Income disparity of Czech agriculture – selected aspects

Příjmová disparita českého zemědělství – vybrané aspekty

I. Boháčková[1], M. Hrabánková[2]

[1]*Faculty of Economics and Management, Czech University of Life Sciences, Prague, Czech Republic*
[2]*Faculty of Agriculture, University of South-Bohemian, České Budějovice, Czech Republic*

Abstract: The paper is focused on the problems of income disparity in agriculture. This economic as well as social phenomenon is often discussed, especially at the administrative level, nevertheless, it has not been exactly defined and methodically delimited yet. The comparison of average wages of farmers with average wages in inhomogeneous industry and with average wages in the very sector-differentiated national economy used today can be considered as problematic. In the paper, the possible system of income disparity monitoring is suggested which would remove the current deficiencies. In its frame, a special attention is paid to regional aspects of income disparity and the relation of wages and labour productivity.

Key words: income disparity, agriculture, categorization, regional approach, labour productivity

Abstrakt: Příspěvek se zaměřuje na problematiku mzdové disparity v zemědělství. Tento ekonomický, ale i sociální jev je sice často diskutován, zejména na správní úrovni, nicméně není zatím zcela přesně definován a metodicky vymezen. Za problematickou lze považovat v současné době používanou komparaci průměrných mezd zemědělců s průměrnými mzdami v nehomogenním průmyslu a s průměrnými mzdami v rezortně značně diferencované národní ekonomice. V příspěvku je navržen možný systém sledování mzdové disparity, který by současné nedostatky odstranil. V jeho rámci je zvláštní prostor věnován regionálním aspektům mzdové disparity a vztahu mezi mezdami a produktivitou práce.

Klíčová slova: příjmová disparita, zemědělství, kategorizace, regionální přístup, produktivita práce

INTRODUCTION

Income disparity in agriculture

The traditional theoretical conception of income parity (income balance), respectively disparity (income imbalance) distinguishes in agriculture:

– external disparity – when it is dealt with the relation of agriculture to its surroundings which is given by the frame and the structure of national economy. In this approach, two basic principles are used for comparison, according to the efficiency indicator "income of a branch per one AWU" and further according to the preferred indicator "average wage in agriculture" in comparison with the average wage in the national economy and the average wage in industry.
– internal disparity – when it is dealt with disparities inside agriculture monitored according to the ownership type of agricultural businesses, respectively according to the size of business or natural conditions for agricultural enterprise. Indicators used in this connection are incomes of businesses (mostly per one hectare or per one AWU).

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METHODOLOGY APPROACHES AND RESULTS

The current practice in monitoring of income disparity prioritizes wage disparity. On the base of a simple comparison of wage level of employees in agriculture with wages in other sectors, also problems in agricultural enterprise are proved. It can be assumed that under the conditions of the Common Agricultural Policy, this approach is no longer sufficient.

On the base of the analysis of the current situation under the conditions of Czech agriculture, on the base of the knowledge of income level monitoring systems in some EU member states, and on the base of the need of relevant information for agrarian-political measures, it is possible to monitor income disparity e.g. at the levels introduced in Figure 1.

It is recommended to maintain two current dimensions of income disparity, external disparity and internal disparity. The content externalization of both these groups should come to fundamental changes regarding the needs of practice. In the frame of external disparity, it is worth monitoring effectiveness of a branch expressed by "income" according to the methodology of National Accounts; for the purposes of comparison per one work unit (AWU). The indicator would provide information about what difference exists in the income situation among the particular sectors. These differences are usually objectively based on the activity of the particular branch. At the same time, monitoring of wage disparity would be excluded from the frame of monitoring of external disparity from the reasons which are introduced in the subchapter 4 in more details. As well in monitoring of internal disparity, some demanding changes can be made. It is possible to maintain monitoring of income disparity at business level in the today-usual approaches, however, other approaches have a higher predicative ability. If we evaluate efficiency of entrepreneurial subjects today according to the legal form – cooperatives, business companies, individuals (it enables to monitor efficiency in terms of ownership relations), we do not take into account the structure of production activities which creates the entrepreneurial profile of these subjects. There is a comparison of results of businesses whose subject of enterprise can be very different. For example in Austria, Germany but also in Italy, this is taken into account and the results of businesses divided in groups according to a type of the realized entrepreneurial activity are monitored (Internationalisierung und ihre Folgen für die Landwirtschaft 1995; Sokol 1994). So, it would be necessary also under the conditions of our agrarian sector to enlarge monitoring of income disparity by this aspect. In connection with the internal income disparity, the absence of regional approach is very perceivable. The present structural policy of the EU is based just on the regional approach to agriculture and countryside. To this approach, financial targeted supports are provided the share of which is still more significant in the EU budget. If we viewed the income

