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INCOMES OF RURAL AND NON-RURAL HOUSEHOLDS IN THE CZECH REPUBLIC

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Abstract

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The paper compares incomes of Czech rural and non-rural households and identifies households persisting below the poverty threshold. The data were taken from the statistic research Statistics on Income and Living Conditions (SILC) of 2005 and 2008. Households were classified according to the municipality size (2000 inhabitants). Household incomes were assessed according to net annual income per consumption unit, living minimum and subjective minimum income. Positive skewness and high kurtosis is a typical feature of household incomes; a similarity with log-normal distribution can be presumed. The difference between rural and non-rural household incomes was significant ($p < 0.05$ in 2005; $p < 0.001$ in 2008). The development of incomes in both areas is assessed with the shift-share analysis regarding the national, industry mix and regional component.

household incomes, rural population, SILC, shift-share analysis

Problem of poverty is not limited to developing countries only; it is related to the European society as well. The year 2010 was designated as the European Year for Combating Poverty and Social Exclusion. In 2000, authorities of member states committed themselves to eradicating poverty in the EU by 2010. Questions of poverty and deprivation are among the major objectives of social policy tackled in a number of important studies. An effort to reduce poverty and prevention strategies is a part of social policy; while reducing poverty can be taken as the minimal aim. The poverty rate of the Czech Republic is constantly low; 9.1% of population were below the threshold of monetary poverty in 2007 as reported by the Czech Statistical Office (compared to 16% in the EU).

The research is usually aimed at social groups that are classified according to age, family type, economic activity, education, gender, handicaps, minorities etc. This paper classifies household according to the size of a municipality into two groups. The aim of the paper is to compare basic parameters of Czech rural households and to identify basic disproportions between rural and non-rural household by comparing their incomes in time and space. Marginal attention is paid to living minimum and minimal income.

MATERIAL, METHODOLOGY AND LITERARY REVIEW

Statistics on Income and Living Conditions

Before the Czech Republic entered the EU, the income and social situation of population had been investigated by the Mikrocensus statistical survey (in 2002 for the last time). After the EU Accession, Czech Statistical Office has been providing statistical survey Living Conditions, which is a national module of the Eureopean EU-SILC survey (European Union – Statistics on Income and Living Conditions) performed since 2005 in compliance with the European legislation. This survey has become obligatory after the EU accession. The unit of observation was the flat randomly selected in two stages. The questionnaire has several parts; questions refer both to individuals and households. The survey is framed as a rotation panel – households are included in the survey for four years (Living Conditions, 2010). Detailed information on the survey process and the structure of the Czech SILC in 2005 and descriptive statistics of household incomes are described in Stejskal *et al.* (2010).

The SILC survey of 2005 included data that was up-to-date in the time of the survey, i.e. in May of 2005 with incomes of the whole year of 2004. The 2008 SILC survey included data that was up-to-date in May of 2008 with incomes of the whole year of 2007. The 2005 SILC set included data of 4 351 households and 10 333 individuals living in these households; the 2008 SILC set included data of 11 294 households and 26 933 individuals. Both sets included the same 3 348 households with 7 980 individuals in 2005 and 7 882 individuals in 2008.

A number of criteria such as a number of inhabitants, density, accessibility, remoteness etc related to some kind of territorial unit can be used to divide the sample into rural and non-rural groups. This paper used the size of a municipality – 2 000 inhabitants to be specific – that corresponded also to The Programme of Rural Development of The Czech Republic in the period of 2007–2013. Previous analyses revealed that regarding this criterion is significant (Střeleček *et al.*, 2004; Perlín *et al*,. 2010). In the SILC statistical survey, municipalities according to the number of inhabitants are classified into 9 groups (*VEL*); municipalities with less than 999 inhabitants match groups 1, 2 and 3, group 4 includes municipalities with 1 000–1 999 inhabitants and non-rural municipalities are classified as groups 5, 6, 7, 8 and 9.

