

Työpapereita  
Working Papers

171

UNRAVELLING  
THE MYSTERY  
OF REGIONAL  
UNEMPLOY-  
MENT IN  
FINLAND\*

Petri Böckerman\*\*



171

UNRAVELLING  
THE MYSTERY  
OF REGIONAL  
UNEMPLOY-  
MENT IN  
FINLAND\*

Petri Böckerman\*\*

\* Labour Institute for Economic Research. Pitkäsillanranta 3 A, FIN-00530 Helsinki, Finland.  
Fax: +358-9-2535 7332. Tel. +358-9-2535 7330. E-mail: petri.bockerman@labour.fi.

\*\* I am most grateful to Eija Savaja for the construction of the data. I am grateful to Reija Lilja for comments. The usual disclaimer applies.

*ISBN 952-5071-58-8*  
*ISSN 1457-2923*

## **ABSTRACT**

*The high level of restructuring at the establishment level of the economy in terms of excess job reallocation (i.e. simultaneous gross job creation and destruction) and churning (i.e. excess worker turnover) lowers the unemployment rate in the Finnish regions.*

Keywords: *Finland; Regional labour markets; Gross job flows; Gross worker flows*

JEL classification: *R23; J63*

## **TIIVISTELMÄ**

*Työpaikkojen korkea ylimääräinen vaihtuvuusaste (eli työpaikkojen samanaikainen syntyminen ja häviäminen) ja kirnuamisaste (eli työntekijöiden ylimääräinen vaihtuvuusaste) alentavat työttömyyttä Suomen alueilla.*

## **1. INTRODUCTION**

Regional labour markets have gained growing interest in Finland, because there has been a rapid rise in the regional disparities in unemployment rates as part of the export-led recovery from the great slump of the early 1990s (see, e.g. Tervo, 1998). However, there have not been detailed empirical studies that aim to relate regional unemployment disparities to the economic fundamentals in the Finnish economy. In addition, the existing studies do not provide an evaluation of the impact of structural change in terms of gross job and worker flows on regional unemployment rates<sup>1</sup>. In fact, this notion seems to extend to the whole literature on regional unemployment disparities (see, e.g. Elhorst, 2000).

## 2. THE DATA

This study exploits the fact that Finland is divided into 85 subregions (NUTS4). The yearly observations cover the period from 1989 to 1996. The variables that characterize the structure of regional economic fundamentals are collected by using aggregate data from Statistics Finland. The measurement of regional gross job and worker flows is based on large longitudinal data of employees during the period from 1988 to 1996 (see, Böckerman and Maliranta, 2000). The applied measures of gross job and worker flows cover the non-farming business sector of the Finnish economy excluding social and personal services. The so-called excess job reallocation rate provides a measure of restructuring among establishments<sup>2</sup>. In contrast, the fact that the available vacancies of the labour markets are also subject to various idiosyncratic shocks within establishments is captured by the so-called churning rate<sup>3</sup>. Thus, the following evaluation of regional labour markets in Finland is based on this unique, linked panel data that is created by matching the economic fundamentals with the measures based on gross job and worker flows at the establishment level of the economy. The business cycle movements of the Finnish economy are captured by including the key macroeconomic indicators. Table 1 contains a description of the variables and Appendix 1 provides selected descriptive statistics.