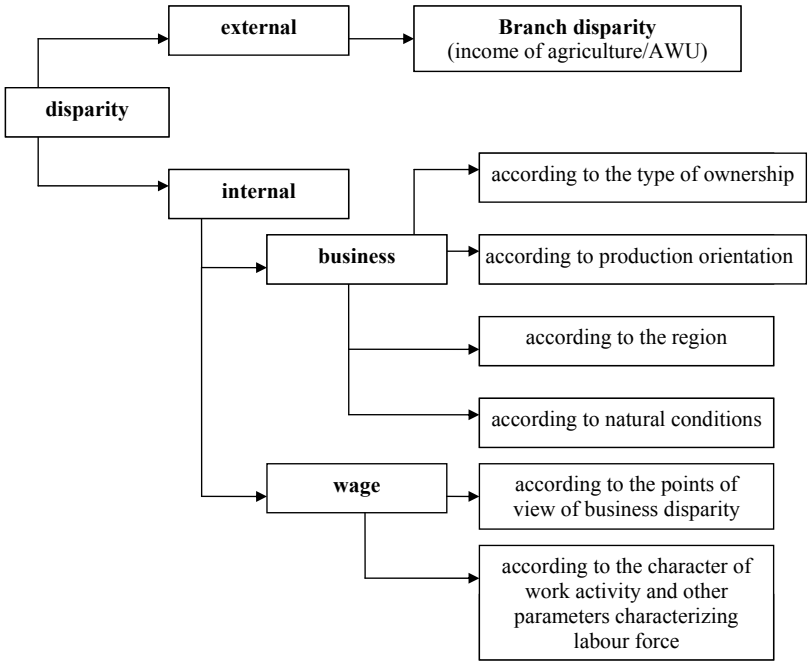

Figure 1. Possible dimensions of income disparity in agriculture

disparity in agricultural businesses in regions, we would obtain a valuable information for the possible application of structural measures. Because it is dealt with comparative data on agricultural activities, it would be possible to consider it as an important the information on average wages of agricultural manpower in the regional dimension.

Wage disparity in agriculture

If we talk about income disparity in agriculture, we will consider wage disparity – i.e. the disparity of wages of active agricultural work population in which the employees and self-employing shareholders of agricultural cooperatives are included. There are disposable statistic data on these two groups. A basic problem of the present monitoring of wage parity (disparity) is the determination of a comparative base. The average gross wages reached by labour forces in agriculture are compared with the average gross wages reached in the national economy, respectively with the average wages reached in the branch industry in total (Table 1). Nevertheless, labour forces in branches include all groups of labour forces without taking their structure into account. The result is an "average labour force". In other words – because the average wage does not take into account the occupation, education etc. structure of labour forces in branch, simply a situation occurs that the wages of branches with a high share of manual professions, a lower level of qualification, and special or specialized works and so also lower wages, are mutually compared with the branches characteristic by the typical prevalence of special activities, a high level of education, expertness and specialization and so on. Then the comparison produces misleading conclusions. A typical example is the present way of presentation of wage disparity in agriculture in the official materials, including the Reports on the State of Czech Agriculture (so-called Green Reports) where the comparative base is partly the average wage in industry in total and partly the average wage in the national economy.

According to the organization structure of national economy (see the statistic yearbook by ČSÚ[1], the industry in total includes:

(a) mining of mineral resources (in that mining of energetic raw materials and mining of other mineral resources);
(b) processing industry (in that food industry, textile industry, tanning industry, wood-working industry, paper industry, chemical industry, production of coke, fuels, refinery processing of crude oil, production of plastic and rubber products, production of other non-metal mineral products, engineering and repair industry, metal-working industry, production of electric and optical apparatuses and equipments, production of means of transport and facilities);
(c) production and distribution of electricity, water and gas.

