

Aging of the agricultural workforce in relation to the agricultural labour market

Stárnutí zemědělců ve vazbě na agrární trh práce

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Abstract: The development of age structure of Czech agricultural workforce has been continuously predominantly negative since 1989 and it constitutes a serious problem in terms of reproduction of agricultural workforce. The present paper abstains from analyzing the demographic, economic and socio-political influences on this process and tries to identify the specific factors inherent in the agricultural labour market. It considers opportunities for improving the age structure of agricultural workforce provided by the labour market system, particularly in relation to the supply of workforce, demand for it, unemployment and wage levels. An abductive approach, based on a secondary analysis of quantitative data and the authors' own empirical survey, identifies a set of hypotheses about the relationship between agricultural labour market and the age structure of agricultural workforce.

Key words: agriculture, agricultural labour market, aging of agricultural workforce, supply and demand, unemployment, wage levels

Abstrakt: Věková struktura pracovníků v zemědělství v ČR se od roku 1989 vyvíjí negativně a v současnosti představuje závažný demografický problém ohrožující možnosti reprodukce zemědělské pracovní síly. V následujícím textu hledáme příčiny této situace, přičemž se soustředíme pouze na tu skupinu faktorů, které působí bezprostředně na agrárním trhu práce (a odhlížíme tedy od širších ekonomických, sociodemografických a politických souvislostí). Možnosti zlepšení věkové struktury zemědělců jsou dány do souvislosti s nabídkou zemědělských pracovních sil, poptávkou na agrárním trhu práce, nezaměstnaností a mzdovou úrovní v sektoru. V článku je užito abduktivního přístupu, metodologie je založena na analýze sekundárních dat a výsledcích vlastního empirického výzkumu. Na základě tohoto přístupu je v závěru vyvozen soubor hypotéz o vztahu mezi agrárním trhem práce a věkovou strukturou zemědělské pracovní síly.

Klíčová slova: zemědělství, agrární trh práce, stárnutí zemědělců, zemědělská pracovní síla, nabídka a poptávka, mzdy, nezaměstnanost

There are numerous influences affecting the age structure of agricultural workforce. These range from the economic, social and demographic factors to the technical and political determinants, and to analyze all of them would go far beyond the scope of the present paper. Our analysis thus focuses only on the factors which are, in a primary way, tied to the agricultural labour market, or, in other words, the factors produced or co-produced by the dynamics of the labour market. Other influences, even though they might be related to labour markets or manifest themselves there, are thus omitted. The sheer fact that it is possible to identify

the factors tied to the agricultural labour market in a primary way proves the status of agricultural labour market as a phenomenon of its own kind, with its own structure and dynamics. Apart from being a place where supply meets demand, labour market is also a place of job-related negotiations. These are affected by the influences of state and state institutions, Trade Unions and other interests. Economic and social processes in the labour market are thus determined by a multitude of factors (Hrabánková et al. 2007). The four major factors we will concentrate on are the following: demand for workforce, supply of workforce, wages,

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and unemployment as a necessary product of labour markets (Buchtová et al. 2002).

This restriction in scope needs some clarification. First, the fact that these four factors (from here on, due to their empirical function, they will be referred to as “concepts”) originate in the labour market, does not mean they are isolated from other influences. Most notably, they are determined by the system of production and its requirements for adequate workforce which is in turn accommodated with financial and other means of existence (Offe in Mareš 2002). In addition, labour market is influenced by social norms, distribution of human capital, institutional practices and practices of labour union actions, cultures of organizations and other phenomena (Mareš 2002; Macours, Swinnen 2005; Nešpor 2005). In the present paper, however, we shall abstain from dealing with these issues as such an extended analysis would blur the basic relationship in focus, namely the relationship between agricultural labour markets and the age structure of agricultural workforce.

Second, the reasoning our argument relies on is mostly abductive (in its progress from introducing facts to looking for the relevant causes within the given subsystem)¹ and even though its heuristic potential is very high, it is still not exactly a well-established way of thought within the standards of social science. Thus it has to be kept in mind that the goal of this present study is not to identify the facts and the outright causal connection. Unlike that, our task here is to introduce a set of qualified hypotheses about the influence of processes taking place in the agricultural labour market on the age structure of agricultural workforce. The fact that these hypotheses are supported by quantitative empirical data makes them more valid and significant for further research but it does not turn them into facts.

Methodologically, the paper is based on secondary analyses of quantitative data. These include data sheets and survey results published by the Czech Statistical Office (ČSÚ) and the Ministry of Labour and Social Affairs (MPSV). We have also used a set of data on the numbers of high school² graduates, supplied by the Institute for Information on Education (UIV) and results of our own empirical survey, carried out

by the ÚZEI on graduate students of the Faculty of Agronomy of the Mendel University of Agriculture and Forestry in Brno in summer 2008.

CURRENT DEVELOPMENTS IN CZECH AGRICULTURAL WORKFORCE

As a result of the transformation processes and other factors, the total number of agricultural workers in the Czech Republic has been decreasing since 1989 (the same, although at a slower pace, has been true for most of the other EU countries)³. For the past twenty years, the number has decreased by more than three quarters from almost 533 000 in 1989 to 130 000 in 2008. In comparison with twenty other transition countries, the decrease in agricultural employment in the Czech Republic was one of the steepest. This is true also for other comparably rich transition countries where large enterprises play a substantial role – such as Slovakia, Hungary or Estonia (Macours, Swinnen 2005). The Czech decrease went hand in hand with a decrease in production (Hrabánková et al. 2007) and an establishment of a new entrepreneurial structure of the sector (Horalíková, Majerová 2000). The results of it are not entirely positive, most visibly with regard to the worsening age structure of agricultural workforce.

