

The Czech Labour Market and the Current Economic Crisis: What Can the Linked Employer-Employee Data Tell Us?

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Abstract

Current economic crisis has hit the Czech economy in a less severe way compared with other economies, but there have been affected employees who have lost their jobs as well as those who have remained employed but their wages have been reduced. The main aim of this paper is to discuss the possibility of wider use of linked employer-employee microdata from the Average Earnings Information System (the Czech Structure of Earnings Survey) in order to be able to identify comprehensive and more informative labour market indicators compared with the generally known basic set of indicators. With data on job flows and employee flows from the data source mentioned above, we show that the economic crisis has probably taken some effect in the economic subjects classified into our sample. Furthermore, we show that jobs in some industries have been destroyed more frequently than jobs in the others.

Keywords

Labour market, employment, wages and salaries, job flows, employee flows

JEL code

E24, F23, J63

INTRODUCTION

Current economic crisis has hit the Czech economy in a less severe way compared with other economies (see e.g. Blanchard et al, 2010, Frankel, Saravelos, 2010, Singer, 2009, 2010, Tong, Wei, 2009) nevertheless it is important to analyse the Czech economic situation in detail in order to identify the point during the economic cycle that the economy is approaching. In doing so, there is a lot of indicators available that could be used.

Since the economic crisis set in, interesting findings concerning above all social indicators could have been made. The Czech labour market has been hit slightly during the current economic crisis, but there have been affected employees who have lost their jobs as well as those who have remained employed but their

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wages have been reduced. Trying to measure labour market changes, one can encounter problems concerning lack of information needed although there are many results from labour market surveys available in the Czech Republic. The most likely disadvantage concerning labour market indicators in the Czech Republic is the fact that each of the key aspects of the labour market (i.e. employment as well as remuneration) is so far surveyed and evaluated separately, even if these two aspects are closely related.

The main aim of this paper is to investigate the possibility of a wider use of linked employer-employee microdata from the Average Earnings Information System (the Structure of Earnings Survey family) in order to be able to identify comprehensive and more accurate labour market indicators compared with the generally known basic set of indicators. As for the alternative labour market indicators, we will use indicators concerning job flows and employee flows in order to be able to analyse the effect of the recent economic crisis in more detail.

The indicators concerning job and employee flows have never been quantified using the linked employer-employee data in the Czech Republic,³ so the pilot results will be introduced in this paper.

The structure of the paper is as follows: section 1 presents the dataset and methods used, the main empirical results are presented in sections 2, 3 and 4, the last section concludes the paper.

1 DATA AND METHODOLOGY

In this part, we will briefly introduce the data (namely the Average Earnings Information System) and the methodology that will be used. Methodological issues, we will deal with, will concern the sample for our analysis, the data linking and the set of indicators proposed by Davis et al (e.g. Davis, Haltiwanger, 1989, 1990, Davis et al, 1996). Data linking issues are closely connected with the indicators, so the close attention will be devoted above all to them.

1.1 The Average Earnings Information System

The Average Earnings Information System (ISPV) is a quarterly employer survey carried out by a private agency (TREXIMA, spol. s r.o.) on behalf of the Ministry of Labour and Social Affairs (MoLSA) since 1992. The ISPV is based on the stratified random sampling which has been fully in accordance with the European Structure of Earnings Survey guidelines since 2006.

The sample in the business sphere contains c. 3 500 economic subjects with total employment about 1.3 million workers. Only economic subjects with more than 10 employees are sampled in the ISPV.

1.2 The sample for analysis

The impact of the recent economic crisis will be quantified for economic subjects in the business sphere that employed *more than 10 employees* at least at one year taken into consideration (i.e. in one year from 2006 to 2009). This sample consists of more than 40 thousand economic subjects and 2.6 million of employees in individual years of interest. The grossing up method was based on the stratified random sample with the known (non-zero) chance of individual economic subjects of being selected to be a part of the sample. For more detailed information on the sample and the grossing up method of the ISPV see e.g. ISPV (2009) and ISPV (2011).

1.3 Linking of the data

Before quantifying the indicators, it is necessary to link individual records in the ISPV between the consecutive years. Linking the data may affect the results, so the close attention will be paid to it.