**TABLE 1. The description of the applied variables**

<i>Variable</i>	<i>Definition/measurement</i>
UN	The number of unemployed in region <i>i</i> / labour force in region <i>i</i> (i.e. unemployment is measured as fractions. For example, a 34-percent unemployment is represented as 0.34)
a. The measures of industry structure:	
AGRI	Value added by agriculture in region <i>i</i> / GDP in region <i>i</i> (reference)
MANU	Value added by manufacturing industries in region <i>i</i> / GDP in region <i>i</i>
META	Value added by metal industries in region <i>i</i> / GDP in region <i>i</i>
ELEC	Value added by electronics in region <i>i</i> / GDP in region <i>i</i>
SERV	Value added by private services in region <i>i</i> / GDP in region <i>i</i>
PUBL	Value added by public sector in region <i>i</i> / GDP in region <i>i</i>
HIGH	Value added by high-tech manufacturing in region <i>i</i> / GDP in region <i>i</i>
HISE	Value added by high-tech services in region <i>i</i> / GDP in region <i>i</i>
b. The measures of labour force and gross migration flows:	
AGED	The number of employees aged from 55 to 65+ in labour force in region <i>i</i> / labour force in region <i>i</i>
UNSK	The number of employees with basic education only in labour force in region <i>i</i> / labour force in region <i>i</i>
DENS	The number of employees in region <i>i</i> divided by surface area in region <i>i</i> (m <sup>2</sup> )
MIG1	Gross inward migration of employees with higher university degrees to region <i>i</i> / gross inward migration of employees (total) to region <i>i</i>
MIG2	(Gross inward migration to region <i>i</i> + gross outward migration from region <i>i</i> ) –   gross inward migration to region <i>i</i> – gross outward migration from <i>i</i>   divided by average population in region <i>i</i> . Thus, MIG2 is an index of simultaneous gross inward and outward migration.
c. The measures of restructuring at the establishment level of the regions:	
EJR	The excess job reallocation rate in region <i>i</i>
CF	The churning rate in region <i>i</i>
d. The additional regional variables:	
PROD	Value added in region <i>i</i> divided by average population in region <i>i</i>
DEBT	Long-term municipal debt held in region <i>i</i> divided by average population in region <i>i</i>
e. The macroeconomic indicators:	
TERM	Terms of trade (export price index divided by import price index) (Source: Statistics Finland)
REAL	Real average lending rate by the Finnish banks (deflated by production price index) (Source: Bank of Finland and Statistics Finland)

### 3. THE RESULTS

The determination of regional unemployment rates in the Finnish economy is captured by applying a fixed effects model, as follows:

$$UN_{it} = a + v_i + b'X_{it} + e_{it} \quad (1)$$

where  $i = 1, \dots, 85$ ;  $t = 1, \dots, 8$ , and UN stands for the applied measure of the unemployment rate.  $\mathbf{X}$  is a vector of the regional economic fundamentals and the measures of restructuring based on gross job and worker flows. In addition,  $v_i$  represents fixed effects measure by the regional dummies and  $e_{it}$  is a normally distributed error term.

The results that are robust for the inclusion of the macroeconomic indicators can be summarized as follows (Table 2). The industry structure is not an important determinant of regional unemployment rates in Finland. However, the results support the view that a high share of the public sector pushes up the unemployment rate. This result is in line with a simple correlation applying aggregate data from labour districts, because the share of the public sector is higher in Eastern and Northern Finland, where the unemployment rate has indeed been higher than in Southern Finland during the past few decades. As Appendix 1 reveals, there is a striking regional variation in the share of subsectors of manufacturing industries (i.e. metal industries and electronics) across the Finnish regions. However, there is no effect from these subsectors on regional unemployment rates. The results indicate also that an increase in the share of rapidly growing high-tech services pushes down unemployment, owing to the labour-intensive character of these activities. Thus, the emerging “new economy” in terms of high-tech services could be a cure for the regional unemployment problem.



**TABLE 2. The results from fixed effects model (dependent variable: UN)**

<i>Variable</i>	<i>Coefficients</i>	<i>t-statistics</i>
Constant	1.1806	16.30
MANU	0.0077	0.16
META	0.0073	0.17
ELEC	-0.0944	-1.08
SERV	0.0386	0.56
<b>PUBL</b>	<b>0.2147</b>	<b>2.90</b>
HIGH	0.0804	0.92
<b>HISE</b>	<b>-0.6440</b>	<b>-3.99</b>
<b>AGED</b>	<b>1.4910</b>	<b>10.00</b>
<b>UNSK</b>	<b>-1.3774</b>	<b>-21.18</b>
<b>DENS</b>	<b>-0.0009</b>	<b>-2.04</b>
MIG1	0.0161	0.40
<b>MIG2</b>	<b>-1.2519</b>	<b>-8.13</b>
<b>EJR</b>	<b>-0.0243</b>	<b>-2.15</b>
<b>CF</b>	<b>-0.1103</b>	<b>-5.11</b>
<b>PROD</b>	<b>-0.4956</b>	<b>-2.42</b>
<b>DEBT</b>	<b>0.0048</b>	<b>5.39</b>
<b>TERM</b>	<b>-0.0060</b>	<b>-18.81</b>
<b>REAL</b>	<b>-0.0033</b>	<b>-8.57</b>
R <sup>2</sup>	0.94	
F(18,663)	595.53	

The regional economic fundamentals also include elements that characterize the structure of the labour force. An increase in the share of so-called aged employees rises unemployment, but an increase in the share of unskilled employees pushes down the unemployment rate in the Finnish regions<sup>4</sup>. The high volume of simultaneous gross inward and outward migration also lowers the regional unemployment rate in Finland due to more efficient matching between employees and establishments. In addition, there is evidence that an increase in the density of economy activity leads to a decline in the unemployment rate. This effect is probably due to the so-called thick market externalities. The high level of productivity lowers the unemployment rate. In contrast, the high level of public debt held by municipalities leads to an increase in the unemployment rate. This effect is most likely due to the fact that the high level of regional public debt tends to equal the high level of taxation that depresses economic activity.

