

UDC: 331.5(437.3)

JEL Classification: P20, P30, J21, J23

Keywords: structural adjustment – labour market flows – transition probabilities

# Czech Labour Market Flows 1993–2003

Jaromír GOTTVÁLD\*

## 1. Introduction

Any labour market displacement requires mobility of workers so as to enable their absorption either into the same industry or into a different one. This is a crucial condition for efficient reallocation of resources. This paper looks at labour force mobility and the impact of structural changes and adjustments on the Czech labour market. More specifically, the main objective of this paper is to look at how flexible the Czech labour market is, through a comparison of the strength of labour market flows internationally and during the different stages of economic transition.

In the following section 2, we define the methodology of Markov's chains and the relative employment growth index, which are used for empirical analysis. In the same section, we also define the data sources. Section 3 analyses labour flows between various labour force statuses, while section 4 deals with job-to-job flows. Labour mobility between industries is analysed in section 5, especially absolute flows between declining and growing industries. The final section gives a summary.

## 2. Data and Methodology

The source of the data used here for the flow analysis is “The Labour Force Survey” (LFS) carried out quarterly since 1993 by the Czech Statistical Office (CZSO). In the LFS, each quarter was originally shifted one month backwards. This means that, for example, the first quarter of 1996 consists, in fact, of December 1995, January 1996 and February 1996. These shifts were changed by the CZSO to ordinary regular quarterly ranks (i.e. January, February and March as the first quarter, etc.) in 1998. All LFS data used here are re-calculated using the new methodology.<sup>1</sup> To date, only a few studies have used LFS data to examine Czech labour market flows.

Terrell and Šorm (1996) analyse two sets of cohorts of the working age population using the quarterly LFS data for 1994 and 1995 and compare the flows-in and flows-out among the three different labour market states (employment, unemployment and out-of-labour force). They also calculate gross probabilities and estimated exits out of unemployment in the same years by multinomial logit analysis. A more detailed, yet methodologically

\* Technical University of Ostrava, Faculty of Economics (jaromir.gottvald@vsb.cz)

<sup>1</sup> Note, however, that the structure of the LFS is still subject to changes and therefore certain calculations in this chapter can only be done for specific periods.

similar, comparative analysis of the determinants and extent of labour mobility in the Czech Republic has been provided more recently by Šorm and Terrell (2000), using the quarterly micro LFS data for the period 1994–1998. Also Huitfeldt (1996) examines Czech labour market flows, using individual data from the LFS (1994–1995). In addition, Gottvald (1999) investigates Czech labour market flows by means of gross flow analysis (industries, occupations and gender), using LFS data for the period 1993–1998. Finally, Kux (1996), (1997) also gives an exposition of how to measure labour market flows by means of the LFS in the Czech Republic. All these studies use similar panel data for individuals, but are based on different time spans (their concrete results will be commented on later in the text – see especially sections 3 and 4).

The key methodological assumption is that a Markov process governs movements between various labour market states. Markov's chain model is a probabilistic analysis showing how each state in an evolutionary process produces the next state in a finite chain.<sup>2</sup> It can be applied to a labour market where the probability of transition between labour market states depends on the state formerly occupied. There are three major states: employment (*E*), unemployment (*U*) and out-of-labour force – inactive (*O*). There are nine potential transitions, which can be represented by a  $P_i$  matrix:

$$P_i = \begin{array}{|c|c|c|} \hline EE & EU & EO \\ \hline UE & UU & UO \\ \hline OE & OU & OO \\ \hline \end{array} \quad (1)$$

where, for example, *UE* represents the probability that an individual is observed as employed at time  $t + 1$ , conditional upon being unemployed at time  $t$ . The gross transition probability that an individual is unemployed at time  $t$  and is employed at time  $t + 1$  is given by:

$$P_{ue} = UE_{t+1} / U_t \quad (2)$$

and generally given by:

$$P_{ij} = \frac{F_{ij}}{S_i} \quad [i, j = E, U, O] \quad (3)$$

where  $F_{ij}$  is the number of individuals in state  $i$  at time  $t$  that have moved to state  $j$  at time  $t + 1$ .  $S_i$  is the initial stock of individuals in this state at time  $t$ .

In addition, the “Relative Employment Growth Index” (REGI) is used in this paper to measure the relative employment growth in different industries. More specifically, the REGI is a measure where the employment growth of an industry is weighted by the total employment growth of an economy. This form of measurement is advantageous when, for example, a decrease in employment occurs in a particular industry whilst overall employment in the given period is increasing. Consequently, the result-

<sup>2</sup> See, for example, (Rutherford, 1992) for more details.