On the base of this listing of various kinds of industries, a question arises how far or near these

Table 1. Wage disparity in agriculture compared to industry in total and compared to the average of national economy (in %), 1995–2004

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Z/P	103.6	107.7	93.2	88.5	84.9	84.8	84.5	81.7	79.0	77.1	74.2	74.6	76.7	75.	72.2	73.9
Z/NH	109.3	112.4	100.0	91.3	87.0	84.7	84.2	80.9	79.4	78.2	74.3	75.1	76.1	73.3	69.5	71.7

According to the Reports on the State of Czech Agriculture1995–2004

Z/P = disparity agriculture/industry

Z/NH = disparity agriculture/average of national economy

– by the year 1991 on the base of socialist approach to management of the national economy there was also wage disparity in favour of agriculture (wages in agriculture were higher than in industry and significantly higher compared to the average of national economy)
– the opposite development happens from 1991 to 1999. Wage disparity towards industry is negative and towards the national economy it deepens. From 2001, there is a tendency to a faster growth of the difference in wages between agriculture and the average of national economy
– in 2005 the values of disparity Z/NH stayed at the level of 2004; the disparity towards industry moderated to the value 74.4%

[1]ČSÚ – Český statistický úřad (= CSO – Czech Statistic Office)

branches are to agriculture so that it would be possible to compare the wages and to deduce the real conclusion from the comparison.

In case of comparison of the wage level in agriculture and the national economy as a whole, the width of diversity is even bigger. Except the above mentioned industries, the national economy includes:

(a) building industries
(b) trade, repairs of motor vehicles and products for personal consumption and households
(c) boarding and lodging
(d) transport, storage and links
(e) activities in the area of immovables and leasings, entrepreneurial activities
(f) public administration and defence, obligatory social security
(g) education
(h) financial mediation
(i) health and social care, veterinary activity
(j) other public, social and personal services
(k) activities of households
(l) extraterritorial organizations and institutions

At the first sight, there is an obvious difference between the matter of activity of agricultural businesses and for example services, and an influence on wage level is shown without question also by the fact whether it is dealt with the branches paid from the state (public) resources or with the branches of private entrepreneurial subjects. Also here the comment on discrepancy of the labour force structure holds (agriculture versus financial engineering).

If we are about to keep the principle "to compare non-comparable", then the above mentioned current way of comparison of average wages in agriculture with the average wages in industry and in the national economy can be designated as problematic. In this sense, it would be possible to compare agriculture only with the branches which would represent relatively comparable activities and have a comparable structure of labour force.

However, it is possible to go further; not to focus in monitoring on labour force of branches as on one integrated group but vice versa to respect its in homogeneity. Labour forces in each branch are differentiated in dependence on the profession and the activity which they practice, i.e. from groups of manual workers practicing simple works to a group representing top management in an enterprise. Then, it is more logical, more well-founded and more purposeful to compare a cross-branch wage valuation of labour force groups with an identical or a very close character of work. It means to compare branches with each other according to the wage of manual workers, special workers, medium technical workers, "top" management and so on. The depth of differentiation should be dependent on the purpose for which the wage comparison is realized.

However, within comparison of wage level of comparable activities and professions, we can face a problem which has been already referred to by Sokol (1994). This problem is the diversity of activities which is shown by householders – owners of family farms. These owners practice all kinds of work in fact, from a simple manual (e.g. cleaning), to special (e.g. soil cultivation, small repairs), specialized (especially in animal production), economic-technical (e.g. accounting administration) to management (management of the whole enterprise, decision making). Then the question arises with which group of workers in other sectors these persons should be compared. Under the conditions of the Czech Republic, this question is not solved but in the countries of the former EU-15 the solution has its significance. First of all, it is dealt with in Germany. From non-member states the attention to this question is paid in Switzerland.

Wage disparity in agriculture – regional aspects

It has been mentioned above that in monitoring wage disparity, some relevant connections are left out. The difference at the regional level belongs among the most important. The regional approach increases in significance above all in the connection with large subsidiary measures aimed at the countryside and agriculture as a traditional part of rural entrepreneurial structures. In the frame of measures which concentrate on the development of rural regions (including agriculture), the development of human potential becomes a priority recently. The development of human capital is influenced by many factors. In their list, a non-impeachable role is played by material conditions with which the human factor disposes. As a determining element of life level, material incentives of people fulfil not only a stimulation role in the frame of their economic activities (employee, entrepreneurial) but also it is important as a motivation for further improvement of the human factor itself. The "quality" of human potential (labour force) is subsequently a significant development element in the dimensions of businesses, regions and in the national dimension.