Definition of variables

Net monetary income of household in CZK per year (*CP_PRIJ*) includes gross incomes from employment (employment and self-employment) of all household members, social income and other benefits reduced by social and health insurance and income taxes. The number of consumer units (*EJ*) is a weighted sum of household members; the household head is assigned a value of 1.0 value of 0.3 to children less than 13 years of age and value of 0.5 to other members (the OECD-modified equivalence scale) according to the definition of the Statistical Office of the European Union (EUROSTAT). Similar value is used in Jarvis and Jenkins (1998) with net incomes of all household members modified according to the McClements equivalence scale. The question is whether it is better to use gross or net incomes for income analyses. The analysis of households with low incomes can be possibly adjusted by eliminating housing costs (Phimister *et al.*, 2000). Net monetary income of households per consumer unit in CZK per year is calculated as

$$CP\_PRIJ / EJ.$$

Living minimum is the lowest socially recognized level of income to ensure nutrition and other basic personal needs. Living minimum of a household in CZK per month (*ZIVMIN*) is the sum of all amounts for each individual according to their status in the household defined according to the Act No. 110/2006 Coll., on Living and Subsistence Minimum. Previously, the living minimum was calculated according to the Act No. 463/1991 Coll., on Living Minimum as the sum of amounts for each individual and amount according to the size of a household. This calculation was used during the SILC 2005 survey. In 2004, living minimum was regulated by the Government Regulation No. 33/2001 Coll., increasing the amount of living minimum. Living minimum per consumer unit is calculated as

$$ZIVMIN / EJ.$$

The questions "What is the lowest net monthly income your household would have to have in order to make ends meet?" is a part of the Living Conditions questionnaire. The *MIN_PRIJ* value is therefore a subjective estimate of the lowest income possible due to the composition and conditions of the household that will enable to ensure the basic needs. The lowest annual income per consumer unit is calculated as

$$12 . MIN\_PRIJ / EJ$$

and a subjective annual surplus per consumer unit is calculated as

$$(CP\_PRIJ - 12 . MIN\_PRIJ) / EJ.$$

Monetary values are in current prices. The year 2005 had the annual inflation rate of 1.9%. In 2006, it reached to 2.5% and 2.8% in 2007. The price level was increased by 7.37% with an average annual growth rate of 2.399% in the period of investigation. Dividing the SILC values for 2008 (i.e. incomes of 2007) by the 1.0737 coefficient will express these values in prices of 2004.

Low income and poverty

Analysing poverty is based on the ability a) to define it and b) to measure it. Similar to other social phenomena, defining and measuring poverty is connected to a number of difficulties. There are different conceptions of poverty. The definition therefore determines who is poor and the extent of poverty in the society (Mareš and Rabušic, 1996). Conceptions are further classified according to different criteria – absolute or relative; direct or indirect; prescriptive or consensual and objective or subjective.

Townsend (1979, p. 31) defines the poverty according to the concept of relative deprivation thus: "Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary, or are at least widely encouraged or approved, in the societies to which they belong. Their resources are so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities.". Pacione (1995) indicates that poverty is a central element in the multidimensional problem of multiple deprivations. Individual difficulties (as

low pay, dereliction, homelessness, poor schooling, vandalism, stigmatisation, powerlessness, delinquency, segregation, unemployment, poor services, crime, one-parent families, poor housing) reinforce one another to produce compound disadvantage for those affected. Many of the components of multiple deprivations are varying in both urban and rural environments.

Labudová *et al.* (2010) compare the risk of poverty in the Czech Republic and in Slovakia and in regions. They identify factors typical for regions with low-income households using the principal component analysis. The impact of low income on living standards depends on the length of time low income persists, and the availability of other resources to supplement current income (Layte *et al.*, 1999). According to Perry (2002) and Ringen (1988) the low incomes are unreliable as an indicator of poverty. Measures of relative deprivation in the study of Halleröd *et al.* (2006) are not based on incomes but on observation of consumption of goods and services. Definition of household consumption shows that using consumption has important problems related to the estimation of use-value of consumer durables and value of housing (Gradín *et al.*, 2004). Želinský (2010) estimates the level of poverty on the basis of welfare indicators.

The criterion of low incomes is defined differently in literature. The relative definition determines low-income households (or individuals) as those with incomes lower than the first quintile; second or third decile; 40, 50, 60 or 70% of the mean income (average, median).

