheses)

	1988	1990	1992	1994	1996	1998
1988 sample mean	17.48	16.64	15.91	15.66	14.97	13.98
	(77.8)	(76.9)	(72.5)	(71.4)	(70.2)	(64.2)
Age						
16-25	-5.58	-6.70	-6.47	-6.60	-7.36	-7.14
	-(8.5)	-(12.4)	-(10.7)	-(10.6)	-(12.7)	-(12.6)
26-35	-1.16	-2.40	-2.80	-2.54	-2.74	-2.00
	-(3.4)	-(7.0)	-(8.0)	-(7.3)	-(8.3)	-(6.2)
36-45	-1.21	-0.39	-1.05	-0.76	-0.43	-0.94
	-(3.6)	-(1.2)	-(3.2)	-(2.3)	-(1.3)	-(3.1)
46-55	-0.40	0.18	1.86	-1.08	0.09	-0.04
	-(0.6)	(0.3)	(3.3)	-(2.2)	(0.2)	-(0.1)
56-65	8.03	9.27	9.87	10.65	10.40	9.91
	(15.8)	(18.7)	(21.3)	(24.1)	(23.9)	(23.6)
Education						
Basic	1.65	1.59	1.42	1.89	1.87	2.03
	(8.1)	(8.2)	(7.3)	(10.0)	(10.1)	(11.1)
Secondary	-1.87	-1.35	-0.91	-1.31	-1.59	-1.59
	-(5.1)	-(3.8)	-(2.6)	-(3.9)	-(4.9)	-(5.1)
Degree	-2.76	-3.49	-3.64	-4.70	-4.09	-4.68
	-(5.1)	-(6.4)	-(6.6)	-(9.2)	-(8.8)	-(11.3)
Gender						
Male	-9.80	-9.54	-8.88	-8.08	-8.03	-7.86
	-(42.4)	-(42.2)	-(39.6)	-(36.9)	-(38.0)	-(38.8)
Female	9.25	8.99	8.38	7.62	7.57	7.42
	(42.4)	(42.2)	(39.6)	(36.9)	(38.0)	(38.8)
Region of Residence						
Cities	-1.20	0.70	0.89	0.89	-0.44	0.47
	-(1.6)	(1.0)	(1.3)	(1.3)	-(0.7)	(0.7)
West-Nederland	-0.98	-0.91	-0.75	-1.05	-0.91	-0.80
	-(2.6)	-(2.5)	-(2.1)	-(3.0)	-(2.7)	-(2.4)
Noord-Nederland	1.99	1.05	2.07	1.15	0.94	0.99
	(3.4)	(1.8)	(3.4)	(2.0)	(1.7)	(1.8)
Oost-Nederland	1.03	0.10	0.10	0.06	0.44	0.24
	(2.4)	(0.2)	(0.2)	(0.1)	(1.1)	(0.6)
Zuid-Nederland	-0.06	0.21	-0.59	-0.08	0.37	0.17
	-(0.2)	(0.6)	-(1.6)	-(0.2)	(1.1)	(0.5)
Border Towns	-1.76	-1.09	-0.45	1.06	-0.76	-1.46
	-(1.6)	-(1.1)	-(0.4)	(0.8)	-(0.7)	-(1.2)
R^2	0.36	0.39	0.36	0.36	0.37	0.36
# observations	4,061	4,003	4,093	4,206	4,188	4,346

Source: OSA Labour Supply Panel; own calculations.