At the same time, a logically non-impeachable fact in market economy is that the wage level of labour force should reflect partly the prosperity of businesses and branches in which labour force is economically active, and partly also their own efficiency. In the

frame of this presumption, it is possible, regarding the regional wage disparity in agriculture, to further monitor in regional dimension a relation between:
– average wage in agriculture and regional efficiency in agriculture,
– average wage in agriculture and efficiency of agricultural businesses,
– average wage in agriculture and labour productivity.

The relevant data are introduced in this connection in Table 2. The data refer according to the European Union nomenclature to the level NUTS III, i.e. under the conditions of the Czech Republic to the level of regions. From the official number 14 regions, the atypical region Prague was excluded. The dimension of agriculture represents here a completely specific and insignificant element in the entrepreneurial structure.

Within monitoring of the relation of average wage in agriculture achieved in the particular regions to regional efficiency of agriculture as a branch, an efficiency indicator was partly the indicator used standardly – "share of agriculture in gross domestic product of the region (GDP)" and partly the indicator of "share of agriculture in creation of gross added value of the region (GAV)". The share of agriculture in GDP predicates rather about "the place" of agriculture in the national structure of the region because agriculture does not represent at present any bearing branch of regional economies; its value moves in the interval from 1.43% (region Liberec) to 7.26% (region Vysočina). This fact reflects also the indicator of the share in gross added value where values lie in the interval 1.60% (region Liberec) to 8.10% (region Vysočina). It would not be rational to look for connections with the level of wages with the level of wage of farmers in values of these indicators.

The situation in relation of average wages and efficiency of agricultural businesses should be different. Logically, the economically higher prosperity of businesses could reflect also in higher wages. Efficiency of businesses was monitored regarding the availability of regional data by the help of the category "gross added value/business". Neither in this case it can be said that the regional difference in economic efficiency of businesses reflects in the regional wage level. For example the lowest values of GAV per one agricultural enterprise are achieved in the region Liberec, and further in South-Moravian region and the region Zlín. The wage level in agriculture in all these mentioned regions does not corresponds to the situation – for example the region Zlín where businesses create the second lowest added value has the highest wage of all Bohemian and Moravian regions. If we monitor a position of regions at the opposite

Table 2. Selected regional indicators

NUTS III (regions)	Share of agriculture (%)		GAV/business in agriculture (mil CZK)	Labour productivity (thous. CZK)		Monthly wage/LF (ths. CZK)
	in GDP	in GAV		production/LF	GAV/LF	
Central Bohemia	3.41	3.8	2.23	907	493	13 422
South Bohemia	4.93	5.5	1.83	736	625	12 525
Pilsen	3.68	4.1	2.37	732	633	13 101
Karlovy Vary	1.88	2.1	2.19	767	533	13 163
Ústí	1.52	1.7	1.41	821	472	12 357
Liberec	1.43	1.6	0.85	465	318	12 658
Hradec Králové	4.03	4.5	2.25	767	458	13 094
Pardubice	4.75	5.3	2.40	682	526	12 720
Vysočina	7.26	8.1	2.23	635	458	12 430
South Moravia.	3.14	3.5	1.09	365	446	12 249
Olomouc	4.93	5.5	3.47	430	532	12 824
Zlín	2.96	3.3	1.24	901	531	13 615
Moravian-Silesian	1.70	1.9	1.64	617	473	12 334

Source: own calculations
GAP = Gross Agricultural Production; GAV = Gross Added Value; LF = labour force

end of scale, than we can state that the regions where agricultural businesses create the highest GAV (the region Olomouc) achieve farmers' wages only to the sixth position and in the second Pardubice region to the seventh position.

The above mentioned relations can be supposed as significant in connection with the income disparity. Nevertheless, monitoring of linkage of regional wages in agriculture to achieved level of regional labour productivity in this branch should be of principal.

The indicators which would express the level of the achieved labour productivity and could be compared with wages were two. It was dealt with the indicator of "production per labour force (AWU)"; both in common prices. An indicator which would better enable the quantification of labour productivity – "net added value" per one AWU could not be reckoned from the available regional data. Nevertheless, with the use of the above mentioned indicators, certain conclusion can be made.

