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Characteristics and trends of regional labour markets in transition economies: Empirical evidence from Romania

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**Characteristics and Trends of Regional Labour Markets in Transition
Economies:
Empirical Evidence from Romania**

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**CHARACTERISTICS AND TRENDS
OF REGIONAL LABOUR MARKETS
IN TRANSITION ECONOMIES:
EMPIRICAL EVIDENCE FROM ROMANIA***

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ABSTRACT

Regional labour markets disparities have remained stable in Romania, as it is the case in Poland. In spite a huge output decline in the first years of transition, the process of adjustment to sectoral shifts has been slow. We find a negative relationship between regional unemployment rates and regional sectoral reallocation, but no correlation between these two variables. The most intense labour reallocation - both job creations and job destructions have taken place in regions with an industrial profile. Job destruction is predominant in agricultural regions. The estimated local unemployment elasticity of wages is negative suggesting the presence of a wage curve in Romania. Inter-regional migration flows are not correlated with regional unemployment rates while the availability of housing plays an important role in the decision to move across regions. While the agricultural regions are net senders, the industrial and diversified regions are net receivers. The absorption capabilities have declined in both industrial and diversified regions, faster in the industrial regions. It seems that the outflows of migrants from agricultural regions respond to the absorption capability of industrial rather than diversified regions.

JEL classification: L16; J21; J64; R23

Key words: transition economies; regional specialisation; regional unemployment; regional job reallocation; wage flexibility; regional labour mobility;

1. Introduction

Regional labour markets patterns and their dynamics have become increasingly important in the context of international and European economic integration and in the convergence process associated with it. The announced enlargement of the European Union to include former communist countries and the importance of the regional resulting implications explain the growing interest in uncovering regional patterns, including regional market dynamics, in the associated countries.

The low GDP per capita in the associated countries requires reform of the EU's regional policy. The effectiveness of the current EU regional policy is questionable in any case since despite continuous resource transfers, some regions have failed to catch up (Puga, 1997). The pattern of regional disparities in the European Union shows that while income differences across member states have fallen, inequalities between regions within member states have increased (Puga, 1996; Quah, 1996). It has been argued that European integration has led to increased specialisation of regions which has resulted in concentrated pockets of poverty and unemployment (Venables, 1996). Meanwhile, an intense process of regional specialisation in different sectors in the EU has taken place. These research results suggest that mobility in Europe is between sectors rather than between regions.

Recent studies on regional labour markets dynamics allowing relevant comparisons indicate that the characteristics of regional labour markets in transition countries are closer to those of Western Europe than the US. As is the case in Western Europe, most of the adjustment to changes in labour demand is done through changes in labour participation, while in the US the change in labour demand at the regional level is reflected immediately in migration (Decressin and Fatas, 1995; Burda and Wyplosz, 1990; Blanchard and Katz, 1992). Recent empirical studies indicate, indeed, a decline in internal and international labour mobility in Europe (Faini, 1996). Suggested explanations of this trend (Faini, Galli, Gennari, Rossi, 1997; Gil and Jimens, 1993) combine a mix of demographic factors, high mobility costs and inefficiencies in job matching.

Compared with western countries, regional labour market disparities in transition economies are high and seem to be persistent (Boeri and Scarpetta, 1996; OECD, 1995). It has been argued that inherited imbalances from the previous economic systems and new sources related to different speeds and characteristics of the transition process in the various regions are major determinants of these

disparities (Boeri, Scarpetta, 1996). State subsidies, high concentration of industrial activities, and controlled structure of wages in the previous regimes could explain a part of the inherited regional labour market imbalances. On the other hand, the transition process has been influenced by the geographical location of activities and the transfer of know-how. A number of recent studies emphasise the importance of spatial spillovers in the marketization and privatisation process (Andretsch and Feldman, 1996; Glaser and Scheinkman, 1996; Foster and Rozenzweig, 1995).

In this paper, we investigate the main characteristics and trends of regional labour markets in Romania in the period 1990-1995. Using data for 41 regions, we estimate the evolution of labour market variables which allow us to undertake a comparative analysis and uncover what is general for regional labour market dynamics in transition economies and what is specific in the case of Romania. To our knowledge, this is one of the few detailed empirical analyses of regional labour markets in Romania, and probably one of the first to bring evidence of a wage curve in a transition economy. We also believe that our research results which identify characteristics and trends of the labour reallocation process and of inter-regional migration in correlation with regional economic specialisation in the case of Romania are valuable contributions.

The rest of the paper is organised as follows. In Section 2 we describe the dynamics of regional disparities in major labour markets indicators. Unemployment differentials across regions, the relationship between employment growth and the change in unemployment and regional job flows are investigated. Section 3 analyses the sources of regional labour market differentials focusing on the economic specialisation of various regions. We identify the role of the inherited employment structure in explaining regional labour market disparities and analyse the characteristics of job creation and job destruction in correlation with regional economic specialisation. The equilibrating mechanisms of the regional labour markets disparities, namely the responsiveness of wage differentials to unemployment rates and inter-regional labour mobility, are investigated in Section 4. Estimations of the relationship between the change of the local unemployment rate and the level of pay allows us to identify a wage curve for Romania and an elasticity of unemployment to pay similar to that found by Blanchflower and Oswald (1994). We further estimate the responsiveness of inter-regional migration flows to labour market conditions. Finally, our research conclusions are presented in Section 5.

2. Regional labour markets disparities

2.1. Unemployment differentials

Empirical evidence indicates that the transition to a market economy has been accompanied by the widening and the persistence of regional unemployment differentials (Boeri, Scarpetta, 1996; OECD 1995). As Table 1 illustrates, at the beginning of the economic reforms the regional dispersion in unemployment rates increased rapidly in all countries and stabilised at levels which are considered high by the OECD standards¹.