TABLE 1 Czech Labour Market Transition Probabilities

Period	For labour market status 4 quarters later								
	$P_{ee}$	$P_{eu}$	$P_{eo}$	$P_{ue}$	$P_{uu}$	$P_{uo}$	$P_{oe}$	$P_{ou}$	$P_{oo}$
1993q1–1993q4	93.5	1.7	4.8	54.6	32.3	13.1	4.6	1.1	94.3
1994q1–1994q4	94.9	1.2	3.9	52.2	32.6	15.2	3.9	0.7	95.3
1995q1–1995q4	93.8	1.2	4.9	48.9	36.2	15.6	3.3	0.6	96.0
1996q1–1996q4	95.1	1.4	3.4	47.5	43.4	9.0	2.9	0.8	96.4
1997q1–1997q2	94.3	1.8	3.8	39.3	50.1	10.6	3.7	1.1	95.2
1998q1–1998q4	93.9	3.1	3.8	35.7	56.4	7.9	2.8	1.3	95.9
1999q1–1999q4	94.2	2.4	3.4	36.4	56.4	6.9	2.6	1.0	96.8
2000q1–2000q4	95.0	1.7	3.3	33.7	60.2	6.1	1.9	0.8	97.3

Source: LFS/1993:I–2001:IV (data not available for 1997:III and 1997:IV); own calculations from quarterly data

ing decrease is relatively larger and thereby better demonstrates the level of change. The same type of index is used, for example, by Eamets et al. (1997).

### 3. Mobility across Labour Market States

During the period 1990–1993, which was not monitored by the LFS, there were major changes in total employment and also in employment structure. In the course of the privatisation process, large monopolistic enterprises were administratively split into many small and medium-sized firms. This process resulted, among other things, in a change of industry (a statistically recorded change of employment) for many employees, but without any real change in the type or place of work. This kind of “labour mobility” could therefore hardly be regarded as a consequence of restructuring and modernisation followed by efficiency gains.

This period was also characterised by a natural outflow of a part of the labour force from the labour market (employed pensioners, women). At the same time, the first wave of involuntary redundancies resulted also in the emergence of unemployment, combined partly with outflows abroad and into the black economy. On the other hand, underdeveloped industries like services and the public sector absorbed most of the dismissed workers – see (Flek – Večerník, 2005) for more discussion of this initial period of transition. In general, it is very difficult to specify the range of all these moves and their impact on the industrial structure of employment before 1993. The years following are listed in the present analysis (*Table 1*).

The probability that a person remains employed one year later, given that he/she was employed in the initial state, is relatively high and stable. More specifically, the probability  $P_{ee}$  for 4 quarters later fluctuates between 93.5 % (93:I–93:IV) and 95.1 % (96:I–96:IV). The values of this probability differ markedly from other Central and Eastern European (CEE) economies, thus suggesting a more rigid employment structure in the Czech Republic.

Gora and Lehman (1995) find the following values for Poland:  $P_{ee} = 88.4$  % (93:5) and  $P_{ee} = 89.7$  % (94:4), whilst Bellman et al. (1995) calculate  $P_{ee} =$

= 83.6 % (91:11) for East Germany. Gora and Lehman (1995) find a similar probability for the Czech labour market as the present analysis ( $P_{ee} = 93.0$  %). Finally, Šorm and Terrell (2000) also present similar results, where  $P_{ee}$  lies within an interval from 95.7 % to 96.6 % for the status 3 quarters later.

The probabilities characterising the outflows from the employment status are  $P_{eu}$  and  $P_{eo}$ . In words, someone who is employed in a given quarter has a certain probability of exiting employment in the next four quarters *via*: (i) unemployment ( $P_{eu}$ ), or (ii) by finding himself/herself out of the labour force ( $P_{eo}$ ). Throughout the period, the probability that an employed person exits the labour force is higher (nearly 2–3 times) than the probability he/she becomes unemployed (with the exception of 1998 and 1999). The probability  $P_{eu}$  moves between 1.2 % (94:I–95:IV) and 3.1 % (98:I–98:IV), whilst  $P_{eo}$  ranges between 3.3 % (00:I–00:IV) and 4.9 % (95:I–95:IV).

These numbers are significantly lower than the comparable results for Poland, where the probability of exiting employment during the next four quarters was 10.3 % (5/93–5/94) – see (Gora – Lehman, 1995) for details.

