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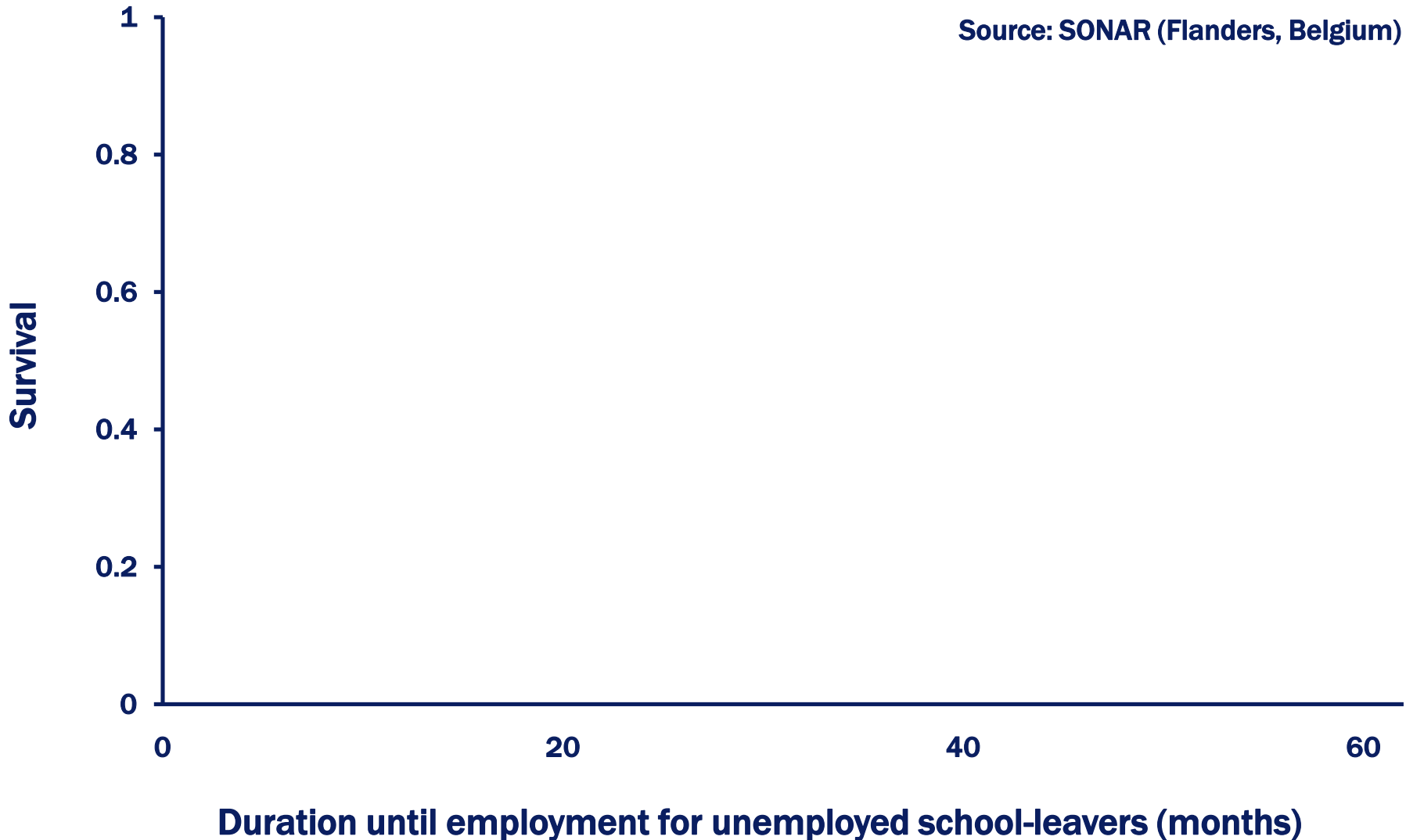
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