³ Jurajda, Terrell (2001) and Jurajda, Terrell (2002) quantified these indicators using other data sources (namely the labour force survey). For this reason, the results were limited.

After the data were checked and cleaned, linking of the ISPV records was realized in two steps. First of all, the *records concerning economic subjects were linked using the registration numbers*.⁴ These IDs are unique, so the direct linking could be used in the case of economic subjects.

As for our sample, there were two problems identified. The first problem concerns records of economic subjects. Some economic subjects were identified to be the start ups or exits even if they were not. By checking IDs of these subjects in the Czech Business Register (RES), we found out, that all these exits or start ups were caused by mergers and acquisitions or splits. All these subjects were taken from our sample because job creation/destruction as well as hires / separations measures could be distorted. The second problem concerns faulty records of employees that could not have been matched with each other because it was impossible to identify the employee in the consecutive years even if the employee was employed in the economic subject for the whole period. Because of this reason, all the subjects were taken from the sample if more than 60 % of the employee records did not meet the condition that employee was employed in the subject on the last day of the previous year and on the first day of the forthcoming year (i.e. the item with code KONECEP equals zero in the previous year) and this employee was not identified in the records of the forthcoming year. By way of illustration, the Table 1 compares pro-

Table 1 Probability of inclusion of an economic subject in the sample of ISPV in the business sphere in the Czech Republic in 2009 specified according to the purpose

Size category of economic subjects	Number of employees	Probability of inclusion of an economic subject in the sample of ISPV for	
		Standard ISPV results (%)	Quantification of job and employee flows (%)
1	10–49	4.5	3.0
2	50–249	15.0	12.7
3	250 and over	100.0	81.6

Source: ISPV (MoLSA), own calculation

Table 2 Number of economic subjects in the sample of ISPV in the business sphere in the Czech Republic in 2009 according to the sector of economic activity specified according to the purpose

Sector of economic activity CZ-NACE	Number of economic subjects in the sample of ISPV for	
	Standard ISPV results	Quantification of job and employee flows
Agriculture, forestry and fishing	175	150
Industry and transportation	1 761	1 424
Construction	273	214
Wholesale and retail trade	440	332
Market services	400	328
Other services	429	306
Total	3 478	2 754

Note: For NACE sections classified into the individual sectors of economic activity groups see the Annex.

Source: ISPV (MoLSA), own calculation

⁴ Every economic subject in the Czech Republic has been assigned the only one registration number of 8 digits (ICO), which is to be used to identify the subject in an easy way for the business as well as public administration purposes. These figures are unique and are assigned by the public authorities (e.g. the CZSO, the Ministry of the Interior of the Czech Republic, etc.).

babilities of inclusion of economic subjects in the sample of the ISPV in the business sphere in 2009 for standard ISPV results with the sample for quantification of job and employee flows. In the Table 2, there is shown the structure of the sample according to the sector of economic activity.

Another situation occurs in the case of the employee records matching. The *employee records* are to be matched after the economic subjects linking was realized. The reason is obvious — employee records have to be matched using statistical data matching procedures based on more variables, because there is no name, address or personal ID surveyed in the ISPV. Some records were linked using the *employee ID* which is assigned to the employee by the employer. Doing so, one could encounter problems concerning instability of these IDs (caused e.g. by a change of an accounting software), so the next step — *matching procedure based on other variables* was to be taken. Employee records were matched if individual variables (sex, age, education) of the employee were in accord at the same time.

The second approach concerning employee records matching suffers from the non-perfect match of the datasets but there is no other way how the employee records could be linked in the ISPV.

1.4 Period

All the figures presented in the next part will be the *annual* measures in the period 2006–2009. Because of the annual measures, the international comparison is limited due to the fact that indicators for other countries are in most cases quantified as quarterly measures (e.g. Geurts, Vets, 2009, Ibsen, Westergaard-Nielsen, 2005, Stiglbauer et al, 2002, Blanchflower, Burgess, 1996, Baldwin et al, 1998, or Davis et al, 1996).