The coefficient of the variation of regional unemployment rates indicates increasing regional disparities in Bulgaria and the Czech Republic but decreasing in Hungary and almost constant in Poland and Romania. Romania has registered a moderate rate of unemployment and the regional disparities in unemployment rates have a stable profile all through the analysed period: both the average rate of unemployment and the dispersion of regional unemployment rate increased.

TABLE 1**Regional unemployment differentials in transition countries, 1991-1995**

Year	Unemployment rate (%)	Standard deviation	Coeff. Of variation	Unemployment rate of top quartile (%)	Unemployment rate of bottom quartile (%)	Top/bottom quartile Unemployment rates
Bulgaria						
1991	6.7	1.09	0.16	8.2	5.5	1.5
1992	13.2	2.87	0.22	16.9	9.4	1.8
1993	16.7	4.18	0.25	21.0	10.6	2.0
1994	16.0	4.15	0.26	22.2	10.9	2.1
Czech Republic						
1991	2.9	1.18	0.42	5.1	2.0	2.5
1992	3.0	1.72	0.57	6.0	1.9	3.1
1993	3.2	1.93	0.62	6.4	1.7	3.9
1994	3.5	2.18	0.63	7.0	1.8	3.9
Hungary						
1991	4.8	3.63	0.76	10.3	3.0	3.4
1992	10.3	4.57	0.44	16.2	5.9	2.7
1993	12.9	4.36	0.34	16.5	6.8	2.4
1994	11.3	3.84	0.34	16.3	6.8	2.4
Poland						
1991	11.4	4.03	0.35	16.7	6.1	2.8
1992	13.6	4.54	0.33	20.0	7.8	2.6
1993	14.9	5.50	0.35	23.4	8.9	2.7
1994	16.5	5.63	0.36	24.6	9.5	2.6
Romania						
1992	8.4	3.12	0.37	12.5	4.3	2.9
1992	10.4	3.72	0.36	15.6	6.5	2.4
1994	10.9	3.96	0.36	15.0	6.5	2.4
1995	9.5	3.40	0.35	14.0	2.7	5.3

¹ The regional dispersion of unemployment rates in transition economies are comparable to those prevailing in Italy and Spain, countries considered by the OECD standards with most marked regional disparities among the OECD countries (Boeri, Scarpetta, 1996)

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Source: Boeri and Scarpetta (1996) for the calculations on Bulgaria (9 regions), the Czech Republic (47 regions), Hungary (20 regions) and Poland (47 regions); own calculations for Romania (41 regions).

A stable pattern is also observed in the case of the long run unemployment rate in Romania (see Table 2). While the unemployment rate takes into account all registered unemployed, the long run unemployment rate is computed ignoring the unemployed receiving unemployment benefit (less than nine months unemployed).

TABLE 2

Regional long run unemployment differentials in Romania, 1992-1995

Year	Unemployment rate (%)	Standard deviation	Coefficient of variation
1992	2.94	1.51	0.51
1993	5.49	2.51	0.45
1994	6.40	2.88	0.45
1995	6.48	3.01	0.46

Source: Own calculations

The pattern of regional unemployment seems to be persistent over time as it is suggested by the correlation coefficients of normalised unemployment rates².

TABLE 3

Correlation coefficients of normalised unemployment rates, 1992-1995

	UR92	UR93	UR94	UR95
UR92	1			
UR93	0.88	1		
UR94	0.80	0.90	1	
UR95	0.71	0.75	0.85	1

Source: Own calculations

² Normalisation has been done subtracting the mean and dividing it by the standard deviation: $Uri = \text{normalised unemployment rate in year } i$.

2.2. Regional unemployment and employment growth rate

Previous studies on regional labour markets in transition economies indicate that regional job losses are not directly reflected in regional unemployment rates (Blien, Hirschenauer 1995, Boeri and Scarpetta, 1996). Thus, the regions with the highest employment losses do not necessarily have the highest unemployment rates. It has been argued that, as it is the case with Western Europe, changes in employment in transition economies have been translated into changes in labour force participation (Blanchard, 1997).

Two adjustment mechanisms could explain this change in participation in transition economies (Boeri, Scarpetta, 1996; Blanchard, 1997): early retirement schemes, reduced number of shifts, short-time working time arrangements, unpaid leave periods, increased family allowances (soft measures); discouraged unemployed who stop searching. Differences across countries can be illustrated with the following computation proposed by Blanchard (1997):

$$x = \Delta U / (\Delta P - \Delta N)$$

where P is the population of working age; N, employment; U, unemployment. Δ is the difference between the value of the variable in 1994 (1995 for Romania) and the pre-transition year (1989 or 1990; 1991 for Romania). When $x=1$, the change in employment is registered only in unemployment; when $x = 0$, the change in employment has been registered as a change in participation rather than unemployment. The values calculated by Blanchard ($x = 0.27$ for the Czech Republic; 0.66 for the Slovak Republic; 0.85 for Poland; 0.41 for Hungary; 0.75 for Bulgaria) and by us for Romania (0.51) show that the change in employment resulted more in unemployment in Poland, Bulgaria, and the Slovak Republic, while a reduction in participation has taken place in the Czech Republic and Hungary. In Romania, only half of the decline in employment since the beginning of transition is reflected in unemployment growth. The other half is reflected in flows out of the labour force.