Since 1989, the age of agricultural workers has been generally increasing, establishing the most important problem within the set of the socio-demographic characteristics of agricultural population. While in 1989 the share of workers under 30 years of age amounted to more than one fifth (21.4%) of the total, in 1995 it was already 17.8%, in 2000 13.5% and by 2003, the share was nearly a half of the original number (11.4%). Since then, the share of this category has been stabilized at about 11%, yet, as a whole, agricultural workforce is still growing older. Their average age has increased by almost four years between 1989 and 2008 and now it reaches approximately 46 years. Although the average age of country's labour has been increasing as well (copying the natural aging of the economically active population), agricultural workers are presently by about four years older – in the mid-1990s, the difference was about three years

¹See Frankfurt (1958). For a further explanation of the use of abductive methods in sociology see Willer and Webster (1970).

²If not explicitly stated otherwise, the various levels of education system will be throughout the text abbreviated as follows: high school (all forms of secondary education, including general and technical), college (tertiary professional education) and vocational education (vocational secondary education leading to an apprenticeship certificate).

³The data sources for this section are the following: Soupis trvale činných v zemědělství k 1. 2. 1989 (FSÚ 1990); Agrocensus 1995, 2000 (ČSÚ 1996, 2001); Zaměstnanost a nezaměstnanost podle výsledků Výběrového šetření pracovních sil (ČSÚ 1991–2009); Zpráva o stavu zemědělství v ČR 1994–2008 (incl. unpublished).

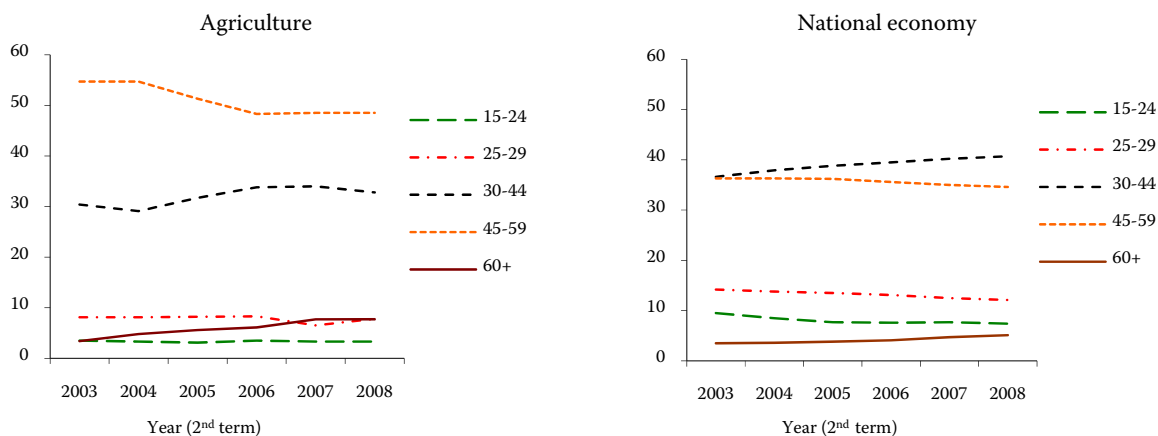


Figure 1. The shares of various age groups in the age structure of agricultural workers and workers in the national economy between 2003 and 2008.

Source: Zaměstnanost a nezaměstnanost podle výsledků Výběrového šetření pracovních sil (ČSÚ 2003–2009)

and it peaked in 2004 at about 4.5 years (Horská, Spěšná 1997).

The post-2004 development is represented by Figure 1.

The highest share of agricultural workforce falls within the age category of 45–59 years (48.5% in 2008, in case of women it is even higher – 54.3%). The higher percentual share of this category as compared to the category of 30–44 years on the one hand, and a less than half-sized share of the youngest category of 24 years and less on the other, are the main differences in comparison between the agricultural and the entire country’s workforce. Also, within the agricultural sector, the share of the oldest category of 60+ years (which is the lowest within the entire country’s workforce) has reached the same values as the share of workers in the category of 25–29 years. In other words, the share of workers over 45 years of age constitutes 55% of the agricultural workforce and only 40% of total country’s workforce.

SUPPLY OF WORKFORCE

The supply of agricultural workers as registered by the employment offices

In general, agricultural labour market is defined by the supply of agricultural workforce on the one

hand and the demand for it by enterprises on the other⁴. Following our focus on the aging of agricultural population, we will be examining the supply of free agricultural workforce and its age structure⁵. This supply constitutes a pool of the potential workers looking for jobs, the number of whom can influence both the overall level of employment and its socioeconomic and socio-demographic structures. The members of this category are all unemployed people, looking for agricultural jobs via their local employment offices. Further in the text, they will be referred to as “applicants”.

In 2007, there were in average 6 804 applicants looking for agricultural jobs, which amount to about 1.8% of the total number of applicants looking for all kinds of jobs. Within the selected agricultural professions, the highest share (over 31%) of applicants belongs to the group Gardeners, horticulture and nursery growers. It is true, however, that most professionals within this category will eventually find their jobs outside of the agricultural sector, most often in business and services. Two other substantial groups were Agronomy and forestry technicians (12.7%) and Dairy and livestock producers, excluding poultry and bees producers (12.5%).

The average age of the applicants for agricultural jobs is presented in Figure 2. While it appears to be only slightly higher than the country’s average (40.8 compared to 40.2), thirteen out of eighteen agricultural

⁴All data used in this chapter and chapter 4. come from the unemployment statistics published on the MPSV web portal: <http://portal.mpsv.cz/sz>

⁵Based on the publications of the MPSV, job applicants can be sorted by age and by the area of occupation (KZAM). The latter classification distinguishes 10 major classes: 1 – Legislators, senior officials and managers, 2 – Professionals, 3 – Technicians and associate professionals, 4 – Clerks, 5 – Service workers and shop and market sales workers, 6 – Skilled agricultural and fishery workers, 7 – Craft and related trades workers, 8 – Plant and machine operators and assemblers, 9 – Elementary occupations, 0 – Armed forces.