1.5 Indicators of employee and job flows

Indicators, that will be used below, are defined in accord with the internationally accepted methodology developed by Davis and Haltiwanger (see e.g. Davis et al, 1996) and are as follows:

Job creation in individual economic subject during the given period will be quantified as the positive difference between the total number of employees in this subject at the time t and $t-1$. The sum of the job creation in the sample is the sum of individual job creations.

Job destruction in individual economic subject during the given period will be quantified as the negative difference between the total number of employees in this subject at the time t and $t-1$. The sum of the job destruction in the sample is the sum of individual job destructions.

Hires (i.e. new employees) in individual economic subject are those who were not identified in the economic subject at the end of the time $t-1$, but were identified at the end of time t . The sum of the hires in the sample is the sum of hires in individual subjects.

Separations (i.e. leaving employees) in individual economic subject are those who were not identified in the economic subject at the end of the time t , but were identified at the end of time $t-1$. The sum of the separations in the sample is the sum of separations in individual subjects.

The employers' and employees' points of views meet via the net employment change and other aggregate indicators mentioned e.g. by Davis, Haltiwanger (1992), Moscarini (2001), Schuh, Triest (1998) and Kiyotaki, Lagos (2007).

More formally, in accord with Stiglbauer et al (2002), consider an employee y of an economic subject e in the subset of economic subjects s between the sampling dates in t and $t-1$. The net employment change in the economic subject s is defined as follows (1):

$$\Delta E_{e,s,t} = E_{e,s,t} - E_{e,s,t-1}, \tag{1}$$

job creation as follows (2):

$$JC_{s,t} = \sum \left| \Delta E_{e,s,t} \right|, \text{ where } \Delta E_{e,s,t} > 0, \tag{2}$$

job destruction as follows (3):

$$JD_{s,t} = \sum \left| \Delta E_{e,s,t} \right|, \text{ where } \Delta E_{e,s,t} < 0, \quad (3)$$

hires as follows (4):

$$H_{s,t} = \sum y_{e,s,t}, \text{ where } (y \in e_t) \wedge (y \notin e_{t-1}), \quad (4)$$

separations as follows (5):

$$S_{s,t} = \sum y_{e,s,t}, \text{ where } (y \in e_{t-1}) \wedge (y \notin e_t), \quad (5)$$

net employment change as follows (6):

$$NEC_{s,t} = JC_{s,t} - JD_{s,t} = H_{s,t} - S_{s,t}, \quad (6)$$

job reallocation as follows (7):

$$JR_{s,t} = JC_{s,t} + JD_{s,t}, \quad (7)$$

and worker reallocation as follows (8):

$$WR_{s,t} = H_{s,t} + S_{s,t}. \quad (8)$$

According to Davis et al (1996) and Tornquist (1985), *to convert time- t measures to rates we divide the corresponding figure by the average of employment at t and $t-1$, i.e. (9):*

$$\bar{E}_{s,t} = \frac{\bar{E}_{s,t} + \bar{E}_{s,t-1}}{2}. \quad (9)$$

Hence (using lower case letters for the rates):

$$jc_{s,t} = \frac{JC_{s,t}}{\bar{E}_{s,t}}, \quad (10)$$

$$jd_{s,t} = \frac{JD_{s,t}}{\bar{E}_{s,t}}, \quad (11)$$

$$h_{s,t} = \frac{H_{s,t}}{\bar{E}_{s,t}}, \quad (12)$$

$$s_{s,t} = \frac{S_{s,t}}{\bar{E}_{s,t}}, \quad (13)$$

$$nec_{s,t} = \frac{NEC_{s,t}}{\bar{E}_{s,t}}, \quad (14)$$

$$jr_{s,t} = \frac{JR_{s,t}}{\bar{E}_{s,t}} \text{ and} \tag{15}$$

$$wr_{s,t} = \frac{WR_{s,t}}{\bar{E}_{s,t}}. \tag{16}$$

1.6 Remuneration

As was mentioned above, it is important to analyse both aspects of the labour market, i.e. employment as well as remuneration. The ISPV makes it possible to quantify wages and salaries of individual groups of employees. Because of the purpose of this analysis, we will use the *median wage* in the next part.

2 THE RESULTS

Using the linked employer-employee data from the ISPV, we will quantify the set of the above mentioned labour market indicators concerning job and employee flows. The following results will correspond to the methodology mentioned in the previous chapter. Main results of the analysis carried out on the data from the ISPV are shown in the Table 3.