Given the huge output decline in the first years of transition, one could expect an intense adjustment to sectoral shifts. The extent of sectoral labour reallocation can be illustrated by the “Lilien measure”³ (Lilien, 1982). Dividing Romania’s economy into fourteen sectors⁴, we obtained the following average values for the Lilien measure: 11.3 per cent for the period 1993-1995; 6.2 per cent for 1993-1994. 14.9 per cent for 1994-1995. The values for the Lilien measure calculated by Blanchard (1997) for the other transition economies (20.9 per cent for the Czech republic; 14.2 per cent for the Slovak Republic; 20.3 per cent for Poland; 9.0 per cent for Poland; 11.0 per cent for Bulgaria) suggest that sectoral shifts in demand have had a significant impact on the level of unemployment. The process of adjusting to sectoral shifts has been slow due to the firm or industry-specific skills and to wage premiums associated with seniority.

However, in the case of Romania, we find that regional unemployment rates are not correlated with regional sectoral reallocation while a negative relationship between the two exists (the correlation coefficients are -0.11 for 1994 and -0.31 in 1995).

2.3. Regional job flows

Net employment changes in various regions result from job creation and job destruction in the regional sectoral employment structure. We further analyse the evolution of the regional gross job creation rate (*pos*), gross job destruction rate (*neg*), net employment growth rate (*net*), the gross job reallocation rate (*gross*) and the excess job reallocation rate (*excess*) shown in Table 4⁵.

TABLE 4

Average regional job flows

years	pos ¹	neg ²	gross ³	net ⁴	excess ⁵
1990	0.0007	0.0005	0.001	0.0002	0.0005
1991	0.001	0.002	0.003	-0.001	0.002
1992	0.0003	0.003	0.003	-0.003	0.0006

³ The standard deviation of annual rates of change of employment across sectors

⁴ the sectoral breakdown included the following: agriculture; forestry, hunting; industry; constructions; trade; hotels and restaurants; transport; post and communications; financial, banking and insurance activities; real estate; public administration; education; health and social assistance; others

⁵ The theoretical background for the job flow analysis is described in Konings et al. (1996)

1993	0.002	0.001	0.002	0.0004	0.002
1994	0.0009	0.002	0.002	-0.0008	0.001
1995	0.001	0.002	0.003	-0.001	0.002

$${}^1 \text{pos}_t = \frac{1}{41} \sum_{j=1}^{41} \text{pos}_{jt}; {}^2 \text{neg}_t = \frac{1}{41} \sum_{j=1}^{41} \text{neg}_{jt}; {}^3 \text{gross}_t = \frac{1}{41} \sum_{j=1}^{41} \text{gross}_{jt}; {}^4 \text{net}_t = \frac{1}{41} \sum_{j=1}^{41} \text{net}_{jt};$$

$${}^5 \text{excess}_t = \frac{1}{41} \sum_{j=1}^{41} \text{excess}_{jt};$$

$$\text{pos}_{jt} \equiv \sum_{i \in I_j^+} (n_{ijt} - n_{ijt-1}) / \sum_{j=1}^{41} \left(\sum_{i \in I} (n_{ijt} + n_{ijt-1}) / 2 \right)$$

$$\text{neg}_{jt} \equiv \sum_{i \in I_j^-} (n_{ijt} - n_{ijt-1}) / \sum_{i \in I} (n_{ijt} + n_{ijt-1}) / 2$$

$$\text{gross}_{jt} \equiv \text{pos}_{jt} + \text{neg}_{jt}$$

$$\text{net}_{jt} \equiv \text{pos}_{jt} - \text{neg}_{jt}$$

$$\text{excess}_{jt} = \text{gross}_{jt} - |\text{net}_{jt}|$$

where n_{ijt} is the employment in year t , branch i , region j ; I stands for the set of branches determining the economical structure of the region, I_j^+ stands for the set of branches which expand in region j ; I_j^- stands for the set of branches which contract in region j ; and I is the whole set of branches.

TABLE 5

Correlation coefficients for job creation

	pos91	pos92	pos93	pos94	pos95
pos90	0.12	-0.079	0.28	0.21	0.11
pos91		0.1	0.27	0.15	0.04
pos92			0.27	0.05	0.54
pos93				0.62	0.42
pos94					0.34

On the one hand, the dynamics of the regional pattern of job creation shows two tendencies. Until 1994 the job creation process does not have a clear pattern. After 1994 the job creation process seems to become persistent: the early job creators are also the latter job creators.

TABLE 6**Correlation coefficients of job destruction**

	neg91	neg92	neg93	neg94	neg95
neg90	0.42	0.31	0.26	0.26	0.31
neg91		0.73	0.6	0.69	0.87
neg92			0.53	0.57	0.8
neg93				0.51	0.64
neg94					0.78

On the other hand, analysing the dynamics of the job destruction process among regions, one can notice the persistence of losers: the early losers have a higher chance of remaining unemployed.

TABLE 7**Correlation coefficients between job destruction and job creation**

	pos90	pos91	pos92	pos93	pos94	pos95
neg90	-0.2					
neg91	0.32	0.23				
neg92	0.26	0.68	0.23			
neg93	0.09	0.16	0.53	0.64		
neg94	0.49	0.14	0.38	0.8	0.48	
neg95	0.33	0.29	0.23	0.93	0.75	0.42

The relationship between job creation and job destruction is positive and stronger starting in 1994. This evidence supports the theoretical argument of matching models that labour reallocation in transition economies takes place both through job creation and job destruction (Burda, 1993). Continuing restructuring requires new job matches which in turn has resulted in more unemployment and thus more destruction of previous matches. Burda (1993) argues that neither the “shock treatment” nor the “go slow” approach is the best approach for the appropriate pace of job destruction (unemployment creation). The best approach is a rapid increase in the job destruction process to induce a “quick-start” of the matching process in the private sector followed by a controlled destruction process. The shock treatment associated with massive destruction for a given rate of job creation would lead to congestion and cause long term unemployment. On the other hand, Boeri (1994a) pointed out that when the unemployment pool is unemployable, a raised unemployment does not help to improve the matching process.