The highest fluctuations in labour market status can be seen within the pool of Czech unemployed. The probability  $P_{ue}$ , which, together with  $P_{oe}$ , characterises the flexibility of job creation, is very high at the beginning of our sample ( $P_{ue} = 54.6$  % (93:I–93:IV)), but decreases continuously to 33.7 % (00:I–00:IV). This is a striking result, documenting that the Czech labour market has witnessed a sharp decline in job creation flexibility relative to the stock of unemployed.

At the same time,  $P_{oe}$  moved from 4.6 % at the beginning of the LFS survey (93:I–93:IV) to 1.9 % by the end of our monitoring period (00:I–00:IV). In absolute terms, this is less than one half of the number of those re-employed from the stock of economically inactive persons as compared to the beginning of 1993.

A remarkable evolution also occurred in respect of being and remaining unemployed. Namely,  $P_{uu}$  started at a very low level of 32.3 % (93:I–93:IV), but increased gradually to 60.2 % (00:I–00:IV). Probabilities below 40 % are suggestive of a short average duration of unemployment in the Czech Republic between 1993 and 1996, while the subsequent increases in  $P_{uu}$  are consistent with rising long-term unemployment, another sign of adverse labour market developments.

A relatively stagnant and low probability level is found for  $P_{ou}$ . This kind of flow (i.e. entering the labour market and becoming immediately unemployed without any work experience) is typical for some school-leavers and graduates. This probability reached its maximum in 1998 (1.3 %) and its minimum in 1995 (0.6 %). By contrast,  $P_{ou}$  in Poland (93:5–94:5) was, according to (Gora – Lehman, 1995), 4.3 %.

Three transition probabilities have changed significantly during the investigated period. Namely, the probability that people will remain unemployed one year later,  $P_{uu}$ , has doubled during the last seven years. Not surprisingly, the probability of leaving unemployment to employment ( $P_{ue}$ ) has decreased by some 20 percentage points. Probability  $P_{uo}$ , meaning that people leave from unemployment to out-of-labour-market, has also decreased significantly.<sup>3</sup> Such an evolution of labour flows enables us to document

the changing nature of labour market flexibility during the three different stages of economic transition:

a) *Delayed restructuring* (up to 1997), accompanied by enterprise soft budget constraints and continuing credit lines from state-owned commercial banks, created relatively little unemployment pressure and weak incentives to shed labour. Given the parallel expansion of private entrepreneurship, especially in the underdeveloped service sector, it is no wonder that the probability of remaining unemployed ( $P_{uu}$ ) was relatively low and the probability of receiving a new job after a short unemployment span ( $P_{ue}$ ) relatively high. One must also admit that the unemployment pressure was additionally weakened by a high probability of leaving the labour force instead of remaining within the pool of unemployed ( $P_{uo}$ ), caused especially by mass labour force withdrawals of jobless women, dismissed working pensioners as well as widespread use of early retirement schemes by those who would otherwise have remained among the unemployed.

b) *Recession resulting from a macroeconomic overheating* (1997–1999) meant a dramatic change in the nature of labour flows, characterised by diminishing employability of those who lost their jobs ( $P_{ue}$ ) and, consequently, increasing prospects of remaining unemployed ( $P_{uu}$ ). At the same time, the opportunity for reducing unemployment artificially by labour force withdrawals of post-working-age individuals ( $P_{uo}$ ) had been exhausted. On the other hand, the “worsening” labour market flexibility may be associated, at least in part, not only with tightening monetary and fiscal stances, but also with increasing pressures to restructure on formerly state-owned enterprises (improving bankruptcy enforcement, the termination of automatically renewed credit lines, better financial discipline in the enterprise sector, etc.).

c) *The post-recession period* (2000 to date) further worsened labour market flexibility. This can be seen especially in the rise in long-term unemployment, manifesting itself in a gradually growing  $P_{uu}$ . Continuing, or even accelerating, enterprise restructuring is not, however, the only factor behind such a labour market evolution. One must equally point to weak job creation, labour market legislation preserving labour market rigidities, the failure of government active labour market policies, etc. (see Chapter 1 for more discussion).

A complementary international comparison concerning job flows can be obtained by calculating the rate of mobility, again using the LFS. In *Table 2*, the percentage of total status changes (i.e. *EU*, *EO*, *UE*, *UO*, *OE*, *OU*) is divided by the total number of the working age population<sup>4</sup> (total employment) in order to calculate the mobility rate.