Table 3 Job and employee flows in the business sphere in the Czech Republic in the period 2007–2009

Relative indicator (%)	2007 / 2006	2008 / 2007	2009 / 2008
Job creation rate	11.1	9.4	6.6
Job destruction rate	7.2	8.9	15.7
Hires rate	25.2	27.0	20.5
Separations rate	21.3	26.5	29.7
Net employment change rate	3.9	0.5	-9.2

Source: ISPV (MoLSA), own calculation

In the Table 3, there is shown that net employment change rate decreased over the whole period, and in the year 2009 net employment rate was negative. Apparently, development of all indicators worsened during the year 2009, no matter whether the indicator concerned employee flows (hires and separations rates) or job flows (job creation and job destruction rates). In the year 2009, every 15th job was newly created and every 6th job destroyed. As far as employee flows are concerned, every 5th employee was newly hired and every 3rd employee was separated in this year.

As for the separations, the figure may seem to be high, but we should keep in mind that we *cannot confuse the number of the separated with the unemployed (and in a broader sense with the flows between the economically actives and the inactives)*, because the separated might leave their jobs and enter another without delay, so they did not belong to the unemployed (or to the economically inactives as the case may be).

Table 4 Monthly gross wage median according to the category of employees in the business sphere in the period 2007–2009

Monthly gross wage median (CZK)	2007	2008	2009
Stable employees	21 025	23 026	22 245
Hires	16 835	18 463	17 746
Separations	16 008	17 848	18 673

Note: Stable employees mean employees staying with the economic subject for the whole period.

Source: ISPV (MoLSA), own calculation

The situation as far as the remuneration is concerned can be sketched in by the Table 4 that compares wage medians of three categories of employees, namely of those staying with the economic subject over the whole year, those hired and those separated.

It is evident that in all years wages of stable employees remained higher than those of newly hired employees. Secondly, wages of separated employees were lower than those of stable employees, but what is more, wages of separated employees were lower than wages of hired employees in the years 2007 and 2008. The inverse development started in 2009 when wages of separated employees were higher than those of newly hired. The newly hired in the year 2009 were employed for lower initial wage than in the year 2008. In the year 2009, wages of stable employees decreased, as well. All the findings mentioned above may indicate that the situation worsened in the year 2009.

3 THE RESULTS ACCORDING TO THE SECTOR OF ECONOMIC ACTIVITY

The indicators introduced in the previous chapter can be quantified according to all variables surveyed in the ISPV. Because it is supposed that the impact of the current economic crisis differs according to the sector of economic activity, we will devote this chapter to job and employee flows as well as wages and salaries in individual economic activity groups in the period 2007–2009.

3.1 Job and employee flows

First of all, we will focus on job and employee flows according to the sector of economic activity. The Table 5 shows results concerning job flows.

Table 5 Job flows according to the sector of economic activity in the business sphere in the Czech Republic in the period 2007–2009

Job flows indicators according to the sector of economic activity	Job creation rate			Job destruction rate			Net employment change rate		
	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Agriculture, forestry and fishing	4.4	4.1	3.3	10.9	9.0	16.1	-6.5	-4.9	-12.8
Industry and transportation	9.4	6.8	4.6	6.8	9.6	17.5	2.5	-2.8	-12.9
Construction	11.6	10.3	8.7	8.9	8.0	13.9	2.7	2.3	-5.2
Wholesale and retail trade	13.4	13.6	8.8	5.6	6.8	13.5	7.8	6.8	-4.6
Market services	13.7	14.6	9.4	6.4	5.3	12.0	7.3	9.4	-2.7
Other services	17.0	12.9	9.6	9.0	12.1	14.9	8.0	0.9	-5.3
Total	11.1	9.4	6.6	7.2	8.9	15.7	3.9	0.5	-9.2

Note: For NACE sections classified into the individual sectors of economic activity groups see the Annex.

Source: ISPV (MoLSA), own calculation

It is obvious that some sectors of economic activity were hit in a more severe way compared with the others. In the year 2009, the economic crisis probably affected industry and transportation in the most severe way because the jobs were the most often destructed (17.5 %) and on the other hand, almost the least often created (4.6 %) compared with others.