Table IA7: OSA Wage Regressions (Changes in Transformed Coefficients with Respect to 1988 – Corresponding t-values in Parentheses)

	1990	1992	1994	1996	1998
1988 sample mean	0.05	0.06	0.06	0.05	0.06
	(6.6)	(7.7)	(7.7)	(6.0)	(6.4)
Age					
16-25	0.02	0.05	0.03	-0.02	-0.01
	(1.1)	(2.1)	(1.4)	-(0.8)	-(0.5)
26-35	0.00	-0.01	-0.01	0.00	0.00
	-(0.1)	-(0.6)	-(0.8)	-(0.3)	-(0.1)
36-45	-0.01	-0.01	0.00	0.01	0.01
	-(0.6)	-(0.5)	(0.2)	(0.9)	(0.7)
46-55	0.02	0.01	0.00	0.00	-0.01
	(1.0)	(0.3)	-(0.1)	(0.0)	-(0.5)
56-65	-0.04	-0.04	-0.03	0.01	0.01
	-(1.5)	-(1.6)	-(1.0)	(0.2)	(0.3)
Education					
Basic	0.00	0.00	0.00	0.01	0.01
	-(0.4)	-(0.4)	-(0.5)	(1.1)	(0.7)
Secondary	0.01	0.01	0.01	0.00	0.00
	(0.9)	(1.1)	(0.8)	-(0.2)	(0.1)
Degree	-0.01	-0.01	0.00	-0.02	-0.02
	-(0.5)	-(0.7)	-(0.3)	-(1.3)	-(1.1)
Gender					
Male	0.01	0.01	0.01	0.01	0.01
	(0.8)	(2.0)	(1.3)	(1.4)	(1.6)
Female	-0.01	-0.02	-0.02	-0.02	-0.02
	-(0.8)	-(2.0)	-(1.3)	-(1.4)	-(1.6)
Region of Residence					
Cities	-0.01	0.00	-0.04	-0.01	-0.04
	-(0.3)	-(0.1)	-(1.7)	-(0.3)	-(1.4)
West-Nederland	0.01	0.00	0.00	0.01	0.01
	(0.7)	(0.0)	-(0.2)	(1.0)	(0.6)
Noord-Nederland	0.01	-0.01	-0.02	-0.01	-0.01
	(0.5)	-(0.6)	-(0.8)	-(0.4)	-(0.5)
Oost-Nederland	-0.02	-0.01	0.00	-0.01	0.00
	-(1.4)	-(0.5)	(0.0)	-(0.5)	(0.2)
Zuid-Nederland	0.00	0.00	0.01	-0.01	0.01
	(0.3)	-(0.1)	(0.4)	-(0.5)	(0.4)
Border Towns	0.01	0.08	0.12	0.04	0.03
	(0.2)	(1.7)	(2.1)	(0.8)	(0.6)
# persons	3,326	3,777	3,994	4,317	4,319
# observations	4,732	4,821	4,766	4,937	4,673

Note: *t*-values are calculated from standard errors adjusted for clustering due to the panel component in the data.

Source: OSA Labour Supply Panel; own calculations.

Table IA8: Unemployment Regressions (Changes in Transformed Coefficients with Respect to 1988 – Corresponding t-values in Parentheses)