<sup>3</sup> The LFS data also reveal the different labour market experience of men and women, generally displaying a higher propensity of women to leave their employment status as well as exit the labour force. During the period 93:I–99:IV, the probability  $P_{ee}$  (i.e. of maintaining one's employment status) is about 4 percentage points higher for men than for women. For men,  $P_{ee}$  ranged between 94.5 % (95:II–96:II) and 97.2 % (96:I–97:I). For women,  $P_{ee}$  was noticeably lower, ranging from 90.1 % (93:I–94:I) to 93.5 % (96:III–97:III). Another significant difference is the probability of leaving employment and exiting the labour force,  $P_{eo}$ . This is higher for women (4.6–7.6 %) than for men (1.8–4.6 %). More detailed results are available from the author upon request.

TABLE 2 Mobility Rates in International Comparison (per cent; 1994/1995)

Type of employees	Type of mobility rate	Sweden <sup>a</sup>	Norway	Finland	Poland	Estonia <sup>d</sup>	Czech Republic
All employees	Wide	24.0	20.1	23.3	15.5 <sup>b</sup> 14.3 <sup>c</sup>	19.7	12.4 <sup>e</sup> 8.2 <sup>f</sup>
All employees	Narrow	16.2	12.4	11.5	n.a.	n.a.	n.a.

Notes: *Wide*: including persons leaving the active work force. *Narrow*: excluding those leaving the active work force. Job-to-job flows are not included.

Source: STEP Report R-06/1998, p. 44, [www.sol.no/step](http://www.sol.no/step).  
<sup>a</sup> 1995/96, <sup>b</sup> 1992/93, <sup>c</sup> 1993/94, <sup>d</sup> 1994, <sup>e</sup> 1993, <sup>f</sup> 1996

For 1993, the result for the Czech Republic is 12.4 %, with a tendency to decrease gradually in subsequent periods, for instance to 8.2 % in 1996. Even for Poland the similar indicator is higher, ranging from 15.5 % for 92:5–93:5 to 14.3 % for 93:5–94:5.<sup>5</sup> Analogously, for Estonia, Eamets *et al.* (1997) report 19.7 % in 1994.<sup>6</sup> As a result, Czech job flows are the lowest of all the countries listed in Table 2.

#### 4. Job-to-Job Flows

In the flow analysis presented above, we are only able to record one movement of an individual over the period of four quarters and determine whether the initial state  $j$  is different from the final state  $i$ . When an individual, however, moves from state  $j$  to state  $i$  and then returns back to the original state  $j$  within a four-quarter period, we are unable to record such movements. That is why the probabilities analysed above do not explain in full the nature of labour flows. There are three probabilities ( $P_{ee}$ ,  $P_{uu}$ ,  $P_{oo}$ ), explaining the rigidity of each labour market status. We can, therefore, assume that the higher the probabilities  $P_{ee}$ ,  $P_{uu}$  and  $P_{oo}$ , the smaller the moves registered among the remaining states. Then we could observe that the transition matrices are increasingly diagonal-heavy over the analysed period. This holds, however, only if there is no “round tripping” within the states (including job-to-job flows as a particular case).<sup>7</sup>

In this analysis, we concentrate on job-to-job flows. The point is that the magnitude of job-to-job flows provides important information on the extent of job destruction and job creation (structural change) and the convertibility of skills. Only individuals with marketable skills can shift from

<sup>4</sup> Total population minus children under 15 and pensioners (working pensioners are included).

<sup>5</sup> Own calculations based on (Gora – Lehman, 1995). Children under 15 are excluded, but there is no upper age limit.

<sup>6</sup> The percentage of total status changes plus “round tripping” (but without EE status, i.e. job-to-job flows), divided by the total sample size, which represents the working age population (15–69) – see the next footnote for the definition of “round tripping” and job-to-job flows.

<sup>7</sup> The term “round tripping” applies to those who flow through another state within the investigated period and return back the original one (e.g. an employed person with a short unemployment spell). The term “job-to-job flow” applies to those who flow from employment directly to another employment.

TABLE 3 Job-to-Job Flows  
(probability in per cent of all employed)

Period	Duration of employment		
	Up to 1 month	1–3 months	Σ 0–3 months
1993q1–1993q4	0.9	1.8	2.7
1994q1–1994q4	2.3	3.9	6.2
1995q1–1995q4	3.0	6.4	9.4
1996q1–1996q4	2.6	5.3	7.9
1997q1–1997q4	2.1	4.6	6.7
1998q1–1998q4	1.4	3.2	4.6

Source: LFS, Czech Statistical Office; own calculations (total job-to-job flows calculated as the sum of quarterly data flows (Σ 0–3 months) multiplied by the stock of employment from the LFS).

job to job. It is thus important to see whether these inner flows cause substantial upwardly biased probabilities of “staying” in a state  $E$ . For the Czech labour market, job-to-job flows are expected to play a potentially major role in labour reallocation. If so, the reported high probability of  $P_{ee}$  includes a high proportion of job-to-job shifts. This would mean (at least for some periods) a relatively higher level of labour market mobility than appeared in Table 1, especially if controlled for the effects of the splitting-up and privatisation of Czech enterprises.