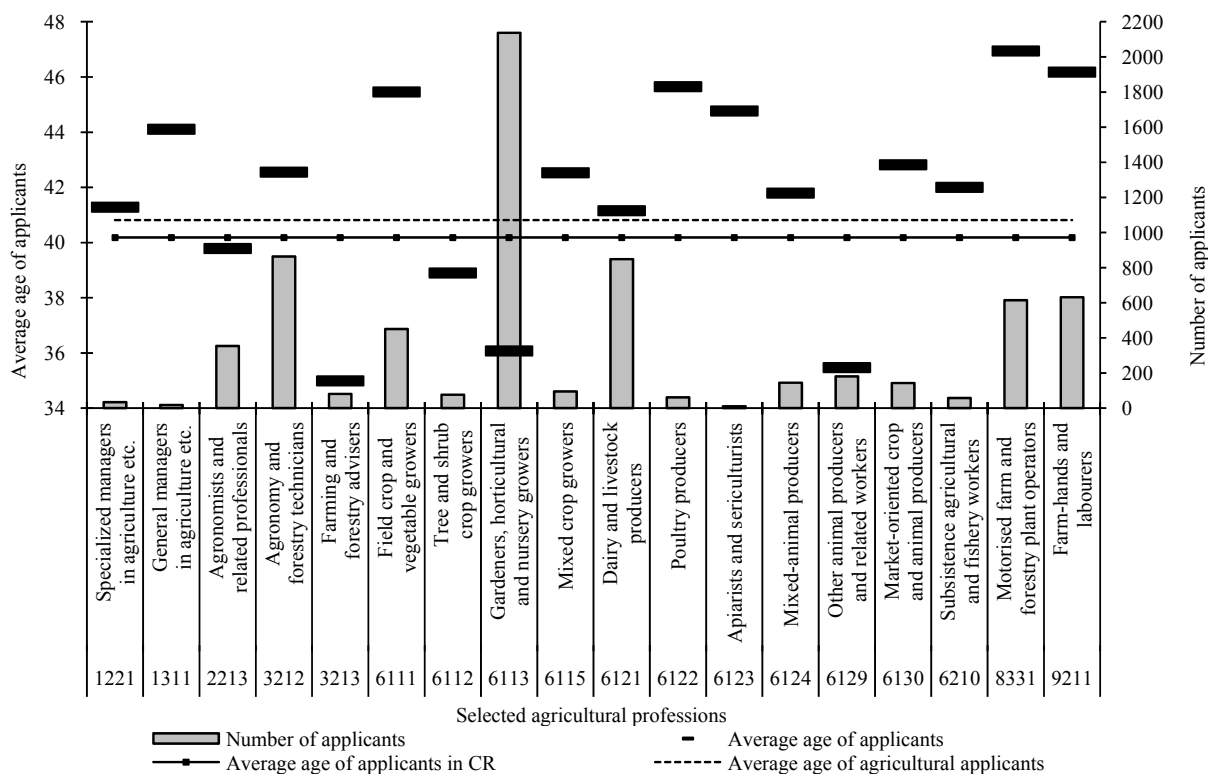


Figure 2. Numbers of applicants for the selected agricultural professions and their average age

Source: MPSV web portal: <http://portal.mpsv.cz/sz>

professions show a higher age of applicants than all the agricultural professions together. This effect is caused precisely by the strongly represented group of Gardeners, horticulture and nursery growers, whose applicants, less likely to become future workers in agriculture, are significantly younger. If we re-calculate the comparison omitting this effect (i.e.

if we leave the Gardeners, horticulture and nursery growers out of agricultural professions), the average age of agricultural applicants will increase sharply to 43 years, which is almost three years above the country's average.

In terms of the average age, the oldest groups are Motorised farm and forestry plant operators (47 years)

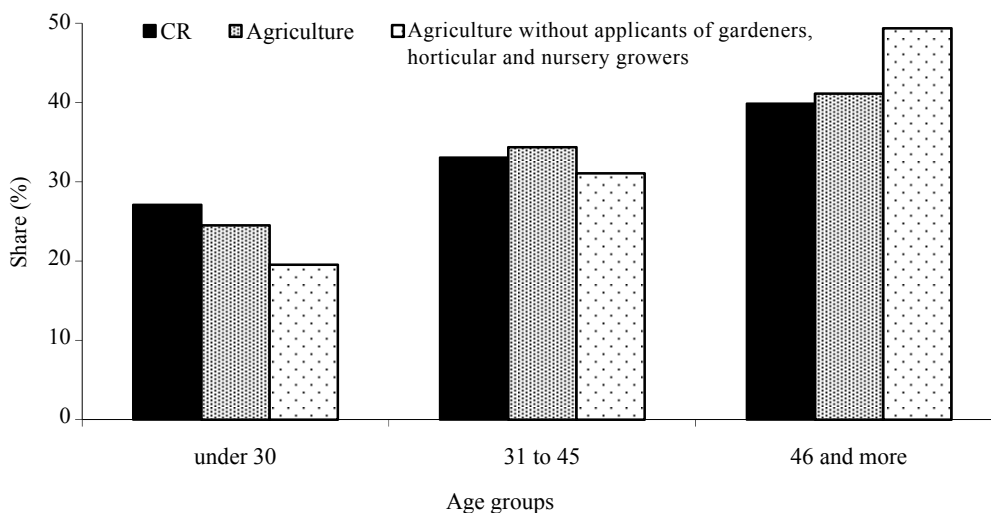


Figure 3. Relative shares and age categories of applicants for all jobs, applicants for the selected agricultural jobs and applicants for selected agricultural jobs excluding the Gardeners, horticulture and nursery growers

Source: MPSV web portal: <http://portal.mpsv.cz/sz>

and the Farm-hands and labourers (46.2 years). At the same time, these two professions are amongst the most demanded in the labour market and thus these vacancies can be theoretically filled by elderly workers.