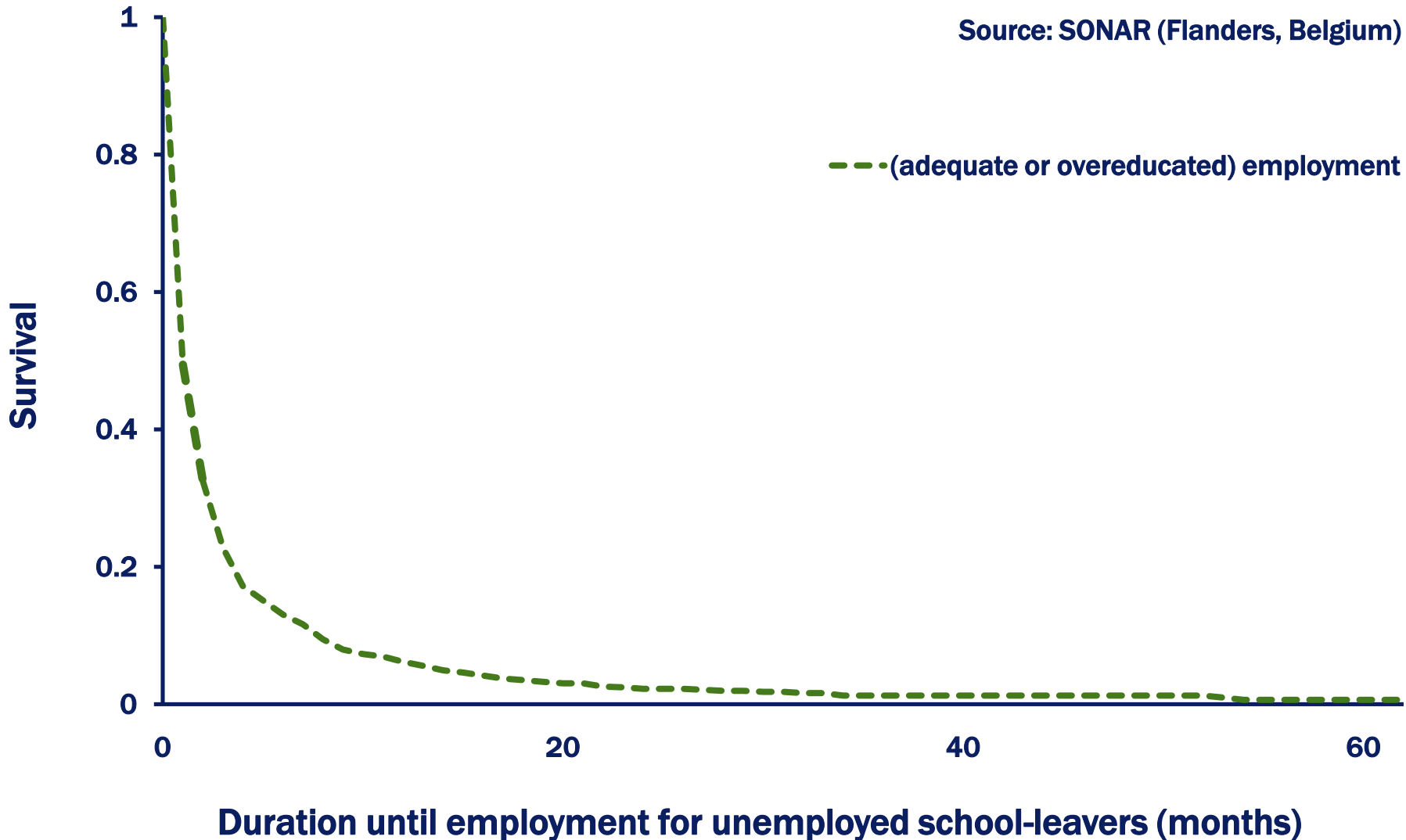
# **Overeducation at the start of the career: stepping stone or trap?**