Contrary to the industry and transportation, the market services have undergone another development. We can say that this economic activity was the most successful one in getting over the crisis, because even while the jobs were more often destructed (12.0 %) and less often created (9.4 %) in 2009 compared to 2008, the net employment change rate fell only slightly (-2.7 %) compared to others. It may be surprising because financial intermediation as well as real estate activities are classified into this economic activity group.

The results concerning job flows are closely related to those concerning employee flows, as we can see in the Table 6.

Table 6 Employee flows according to the sector of economic activity in the business sphere in the Czech Republic in the period 2007–2009

Employee flows indicators according to the sector of economic activity	Hires rate			Separations rate			Net employment change rate		
	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Agriculture, forestry and fishing	12.1	12.5	11.8	18.5	17.4	24.6	-6.5	-4.9	-12.8
Industry and transportation	21.7	21.7	15.2	19.2	24.5	28.1	2.5	-2.8	-12.9
Construction	24.3	22.3	20.4	21.6	20.0	25.7	2.7	2.3	-5.2
Wholesale and retail trade	28.6	38.1	30.2	20.8	31.3	34.9	7.8	6.8	-4.6
Market services	27.7	36.5	24.4	20.4	27.1	27.1	7.3	9.4	-2.7
Other services	41.5	37.1	31.0	33.5	36.2	36.3	8.0	0.9	-5.3
Total	25.2	27.0	20.5	21.3	26.5	29.7	3.9	0.5	-9.2

Note: For NACE sections classified into the individual sectors of economic activity groups see the Annex.

Source: ISPV (MoLSA), own calculation

The Table 6 shows, that the employees were more often separated and less often hired in all sectors of economic activity groups in 2009. Because the hires rate was lower than the separations rate, the net employment change rate fell in all activity groups in 2009. Development of employee flows in individual activity groups did not fully correspond to the job flows development because the employees in other services separated most often but — on the other hand — they were the most often hired ones. Apparently, the higher turnover of employees does not imply here the higher net employment change.

3.2 Remuneration

As in the previous chapter, we will sketch the situation in by the Table 7 that compares wage medians of three categories of employees, namely of those staying with the economic subject over the whole year, those hired and those separated.

In the Table 7, the results imply that results concerning remuneration in individual sectors of economic activity groups are similar to those in the business sphere on the whole. In all activity groups, there remained wages of stable employees higher than those of newly hired as well as separated employees in the whole period. There we can see the inverse development mentioned above in all activity groups in 2009, i.e. the wages of separated employees were higher than those of newly hired, and new hired in 2009 were employed for a lower initial wage than in 2008. Except other services, wages of stable employees decreased in all activity groups, as well.

4 THE RESULTS ACCORDING TO THE OCCUPATION

Results in the previous chapter show that the economic crisis has hit some sectors of economic activities in a more severe way compared to others. On the basis of these results, we can assume, that the situation of individual occupations went in hand with the situation of individual economic activities. In other words, we can suppose, that blue-collar workers were separated more often than white-collar workers because the industry and transportation were the economic activities that were hit in a most severe way.

Table 7 Monthly gross wage median in individual categories of employees according to the sector of economic activity in the business sphere in the Czech Republic in the period 2007–2009

Wages and salaries of individual categories of employees according to the sector of economic activity	Stable employees			Hires			Separations		
	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008
	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)
Agriculture, forestry and fishing	17 174	19 286	19 191	15 479	17 215	16 645	14 133	16 170	16 931
Industry and transportation	21 183	22 973	21 985	17 024	18 315	17 719	16 815	18 414	18 692
Construction	21 960	24 536	23 107	18 932	21 372	20 479	16 971	19 362	20 734
Wholesale and retail trade	19 881	20 912	20 076	15 681	17 191	15 806	14 155	16 609	17 793
Market services	28 739	33 352	33 090	23 135	24 847	24 937	23 056	26 819	27 887
Other services	17 096	18 996	19 583	14 096	14 239	14 224	12 545	12 892	14 960
Total	21 025	23 026	22 245	16 835	18 463	17 746	16 008	17 848	18 673

Note: For NACE sections classified into the individual sectors of economic activity groups see the Annex. Stable employees mean employees staying with the economic subject for the whole period.