Figure 3 presents a comparison of the relative shares of applicants in three different age categories, both for agricultural professions and the whole country's economy. It turns out that, mirroring the case of the working labour; applicants for agricultural jobs are, in average, older than other applicants within the country's economy.

In comparison to the national economy, the share of agricultural applicants is relatively smaller within the category Under 30 years, and relatively higher in the two older categories (31–45 years and 46+ years). A more detailed analysis has proven the same for the applicants in all categories above 36 years (except for a single category of 51–55 years). This implies that the supply of a relatively young agricultural workforce registered with the employment offices is low, while the supply of relatively older unemployed workers is higher. The results for the agricultural sector are even worse when Gardeners, horticulture and nursery growers are excluded from the comparison: in

this case, the potential workforce in both categories under 45 years is older than in the case of whole country's economy.

Situation in agricultural educational system

Processes taking place in the agricultural educational and schooling system are relevant to our analysis in the terms of their relationship to the supply of agricultural workforce⁶ (Soukup 2007). With regard to the rejuvenation potential of agricultural sector through an influx of young, educated professionals, we will concentrate on high school, college and university graduates falling into the category under 30 years of age.

Between 2005 and 2007, we have witnessed a general decrease in the overall number of agricultural high school graduates; this process was faster for men than women⁷. Colleges were the only exception to this trend with a slight increase in the number of graduates, generally higher for the college graduated women (whose share in the total has increased by 2.9%). The total number of agricultural high school graduates reached 5 641 in 2007, which was less by

Table 1. Agricultural high school graduates in the period 2005–2007

Level of education	Total			Women		
	2004/2005	2005/2006	2006/2007	2004/2005	2005/2006	2006/2007
Vocational, class E	781	702	592	267	276	262
Vocational, class H	2 404	2 188	2 005	612	547	510
Vocational, class J	9	5	0	1	0	0
Vocational with "maturitní zkouška", class L	572	525	303	206	207	132
"Maturitní zkouška", class M	2 553	2 521	2 485	1 486	1 424	1 421
College, class N	245	228	256	143	130	170
Total	6 564	6 169	5 641	2 715	2 584	2 495

Note: For details on the KKOv classification and for ISCED97 equivalents, see: http://www.czso.cz/csu/klasifik.nsf/i/konstrukce_klasifikace_kmenovych_oboru_vzdelani

Source: Institute for Information on Education

⁶This includes the KKOv 41 and the agriculture-related categories in the KKOv 64 (KKOv stands for the classification of basic branches of education), including colleges. The 2005-2007 data come from the publicly available database of the Institute for Information on Education (UIV) at <http://www.uiv.cz/>. The data are available on <http://founder.uiv.cz/registr/vybskolr.asp> (accessed 05-02-2009). Some of the UIV data have been gained from a contract. For the selected agricultural schools, all data come from their annual reports publicly available at http://www.jcu.cz/documents/annual_report/folder.2004-07-15.1863871332/, http://www.mendelu.cz/cz/o_univerzite/uredni_deska/vyrocni_zprava_o_cinnosti and <http://www.czu.cz/cs/?r=2933> (all accessed 05-02-2009).

⁷Between 2005 and 2007 there was also a decrease in the number of study programmes (from 57 to 44). In the total 189 schools in the system, there were 30 vocational programmes, 24 programmes completed by "maturitní zkouška" and 14 college programmes in 2005–2007.

8.6% than in the previous year. Of these graduates, 56% were men (their number has decreased by 12.2% in comparison with 2006) and 44% women (decrease by 3.4%). The figures are presented in Table 1.

While the numbers of high school graduates are decreasing, the opposite is true for students and graduates of agricultural universities. Although the growth has not been steady in all universities, the overall trend between 2003 and 2007 is that of increase both in numbers of the students and graduates. At the same time, the share of agricultural university graduates has increased when compared to the total number of Czech university graduates⁸.

The overall number of students enrolled at the agricultural faculties of Czech universities has increased by 108% (to 4 928) between 2002 and 2007. The enrolment at the Faculty of Agriculture at the University of South Bohemia in České Budějovice (ZF JČU) rose by 61% (to 654)⁹, the enrolment at the Faculty of Agronomy at the Mendel University of Agriculture and Forestry in Brno (AF MZLU) rose by 90% (to 1623) and the Faculty of Agrobiolgy, Food and Natural Resources of the Czech University of Life Sciences in Prague (FAPP ČZU) has seen an increase of the enrolled students by 140% (to 2 651). During this six-year period, the total of 20 631 students has enrolled at the agricultural universities.

The numbers of the agricultural university graduates at different levels (both for full-time and part-time students) are presented in Figure 4.

Within the period in focus, there were 1 090 bachelor graduates at the AF MZLU, 1 686 at the FAPP ČZU and 114 bachelors at the ZF JČU. At the same time, there were 1 803 master students in Brno, 1 940 in Prague and 857 in České Budějovice. Of the total 453 PhDs, 185 have finished their study programme in Brno, 205 in Prague and 63 in České Budějovice.

However high and increasing the number of agricultural university graduates may be, in order to develop our analysis, we need to know what jobs they are looking for, what are their expectations about their future careers and whether they are, in accordance with their qualifications, willing to work in the agricultural sector. To answer these questions, we have conducted an empirical survey at the Faculty of Agronomy at the Mendel University of Agriculture and Forestry in Brno in June and July 2008. The total of 259 graduates of the full-time master programme participated in the research (66.4% of that were women), which amounted to 86% of the total graduates of this programme in 2008.

Their views on their future employment are summarized in Table 2.