Rural regions

A number of papers has discussed differences (and their causes) between rural and non-rural areas. Gilbert (2004) investigated employment and an average wage in remote rural, accessible rural and non-rural regions in Scotland. There are great differences between urban and rural households (approximately three times higher in urban areas) as well as differences among regions for example in China (Sicular *et al.*, 2007; Gustafsson and Shi, 2002).

Rural areas are closely related to agricultural sector. In the Czech Republic, 4.7% of workers are employed in agriculture; 11.1% in rural areas (according to 2001 Population and Housing Census). Divila and Doucha (2005) compared the level and structure of incomes in agricultural and other households in the Czech Republic according to the Microcensus and Family Budget Statistics. Similar topic was dealt in Stejskal and Stávková (2010); Davis *et al.* (1997) for Greece, Ireland and Northern Ireland; Chaplin (2004) for the Czech Republic, Hungary and Poland. Hill (1999) reviewed the situation of agricultural households. Pospěch *et al.* (2009), Vaněk *et al.* (2008), Vavrejnová and Lüpsik (2007), Buchta and Štulrajter (2007) compared the quality of life in rural and non-rural regions.

Shift-share analysis

The shift-share analysis is used as a tool to assess the dynamics. This analysis was proposed by Dunn (1960) and designed for understanding the regional development of a national economy. Employment (Riguelle *et al.*, 2007; Blien and Wolf, 2002; Dinc and Haynes, 1999; Střeleček *et al.*, 2010); value added (Esteban, 2000); labour productivity (Maudos *et al.*, 2008) or other (Střeleček *et al.*, 2009) can be used as the decomposed variable. The analysis by this method is always aimed at assessing dynamics and changes regarding each sector or to static assessment of structural changes regarding sectors and regions.

In the paper, the shift-share analysis assesses the dynamics of net income of households per consumer unit (*CP_PRIJ/EJ*) in sectors of national economy in rural and non-rural areas. Using the shift-share analysis, the change of incomes can be decomposed into national, industry mix and regional component.

$$e_i^{t+n} - e_i^t = \mu_i + \pi_i + \alpha_i.$$

The national component (μ) reflects the change of incomes in each sector (for each region) supposing the same index of incomes in sectors and regions and in the national economy as a whole. The income index greater than one will bring the positive value of the national component in all sectors and regions.

$$\mu_i = e_i^t \left(\frac{E^{t+n}}{E^t} - 1 \right).$$

Industry mix component (π) expresses the change of incomes due to different income dynamics in sectors and in the national economy as a whole.

$$\pi_i = e_i^t \left(\frac{E_i^{t+n}}{E_i^t} - \frac{E^{t+n}}{E^t} \right).$$

Regional component (α) expresses how much the development in sectors in a region differs from requirements given by a change of incomes in sectors of national economy.

$$\alpha_i = e_i^t \left(\frac{e_i^{t+n}}{e_i^t} - \frac{E_i^{t+n}}{E_i^t} \right),$$

where

t .....stands for the basic period
$t+n$...stands for the compared period
i .....stands for sectors
E.....stands for the observed value of the national level and
e.....stands for the observed value of the regional level.

RESULTS AND DISCUSSION

The SILC 2005 sample included data of 4 351 households; 1 111 of which in municipalities with less than 2000 inhabitants (rural municipalities) and 3 240 in municipalities with population above 2 000 inhabitants (non-rural municipalities). The SILC

2008 included data of 11 294 households; 3 052 of which were rural and 8 242 non-rural.

In 2005, an average Czech household composed of 1.62 consumer units in 2005 according to the EU definition; 1.63 in 2008. Rural households composed of 1.7 consumer units (both 2005 and 2008) and non-rural household had 1.59 consumer units in 2005 and 1.61 consumer units in 2008. Rural households are greater approximately by 0.1 consumer units.

Histograms of **annual net incomes per consumer unit** of rural and non-rural households revealed positive skewness (with the median lower than average in all cases). The Pearson's goodness of fit test (χ^2 test) rejected the hypothesis of correspondence of the empiric and log-normal distribution in both years and both groups (p-level < 0.001). Histograms and the calculation of the test criteria also revealed the greatest difference of the empiric and theoretical distribution in intervals near the peak as well as on the upper tail. High frequencies of values near the average are connected to high kurtosis.