The results concerning the structural change indicate that the high level of restructuring in terms of excess job reallocation and churning lowers the unemployment rate. In other words, a high degree of simultaneous gross job creation and destruction and excess worker turnover pushes down the unemployment rate in the Finnish regions. Thus, the evidence supports the view that restructuring at the establishment level of the economy in terms of the so-called “creative destruction” by Schumpeter (1942) seems to yield a decline in the regional unemployment rates in Finland.

## REFERENCES

Böckerman, P., Maliranta, M., 2000. Regional disparities in gross job and worker flows in Finland. Discussion Papers, 716. The Research Institute of the Finnish Economy.

Cabarello, R., 1998. Comments. In: Fuhrer, J.C., Schuh, S. (Eds.), *Beyond Shocks: What Causes Business Cycles?* Federal Reserve Bank of Boston, Conference Series 42, Boston, 338–348.

Davis, S.J., Haltiwanger, J., 1999. Gross job flows. In: Ashenfelter, O., Card, D. (Eds.), *Handbook of Labour Economics*, Vol. 3B. North-Holland, Amsterdam, 2711–2805.

Elhorst, J.P., 2000. The mystery of regional unemployment differentials: A survey of theoretical and empirical explanations. SOM Research Reports, C06. SOM Research School.

Pehkonen, J., 1999. Unemployment and home-ownership. *Applied Economic Letters* 6, 263–265.

Schumpeter, J.A., 1942. *Capitalism, socialism, and democracy*. Harper and Row, Harvard.

Tervo, H., 1998. The development of regional unemployment differentials in Finland in the 1990s. *Finnish Economic Papers* 11, 37–49.

## APPENDIX 1. The selected descriptive statistics

Variable	Mean	STD	MIN	MAX
UN	0.17	0.08	0.01	0.34
AGRI	0.15	0.09	0.00	0.42
MANU	0.32	0.12	0.07	0.64
META	0.05	0.06	0.00	0.54
ELEC	0.03	0.03	0.00	0.41
SERV	0.32	0.07	0.18	0.64
PUBL	0.19	0.06	0.07	0.39
HIGH	0.01	0.03	0.00	0.35
HISE	0.01	0.01	0.00	0.06
AGED	0.11	0.02	0.07	0.21
UNSK	0.36	0.05	0.21	0.53
DENS	10.89	20.25	0.20	186.24
MIG1	0.15	0.03	0.07	0.27
MIG2	0.05	0.02	0.02	0.11
EJR	0.26	0.08	0.10	0.84
CF	0.21	0.06	0.07	0.52
PROD	0.20	0.04	0.10	0.41
DEBT	4667	1431	1374	10608
TERM	97.30	3.33	91.70	101.50
REAL	7.53	2.72	4.18	12.47

---

<sup>1</sup> Pehkonen (1999) provides an empirical evaluation for the factors in the Finnish regional unemployment rates by applying cross-sectional data from 1991. The study does not include a consideration of industry structure nor the elaboration of restructuring at the establishment level of the economy.

<sup>2</sup> The gross job reallocation rate (JR) is the sum of gross job creation rate (JC) and gross job destruction rate (JD). Thus, the net rate of change of the employment ( $NET_t$ ) is  $JC_t - JD_t$ . The excess job reallocation rate (EJR) equals (gross) job reallocation (JR) minus the absolute value of the net employment change:  $EJR_t = JR_t - |NET_t|$ . This means that excess job reallocation is an index of simultaneous job creation and destruction in the economy. Caballero (1998) notes that, for this reason, it is appropriate to measure the magnitude of restructuring by the excess reallocation rate. Davis and Haltiwanger (1999) summarize the literature on gross job and worker flows.

<sup>3</sup> The worker flow rate (WF) is simply the sum of the hiring and separation rates. Thus, the so-called churning rate (CF) can be defined as follows:  $CF_t = WF_t - JR_t$ . The churning rate can also be called by the expression “excess worker turnover rate” for obvious reasons.

<sup>4</sup> This result remains in the case where the share of unskilled employees is divided by the average population. This seems to suggest that the so-called “discouraged worker effect” is not behind the result that an increase in the share of unskilled employees pushes down the unemployment rate in the Finnish regions.