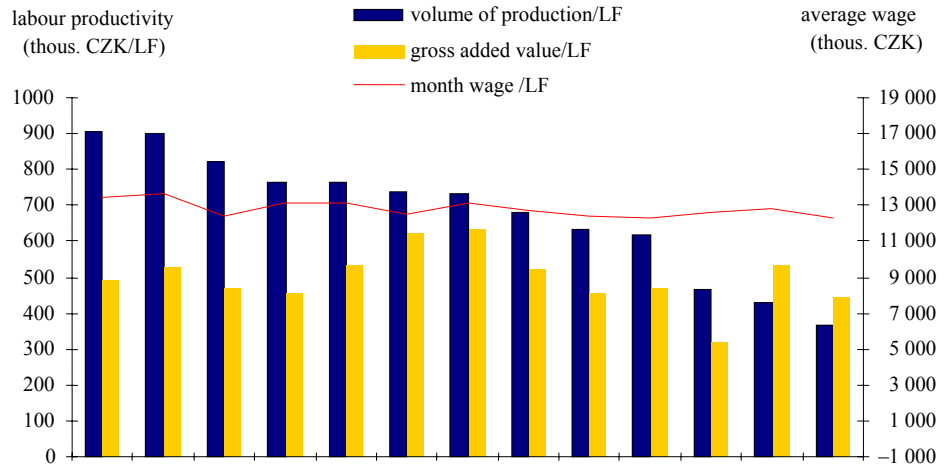

Figure 2. Average wage in agriculture and labour productivity – regional dimension

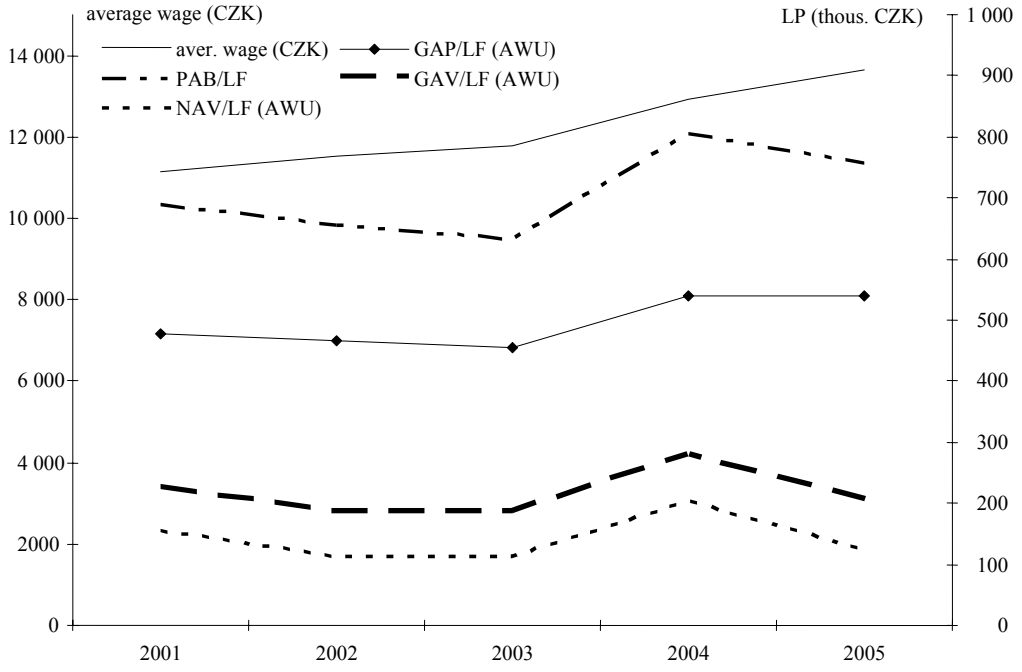

Figure 3. Wage and labour productivity in agriculture

LP = Labour Productivity; LF = Labour Force; AWU = Annual Working Unit; PAB = Production of Agricultural Branch; GAP = Gross Agricultural Production; GAV = Gross Added Value; NAV = Net Added Value

Already from monitoring of these two single indicators, considerable differences are obvious among the particular regions (Figure 2). Some regions – Central Bohemia, Zlín, Ústí, Hradec Králové – achieve the best values in comparison if we express labour productivity by the help of production volume. However, if it is dealt with the created gross added value in common prices, then the position of these regions is not so favourable and the front positions are taken by the regions Pilsen, South Bohemia as well as Pardubice and Karlovy Vary. The situation in Olomouc and South Moravia regions is paradoxical; the level of the officially shown gross added value exceeds the production value.

