FACULTY OF ECONOMICS
AND MANAGEMENT

The British Low-Wage Sector and the Employment Prospects of the Unemployed

Alexander Plum
Otto von Guericke University Magdeburg

October 29, 2013

Content

Introduction

Hypothesis: Are low-wages an instrument for the unemployed in Great Britain to switch within a medium-term period into a high-paid employment?

Introduction

Hypothesis: Are low-wages an instrument for the unemployed in Great Britain to switch within a medium-term period into a high-paid employment?

- Political discussion: low wages $\Rightarrow$ low-pay-no-pay circle (OECD 1997, European Commission 2003).

Introduction

Hypothesis: Are low-wages an instrument for the unemployed in Great Britain to switch within a medium-term period into a high-paid employment?

- Political discussion: low wages $\Rightarrow$ low-pay-no-pay circle (OECD 1997, European Commission 2003).
- Several studies confirm these concerns, e.g. Stewart & Swaffield 1999, Stewart 2007, Cappellari & Jenkins 2008, Clark & Kanellopoulos 2013.

Introduction

Hypothesis: Are low-wages an instrument for the unemployed in Great Britain to switch within a medium-term period into a high-paid employment?

- Political discussion: low wages $\Rightarrow$ low-pay-no-pay circle (OECD 1997, European Commission 2003).
- Several studies confirm these concerns, e.g. Stewart & Swaffield 1999, Stewart 2007, Cappellari & Jenkins 2008, Clark & Kanellopoulos 2013.

Question: Does this negative picture of low-wages also hold for the subsample of initially unemployed?

What is new:

What is new:

- Analyzing a subsample which contains initially unemployed.

What is new:

- Analyzing a subsample which contains initially unemployed.
- Medium-term time frame (up to six years after becoming unemployed).

What is new:

- Analyzing a subsample which contains initially unemployed.
- Medium-term time frame (up to six years after becoming unemployed).
- Differentiate the effect of a low-paid job according to individual and job characteristics (Knabe & Plum 2013).

What is new:

- Analyzing a subsample which contains initially unemployed.
- Medium-term time frame (up to six years after becoming unemployed).
- Differentiate the effect of a low-paid job according to individual and job characteristics (Knabe & Plum 2013).
- In the econometric model it is explicitly respected for correlated random effects between the three labor market states (high-paid, low-paid, unemployed).

The theoretical perspective:

No clear answer:

The theoretical perspective:

No clear answer:

- Positive effect on the level of human capital.

The theoretical perspective:

No clear answer:

- Positive effect on the level of human capital.
- Layard, Nickell & Jackman (1991, p. 249): 'While unemployment is a bad signal, being in a low-quality job may well be a worse one'.

Existing studies:

Existing studies:

- Evidence for low-pay persistence is found (Stewart & Swaffield 1999, Stewart 2007, Clark & Kanellopoulos 2013).

Existing studies:

- Evidence for low-pay persistence is found (Stewart & Swaffield 1999, Stewart 2007, Clark & Kanellopoulos 2013).
- 'Negative duration dependence' in unemployment (e.g. Kroft, Lange & Notowidigdo 2013).

Existing studies:

- Evidence for low-pay persistence is found (Stewart & Swaffield 1999, Stewart 2007, Clark & Kanellopoulos 2013).
- 'Negative duration dependence' in unemployment (e.g. Kroft, Lange & Notowidigdo 2013).
- Hence: 'the prospects of becoming high-paid might darken when working in the low wage sector but may even be worse when staying unemployed'.

Data preparation

Data preparation

- British Household Panel Survey (BHPS), years 1996 to 2008.

Data preparation

- British Household Panel Survey (BHPS), years 1996 to 2008.
- Restricted to men.

Data preparation

- British Household Panel Survey (BHPS), years 1996 to 2008.
- Restricted to men.
- Dropping: self-employed, disabled and men attending school or working in the army.

Data preparation

- British Household Panel Survey (BHPS), years 1996 to 2008.
- Restricted to men.
- Dropping: self-employed, disabled and men attending school or working in the army.
- Age frame: 20-60 years.