3. Sources of regional disparities

3.1. Initial sectoral specialisation and regional factors

Initial sectoral specialisation inherited from the previous economic regime may be one explanation for the regional labour markets disparities. A “shift share analysis” allows the separation of the ‘structural effect’ of the employment trend and the ‘location (regional) effect’ which measures development strength or weakness of individual regions independent of their industrial structure (Blien, Hirschenauer 1995).

Empirical evidence (Boeri, Scarpetta, 1996) shows that initial sectoral specialisation only partly explains cross-regional differences in labour market performances. The extent of development of the infrastructure and factors related to the local potential of various regions is also important. The least developed regions have high unemployment and low outflows from unemployment into jobs because of the combination of lack of specialisation, underdeveloped infrastructures, and less skilled labour force.

Thus, in Poland the inherited employment structure plays no role in explaining regional differences in the “dis-employment” process while in Hungary and the

Slovak Republic it plays a more important role. In the case of Romania, we found clear differences after 1991 between the actual (DER) and the expected employment growth rates (SDR). Under the assumption that firms belonging to the same sector behave in the same way nation-wide, the actual and the expected employment growth rates would have been identical. This fact leads us to believe that regional factors played a considerable role after 1991 in explaining the “dis-employment” process (see Table 9). Splitting the variance of regional dis-employment growth rates (DER) between the component of structural effects (SDR) and the residual component related to regional effects (DER-SDR) gives an image about the intensity of the regional factors. The weak correlation between the lagged unemployment rate and the growth rate of the number of employees makes us to assume that the dis-employment did not effect the unemployment. The positive correlation illustrates the signs of creative destruction (Konings et. al. 1996), according to which a higher unemployment means more matches given the number of vacancies. Moreover, high unemployment means lower vacancy costs and, therefore, more opened vacancies.

TABLE 8**Breakdown of the variance of regional employed growth rates nation-wide**

	90/89	90/91	92/91	93/92	94/93	95/94
DER (%)	-5.03	-14.11	-12.8	-0.05	-4.39	-3.29
SDR (%)	-5.37	-13.68	-20.77	1.86	-4.81	-4.54
corr(DER, Urate_{t-1})	-	-	-	-	0.05	0.11
VAR (DER)	22.95	169	37.3	26.2	46.03	33.08
VAR(SDR)	4.64	7.56	68.2	7.22	12.56	3.52
VAR(DER-SDR)	17.47	157.3	121.9	26.69	27.61	42.04
2COV(DER,SDR)	10.12	19.26	-16.48	6.72	30.98	-5.48

Source: Own calculations

DER= rate of growth of regional employment

SDR= structural dis-employment rate (nation-wide sectoral employment growth rate weighted by the employment structure of each region)

VAR (DER) = the variance of regional employment growth rates

$\text{VAR}(\text{SDR})$ = the variance of structural dis-employment rates (the “structural effect”)

$\text{VAR}(\text{DER}-\text{SDR})$ = the variance of the residual components (the “regional effect”)

$2\text{COV}(\text{DER}, \text{SDR})$ = the covariance term

$\text{VAR}(\text{DER}_{it}) = \text{VAR}(\text{DER}_{it} - \text{SDR}_{it}) - \text{VAR}(\text{SDR}_{it}) + 2\text{COV}(\text{DER}_{it}, \text{SDR}_{it})$

TABLE 9

Breakdown of the variance of regional employed growth rates in industry

	94/93	95/94
DER (%)	-0.77	-3.8
SDR (%)	-0.68	-5.95
VAR (DER)	20.5	32.76
VAR(SDR)	3.32	9.4
VAR(DER-SDR)	22.84	64.15
2COV(DER,SDR)	0.98	-21.8

Source: Own calculations

3.2. Regional economic specialisation and job flows

We further investigated the labour reallocation process in correlation with regional economic specialisation. The characteristics of job creation and job destruction in industrial, agricultural and diversified regions⁶ are presented in Tables 10, 11, and 12 respectively.

We find that greatest job creation and job destruction took place in regions with an industrial profile. Job creation is predominant in 1993 while job destruction prevails in 1995. Both destruction and creation processes in 1993 and 1995 are

⁶ Regional economic specialisation is determined using structural indicators, cf. Scarpetta and Huber (1995): industrial regions are those whose share of employment in industry is half a standard deviation above the country mean; agricultural regions, their share of employment in agriculture is half a standard deviation above the country mean; diversified regions, they are neither industrial nor agricultural

positively correlated to the past destruction processes and creation, respectively. Thus, in the industrial regions, the two processes seem to be complementary. One could imagine, given the necessity of job reallocation among industrial branches, that starting practically from full employment, there should be flows from unprofitable sites with higher rates of job destruction towards profitable sites with higher job creation rates. The long term unemployment rate, as a rough indicator of the congestion effect is 4.04 in 1993 and 5.17 in 1995, both below the national average.

In the districts with agricultural specialisation, job destruction is predominant (see Table 11). The expected congestion effects are confirmed by the long term unemployment rate which is 7.62 in 1993 and 7.49 in 1995, much higher than the average level nation-wide. Neither the destruction nor the creation process is persistent. The creation and destruction processes seem to be substitutes.