We calculate the probability of a job change within the employment status ( $E \rightarrow E$ ) during the period 1993–1997 to resolve the above-formulated dilemma. In accordance with Terrell and Šorm (1996), (2000) or Huitfeldt (1997) we make use of the LFS questionnaire, where respondents are asked: “How long has your job continued without interruption?” This backward-looking question is structured in nine possible answers, up to “more than 20 years”.

The answers relevant to our analysis are categorised as follows: (i) “up to 1 month”, (ii) “more than one month and less than 3 months”, and (iii) “more than 3 months”. In all cases, the initial state of the respondents is “employment”. From this data we furthermore calculate the probabilities of a job change within each quarter of the year. The results for the individual quarters are summarised in order to achieve annual figures on job-to-job flows.

The results in Table 3 demonstrate that the probability of an employed individual taking part in job-to-job flows ranges from 2.7 % in 1993 to 9.4 % in 1995. Thus the extent of these flows appears to be higher than that reported by Terrell and Šorm (1996, 2000) or Huitfeldt (1997). Terrell and Šorm (1996) indicate that in the case of the Czech Republic surprisingly few people appear to have changed jobs without passing through unemployment or leaving the labour force (referred to by authors as “churners”): the probability of a job-to-job change was only 2.5 % in 1994 and 6 % in 1995. In a further study, Terrell and Šorm (2000) report figures rising from 2.5 % in 1994 to 5.8 % in 1996, but falling to 3.5 % in 1998. In addition, Huitfeldt (1997) calculates transition probabilities for job-to-job mobility of 2.4 % for the first two quarters of 1995 in the Czech Republic.

Moreover, one must admit the results presented by Terrell and Šorm (1996, 2000) and Huitfeldt (1997) are too low to explain the structural

changes in employment which occurred in the Czech Republic, given that aggregate unemployment rates remained quite low during the periods under investigation. Inter-industry variation in labour-force exits then appears to be the only factor explaining the structural changes in employment.

By contrast, Flek (1999) mentions substantially different results based on the SIALS database, with job-to-job moves being one of the dominant explanations of movements of employees on the Czech labour market. Between 1992 and 1997, nearly 40 % of the labour force had moved voluntarily to another employer and 12.8 % to self-employment or private business activities. Večerník (2001) presents absolute figures on job-to-job flows, with similar conclusions – see also (Flek – Večerník, 2005).

Note that aggregate unemployment was very low, especially during 1994–1996, while economic growth accelerated and created a number of new jobs as a consequence. Thus, also in line with the argumentation of Flek and Večerník, we conclude that the probability of changing a job without an episode of unemployment was relatively high and represented, in fact, the decisive labour flow during that period – cf. Table 5 in (Flek – Večerník, 2005).<sup>8</sup> Even this kind of flow, however, tends to diminish over time, as does job turnover in general.<sup>9</sup>

Only a small number of international studies exist for transition economies with comparable data structure and methods used. For Poland, Gora and Lehman (1995) show that only 3.8 % of both the employed and inactive were engaged in “round tripping” in 1992, as compared to 28 % of the unemployed. Dorenbos (1999, p. 197) compares Hungary and Poland at the beginning of the transition process (1988–1993). Although his results are not directly comparable with ours, he concludes that “job-to-job transitions (though broadly defined) are, on average, four times more frequent than transitions from employment to unemployment. This implies that a very substantial part of the mobility on the labour market has been neglected in most research efforts so far. In Hungary, job-to-job transitions occurred more frequently than in Poland.”

## 5. Industrial Structure of Employment

Transitional probabilities between different labour market states do not distinguish whether a status change concerns a transition to another job in

<sup>8</sup> The results in Table 3 still point to a surprisingly low extent of job-to-job flows in 1993. By contrast, Večerník (2001) reports the highest absolute extent of job-to-job flows specifically for 1993. Explaining in retrospect the differences in results with regard to 1993 is difficult. In our understanding, the low quality of the reported LFS data in the first year of its existence could explain them at least partially. In addition, we cannot exclude possible differences in calculation methods.