Labor market position

Labor market position

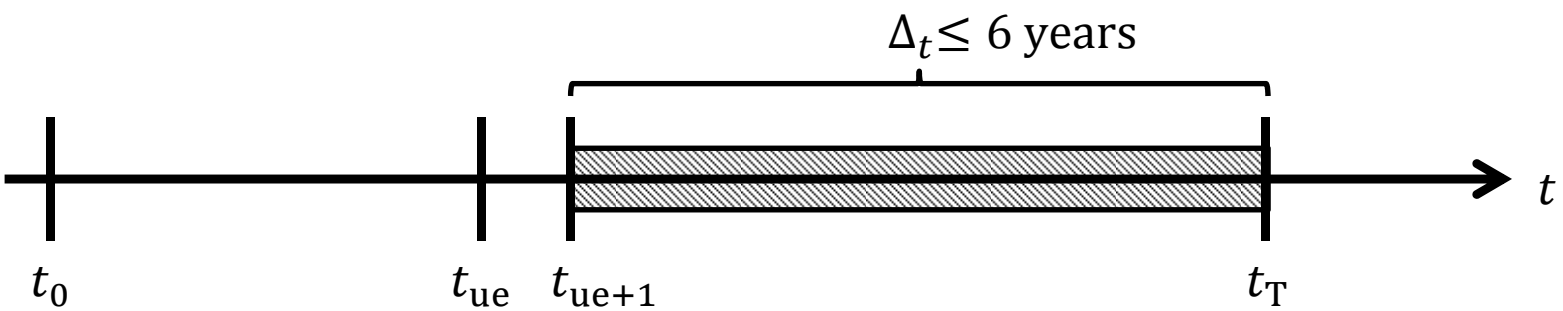
- ILO definition to differentiate between unemployed and inactive.

Labor market position

- ILO definition to differentiate between unemployed and inactive.
- OECD (1997): two third of the median gross hourly wage of both sexes (including paid overtime) as low-pay threshold (annual adjusted)

Identification of the labor market dynamics

Figure : Identification of labor market dynamics



Note: t_0 = first time observed in the sample; t_{em} = being employed; t_{ue} = being observed for the first time unemployed after being employed; t_T = up to six years after t_{ue}. The shadowed box indicates the analyzed time frame.

Table : Transition into High-Paid Employment

Δ_t after unemployment[1]	First time being high-paid employed (low-paid in at least one period before)		
	Total	Less than a college degree	At least a college degree
1	95 (–)	59 (–)	36 (–)
2	34 (17)	21 (12)	13 (5)
3	14 (12)	12 (11)	2 (1)
4	12 (11)	8 (7)	4 (4)
5	2 (2)	– (–)	2 (2)
6	1 (1)	1 (1)	– (–)
$\sum$	158 (43)	101 (31)	57 (12)
Total	210	143	67
Share	75.23% (20.47%)	78.32% (21.67%)	85.07% (17.91%)

Source: BHPS waves 8-18, $N = 796$. [1] Δ_t after unemployment refers to the length Δ_t, measured in years, when the initially unemployed man obtains for the first time a high-paid job. Note that the labor market position is observed at one time point in the respective year.

Table : Control variables

Variables	Description
Young	Dummy: 1 if observation is 30 years or younger, 0 otherwise
Old	Dummy: 1 if observation is older than 54 years, 0 otherwise
Married	Dummy: 1 if observation is married, 0 otherwise
Health	Dummy: 1 if self reported health status is excellent or good, 0 else
Unemployment rate	State-level unemployment rate; annual averages; in percent
Interaction with labor market position	
College-educated	Dummy: 1 if observation obtained a college degree (ISCED 5 or 6), 0 otherwise[1]
Low social status	Dummy: 1 if presents' job RGSC-value is 4 or above, 0 otherwise[2]
Robustness[3]	
Female	Dummy: 1 if woman, 0 otherwise

[1] *ISCED*: International Standard Classification of Education. [2] *RGSC*: Registrar General's Social Classes is 1=Professional occ., 2=Managerial & technical occ., 3=Skilled non-manual, 4=Skilled manual, 5=Partly skilled occ., 6=Unskilled occ. [3] Only included in the robustness checks.

Table : Descriptive Statistics[1]

	Full Sample$_t$	high-paid$_t$	low-paid$_t$	unemployed$_t$
Young	0.274	0.199	0.378	0.340
Old	0.104	0.109	0.098	0.100
Married	0.665	0.744	0.594	0.490
Health	0.687	0.708	0.665	0.650
Unemployment-rate	5.198	5.190	5.247	5.111
College-educated	0.323	0.373	0.240	0.310
Low social class	0.539[2]	0.457	0.681	–
Observations	796	442	254	100

Source: BHPS waves 8-18, $N = 796$. [1]share of observations in the respective group, [2]only including high-paid and low-paid in the full sample.

Preliminary remarks

Preliminary remarks

- Assuming a first order Markov process.