In the districts with a diversified profile, the creation and destruction processes are more equilibrated. There is no persistent job creation or job destruction. The relationship between creation and destruction presents no particular pattern. The long term unemployment rate is 6.38 in 1993 and 7.29 in 1995 - lower than in agricultural regions but higher than in industrial regions.

TABLE 10

Job reallocation in districts with industrial specialisation

Average job flows					
	pos	neg	net	gross	excess
1993	0.003	0.001	0.002	0.004	0.002
1995	0.001	0.003	-0.002	0.004	0.002

Destruction and creation correlation coefficients in 1993

1993	pos93	pos92	pos91		neg93	neg92	neg91
pos92	0.67			neg92	0.83		
pos91	0.19	0.32		neg91	0.87	0.78	
pos90	0.54	0.24	0.16	neg90	0.63	0.59	0.61

Job creation correlation coefficients in 1995

	pos95	pos94	pos93	pos92	pos91
pos94	0.68				
pos93	0.72	0.72			
pos92	0.78	0.49	0.7		
pos91	0.04	0.01	0.19	0.35	
pos90	0.49	0.31	0.54	0.3	0.17

Job destruction correlation coefficients in 1995

	neg95	neg94	neg93	neg92	neg91
neg94	0.86				
neg93	0.9	0.75			
neg92	0.81	0.63	0.75		
neg91	0.92	0.79	0.86	0.75	
neg90	0.57	0.35	0.65	0.51	0.6

Job creation and job destruction relationship 1993-1995

	Pos93		neg93		pos95		neg95
neg93	0.96	pos93	0.96	neg95	0.82	pos95	0.82
neg92	0.82	pos92	0.61	neg94	0.75	pos94	0.82
neg91	0.91	pos91	0.21	neg93	0.68	pos93	0.96
neg90	0.59	pos90	0.62	neg92	0.56	pos92	0.76
				neg91	0.83	pos91	0.19
				neg90	0.34	pos90	0.47

Source: Own calculations

TABLE 11

Job reallocation in districts with agricultural specialisation

Average job flows

	pos	neg	net	gross	excess
--	-----	-----	-----	-------	--------

1993	0.0005	0.0009	-0.0003	0.001	0.001
1995	0.0009	0.0015	-0.0006	0.002	0.0015

Job destruction and job creation correlation coefficients in 1993

1993	Pos93	pos92	pos91		neg93	neg92	neg91
pos92	0.28			neg92	0.41		
pos91	0.07	-0.35		neg91	0.57	0.63	
pos90	-0.19	0.06	0.36	neg90	-0.38	-0.27	-0.26

Job creation correlation coefficients in 1995

	pos95	pos94	pos93	pos92	pos91
pos94	-0.17				
pos93	-0.3	-0.08			
pos92	-0.03	-0.2	0.27		
pos91	-0.03	0.38	0.14	-0.32	
pos90	0.2	0.38	0.39	-0.01	0.45

Job destruction correlation coefficients in 1995

	neg95	neg94	neg93	neg92	neg91
neg94	0.58				
neg93	0.55	0.08			
neg92	-0.03	0.08	-0.22		
neg91	0.67	-0.07	0.73	0.12	
neg90	-0.27	0.02	-0.27	-0.22	-0.3

pos92	0.25			neg92	-0.24		
pos91	0.56	0.05		neg91	0.07	0.47	
pos90	0.41	-0.29	0.36	neg90	0.19	0.34	0.68

Job creation correlation coefficients in 1995

	Pos95	pos94	pos93	pos92	pos91
pos94	0.06				
pos93	0.11	0.27			
pos92	0.53	-0.23	0.3		
pos91	0.03	0.39	0.55	0.05	
pos90	-0.1	0.18	0.43	-0.19	0.36

Job destruction correlation coefficients in 1995

	neg95	neg94	neg93	neg92	neg91
neg94	0.61				
neg93	-0.04	0.22			
neg92	0.71	0.68	-0.01		
neg91	0.56	0.71	-0.07	0.76	
neg90	0.26	0.35	0.18	0.43	0.66

Job creation and job destruction relationship 1993-1995

	Pos93		neg93		pos95		neg95
neg93	-0.08	pos93	-0.08	neg95	-0.05	pos95	-0.05
neg92	0.56	pos92	0.59	neg94	0.35	pos94	0.49

neg91	0.54	pos91	0.08	neg93	0.49	pos93	0.75
neg90	0.28	pos90	-0.44	neg92	0.12	pos92	0.01
				neg91	0.1	pos91	0.69
				neg90	0.07	pos90	0.45

Source: Own calculations

4. Regional labour markets equilibrating mechanisms

4.1. Wage differentials

As Table 13 indicates, the regional disparities of average wages have widened.

TABLE 13

Regional disparities of average wages⁷

	Standard deviation	Mean	Coeff. of variation
1993	5.77	58.3	0.098
1994	6.35	57.9	0.109
1995	7.28	65.0	0.111

Source: Own calculations

The correlation between real wages and the unemployment rate across regions is negative and is decreasing over time (-0.52 for 1993, -0.46 for 1994 and -0.25 for 1995). This could indicate an increasing power of the insiders in wage negotiation, which would explain the wage inflexibility to outside conditions, namely unemployment. Table 14 shows the reduced form equation relating the change in

⁷ average wages are calculated in 1993 prices

regional wages (dW) between 1993 and 1995 to the level of unemployment in 1993 and growth (dUrate) in regional unemployment rate in the period 1993-1995. The evolution of regional wages has not been responsive to labour market pressures. The coefficient of unemployment level is negative and the coefficient of unemployment growth is positive. Neither coefficient is statistically significant.