<sup>9</sup> When we deduct new labour market entries to employment, which compose nearly 30 % of the total changes, only 8–9 % of the employed per year actually changed their job during 1989–1995. The same indicator for 1995–1999 reveals a slowdown in job turnover; only about 5–6% of the employed per year changed jobs. Almost one-third of all employees still have the same job as before 1992. The data clearly show that the average job duration grows and job turnover decelerates. More detailed results are available from the author upon request.



TABLE 4 Relative Employment Growth Index

Industry (NACE)	REGI index (1) 1998:1993	REGI index (2) 2003:1993	Change [(2)-(1)] for period 2003:1998
Mining and quarrying	-0.3398	-0.5650	-0.2252
Agricultural, hunting	-0.3136	-0.4357	-0.1221
Health and social work	-0.1042	+0.1234	+0.2276
Electricity, gas and water supply	-0.0767	-0.2018	-0.1251
Manufacturing	-0.0737	-0.0797	-0.0060
Education	-0.0538	-0.0151	+0.0387
Transport, storage and communication	-0.0357	-0.0500	-0.0143
Other communal services	-0.0198	+0.1532	+0.1730
Fishing, forestry	-0.0099	-0.2685	-0.2586
Private households with employed persons	+0.0011	+4.7500	+4.7489
Hotels and restaurants	+0.0734	+0.1860	+0.1126
Construction	+0.1418	+0.0567	-0.0851
Real estate, renting and business activities	+0.1420	+0.2760	+0.1340
Public administration	+0.2509	+0.0646	-0.1860
Trade, car services	+0.2608	+0.2609	+0.0001
Financial services	+0.4758	+0.5109	+0.0351
Extra-territorial organisations	+2.0033	-	-
Total index of employment growth	0.998	0.983	+0.015

Source: Czech Statistical Office; LFS; own calculations

Note: 2003 = 2003:1

the same firm, within the same industrial branch or in a different industry. We therefore use the LFS data in order to establish labour transitions between 17 industrial branches by the NACE classification. (Job-to-job movements and intra-industry flows cannot be detected in such a way, however.) First, we use the 1998 REGI (*Table 4*) indices to compare industries according to employment developments. Then, the REGI is also used to look at employment flows between industries in more detail.<sup>10</sup>

According to REGI 2003:1993, the most remarkable change took place in health and social work. An initial period of falling employment due to privatisation was replaced by a period of employment growth, which eventually resulted in exceeding the number of employees in comparison with 1993.<sup>11</sup> A similar break in the employment trend also occurred in “other communal services”. In mining and quarrying, as well as agriculture and hunting, the fall in employment continued even after 1998, albeit with lower dynamics. In contrast, the fall further accelerated in fishing, forestry, and electricity, gas and water supply. The fall in employment came to a halt in manufacturing, with the fall in employment almost coming to a stop in trade, car services and financial services, but after a previous period of rapid growth. Growth in employment continued in hotels, restaurants and real

<sup>10</sup> REGI 2003 cannot be used because not all flows are available. Thus the year 2003 is additionally calculated according to REGI 1998 methodology.

<sup>11</sup> The most robust relative growth in employment, however, has been in “private households with employed persons”. Absolute figures on the number of employees indicate, however, that it still remains a fully insignificant industry.

TABLE 5 Flows between Industries and Labour Market Statuses from 93:I to 94  
(in thousands)

Industries <sup>a</sup> where em- ployment is	Flows out	Stayed	Flows in	Net change of employment	Net contribution to unemployment	Net contribution to inactivity
Declining <sup>b</sup>	-169.1	2 478.1	+116.6	-52.5	+13.3	+7.3
Stable <sup>c</sup>	-41.8	528.2	+34.8	-7.0	-9.8	-6.6
Growing <sup>d</sup>	-127.3	1 368.5	+186.9	+59.6	-9.4	-24.0
Σ	-338.2	4 374.8	+338.3			

Source: own calculations from LFS

Notes: <sup>a</sup> NACE classification. Industries were divided into categories according to the REGI index, declining below 5 % of the total change during 1993–1997; stable from -5 % to +5 % of total change and growing for more than 5 % of the total change.