Results of fit tests of the *CP_PRIJ/EJ* distribution among size groups proved the significant difference of distribution shapes of municipalities with population of less than 1 000 inhabitants and municipalities with 1 000–2 000 inhabitants in both years (p-level < 0,01). Income distribution of households in non-rural areas (*VEL* 5–9) significantly differs from income distribution in the other groups in both years.

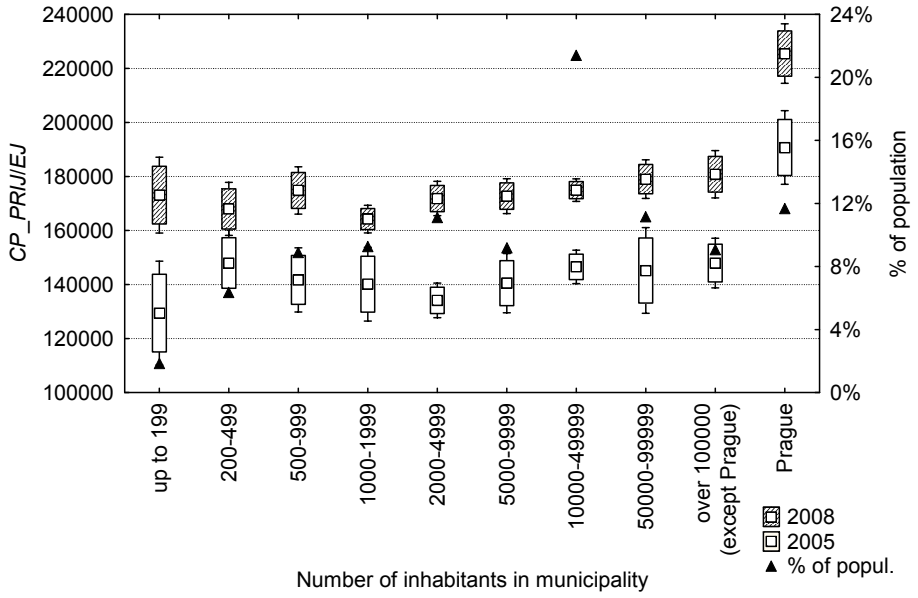
Table I presents basic features of households' annual net income per consumer unit. The income gap between rural and non-rural households increased from 8 055 CZK in 2005 to 11 937 CZK in 2008; incomes of non-rural households were higher by 5.7% in 2005 and by 7% in 2008. The difference of *CP_PRIJ/EJ* mean of rural and non-rural households is significant at the level of $p < 0.05$ in 2005 and $p < 0{,}001$ in 2008. Share of households with **incomes below the poverty line** (60% of an average net incomes of households per consumer unit; 88 957 CZK in 2005 and 106 859 CZK in 2008) was not significantly different in rural and non-rural areas in 2005 (14%). In 2008, the share increased to 10.8% in rural areas and to 11.9% in non-rural areas.

Dividing the sample to smaller groups according to the SILC survey will enable us to explain this

I: *Net household income per consumer unit – basic features (in CZK)*

Year	Household	Average	Median	Share of households below the poverty line
2005	Rural	142263	124325	14.1%
	Non-rural	150318	128647	13.9%
	Total	148261	127500	14.0%
2008	Rural	169386	150625	10.8%
	Non-rural	181323	159202	11.9%
	Total	178098	156267	11.6%

Source: SILC, Own calculation



1: *Net household income per consumer unit, in CZK*
Source: SILC, Own calculation

significant difference by comparing mean values of household income per consumption unit. The *VEL* = 9 group (more than 100 000 inhabitants) included 5 towns in both 2005 and 2008 SILC surveys (The capital city of Prague; Brno, Ostrava, Plzeň and Olomouc); in the box plot (1:) is this group split into Prague and other towns. Boxes are designed as the central point is mean, box is 95% confidence interval for individual observations around the mean and whiskers are 99% confidence interval. The plot revealed differences in incomes in municipalities with different size as well as the development in time.