We computed regional wage premia (Wp) as a difference between actual wage and the average wage obtained by weighting the nation-wide sectoral wages by each region's sectoral employment shares. Changes in regional wage premia are more responsive to the unemployment level and growth, but again the resulting coefficients are not statistically significant. The sectoral specialisation does not seem to be a major factor behind the low responsiveness of wages to regional unemployment differentials.

TABLE 14

Regional wage changes and unemployment, 1993-1995

Dependent variable	Urate 93	dUrate	R²	Observations
dW	-0.09 (-0.77)	3.64 (1.72)	0.1	41
dWP	-1.19 (-0.45)	-42.14 (-0.88)	0.02	41

dW = Wage 95-Wage 93, Wage 95 deflated by the nation-wide consumer price

dUrate =(Urate 95 - Urate 93)/Urate 93

t-statistics in parenthesis

The responsiveness of average wages to labour markets can be best captured by the local unemployment elasticity of pay as suggested by the influential work of Blanchflower and Oswald (1994). Using microeconomic data for 12 countries⁸ they found strong evidence indicating that the local unemployment is negatively related to the level of pay, and most remarkably, the elasticity of unemployment of pay appears to be the same across nations. The relationship suggested by the wage curve is

$$\ln W = -0.1 \ln U + \text{other terms}$$

⁸ their sample included 3.5 million persons who were asked the same questions

where $\ln W$ is the logarithm of wage, $\ln U$ is the logarithm of the local unemployment rate, other terms are control variables for further characteristics of the worker and his or her sector/region. The coefficient on unemployment represents proportional change and can be read off as an elasticity. A hypothetical doubling of the local unemployment rate is associated with a drop in pay of 10%.

Using data for Romania from 41 regions, we investigated the relationship between the change in local unemployment and the level of average pay for three years (1993, 1994, 1995). The results of the regressions are given in Table 15.

TABLE 15

Wage curves for Romania (a)

	(1)	(2)	(3)	(4)	(5)
ln U93	- 0.16* (-4.81)				
ln U94		-0.15* (-3.88)		-0.14* (-3.37)	-0.3* (-3.61)
ln U95			-0.07 (-1.73)		0.16* (2.14)
Constant	4.45* (53.5)	4.42* (45.9)	4.34* (42.7)	4.51* (43.2)	4.51* (45.1)
R²	0.37	0.27	0.07	0.22	0.30

significant at the 5% critical level ; t-statistics in parentheses

The first three estimations uncover the relationship between the change of average regional wages and the contemporaneous change of the local unemployment rate. In addition, the following estimations include the change of the one period lagged unemployment rate.

The estimated elasticity of unemployment to pay is negative and significant for 1993 (-0.16) and 1994 (-0.15), and negative but not significant for 1995 (-0.07). The results for 1993 and 1994 seem to be in line with the wage curve. Workers employed in regions with high unemployment earn less, than those employed in regions with low unemployment. This behaviour has three explanations: one from the wage bargaining model, the other from efficiency wage model and the third from the

contract theory. The ability in claiming a large share of the surplus from a match when the alternative jobs are scarce is reduced or an increase in the unemployment may lead union's preferences toward a greater concern for the number of jobs than for pay. Both factors convey toward a lower negotiated level of pay. The efficiency wage theory suggests that the unemployment is a disciplining device for workers which partially takes over the motivating role of wages. When unemployment is high the firm can reduce pay while still maintaining a motivated workforce. An efficient labour contract maximises the joint welfare of employer and employees. When demand and supply shocks occur randomly and firms dislike risks the wage will rise in good time and fall in bad times. When there is a slump some workers are laid off, but not as many as in the case of fixed wages. Taking into account the centralised wage bargaining among unions and government in Romania we favour the bargaining explanation.

The explanatory power of regressions decreases over time. For 1995, it seems there is no relationship between unemployment and wages ($R^2 = 0.07$). One possible explanation might be that in 1995 the change in pay was related to the negotiations and local unemployment rate from the preceding year. Therefore, applying the theoretical outcome of the labour contract theory according to which wages depend on the past labour market conditions, we regressed the changes of the average regional wages in 1995 on the changes of the local unemployment rate from the previous year, 1994 (estimation 4). As expected, the explanatory power of the equation improved and the obtained elasticity of unemployment to pay (-0.14) becomes negative and significant. Including both contemporaneous and lagged unemployment rate as explanatory variables for wage in 1995, both have significant effects, the former positive and the later negative.

We further estimated the change of the regional average wage by introducing the effect of regional specialisation in the regressions. The results of the estimations for 1993, 1994 and 1995 are given in the Table 16.

We introduced dummies for agricultural (AGR) and diversified (DIV) regions. The chosen benchmark is the industrial region.

TABLE 16 Wage curves for Romania (b)

	ln W93	ln W94	ln W95	lnW
ln U93	-0.13* (-3.33)			
ln U94		-0.13* (-3.1)	-0.25* (-3.07)	
ln U95			0.15* (2.12)	
DIV	-0.01 (-0.58)	-0.02 (-0.58)	-0.06* (-1.95)	-0.04* (-2.34)
AGR	-0.05 (-1.72)	(-0.04) (-1.13)	-0.08* (-2.39)	-0.07* (3.42)
Y94				-0.005 (-0.28)
Y95				0.09* (4.97)
ln U				-0.09* (-3.93)
Constant	4.4* (50.2)	4.39* (44.3)	4.46* (46.6)	4.32* (76.6)
R2	0.42	0.30	0.40	0.44

* significant at the 5% critical level; t-statistics in parentheses

The results reported in Table 16 suggest that the change in the level of pay is clearly influenced by the profile of regions in 1995. In 1993 and 1994 the diversified regions and the agricultural regions do not have a different effect on the level of pay compared to the industrial regions. The elasticity of unemployment to pay is negative and significant in the estimations for 1993 and 1994. For 1995 we included both the lagged and the contemporaneous unemployment rates in the estimation of the level of wage. The elasticity of lagged unemployment to pay is negative for 1994 (-0.25) and significant and the elasticity of contemporaneous unemployment is positive and significant.