<sup>b</sup> agriculture, mining and quarrying, manufacturing, electricity, gas and water supply, education, health and social work

<sup>c</sup> fishing, forestry, transport, storage and communication, other communal social service activities, private households with employed persons

<sup>d</sup> construction, trade, cars and household repairs, hotels and restaurants, financial services, real estate, renting and business activities, public administration, extra-territorial organisations

TABLE 6 Flows between Industries and Labour Market Statuses from 95:I to 96:IV  
(in thousands)

Industries where em- ployment is	Flows out	Stayed	Flows in	Net change of employment	Net contribution to unemployment	Net contribution to inactivity
Declining	-133.2	2 302.9	+108.6	-24.6	-15.1	+45.8
Stable	-41.2	547.1	+40.7	-0.5	-6.0	+9.1
Growing	-139.6	1 608.4	+164.4	+24.8	-30.0	+26.2
Σ	-314.0	4 458.4	+313.7			

TABLE 7 Flows between Industries and Statuses from 97:I to 98:I  
(in thousands)

Industries where em- ployment is	Flows out	Stayed	Flows in	Net change of employment	Net contribution to unemployment	Net contribution to inactivity
Declining	-90.6	2 157.8	+80.0	-10.6	+2.4	+92.0
Stable	-26.2	543.5	+29.8	+3.6	+2.3	+16.2
Growing	-119.7	1 691.6	+127.0	+7.3	-22.9	+15.0
Σ	-236.5	4 392.9	+236.8			

estate, renting and business activities industries. Employment in construction and public administration decreased slightly after 1998.

Tables 5–8 show employment flows between industries, divided into three groups (increase, stagnation or decrease in industry employment measured by the REGI). The highest absolute flows-in and flows-out are in manufacturing, representing more than 30 % of total employment.

Nonetheless, the share of manufacturing in the total flows is only 22 %

TABLE 8 Flows between Industries and Statuses from 01:IV to 02:IV  
(in thousands)

Industries where employment is	Flows out	Stayed	Flows in	Net change of employment	Net change of unemployment	Net change of inactivity
Declining	-59.2	1 989.5	+57.5	-1.5	n.a.	n.a.
Stable	-21.4	519.3	+24.4	+3.0	n.a.	n.a.
Growing	-80.2	1 655.8	+78,1	-2.1	n.a.	n.a.
Σ	-160.8	4 166.4	+160.0			

and these moves constitute only 5 % of the total employment in manufacturing. The industries with the greatest flows-in and flows-out (according to their shares in the total inter-industry employment turnover) are the same as the industries with the highest REGI.

In general, the industry flows for the last ten years have decreased markedly, thus suggesting an enormous slowdown in labour market dynamics: total flows-in declined by more than 50 % during 1993 and 2002, with the most remarkable fall recorded in “declining” industries, followed, however, by “growing” industries.

This suggests a sharp decrease in job creation even in those industries with statistically growing employment. Also, a parallel decline in total flows-out suggests an increasing stagnation in the structure of employment.<sup>12</sup>

## 6. Conclusion

This paper provides an overview and explanation of labour flow dynamics in the Czech Republic. It attempts to examine how flexible the Czech labour market is, through a comparison of the strength of labour market flows internationally and during the different stages of economic transition. There are the following generalised conclusions:

1. The overall analysis of mobility flows throughout the analysed period (divided into three sub-periods) shows increasing structural stagnation and diminishing labour market flexibility. International comparisons reveal that the values of Czech flows are significantly lower than those in other Central and Eastern European (CEE) economies or in Nordic countries.
2. Contrary to the previously presented findings, we conclude that the probability of changing a job without an episode of unemployment was relatively high and represented (at least for the mid-1990s) the decisive labour flow. Even this flow, however, tends to diminish over time.

<sup>12</sup> Flows between occupations are methodologically the same as for industries. Flows between occupations are analysed separately for white-collar, blue-collar and elementary occupations. There is quite small but stable growth in employment for white-collar workers and an opposite trend for blue-collar workers. Absolute flows-out and flows-in, however, are higher for blue-collar workers. The greatest relative employment flows were in elementary occupations: 9.7 % in 1993, decreasing to 7.1 % in 1997. The intensity of flows fell continuously for all groups over time and reflected the same tendencies as the flows between industries. More detailed results are available from the author upon request.

3. It can be stated that industries creating and destroying jobs are consistent with the conventional wisdom regarding “traditional” and “new” industries. One must admit, however, that employment flows-in and flows-out between industries have decreased markedly over the last ten years, thus suggesting once again an increasing stagnation in the structure of employment.