**Spring Meeting of Young Economists - 26/04/2012**

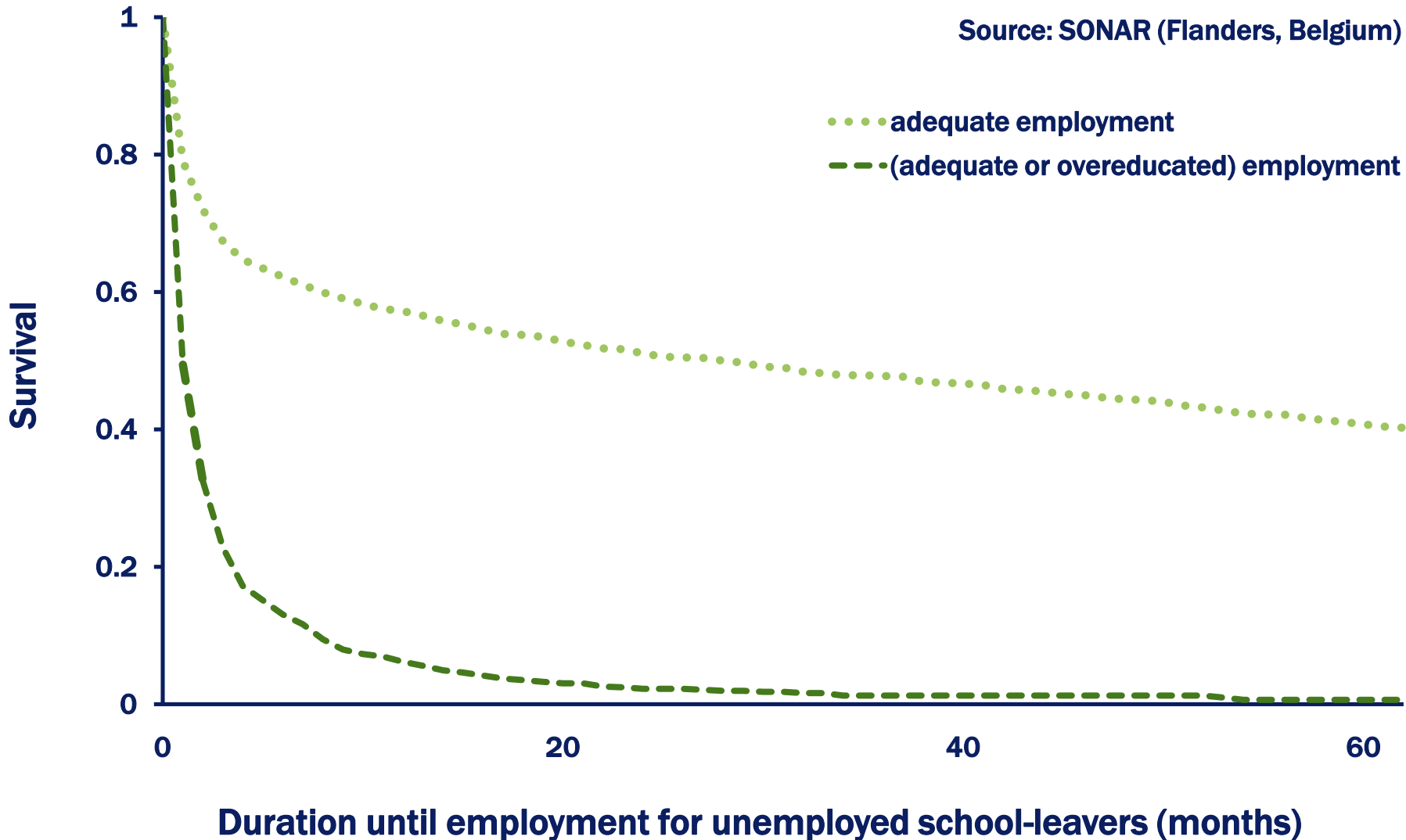
# Introduction



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# Many unemployed school-leavers accept jobs in which they are overeducated.