	1990	1992	1994	1996	1998
1988 sample mean	-0.22	-0.28	-0.11	-0.20	-0.41
	-(4.5)	-(5.0)	-(2.1)	-(3.7)	-(6.9)
Age					
16-25	-0.12	-0.04	0.00	-0.11	-0.22
	-(1.1)	-(0.4)	(0.0)	-(1.1)	-(1.8)
26-35	-0.12	-0.18	0.04	-0.06	-0.04
	-(1.6)	-(2.2)	(0.5)	-(0.8)	-(0.5)
36-45	0.09	0.07	-0.06	-0.02	-0.06
	(1.3)	(0.9)	-(0.8)	-(0.3)	-(0.7)
46-55	0.06	0.22	-0.12	0.16	0.11
	(0.4)	(1.4)	-(0.8)	(1.1)	(0.7)
56-65	0.22	0.19	0.16	0.27	0.51
	(1.4)	(1.2)	(1.1)	(1.8)	(3.5)
Education					
Basic	-0.08	-0.14	-0.05	-0.05	0.04
	-(1.8)	-(2.8)	-(1.1)	-(1.0)	(0.7)
Secondary	0.08	0.22	0.14	0.14	0.06
	(1.2)	(2.9)	(1.9)	(1.9)	(0.7)
Degree	0.09	0.02	-0.08	-0.10	-0.20
	(0.9)	(0.2)	-(0.8)	-(0.9)	-(1.8)
Gender					
Male	-0.03	-0.02	0.02	-0.03	-0.07
	-(0.8)	-(0.6)	(0.5)	-(0.9)	-(1.7)
Female	0.05	0.04	-0.03	0.06	0.12
	(0.8)	(0.6)	-(0.5)	(0.9)	(1.7)
Region of Residence					
Cities	-0.03	-0.03	-0.03	-0.03	-0.01
	-(0.2)	-(0.2)	-(0.2)	-(0.2)	-(0.1)
West-Nederland	-0.07	-0.12	-0.04	-0.03	-0.05
	-(0.9)	-(1.4)	-(0.4)	-(0.4)	-(0.5)
Noord-Nederland	0.06	0.25	0.10	-0.10	0.18
	(0.5)	(2.0)	(0.8)	-(0.8)	(1.4)
Oost-Nederland	0.00	-0.03	-0.15	-0.01	0.03
	-(0.1)	-(0.3)	-(1.6)	-(0.1)	(0.3)
Zuid-Nederland	0.10	0.11	0.12	0.13	-0.08
	(1.4)	(1.3)	(1.5)	(1.6)	-(0.8)
Border Towns	-0.28	-0.41	-0.03	-0.20	0.14
	-(0.8)	-(1.0)	-(0.1)	-(0.6)	(0.4)
# persons	3,857	4,319	4,767	5,088	5,463
# observations	5,414	5,481	5,694	5,813	6,007

Note: *t*-values are calculated from standard errors adjusted for clustering due to the panel component in the data.

Source: OSA Labour Supply Panel; own calculations.

Table IA9: Non-Employment Regressions (Changes in Transformed Coefficients with Respect to 1988 – Corresponding t-values in Parentheses)

	1990	1992	1994	1996	1998
1988 sample mean	-0.09	-0.17	-0.22	-0.34	-0.45
	-(3.8)	-(6.0)	-(7.2)	-(10.5)	-(13.2)
Age					
16-25	-0.13	-0.07	-0.05	-0.14	-0.18
	-(1.7)	-(0.9)	-(0.6)	-(1.5)	-(1.8)
26-35	-0.14	-0.16	-0.12	-0.16	-0.10
	-(3.4)	-(3.3)	-(2.4)	-(3.1)	-(1.9)
36-45	0.07	-0.01	0.04	0.06	0.04
	(1.8)	-(0.1)	(0.8)	(1.1)	(0.7)
46-55	0.07	0.18	-0.11	0.01	0.00
	(0.9)	(2.1)	-(1.3)	(0.1)	(0.0)
56-65	0.18	0.21	0.23	0.28	0.24
	(3.5)	(3.5)	(3.6)	(4.3)	(3.7)
Education					
Basic	-0.03	-0.03	0.01	0.02	0.05
	-(1.4)	-(1.4)	(0.5)	(0.7)	(1.7)
Secondary	0.08	0.10	0.05	0.01	-0.01
	(2.1)	(2.3)	(1.0)	(0.1)	-(0.2)
Degree	-0.04	-0.07	-0.13	-0.08	-0.15
	-(0.6)	-(0.9)	-(1.7)	-(1.1)	-(1.9)
Gender					
Male	-0.02	0.05	0.14	0.14	0.12
	-(0.8)	(1.8)	(4.7)	(4.2)	(3.6)
Female	0.02	-0.05	-0.14	-0.13	-0.11
	(0.8)	-(1.8)	-(4.7)	-(4.2)	-(3.6)
Region of Residence					
Cities	0.12	0.20	0.20	0.08	0.16
	(1.5)	(2.3)	(2.2)	(0.8)	(1.7)
West-Nederland	0.00	-0.02	-0.03	0.00	0.00
	(0.0)	-(0.5)	-(0.6)	(0.1)	(0.1)
Noord-Nederland	-0.05	0.04	-0.06	-0.14	-0.05
	-(0.7)	(0.5)	-(0.9)	-(1.8)	-(0.7)
Oost-Nederland	-0.06	-0.05	-0.08	-0.05	-0.06
	-(1.3)	-(0.9)	-(1.5)	-(0.9)	-(0.9)
Zuid-Nederland	0.02	-0.05	0.00	0.06	0.00
	(0.6)	-(1.1)	-(0.1)	(1.2)	(0.0)
Border Towns	-0.01	0.10	0.30	0.06	0.03
	-(0.1)	(0.7)	(2.0)	(0.4)	(0.2)
# persons	5,378	6,137	6,655	7,010	7,461
# observations	8,064	8,154	8,267	8,249	8,407