Finally, in order to capture the effects macroeconomic reforms have had on wages, we estimated a pooled regression for 41 regions for the period 1993-1995 (last

column of Table 16), and we introduced dummies to capture the macroeconomic effects for 1994 (Y94) and 1995 (Y95) in addition to the previous dummies for the economic specialisation of the regions: $Y94 = 1$ for 1994 and 0 for the rest; $Y95 = 1$ for 1995 and 0 for the rest. The chosen benchmark is the industrial region in 1993. The results shown in the last column of Table 16 suggest that the agricultural and diversified regions have lower levels of wages compared with the industrial regions. The estimated elasticity of unemployment to pay is very close to that obtained by Blanchflower and Oswald (1994) : that is a 100% increase in the local unemployment rate results in a 9% reduction in the regional wage level. The effect of 1994 is not significant, and in 1995 the relationship is positive. While the macroeconomic changes of 1994 have not affected the changes in wages, those of 1995 have had a positive effect (most probably due to pressures from the unions to ease economic hardship).

4.2. Housing conditions and regional unemployment

It is largely assumed that the scarceness of housing availability generates regional unemployment differentials by creating a barrier against labour mobility. Table 17 shows the results of the regression relating the changes in unemployment rate and the level and growth of the dwelling stock. It seems that regional unemployment differentials are not influenced by the regional housing conditions.

TABLE 17

Change in unemployment rate and housing

Dependent variable	Dwelling stock	Dwelling stock growth rates	R ²
Δ Urate 93	-0.0018 (-0.076)	3.13 (0.92)	0.03
Δ Urate 94	0.002 (1.09)	49.5 (0.38)	0.04
Δ Urate 95	-0.0017 (0.63)	-79.6 (-0.88)	0.02

Δ Urate 93 = Urate 93 -Urate 92

4.3. Regional labour mobility

Labour mobility is considered one of the re-equilibrating factors of regional labour markets imbalances. Thus, one could expect that the regional migration is responsive to regional unemployment differentials.

In the case of Romania, the absolute number of individuals changing residence exploded to 3.4 per cent in 1990 compared to 0.8 per cent in 1989⁹. This situation is explained by the relaxation of the legal constraints which, before 1989, restricted citizens' right to reside in the largest 14 cities.

The responsiveness of migration flows to labour market conditions is captured by simple correlation coefficients of the regional unemployment rates (Urate) and net migration flows (NMIG). The estimated coefficients are: -0.48 in 1992; -0.46 in 1993; -0.47 in 1994 and again -0.47 in 1995. The correlation between the change in net migration and unemployment rates, gives the following simple correlation coefficients: 0.37 for the net migration 1992-1991 and Urate 92; 0.48 for net migration 1993-1992 and Urate 93; 0.39 for the net migration 1994-1993 and Urate 1994; 0.33 for net migration 1995-1994 and Urate 1995.

The above correlation coefficients indicate that migration flows are not correlated to unemployment rates. However, the negative relationship between net migration flows and unemployment rates suggests that a rise in unemployment makes the respective region unattractive.

We further investigated the responsiveness of net migration flows and changes in net migration flows to the economic specialisation of regions and regional wages¹⁰. Table 18 reports the results of the estimations.

⁹ according to the Romanian Demographic Yearbook, 1996, Bucharest: National Commission for Statistics, p. 481

TABLE 18

Inter-regional migration flows in Romania, 1992-1995

	NMIG 93	NMIG 94	NMIG93- NMIG 92	NMIG94- NMIG93	NMIG95- NMIG94	NMIG	INMIG
W'93	254.9* (2.12)		-140.0 (-1.86)				
W'94		105.0 (0.9)		-61.1 (-1.75)			
W'95					-75.81* (-2.34)		
W'						62.79* (3.55)	101.5* (2.03)
AGRIC	-854.7 (-1.03)	-1004.0 (-1.86)	-647.0 (-1.21)	368.3 (1.46)	546.0* (1.94)	-700.0* (-2.1)	1296.5* (3.43)
DIV	156.5 (0.2)	23.0 (0.04)	-22.8 (-1.86)	118.1 (0.40)	171.0 (0.64)	169.0 (0.53)	713.6* (2.04)
Y94						-469.0 (-1.39)	624.0* (1.88)
Y95						-1143.0* (-2.6)	969.7* (2.84)
DS							46.9*

¹⁰ regional wages adjusted by unemployment cf. Harris and Todaro (1970)

							(38.6)
Constant	-132 (0.5)	-255.0 (-0.31)	722.9 (1.05)	199.5 (0.63)	342.0 (0.96)	-217.6 (-0.65)	-4254.0* (-8.03)
R²	0.23	0.16	0.17	0.18	0.27	0.19	0.93

* significant at 5% critical level ; t-statistics in parentheses

The results shown in the above table suggest that differences in the level of regional wages explain net migration in 1993 and the change in net migration in 1995-1994. The other coefficients are not significant.