Source: ISPV (MoLSA), own calculation

Because of the assumptions mentioned above, there we will devote to employee flows as well as wages and salaries in individual occupations. We may emphasise that the results concerning job flows are non-sense in the case of occupations.⁵

Table 8 Employee flows according to the occupation (KZAM-R) in the business sphere in the Czech Republic in the period 2007–2009

Employee flows indicators according to the occupation (KZAM-R)	Hires rate			Separations rate			Net employment change rate		
	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Legislators, senior officials and managers	13.5	16.0	13.2	14.7	20.7	21.1	-1.2	-4.7	-7.9
Professionals	25.2	29.3	19.0	16.3	23.2	22.7	8.9	6.1	-3.7
Technicians and associate professionals	22.0	26.7	18.5	19.2	23.6	25.3	2.8	3.1	-6.9
Clerks	26.3	36.7	24.8	22.1	30.5	27.9	4.2	6.2	-3.1
Service workers and shop and market sales workers	43.3	46.2	37.9	34.1	41.8	41.2	9.2	4.4	-3.3
Skilled agricultural and fishery workers	16.3	15.6	17.0	23.3	19.3	26.4	-7.0	-3.6	-9.4
Craft and related trade workers	22.5	21.2	17.5	19.4	24.1	31.5	3.2	-2.9	-13.9
Plant and machine operators and assemblers	25.6	23.6	17.5	22.0	25.5	30.9	3.6	-1.9	-13.3
Elementary occupations	33.0	32.4	27.2	27.4	34.5	40.8	5.6	-2.1	-13.6
Total	25.2	27.0	20.5	21.3	26.5	29.7	3.9	0.5	-9.2

Note: Stable employees mean employees staying with the economic subject for the whole period.

Source: ISPV (MoLSA), own calculation

4.1 Employee flows

Results concerning employee flows are shown in the Table 8. The Table 8 shows that the net employment change rate decreased more in blue-collar workers' occupations where it decreased by two-digit pace almost in all occupations in 2009. These workers were the most often separated in 2009 and the frequency of separations has increased rapidly since 2008 in these occupations. It is evident that economic crisis hit the blue-collar workers in 2008, because the net employment change rate decreased already in this year.

Another occupation that is worth mentioning is the occupation of the senior officials and managers. Surprisingly, the net employment change rate decreased in this occupation in the whole period, and what is more, the employment change rate of managers showed a decrease by 4.7 % in 2008 that was the highest one. We can suppose that this development is related to restructuring that economic subjects underwent during the period taken into consideration.

4.2 Remuneration

The results concerning employee flows will be completed by the Table 9 that shows wages and salaries in individual categories of employees.

Table 9 Monthly gross wage median in individual categories of employees according to the occupation (KZAM-R) in the business sphere in the Czech Republic in the period 2007–2009

Wages and salaries of individual categories of employees according to the occupation (KZAM-R)	Stable employees			Hires			Separations		
	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008	2007 / 2006	2008 / 2007	2009 / 2008
	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)	(CZK)
Legislators, senior officials and managers	37 120	41 049	39 447	32 525	35 859	30 000	32 049	34 383	36 462
Professionals	32 635	36 299	35 872	24 456	27 757	29 164	27 010	29 341	32 144
Technicians and associate professionals	25 005	26 980	26 599	20 635	22 950	22 442	20 723	22 536	23 671
Clerks	18 105	20 086	19 808	16 353	17 435	17 240	15 875	17 235	18 147
Service workers and shop and market sales workers	13 286	14 697	14 214	12 250	13 137	12 351	11 001	12 585	12 774
Skilled agricultural and fishery workers	16 211	17 820	17 403	14 798	16 361	16 145	13 426	14 928	16 100
Craft and related trade workers	20 263	22 027	20 783	16 958	18 201	17 919	15 679	17 585	18 191
Plant and machine operators and assemblers	19 899	21 262	20 493	16 513	17 426	16 838	15 738	16 889	17 735
Elementary occupations	13 481	14 499	14 009	11 870	12 864	12 311	11 407	12 511	13 021
Total	21 025	23 026	22 245	16 835	18 463	17 746	16 008	17 848	18 673

Note: Stable employees mean employees staying with the economic subject for the whole period.