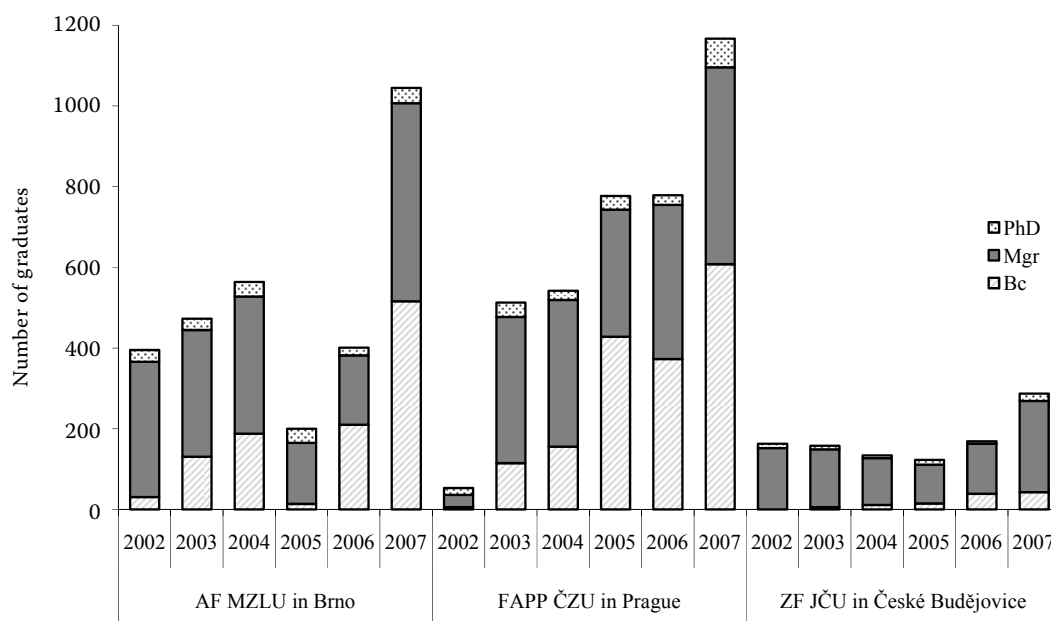


Figure 4. The numbers of graduates from the selected agricultural universities between 2002–2007

Source: annual reports of the universities

⁸There is a general increase in the numbers of university students and graduates. The Ministry of Education claims their numbers have doubled since 2001, resulting in 63 500 students in 2006/2007.

⁹The overall numbers of graduates of the ZF JČU also include students of the economic and managerial programmes which were taught at the faculty until 2007. The annual report data do not allow us to separate these.

From the table it follows that – even though almost one third of the graduates consider themselves undecided – the interest in working in agricultural production is far from high: as represented here by about one eighth of the informants. The interest was approximately two times higher for men than women, even though there was only about one third of them in the sample. The results concur with other research studies. In 1997, less than 20% of agricultural university graduates were determined to work in agriculture. The main reasons mentioned during the interviews included a low interest in working on a farm, low wages and poor working conditions, low social status and unclear prospects of the sector (Horská et al. 2004). An extensive 1998–2002 survey of the ZF JČU graduates has found similar

results with about 20% of the respondents finding their job in agriculture, forestry and the related sectors. In comparison to the 1992–1997 periods, their numbers have dropped by 4% (Krninská et al. 2003).

In a related way, it is important to follow the expectations that the graduates have with regard to their future career (for comparison, see Horalíková, Majerová 2000 or Krninská et al. 2003). These are presented in Table 3. There it can be seen that both men and women most often expected their future jobs to give them the opportunity to work in a friendly and agreeable team, to enhance their professional knowledge and skills, to match their field of work with their qualification and to see the results of their work. Although the first four sets of expectations

Table 2. University graduates' choice of the sector of their future employment

Where do you want to work after graduation?		Gender		
		men	women	total
Don't know, undecided	number	24	55	79
	share (%)	27.6	32.2	30.5
In agricultural research, administration, education or consulting	number	9	52	61
	share (%)	10.3	30.4	23.6
In an industry associated with agriculture	number	21	25	47
	share (%)	24.1	14.6	18.1
In an different sector	number	17	22	39
	share (%)	19.6	12.9	15.1
In an agricultural production	number	16	17	33
	share (%)	18.4	9.9	12.7

Source: empirical survey

Table 3. What agricultural university graduates expect from their future jobs* (%)

Future job expectations	Men	Women	Total
Work in a friendly and agreeable team	54.0	68.4	63.7
To enhance one's professional knowledge and skills	47.1	62.6	57.5
To match one's field of work with one's qualification	41.4	52.0	48.3
To see the results of one's work	44.8	47.4	46.3
Job security	25.3	42.1	36.7
High income	41.4	31.0	34.7
The possibility to work on one's own	37.9	25.1	29.3
Interesting and challenging work	20.7	27.5	25.1
Promotion and prestige potential	19.5	24.6	22.8
Good working conditions and benefits	25.3	14.0	17.8
Possibility to lead and control others	28.7	6.4	13.9

*The respondents were asked to name the four most important items – that is why the figures do not add up to 100%.

Source: empirical survey

were most often quoted regardless of gender, there were also differences between men and women: more often than men, women expressed their wish for their future jobs to be secure, to be a part of a friendly and agreeable team, to enhance their professional knowledge and to match their field of work with their qualification (these last two sets of expectations are most likely connected to the large number of women who desire to find a job in agricultural research, education system, administration and consulting). Men, on the other hand, were more prone to look for jobs valuing their own job performance (the possibility to lead and control others, the possibility to work on one's own, good working conditions and benefits and an appropriately high income).

The reasons why the graduates do not want (or would not want) to work in agricultural production were measured by an open question to which only 23.6% of informants gave an answer. The barrier which was cited most often was low income level (mentioned by 34 informants). Other barriers included low level of interest in agriculture and a pessimistic view about the sector's future development. Reasons such as the lack of job opportunities, hard work or a high responsibility were also marginally cited.