**Overeducated workers are less paid (Hartog, 2000)**

**Overeducated workers are less satisfied (Tsang, 1978; Allen and van der Velden, 2000)**

# Overeducated job = a stepping-stone?

**Career mobility theory (Sicherman & Galor, 1990)**

**Avoiding unemployment scarring (Arulampalam, 2001)**

# Overeducated job = a trap?

**Locking in** (Pissarides, 1994; Verhaest and Omey, 2009)

**Overeducation scarring** (McCormick, 1990; de Grip et al., 2008)

# Which strategy to pursue in order to land in an adequate job as soon as possible?

**Accepting overeducation as a stepping stone?**

**Or staying unemployed in search for a good match?**



1. Empirical literature and our contribution
2. Data
3. Econometric model
4. Results
5. Conclusion and potential extensions

# Former contributions and research question

- Many studies tested whether overeducation is temporary or permanent
  - Mixed findings
  - Even if overeducation is persistent, this does not reject the hypothesis that it may act as a stepping stone to an adequate job.

### Our research question

**Does accepting an overeducated job augment the transition rate to an adequate job for unemployed school-leavers?**

- **Problem: non-random selection into overeducation**
- **Solution: Timing of Events approach (Abbring & van den Berg, 2003)**

# Our approach

- **Timing of Events approach:**
  - **Treatment:** overeducated job
  - **Outcome at interest:** adequate job
  - **Treatment effect:** effect of inflowing into an overeducated job on the transition rate to an adequate job
- **Comparison of probability of getting an adequate job at a particular time with resp. without prior inflow into overeducation**
- **Multivariate duration model accounting for observed and unobserved heterogeneity**
- **Allows estimation of how treatment effect changes over time**

heterogeneity



# SONAR

- **SONAR: retrospective survey covering transition from school to work**
- **Two birth cohorts of 3000 individuals**
  - **Born in 1978 and 1980**
  - **Interviewed at age 23 and at age 26/29**
- **Detailed school and labour market career data**
  - **Monthly basis**
  - **Enables comparison of results with respect to various definitions of overeducation**

# Overeducation definition

- Job analysis approach
  - Each function in the data is coded following the Standard Occupation Classification (CBS, 2001)
    - Based on 5 functional levels:
      - Less than lower secondary education
      - Lower secondary education
      - Secondary education
      - Lower tertiary education
      - Higher tertiary education
  - **Overeducated job:** functional level under the education level of the worker
  - **Adequate job:** functional level equal to / above the education level of the

# Modelled durations

- **Start:** moment when school-leaver starts searching for a job
- **End:** moment when school-leaver finds a adequate job
- **Duration times are censored for various reasons:**
  - End of the observation period
  - Transition to (i) job with unknown functional level, (ii) full time education, (iii) self-employment or (iv) disability

# Sample

- Youngsters who are unemployed right after graduation.
- Only males are considered.
- Exclusion of individuals without lower secondary education degree.
- Elimination of individuals for which explanatory variables are missing.
- Sample size: 1434 individuals.

# Specification (1)

## Econometric framework

$$\begin{cases} \ln\theta_o(t|x, V_o) = \ln\lambda_o(t) + x'\beta_o + V_o \\ \ln\theta_e(t|t_o, x, V_e) = \ln\lambda_e(t) + x'\beta_e + \delta(t|t_o, x)\mathbb{1}(t > t_o) + V_e \end{cases}$$

- $o$ : index for overeducated job; and  $e$ : index for adequate job
- $\theta$ : hazard rates
  - $t$ : elapsed durations since start job search
  - $\lambda$ : baseline hazards (piecewise constant)
  - $x$ : vector of observable characteristics
  - $V$ : unobservable component (discrete distribution)
  - $\mathbb{1}(\cdot)$ : indicator function (1 if true, 0 otherwise)



# Specification (2)

## Econometric framework

$$\begin{cases} \ln\theta_o(t|x, V_o) = \ln\lambda_o(t) + x'\beta_o + V_o \\ \ln\theta_e(t|t_o, x, V_e) = \ln\lambda_e(t) + x'\beta_e + \delta(t|t_o, x)\mathbb{1}(t > t_o) + V_e \end{cases}$$

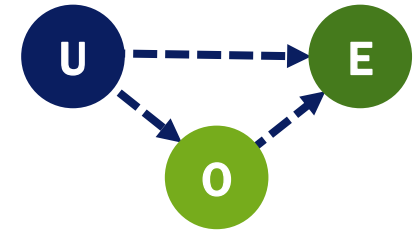
## Treatment effect: Constant treatment effect model

$$\delta(t|t_o, x) = \delta(t|t_o, x) = \delta_o$$

## Treatment effect: Extended model

$$\delta(t|t_o) = \delta_o + \delta_1(t - t_o) + \delta_2(t - t_o)^2 + \delta_3(t_o) + \delta_4(t_o)^2$$