Preliminary remarks

- Assuming a first order Markov process.
- Unobserved heterogeneity (Heckman 1981a)

Preliminary remarks

- Assuming a first order Markov process.
- Unobserved heterogeneity (Heckman 1981a)
- Initial conditions problem (Heckman 1981b)

The two binary outcome variables are defined as:

$$y_{1it} = \begin{cases} 1 & \text{if the person is employed in a high-paid job,} \\ 0 & \text{otherwise,} \end{cases}$$

The two binary outcome variables are defined as:

$$y_{1it} = \begin{cases} 1 & \text{if the person is employed in a high-paid job,} \\ 0 & \text{otherwise,} \end{cases}$$

$$\text{and if } y_{1it} = 0, y_{2it} = \begin{cases} 1 & \text{if the person is unemployed,} \\ 0 & \text{otherwise,} \end{cases}$$

The observed binary outcome variable is defined as:

$$\begin{aligned} y_{1it} \quad = \quad & \mathbf{1}(x'_{1it}\beta_1 + \gamma_{11}y_{1i(t-1)} + \gamma_{13}y_{3i(t-1)} + \pi_{11}y_{1i0} + \pi_{13}y_{3i0} \\ & + \overline{x}'_{1i}\delta_1 + \kappa_{1i} + \epsilon_{1it} > 0), \end{aligned}$$

The observed binary outcome variable is defined as:

$$\begin{aligned} y_{1it} &= \mathbf{1}(x'_{1it}\beta_1 + \gamma_{11}y_{1i(t-1)} + \gamma_{13}y_{3i(t-1)} + \pi_{11}y_{1i0} + \pi_{13}y_{3i0} \\ &\quad + \overline{x}'_{1i}\delta_1 + \kappa_{1i} + \epsilon_{1it} > 0), \\ \text{and if } y_{1it} = 0, y_{2it} &= \mathbf{1}(x'_{2it}\beta_2 + \gamma_{21}y_{1i(t-1)} + \gamma_{23}y_{3i(t-1)} + \pi_{21}y_{1i0} + \pi_{23}y_{3i0} \\ &\quad + \overline{x}'_{2i}\delta_2 + \kappa_{2i} + \epsilon_{2it} > 0). \end{aligned}$$

Correlation structure:

$$corr(\nu_{1it}, \nu_{1is}) \quad = \quad \begin{cases} \sigma^2_{\kappa_1} & \text{if } t \neq s, \\ \sigma^2_{\kappa_1} + 1 & \text{if } t = s, \end{cases}$$

Correlation structure:

$$corr(\nu_{1it}, \nu_{1is}) = \begin{cases} \sigma^2_{\kappa_1} & \text{if } t \neq s, \\ \sigma^2_{\kappa_1} + 1 & \text{if } t = s, \end{cases}$$

$$corr(\nu_{2it}, \nu_{2is}) = \begin{cases} \sigma^2_{\kappa_2} & \text{if } t \neq s, \\ \sigma^2_{\kappa_2} + 1 & \text{if } t = s, \end{cases}$$

Correlation structure:

$$
\begin{aligned}
corr(\nu_{1it}, \nu_{1is}) &= \begin{cases} \sigma^2_{\kappa_1} & \text{if } t \neq s, \\ \sigma^2_{\kappa_1} + 1 & \text{if } t = s, \end{cases} \\
corr(\nu_{2it}, \nu_{2is}) &= \begin{cases} \sigma^2_{\kappa_2} & \text{if } t \neq s, \\ \sigma^2_{\kappa_2} + 1 & \text{if } t = s, \end{cases} \\
corr(\nu_{1it}, \nu_{2is}) &= \rho_\kappa \sigma_{\kappa_1} \sigma_{\kappa_2}
\end{aligned}
$$

Deriving the log likelihood:

Deriving the log likelihood:

- Applying a correlated simulated multivariate random effects (CSM RE) probit model.

Deriving the log likelihood:

- Applying a correlated simulated multivariate random effects (CSM RE) probit model.
- Main feature: the complete variance-covariance matrix is estimated at once (Cappellarie & Jenkins 2006).

Deriving the log likelihood:

- Applying a correlated simulated multivariate random effects (CSM RE) probit model.
- Main feature: the complete variance-covariance matrix is estimated at once (Cappellarie & Jenkins 2006).
- Multivariate normal probability functions of orders higher than two must be simulated.

Deriving the log likelihood:

- Applying a correlated simulated multivariate random effects (CSM RE) probit model.
- Main feature: the complete variance-covariance matrix is estimated at once (Cappellarie & Jenkins 2006).
- Multivariate normal probability functions of orders higher than two must be simulated.
- For simulation, Halton draws are applied (Train 2003) due to high accuracy and stability (Plum 2013).