An important factor influencing the decision to move across regions is housing availability, which is approximated by the dwelling stock (DS). The explanatory power for the variation of net migration in 1993 decreases when controlling for the available dwelling stock in 1993 (D93). However, the explanatory power increases when we introduce the dwelling stock in the estimations for net migration (NMIG94 and NMIG95) in 1994 and 1995. In the pooled regression, the introduction of the variable approximating the availability of housing (DS), results in an increase of the explanatory power from 20% to 50% . Since the availability of housing is relevant for the inflow of migrants, we further estimated the inflow of migrants controlling for regional wage, the economic profile of regions, and the dwelling stock. AGR and DIV are dummies for the agricultural and, respectively, diversified regions; the benchmark is the industrial region. Y94 and Y95 are dummies for 1994 and, respectively 1995; the benchmark year is 1993. The pooled regression uncovers a remarkable result: all coefficients are significant and the dependent variable is explained in 93% of the cases (see Table 18).

We expect that the economic specialisation of regions influences the direction of labour mobility. Given the differences for the mean and standard deviation corresponding to each type of region (see Table 19), we further calculated the difference between inflows and outflows of migrants and their shares in inflows, and outflows respectively for the three economic profiles of regions. The results are given in Table 20 .

TABLE 19

**Inter-regional migration flows and the economic specialisation of regions in
Romania, 1993-1994**

	IND	IND	AGR	AGR	DIV	DIV
	Mean	Std	Mean	Std	Mean	Std
Inflows 93	5285.7	2041.3	3775.1	1234	5875.9	2328
Outflows93	5243.6	2055.4	4797.4	1637.9	5623.7	1759
Inflows 94	7854	9820	5069	1735	6600	2178
Outflows94	7456	8187	5811	1896	6230	1736
Inflows 95	8561	9777	6183	1655	6498	2616
Outflows95	8485	9055	6524	1774	6305	2164

Source: Own calculations based on data from the Romania Demographic Yearbook, 1996

TABLE 20

	INFLOWS- OUTFLOWS	SHARE IN TOTAL INFLOW	SHARE IN TOTAL OUTFLOW
1993			
IND	9507	0.43	0.39
AGR	-13290	0.20	0.25
DIV	3783	0.36	0.35
1994			
IND	5570	0.41	0.40
AGR	-10378	0.26	0.30
DIV	4808	0.32	0.30
1995			
IND	996	0.38	0.35
AGR	-4091	0.25	0.27
DIV	3095	0.36	0.35

Source: Own calculations based on data from the Romanian Demographic Yearbook, 1996

The results shown in Table 20 suggest that agricultural regions are net senders and the industrial and diversified regions net receivers. Given the mismatch of agricultural labour skills with the jobs in a diversified region, we could argue that the agricultural regions are still a source of labour for the industrial regions. The worsening at a faster rate of the absorption capabilities of industrial regions suggests lower job possibilities

from those originated in agricultural regions and thus higher unemployment in these regions.

5. Conclusions

This paper aimed to uncover the main trends and characteristics of regional labour markets in Romania in the period 1990-1995. Our research suggests the following conclusions:

1. Regional disparities in unemployment rates have remained stable in Romania since the beginning of the transition. This situation is similar to the case of Poland but different from the case of increasing regional disparities in Bulgaria and the Czech Republic and decreasing disparities in the case of Hungary.
2. The decline in employment is reflected half in unemployment growth and half in flows out of the labour force. In spite a huge output decline in the first years of transition, the process of adjustment to sectoral shifts has been slow. We find a negative relationship between regional unemployment rates and regional sectoral reallocation, but no correlation between these two variables.
3. The analysis of regional job flows indicates that the early job creators are also the latter job creators. On the other hand, the early losers seem to remain stuck in their

status-quo. Starting with 1994, the relationship between job creation and job destruction is positive which supports the argument that job reallocation results in both job creation and job destruction.

4. We found an increasing role of regional factors in explaining the regional disparities in the disemployment process. The positive correlation between the lagged unemployment rate and the growth rate of the number of employees indicates that labour reallocation has taken place due to job creation through previous job destruction.
5. Our analysis of job reallocation in correlation with the regional economic specialisation shows that the greatest job creation and job destruction have taken place in regions with an industrial profile. In the regions with an agricultural profile, job destruction is predominant. However, neither job creation nor job destruction is persistent. A more equilibrated pattern is observed in the diversified regions.
6. The evolution of the regional wages has not been responsive to labour market pressures while changes in regional wage premia seem to be more responsive to unemployment rates.
7. We found evidence which suggests the existence of a “wage curve” in the case of Romania. The estimated elasticity of unemployment to pay is negative and significant in 1993 and 1994. Our results suggest that the level of pay is clearly influenced by the type of business that predominated in the regions in 1995. The industrial regions have higher average wages compared with the regions with agricultural and diversified profiles.
8. Inter-regional migration flows are not correlated with regional unemployment rates. However, a negative relationship seems to exist between net migration flows and unemployment rates suggesting that the rise of unemployment in a certain region makes it unattractive.
9. We found evidence that housing availability, approximated by the dwelling stock, is an important factor in the decision to move across regions. While the agricultural regions are net senders of migrants, the industrial and diversified regions are net recipients. The absorption capabilities have declined in both industrial and diversified regions, although faster in the industrial regions. It seems that the migrant outflows from agricultural regions respond to the absorption capability of

industrial rather than diversified regions. We could assume that industrial and diversified regions absorb different types of workers. The workers which could be absorbed by the diversified regions are not those found in the agricultural regions. The clarification of this hypothesis needs further and deeper analysis. We believe that the results of such a research could offer interesting answers to the problem of mismatching which makes difficult the necessary labour reallocation associated with the restructuring process in transition economies.

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