The difference in incomes between rural and non-rural households is caused above all by incomes in the capital city with income of households per consumer unit amounted to 190 725 CZK in 2005 and to 225 479 CZK in 2008.

Living minimum is regulated by law; it depends on the size and composition of a household. An average annual living minimum per consumer unit amounted to 56 246 CZK in 2005 and 44 186 CZK in 2008. The decrease was caused by the above mentioned change of the Act on Living Minimum and the methodology of the calculation. A number of households with incomes below the level of living minimum decreased from 86 in 2005 (i.e. 1.98% of the whole) to 40 in 2008 (0.35% of the whole). This apparent improvement was caused mainly by the change of the Act.

The question about the **minimum income** that will enable a household to satisfy basic needs is answered by impossible amount of zero to 100 000 CZK per month. An average requested annual income amounted to 205 825 CZK in 2005 and 244 210 CZK in 2008. No significant differences were found between rural and non-rural households at the significance level of 0.05. Differences occur after calculating an average annual net income per consumer unit – 119 590 CZK in rural areas and 131 033 in non-rural areas for 2005 and 144 198 CZK in rural areas and 153 384 CZK in non-rural areas for 2008.

The modus is an interesting feature of the minimum income; it amounted to 20 000 CZK per month in rural and non-rural areas as well in both years regardless the size of the household. This income is sufficient for about 16% of households. The net income of 20 000 CZK per month is regarded as a threshold of minimum living standard in the Czech society.

Supposing that respondents had understood the question correctly and they quoted a real amount necessary to cover the basic needs subjective surplus offers a possibility to purchase avoidable goods and services and for savings. Subjective surplus per consumer unit distribution has high kurtosis and positive skewness with 20 150 CZK as the average in 2005 (22 673 in rural areas and 19 285 CZK in non-rural areas) and 27 196 CZK in 2008 (25 188 CZK in rural areas and 27 940 in non-rural areas). The interval classification of the subjective surplus per consumption unit (with the step of 5 000 CZK) revealed the modal interval of (0–5 000 CZK) in both rural and non-rural areas in both years.

Persistent poor household

Let's discuss closely households with the lowest incomes both in the initial and in the consequent period. The low income threshold is 50% of average net income per consumer unit, i.e. 74 086 CZK in 2005 and 88 907 CZK in 2008. There were 61 households, 14 of which in rural areas and 47 in non-rural areas; they were smaller than an average by 0.1 consumer unit. Their structure according to social groups (of the head of household) is presented in table II.

Significantly often, these households were of retired people in rural areas and of unemployed people in non-rural areas. Basic and lower upper education (without a leaving examination) prevailed in both areas; 2% of non-rural household had a person with university education as a head.

Great share of retired and unemployed people reflected also the structure of incomes with 78% share of gross incomes from social benefits (69% in 2008) and 18% of incomes from employment (24% in 2008) in 2005. The rest refers to others source of income.

Within the questionnaire survey, respondents answered the question if their housing costs are a burden for their households. Answers were rather consistent in both years and areas: housing costs are a great burden for approximately 70% of household and a certain burden for 30% of households. Similar consistency was revealed within the question of

II: *Structure of households according to social groups*

Social group according to the head of household	Rural		Non-rural	
	2005	2008	2005	2008
Lower employee	14.3%	14.3%	10.6%	12.8%
Self-employed person	0.0%	0.0%	4.3%	0.0%
Higher employee	7.1%	7.1%	0.0%	2.1%
Retired person with no economically active members	50.0%	57.1%	25.5%	34.0%
Unemployed	14.3%	21.4%	46.8%	46.8%
Other	14.3%	0.0%	12.8%	4.3%

Source: SILC, Own calculation

income sufficiency: it was extremely difficult to live on their incomes for 50% of household, 35% had some difficulties and the rest of them reported minor difficulties.