# Estimation



- **Maximum Likelihood estimation**
  - 4 types of individual likelihood contributions conditional on the unobserved heterogeneity distribution, related to 4 types of observed spell sequences:
    - No transition out of unemployment
    - Adequate job without any prior experience of overeducated job
    - Overeducated job without any subsequent transition into adequate job
    - Overeducated job and afterwards an adequate job
  - Unconditional likelihood contributions by integrating over discrete unobserved heterogeneity distribution
    - Model estimation for an optimal number of heterogeneity types (Heckman & Singer, 1983)

# Main results

## Econometric framework

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## Treatment effect: Constant treatment effect model

$$\delta(t|t_o, x) = \delta(t|t_o, x) = \delta_o$$

## Estimation results

	$\delta_0$	$\delta_1$	$\delta_2$	$\delta_3$	$\delta_4$
<b>Benchmark model</b>	<b>-3.171***</b> (0.287)				
<b>Extended model</b>	<b>-4.080***</b> (0.354)	<b>-0.014</b> (0.012)	<b>0.000</b> (0.000)	<b>0.232***</b> (0.088)	<b>-0.004</b> (0.004)

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# Sensitivity analysis 1

- Re-estimation for 4 subsamples according to their highest diploma
  - Unemployed school-leavers: select subsample of higher educated
  - Imposing proportional effects of diploma variable might be too strong

Estimation results					
	$\delta_0$	$\delta_1$	$\delta_2$	$\delta_3$	$\delta_4$
Lower secondary	<b>-4.322***</b> (0.618)	<b>-0.006</b> (0.022)	<b>0.000</b> (0.000)	<b>0.357***</b> (0.121)	<b>-0.008</b> (0.005)
Secondary	<b>-4.893***</b> (0.689)	<b>-0.006</b> (0.017)	<b>0.000</b> (0.000)	<b>0.421***</b> (0.152)	<b>-0.011*</b> (0.006)
Lower tertiary	<b>-4.149***</b> (0.606)	<b>0.015</b> (0.042)	<b>-0.000</b> (0.000)	<b>0.219</b> (0.214)	<b>-0.009</b> (0.013)
Higher tertiary	<b>-4.044</b> (2.906)	<b>0.081</b> (0.088)	<b>-0.001</b> (0.001)	<b>0.200</b> (0.350)	<b>-0.003</b> (0.012)

# Sensitivity analysis 2

- More heterogeneity in the treatment effect
  - Effect less severe in times of booming economy?
  - Effect less severe for the high skilled?

Treatment effect: Extended model (sensitivity analysis 2)

$$\delta(t|t_o) = \delta_o + \delta_1(t - t_o) + \delta_2(t - t_o)^2 + \delta_3(t_o) + \delta_4(t_o)^2 + \delta_5ur_t + \delta_6delay_{16}$$

Estimation results

$\delta_0$	$\delta_1$	$\delta_2$	$\delta_3$	$\delta_4$	$\delta_5$	$\delta_6$
<b>-4.216***</b> (0.605)	<b>-0.015</b> (0.012)	<b>0.000</b> (0.000)	<b>0.229**</b> (0.090)	<b>-.0.004</b> (0.004)	<b>0.012</b> (0.028)	<b>-0.222</b> (0.153)

# Sensitivity analysis 3

- Alternative measure of overeducation
  - Modified subjective measure

Estimation results				
$\delta_0$	$\delta_1$	$\delta_2$	$\delta_3$	$\delta_4$
<b>-4.103***</b> (0.267)	<b>-0.045***</b> (0.016)	<b>0.000**</b> (0.000)	<b>0.320***</b> (0.072)	<b>-0.009**</b> (0.003)

# Accepting an overeducated job strongly retards transition into an adequate job!

**Firm-specific training investments?**

**Habituation?**

**Overeducation scarring?**