## REFERENCES

- BOERI, T. (1996): *Labour Market Flows and the Scope of Labour Market Policies in Central and Eastern Europe*. Proceedings of the OECD/Ifo Workshop on “What Can We Learn from the Experience of Transition Countries with Labour Market Policies?” December 1995.
- DORENBOS, R. (1999): *Labour Market Adjustments in Hungary and Poland*. Rijksuniversiteit Groningen, Labyrinth Publications, 1999.
- EAMETS, R. – PHILIPS, K. – KULIKOV, D. (1997): *Structural Adjustment in a Labour Market in Transition: The Case of Estonia*. Paper presented at the EALE Conference, Aarhus, Denmark – conference proceedings.
- FLEK, V. (1999): Employment Structure and Unemployment in the Czech Republic. *Prague Economic Papers*, 1999, no. 3, pp. 195–207.
- FLEK, V. – VEČERNÍK, J. (2005): The Labour Market in the Czech Republic: Trends, Policies and Attitudes. *Finance a úvěr – Czech Journal of Economics and Finance*, vol. 25, 2005, no. 1–2, pp. 5–24.
- GORA, M. – LEHMAN, H. (1995): How Divergent is Regional Labour Market Adjustment in Poland? *Ifo Institute for Economic Research, Discussion Paper*, no. 21.
- GOTTVALD, J. (1999): *Structural Adjustment of the Czech Labour Market*. EALE Conference Paper, Regensburg, Germany – conference proceedings.
- GOTTVALD, J. – PEDERSEN, P. J. – ŠIMEK, M. (1999): The Czech Labour Market in Transition: Evidence from a Micro Study. Blackwell, *Bulletin of Economic Research*, vol. 51, 1999, no. 1, pp. 39–65.
- GOTTVALD, J. – TVRDÝ, L. (2001): *Knowledge Stocks and Flows in the Czech Economy*. EALE Conference Paper, Jyväskylä, Finland – conference proceedings.
- GOTTVALD, J. et al. (2002): *Determinants of Individual Pay and Firms’ Pay Structures in the Czech and Slovak Republics*. Ostrava, VŠB-TU (ISBN 80-248-0150-7).
- HAM, J. – ŠVEJNAR, J. – TERRELL, K. (1994): The Czech and Slovak Labour Markets during the Transition. Prague, CERGE, 1994 – mimeo.
- HAM, J. – ŠVEJNAR, J. – TERRELL, K. (1996): Unemployment, the Social Safety Net and Transition Evidence from Micro Data on Czech and Slovak Men. Michigan, *William Davidson Institute, Working Paper*, no. 34.
- HUITFELDT, H. (1996): *Unemployment and Labour Market Transition in the Czech Republic: Evidence from Micro-Data*. EALE Conference Paper, Chania, Greece – conference proceedings.
- KUX, J. (1996): Možnosti měření toků pracovních sil na českém trhu práce během transformace. (Labour Force Flows Measure Possibilities during the Czech Transformation Process – in Czech). *Statistika*, 1996, č. 7, ss. 265–274.
- KUX, J. (1997): *Analysis of Labour Force Flows in the Czech Republic 1993–1996*. (A follow-up study). Prague, Czech Statistical Office, 1997 – mimeo.
- NAS, S. O. et al. (1998): *Formal Competencies in the Innovation Systems of the Nordic Countries: An Analysis Based on Registered Data*. OECD report, STEP Oslo – mimeo.
- RUTHERFORD, D. (1992): *Dictionary of Economics*. London – New York, Routledge, 1992.
- TERRELL, K. – ŠORM, V. (1996): *Employment, Unemployment and Transition in the Czech Republic: Where Have All the Workers Gone?* Working Paper presented at CEU, Budapest, at a seminar on “Labour Markets and the Applied Microeconomics of Transition”.

TERRELL, K. – ŠORM, V. (2000): Sectoral Restructuring and Labor Mobility: A Comparative Look at the Czech Republic. Bonn, *IZA Discussion Paper*, no. 111.

VEČERNÍK, J. (2001): Labour Market Flexibility and Employment Security – Czech Republic. *ILO Geneva, Employment Paper*, no. 2001/27.

## SUMMARY

JEL Classification: P20, P30, J21, J23

Keywords: labor-market flows – structural adjustment – transition probabilities

## Czech Labour Market Flows 1993–2003

Jaromír GOTTVÁLD – Technical University of Ostrava, Faculty of Economics, Ostrava, Czech Republic  
(jaromir.gottvald@vsb.cz)

This paper focuses on structural changes in employment in absolute and relative terms, using Czech labour force survey data. Gross flows, job-to-job flows, and industry flows are investigated to delineate the major movements on the Czech labour market. The overall analysis of mobility flows throughout 1993–2003 shows an increasing structural stagnation and diminishing labour market flexibility. The decisive mobility channel has been a direct job change without an episode of unemployment, but even this kind of mobility flow tends to diminish over time. Employment flows in and flows out between industries have decreased markedly over the last ten years.