DEMAND FOR WORKFORCE

No conclusions can be drawn from the supply of young workers and graduates without analyzing the other side first, which means the demand for workforce. It is the nature and structure of the demand which defines what kind of options is available for the potential workers in primary sector. Unfortunately, the empirical ways of measuring demand are somewhat limited – in the present paper, we use what is perhaps the only reliable indicator: the number and structure of vacancies, as registered with the Labour Offices.

In 2007, there were about 2921 agricultural vacancies offered via Labour Offices, standing for about 2.5% of the total number of vacancies. Of these, more than 47% were looking for Farm-hands and labourers. Other highly demanded job categories included Motorised farm and forestry plant operators (11.4%), Dairy and livestock producers, excluding poultry and bees producers (11.4%), Gardeners, horticulture and nursery growers (9.3%) and Field crop and vegetable growers (8.6%). The remaining thirteen categories together amount to about 12% of vacancies.

The applicants/vacancies ratio was about 2.3 applicants per one agricultural vacancy in 2007. This

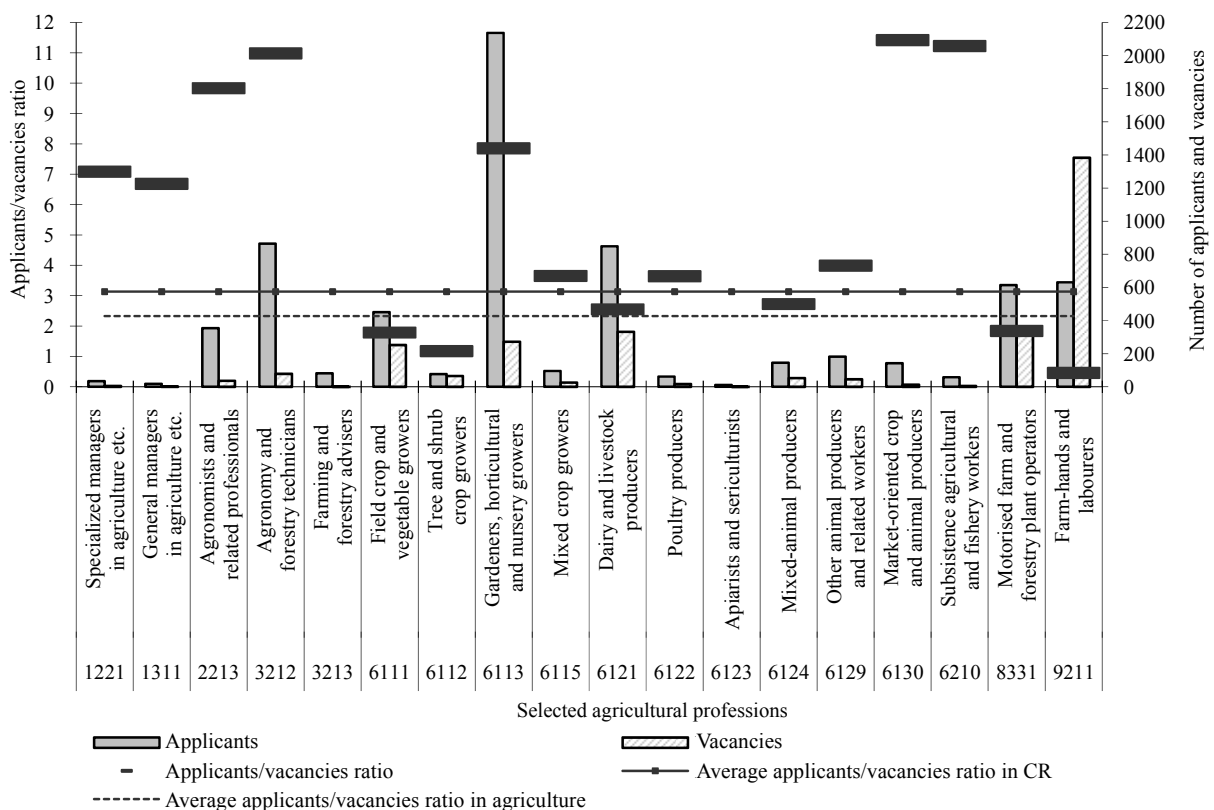


Figure 5. Numbers of applicants, vacancies and the applicants/vacancies ratio in the selected agricultural professions

Source: MPSV web portal: <http://portal.mpsv.cz/sz>

figure is smaller when compared to the country's average (3.1 applicants per vacancy), yet there are major differences between the vacancies requiring skilled and those requiring unskilled labour, just as there are differences among the various groups (Figure 5).

There are fewer applicants for jobs categorized in the unskilled category Farm-hands and labourers than there are vacancies – this means that the applicants/vacancies ratio here is only about 0.5 which is a major difference in comparison to the vacancies for unskilled workers in the whole country's economy, where the ratio is about 5. The difference indicates a low level of interest of the unskilled workers in agricultural work – only about 0.5% of them look for it. If we consider only qualified agricultural jobs (i.e. all others, apart from category number 9 211) the applicants/vacancies ratio rises to 4 (compared to 2.7 of a similarly constructed measure for the country's economy).

Another way of evaluating the state of labour markets is the internationally used Job Vacancy Rate (JVR): this figure represents the percentual share of vacancies in the total number of jobs available in the market, both free and occupied. A growing JVR indicates a high level of demand for workforce and vice versa.

The country's overall Job Vacancy Rate has risen from 1.3% in 2005 to 3.4% in the 3rd quarter of 2008. Within the industrial sector, the figures were only slightly higher than that (1.5% in 2005 to 4.0% in the 3rd quarter of 2008). Agriculture (including forestry) reported the JVR of 2.1% in 2005 and, after a rather turbulent quarterly development, ended up at the level of 3.3%. In other words, while the levels in agriculture and in the national economy seem matched at the moment, the pace at which new vacancies have been appearing has been generally slower in the agricultural sector.