Source: ISPV (MoLSA), own calculation

⁵ E.g. job destruction in an economic subject equals the negative difference between the total number of employees at the time t and $t-1$. For example, if 5 jobs were destructed and 4 jobs created in this subject during the period taken into consideration, then — according to the definition — job destruction equals 1 job. If all the destructed / created jobs were not classified into the same occupations, it is impossible to assign any occupation to the destructed job.

The Table 9 shows that the results concerning remuneration were in the most occupations similar to those in the business sphere on the whole. Wages of stable employees in all occupations remained higher than those of newly hired as well as separated employees in the whole period. Except professionals and technicians and associate professionals, wages of separated employees were lower than wages of those hired in the years 2007 and 2008. Wages of separated employees were higher than those of newly hired in 2009, with the exception of skilled agricultural and fishery workers. The inverse development in 2009 seems to be proved by the facts, that new hired in the year 2009 were employed for lower initial wage than in the year 2008 in all occupations (except professionals) and that the wages of stable employees decreased in all occupations.

CONCLUSION

The main aim of this paper was to investigate the possibility of a wider use of linked employer-employee microdata in the Czech Republic. Using the employer-employee data from the Average Earnings Information System (the Structure of Earnings Survey family) we were able to quantify more accurate labour market indicators compared with the generally known basic set of indicators.

As for the job flows in the business sphere in the Czech Republic, there was found out that every 15th job was created and every 6th job destroyed in the year 2009 in economic subjects with more than 10 employees. As far as employee flows are concerned, every 5th employee was newly hired and every 3rd employee was separated in the Czech business sphere in the year 2009. These figures may seem to be high, but we should remember that the number of the separated cannot be equal to the unemployed, because of the fact that employees may leave their jobs and enter another job without delay, so they would not necessarily become unemployed.

Both aspects of the labour market (employment as well as remuneration) were analysed together using the same data. We focused on the median wage of three categories of employees, namely of those staying with the economic subject over the whole year, those hired and those separated. We found out that in the period 2007–2009, wages of stable employees remained higher than those of newly hired. Wages of separated employees were lower than wages of hired employees in the years 2007 and 2008 but the turning point set in during the year 2009, when wages of separated employees were higher than those of newly hired. The newly hired in the year 2009 were employed for lower initial wage than in the year 2008. In the year 2009, wages of stable employees decreased, as well.

As far as economic activity is concerned, we showed that jobs in some industries have been destroyed more frequently (e.g. industry and transportation) than jobs in the others (e.g. market services).

Last but not least we showed that employees, who have left economic subjects (voluntarily or involuntarily) more often than other employees, have been blue-collar workers.

It is obvious, that using employer-employee data we could prove some hypotheses that were impossible to prove using standard set of indicators. For example we showed that the low-earning employees separated from the enterprises more often. This phenomenon may have caused that the median wages and salaries increased in the Czech Republic, even if the economic crisis set in and wages of the stable employees were negatively affected.

The analysis proved that new set of the labour market indicators could bring new insights to the dynamic of the Czech labour market. Secondly, the findings in this paper may indicate that situation on the Czech labour market worsened during the economic crisis.

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ANNEX

NACE sections classified into the individual economic activity groups

Economic activity group	NACE section	Title
Agriculture, forestry and fishing	A	Agriculture, forestry and fishing
Industry and transportation	B	Mining and quarrying
	C	Manufacturing
	D	Electricity, gas, steam and air conditioning supply
	E	Water supply, sewerage, waste management and remediation activities
	H	Transportation and storage
Construction	F	Construction
Wholesale and retail trade	G	Wholesale and retail trade, repair of motor vehicles and motorcycles
Market services	J	Information and communication
	K	Financial and insurance activities
	L	Real estate activities
	M	Professional, scientific and technical activities
Other services	I	Accommodation and food service activities
	N	Administrative and support service activities
	O	Public administration and defence, compulsory social security
	P	Education
	Q	Human health and social work activities
	R	Arts, entertainment and recreation
	S	Other service activities
	T	Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use
	U	Activities of extraterritorial organisations and bodies