Regression results

	RE Probit		CSM RE Probit	
	coeff.	std. err.	coeff.	std. err.
dependent variable:	*employed in a high-paid job in t*			
high-paid$_{t-1}$	**0.929**	0.237	**0.986**	0.240
×college-educated$_{t-1}$	**0.428**	0.255	**0.434**	0.258
×low social class$_{t-1}$	-0.201	0.220	-0.182	0.224
low-paid$_{t-1}$	0.369	0.275	**0.566**	0.289
×college-educated$_{t-1}$	-0.038	0.308	0.037	0.313
×low social class$_{t-1}$	-0.257	0.262	-0.228	0.264
unemployed$_{t-1}$			*reference category*	
×college-educated$_{t-1}$	**0.486**	0.223	**0.474**	0.228
dependent variable:	*unemployed in t*			
high-paid$_{t-1}$	**-1.412**	0.550	**-1.698**	0.560
×college-educated$_{t-1}$	0.882	0.584	**1.132**	0.594
×low social class$_{t-1}$	0.533	0.588	0.474	0.579
low-paid$_{t-1}$	-0.564	0.495	-0.497	0.484
×college-educated$_{t-1}$	-0.334	0.554	-0.226	0.547
×low social class$_{t-1}$	-0.385	0.482	-0.531	0.480
unemployed$_{t-1}$			*reference category*	
×college-educated$_{t-1}$	0.065	0.356	0.117	0.358
$\sigma^2_{\kappa_1}$	**0.454**	0.205	**0.533**	0.218
$\sigma^2_{\kappa_2}$	0.827	0.584	0.944	0.578
ρ_κ	—	—	**0.737**	0.260
log likelihood	-579.379		-575.996	
observations	796		796	

Source: BHPS waves 8-18, own calculations. Coefficients displayed in bold are significant at least at the 10% level. Estimations include additional covariates as enlisted in Table 2 and year dummies.

Table : Average Partial Effects

	Men with less than a college degree			
	RE Probit		CSM RE Probit	
	APE	*p*-value	APE	*p*-value
partial effect to obtain a high-paid employment in t				
high-paid$_{t-1}$	0.274	0.001	0.281	0.001
$\times$ low social class$_{t-1}$	0.217	0.002	0.231	0.001
low-paid$_{t-1}$	0.111	0.177	0.163	0.048
$\times$ low social class$_{t-1}$	0.033	0.580	0.097	0.134
partial effect to obtain a low-paid employment in t				
high-paid$_{t-1}$	-0.067	0.287	-0.014	0.849
$\times$ low social class$_{t-1}$	-0.050	0.341	0.000	0.957
low-paid$_{t-1}$	0.003	0.907	-0.020	0.785
$\times$ low social class$_{t-1}$	0.106	0.111	0.086	0.316
partial effect to be unemployment in t				
high-paid$_{t-1}$	-0.206	0.009	-0.267	0.005
$\times$ low social class$_{t-1}$	-0.167	0.009	-0.231	0.005
low-paid$_{t-1}$	-0.114	0.111	-0.143	0.073
$\times$ low social class$_{t-1}$	-0.139	0.029	-0.183	0.011
observations	143		143	

Source: BHPS waves 8-18, own calculations. APE=*Average Partial Effect*.

Robustness:

Robustness:

1. Dropping observations with a relative wage change below $< |10\%|$.

Robustness:

1. Dropping observations with a relative wage change below $< |10\%|$.
2. Gender specific threshold.

Robustness:

1. Dropping observations with a relative wage change below $< |10\%|$.
2. Gender specific threshold.
3. Including women into the regression.

Conclusion:

Conclusion:

1. Low-wages increase the probability to switch into a high-paid employment.

Conclusion:

1. Low-wages increase the probability to switch into a high-paid employment.
2. Low-wages reduce the risk of future unemployment.

Conclusion:

1. Low-wages increase the probability to switch into a high-paid employment.
2. Low-wages reduce the risk of future unemployment.
3. Upward mobility is reduced when the job is associated with a low social class.

Conclusion:

1. Low-wages increase the probability to switch into a high-paid employment.
2. Low-wages reduce the risk of future unemployment.
3. Upward mobility is reduced when the job is associated with a low social class.
4. Men with at least a college degree profit less strong from low-wages.

Conclusion:

1. Low-wages increase the probability to switch into a high-paid employment.
2. Low-wages reduce the risk of future unemployment.
3. Upward mobility is reduced when the job is associated with a low social class.
4. Men with at least a college degree profit less strong from low-wages.
5. Definition of low-wage threshold and sample composition have a strong influence on the transition probability between low-paid and high-paid.

Thank you for your attention!