AGRICULTURAL UNEMPLOYMENT

The levels of agricultural unemployment are derived from the supply of free labour in relation to the overall level of employment in the sector¹⁰. Its development is thus tied with the decreasing levels of agricultural employment and the general economic development of the country and its labour markets and at the same time influenced by state politics (Hrabánková et al. 2007). Even though, with the transformation processes, the decrease in agricultural employment came early and has been massive when compared to other sectors, the workers leaving agriculture at that time found new employment quite easily. Those who left the sector included workers close to or over the retirement age and, at the same time, workers who were young, qualified or capable enough to look for new opportunities in the early years of the new-born capitalist economy. The level of agricultural unemployment started growing in the mid-1990s, reaching its peak (connected with a high level of decrease in employment) in 1999. On a general level, the curve has been copying that of the overall country's level of unemployment, including its growth after the EU accession and a decrease in the following years. Nonetheless, the level of agricultural unemployment has been slightly higher than the general level of unemployment all the time (Spěšná et al. 2008).

In connection with the process of aging of agricultural workers, it is important to follow the level of unemployment of agricultural schools' graduates. Its measure is higher when compared to the whole country's figures (except for the vocational education).

Contrary to the workforce registered with the Labour Offices, these figures include unemployed agricultural school graduates regardless of the kind of jobs they were looking for. From the comparison of the lower level of

Table 4. The percentage of "failures" in finding jobs for graduates in 2007 (%)

Level of education	Agriculture, forestry and veterinary sciences	Total in CR
Vocational, class E, H	8.1	8.2
Vocational with "maturitní zkouška", class L	12.4	7.5
"Maturitní zkouška", class M	7.8	5.6
General secondary, class K	–	2.2
College, class N	9.8	4.2
University, class R, T, V	2.5	2.1

Source: Krajská ročenka školství 2007, ÚIV, 2008

¹⁰The data used in this section come from the annual Zpráva o stavu zemědělství v ČR (Report on the State of Czech Agriculture 1994–2008, including unpublished) published by the ÚZEI and Krajská ročenka školství 2007 and 2008 published by ÚIV.

supply of young agricultural workers and the higher levels of agricultural graduates' unemployment, it can be deduced that many young agricultural graduates are looking for jobs outside of the primary sector.

WAGES

Wage level is the most important measure of income of those working in agriculture, since a majority (over 80%) of Czech agricultural workers is waged labour. During the transformation period, wage levels in agriculture have started lagging behind the wage levels in the country's economy and there has been no significant change since the EU accession in 2004. The sector's wage levels are being influenced by a wide variety of factors, both external (such as the wage levels across the whole economy) and internal, given by the economic and financial state of agricultural enterprises. The latter is currently being negatively influenced by a range of specific problems (such as sales problems and the prices of agricultural commodities) that are likely to be worsened by the present economic crisis. It is obvious that agricultural entrepreneurs are well aware of the necessity to increase their employees' wages, yet their intentions are limited by a variety of factors and unfavourable prognoses.

The average monthly nominal wage in agriculture reached 15 953 CZK in 2007¹¹, compared to 20 962

CZK in the industrial sector and 21 692 CZK in the NE total. In both comparisons, the absolute deficit reaches more than five thousand CZK which contributes to the agriculture's reputation of a low-paid work. In 1989, before the transformation processes started, the situation had been different: the average agricultural wage 3 455 CZK had been both higher than that of industry (3 335 CZK) and the national economy as a whole (3 170 CZK).

The disparity of agricultural wages, both in comparison to industry and the national economy, has been oscillating around the 75% mark for the last ten years. In 2007 it reached 76.1% (in comparison to industry) and 73.5% (compared to the national economy).

Another factor worth mentioning, although not of the monetary character, are the average working hours, which are generally higher in the agricultural sector (182.5 hours per month in average) when compared to the national economy (174.6 hours). A comparison of hourly wages would then yield even worse results for the agricultural sector. At the same time, long working hours might work as a deterrent for potential workers (especially young ones) and it also presents a burden for the older agricultural workers whose numbers are prevalent.

There are also differences to be found among various professions within the respective sectors (especially in connection with the necessary qualification levels)¹². The highest level of disparity when compared to in-

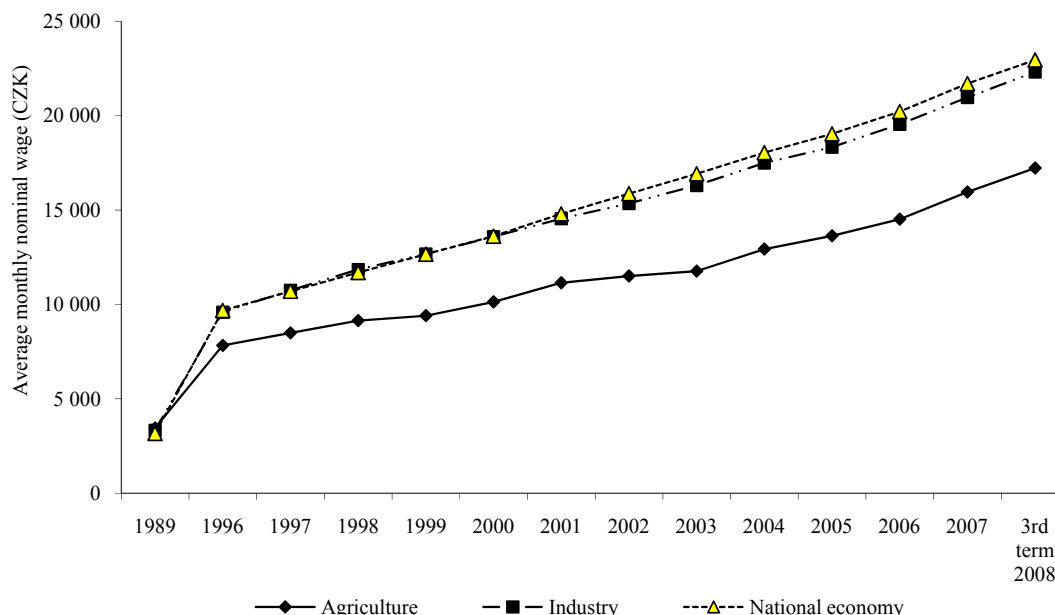


Figure 6. Nominal monthly wages in agriculture, industry and national economy

Source: Statistika práce a mezd (ČSÚ)

¹¹The data used in this chapter come from the Statistika práce a mezd (ČSÚ).