Note: *t*-values are calculated from standard errors adjusted for clustering due to the panel component in the data.

Source: OSA Labour Supply Panel; own calculations.

Table IA10: Degree of Non-Employment Regressions (Changes in Transformed Coefficients with Respect to 1988 – Corresponding t-values in Parentheses)

	1990	1992	1994	1996	1998
1988 sample mean	-0.83	-1.57	-1.82	-2.51	-3.50
	-(3.6)	-(5.8)	-(6.2)	-(8.5)	-(11.4)
Age					
16-25	-1.13	-0.89	-1.02	-1.78	-1.56
	-(1.4)	-(1.0)	-(1.1)	-(2.0)	-(1.8)
26-35	-1.23	-1.64	-1.38	-1.57	-0.83
	-(3.0)	-(3.5)	-(2.8)	-(3.3)	-(1.8)
36-45	0.82	0.17	0.45	0.79	0.27
	(2.1)	(0.4)	(1.0)	(1.7)	(0.6)
46-55	0.57	2.26	-0.68	0.49	0.36
	(0.8)	(2.7)	-(0.8)	(0.6)	(0.4)
56-65	1.24	1.84	2.62	2.37	1.88
	(2.4)	(2.9)	(3.9)	(3.5)	(2.8)
Education					
Basic	-0.06	-0.23	0.24	0.22	0.38
	-(0.3)	-(0.9)	(0.9)	(0.8)	(1.4)
Secondary	0.53	0.96	0.57	0.29	0.28
	(1.3)	(2.2)	(1.2)	(0.6)	(0.6)
Degree	-0.73	-0.88	-1.94	-1.33	-1.93
	-(1.3)	-(1.3)	-(2.8)	-(1.9)	-(2.9)
Gender					
Male	0.27	0.92	1.73	1.78	1.94
	(1.1)	(3.3)	(5.9)	(6.0)	(6.5)
Female	-0.25	-0.87	-1.63	-1.67	-1.83
	-(1.1)	-(3.3)	-(5.9)	-(6.0)	-(6.5)
Region of Residence					
Cities	1.90	2.09	2.09	0.76	1.67
	(2.2)	(2.2)	(2.2)	(0.8)	(1.7)
West-Nederland	0.07	0.23	-0.07	0.06	0.18
	(0.2)	(0.5)	-(0.2)	(0.1)	(0.4)
Noord-Nederland	-0.94	0.09	-0.84	-1.05	-1.00
	-(1.5)	(0.1)	-(1.1)	-(1.4)	-(1.3)
Oost-Nederland	-0.93	-0.93	-0.97	-0.59	-0.79
	-(2.0)	-(1.8)	-(1.8)	-(1.0)	-(1.4)
Zuid-Nederland	0.27	-0.52	-0.02	0.43	0.23
	(0.7)	-(1.2)	(0.0)	(0.9)	(0.5)
Border Towns	0.66	1.31	2.81	1.00	0.29
	(0.6)	(0.9)	(1.8)	(0.6)	(0.2)
# persons	5,378	6,137	6,655	7,010	7,461
# observations	8,064	8,154	8,267	8,249	8,407

Note: *t*-values are calculated from standard errors adjusted for clustering due to the panel component in the data.

Source: OSA Labour Supply Panel; own calculations.