With reference to the introduced chart 1, it can be stated that the linkage between the level of labour productivity in agriculture at the NUTS III level and the wages of farmers at the same level cannot be supposed as relevant. At the same time, a theory determines the condition of the preferential growth of labour productivity to the growth of wages. Meanwhile, none of the needed data are provided for this purpose at the regional level. At the national-wide level, we can find following conclusions:

– average wages in agriculture grow (Figure 3);
– however, labour productivity in agriculture shows a completely different trend (Figure 3) when we can record its gradual decrease. The level of the trend of this decrease depends on the choice of indicators (in count per AWU) with which we will measure the efficiency of labour forces. Under the conditions of agrarian sector, the following possibilities are offered: to use the preferred volume indicator of gross agricultural production or in connections with the methodology of the FADN the indicator of production of an agricultural branch, resp. gross added value or net added value. In dependence on the use of the concrete indicator, it is obvious that the achieved value of labour productivity will differ. What remains identical in fact is the unfavourable decreasing development. An exception is the year 2004 which for the Czech agrarian sector represents the first year of joining the Common Agricultural Policy which was typical by the increase of subsidies which, as it has been mentioned, are a part of the general agricultural account.

CONCLUSION

Income disparity ranges among the economic topics which represent not only a theoretical problem in the area of definition of the term itself, including the used economic categories, but also it is dealt with a real problem of practical detection. The introduced text aimed to emphasize certain problem spheres connected with monitoring of income disparity in agriculture.

– The income of agriculture as a branch is defined by the methodology of the national economy general accounts and for the purposes of comparison it is counted per one AWU. In connection with the mentioned delimitation of income, the author warned against the problems of a certain non-transparency e.g. in appreciation of the categories which "did not go through" the market; further against including wage costs of "self-employing owners", and finally against the justification of the inclusion of balances of operational and investment subsidies in the final result of agricultural enterprise.
– Income of agricultural labour power is expressed by its wage. This presently preferred and monitored in the frame of wage disparity provides information on wages of labour forces in employment (including self-employing owners when it is not completely clear whether the ownership view prevails in the definition of this group or the employee one); incomes of the individually managing farmers are not available which to some measure distorts the situation.
– The comparison of wage levels among the particular branches of the national economy has a certain predicative value, however, the principle of comparability is disturbed here. It is obvious especially in the example of agriculture. Wages in agriculture are compared with wages in other branches of the national economy regardless of the divergence of activities representing the load of sectors (agriculture versus financial engineering), regarding the structure of labour force (educational, official position, and so on), regardless of the resources of financing (resources of private entrepreneurial subjects versus public resources).
– Expressing of the wage disparity in comparison to the average of national economy and in comparison to the industry can be replaced with a regional approach – i.e. to monitor the income disparity in agriculture at the particular regions' level which would help also to use measures of the structural policy regarding both the agriculture and the human potential.
– There are differences among regions within monitoring wage disparity at the regional level NUTS III. However, these differences in wage disparity are not subject to economic results of agricultural businesses nor to the achieved level of labour productivity. This findings can be supposed as relatively significant because the effect of human

work measured by created value (the effect for an enterprise, the effect for a society) and the effect of human work measured by wage (a personal effect) are together objectively related.

– Last but not least, it is important to pay the appropriate attention to monitoring of labour productivity in agriculture. Both at the theoretical and the practical level. At the theoretical level, the standard indicator used in the EU-15 – net added value (respectively gross added value) per one AWU can be recommended. In market economy, not only the volume of production is relevant but mainly its value.
– The role of agriculture has dramatically changed. A historically supporting branch has become a branch whose economic dimension in regions slowly decreases. From the view of its present position, it is more than obvious that the position of business production programs based completely on traditional agricultural production – plant and animal – will not be sufficient in the future. There is still a higher need of diversification approaches which should and could strengthen economic efficiency of agricultural enterprises. Then, economic results achieved by agricultural businesses should be, together with the growth of labour productivity, a presumption for the growth of agricultural population's income. Presently, the growth of wages in agriculture is rather a result of a social approach than the result of entrepreneurial activities.

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Contact address:

Ivana Boháčková, Czech University of Life Sciences Prague, Faculty of Economics and Management, Department of Agricultural Economics, Kamýcká 129, 165 21 Prague 6-Suchdol, Czech Republic
Magdalena Hrabánková, University of South-Bohemian in České Budějovice, Faculty of Agriculture, Branišovská 31, 370 05 České Budějovice, Czech Republic
e-mail: bohackiv@pef.czu.cz, hrabanko@zf.jcu.cz