¹²Based on the major KZAM classes.

dustrial sector (62% or over 25 000 CZK in absolute figures) has been recorded for the group of leading managers and directors. In comparison to the national economy, this category's disparity reaches 77.1%. A disparity of about 75% has been recorded for a strongly represented category of qualified workers in agriculture. There are generally low levels of disparity for unskilled workers (whose income levels are generally low and do not differ much by the sector or region).

A job in industry thus offers a comparably higher monetary incentive for highly qualified managerial workers, even though it may require a work-driven migration. As such, the decision to work in agriculture is less advantageous for this category of workers than for workers with lower qualification levels, given the lower income potential. Taken from a different viewpoint, the possibility of career growth and high level income is generally more limited in agricultural enterprises as well as in other enterprises located in the rural areas (Buchta, Štulrajter 2007) when compared to larger, both production- and service oriented enterprises in big cities (to quote an example, the wages of leading managerial workers and directors in a predominantly rural region of Vysočina reached only 55.8% of the wages of the same category of managers working in Prague – the difference, in absolute figures, amounted to 30 684 CZK).

As for the real wages, it was not until 2007 that the real wage level in agriculture finally reached the level of 1989 – in 2007, agricultural wages exceeded the 1989 level by 2.2%. In industry, the 1989 mark was reached in 1997 (now the real wages are 142% of the initial level) and in the country's economy as a whole, the equality was reached one year before that, in 1996 (with today's figures exceeding the 1989 level by 51.7%).

CONCLUSION

The comparably worse age structure of agricultural population and its aging are common to most of the developed countries of the world (within the EU, only Denmark and the Netherlands display a share of young workers fully comparable with that of the industry, while the Czech Republic and Slovakia are under the EU average). At the same time, the geriatrization of agricultural workforce in the Czech Republic is strengthened by the consequences of the forced disruption in the family farming tradition and breaking of the long-lasting farmers' relationship to their land that came about with the Communist regime. The insufficient influx of young workers into the sector may result in a situation where, once the strong pre-retirement cohorts retire, a sufficient

level of reproduction of agricultural workforce will be difficult to achieve. It has also been noted that the comparably worse age and education situation present an obstacle for farmers looking for jobs, together with other conditions (Majerová, Kocmáňková 2002). Macours and Swinnen even claim that there is a strong positive correlation between the level of education and the likelihood of finding a job in the service sector or in industry, of business start-ups, and of the nonfarm economic activity in rural areas (Macours, Swinnen 2005).

In the present paper, we have, in relation to aging of the agricultural workforce, focused on the factors within the labour market. In other words, our scope was limited to the opportunities for an improvement in the age structure of agricultural workforce that result directly from the situation in the labour market – these were usually tied to the supply of workforce, demand for it and the wage level of agricultural workforce. The results are thus presented in the forms of hypotheses. The inclusion of various data sources including both primary and secondary data allows us to lay down the hypotheses in a causal way.

The resulting hypotheses, supported by the statistical and empirical data, are as follows:

- (1) *The supply of free workforce (applicants under 30 years of age, applying for agricultural jobs) does not present a significant chance for the sector's rejuvenation.* The applicants for agricultural jobs are older than other applicants and the share of applicants under 30 is smaller in agriculture.
- (2) *The lack of young, highly qualified agricultural workers is not caused by insufficient capacities of agricultural universities or by insufficient interest in enrolment.* The numbers of enrolled students as well as those of the graduates are increasing and the share of agricultural graduates is increasing in comparison to the country's graduates
- (3) *The increasing interest in studying at agrarian universities does not result in young graduates' increased interest in agricultural jobs.* Only a small part of university graduates showed an interest in working in agricultural production.
- (4) *The decreasing numbers of agricultural high school graduates do not necessarily contribute to the problem of the age structure of agricultural workforce.* It goes together with a high level of unemployment of agricultural high school graduates. However, we need to find out the extent to which these graduates really look for agricultural jobs and whether their supply is in accordance with the production requirements. Also we expect the demand for qualified high school graduates to increase in a few years' time when the strong

cohorts of pre-retirement age agricultural workers will be leaving the sector.

- (5) *The demand for workforce by agricultural enterprises, as measured by job vacancies, does not stimulate an influx of young qualified agricultural workers.* The number of applicants per agricultural vacancy is smaller than the same in the national economy. Furthermore, there is a much higher share of unqualified positions being offered in agricultural sector than in the national economy; these positions are less attractive and not stimulating in the terms of career perspective or job-driven social mobility. Agricultural enterprises are thus often dependant on local labour markets where the chances of balancing supply and demand are rather slim.
- (6) *Wage levels in agriculture present an entrance barrier for young and qualified workers.* A significant wage gap in agriculture compared to both industry and the national economy is well-known and it was also named as the most important barrier for entering the agricultural sector by the informants in the empirical survey.

Facilitating young workers' entry into the sector can be considered a key condition in the process of a stable development of Czech agriculture. However, as the present analysis has shown, there are presently not many factors bound to the agricultural labour market that would serve this function. The supply of young people for work in agriculture is low, there is a higher demand for unskilled labour in comparison with other sectors, the wage levels are lower in the same comparison and the labour market's character is predominantly local. A further research will be necessary to assess the influence of other, not labour market-related factors, on both the age structure of agricultural workforce and the labour market itself.

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