Shift-share analysis

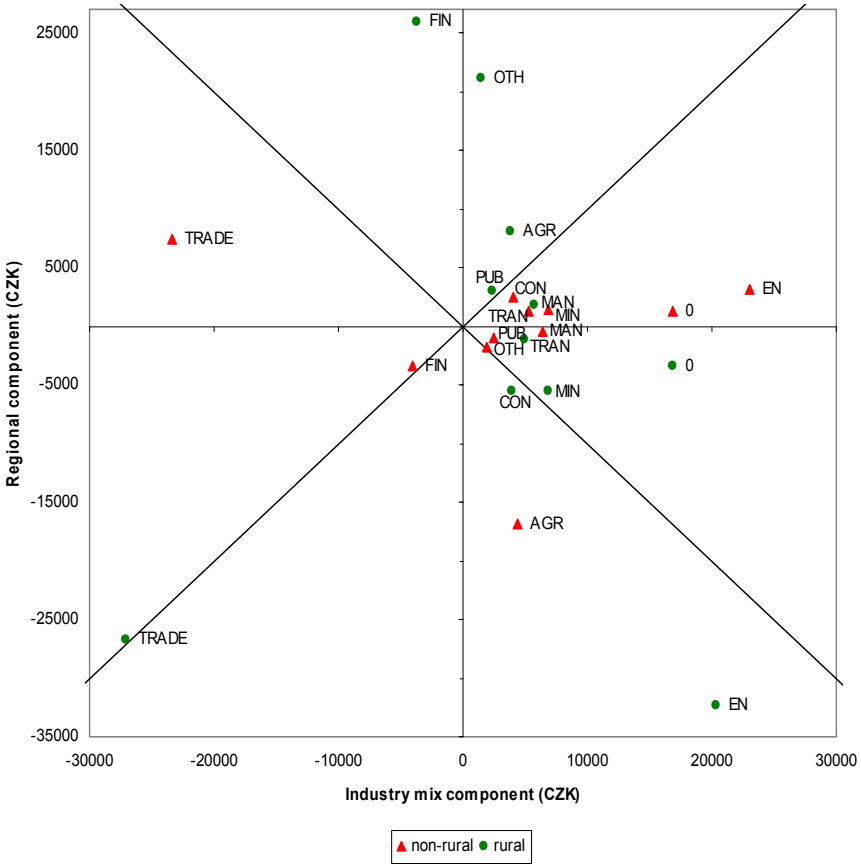
To perform the shift-share analysis, households were divided according to activities of the head of the household. The activities in the classification provided by the SILC in the classification were arranged into the following groups for shift-share analysis purpose: agriculture (AGR); mining and quarrying (MIN); manufacturing (MAN); energy industry (EN); construction (CON); trade; transportation (TRAN); financial activities (FIN); public administration, education, health service (PUB); and other service activities (OTH). Households with economically inactive or unemployed head were classified by the 0 code as well as if the activity could not be assigned explicitly.

An average net income per consumer unit increased by 20.1% (by 19% in rural areas and by 20.6% in non-rural areas; table I) in the Czech Republic in 2004–2007. Regarding activities, the greatest increase was noticed in households with their heads working in energy industries (33.3%) and mining and quarrying (24.3%). Trade noticed the lowest increase (7.2%) with a decrease by 5.5% in rural areas.

The above mentioned growth rate revealed the positive value of **national component** with its level proportional to the level of incomes in the basic period. It amounted to 48 000 CZK for financial activities in non-rural areas and 44 000 CZK in rural areas.

2: presents the relation of industry mix and regional components. The different dynamics of incomes in sectors and in national economy (i.e. **industry mix component**) influenced the energy industry in significantly positive manner (23 thousand CZK in non-rural areas and 20 thousand CZK in rural areas). On the other hand, trade was influence in a significantly negative way (–23 thousand CZK in non-rural areas and –27 thousand CZK in rural areas).

In rural areas, the **regional component** had a positive value in financial activities (+26 thousand CZK) and other services (+21 thousand CZK). Due to lower growth rate in rural areas, the energy industry decreased (–32 thousand CZK) as well as trade (–27 thousand CZK). In non-rural areas, this component registered a significant decrease in agriculture (–17 thousand CZK). Other sectors reported low influence of this component.



2: *Industry mix and regional component of household incomes in 2005–2008*
Source: SILC, Own calculation

The graph revealed that a number of sectors (both in rural and non-rural areas) are concentrated in a cluster with low absolute value of the regional component, positive industry mix components situated at the top-right over the line with the slope of –1. Within these sectors, the positive national component is supported by the growth in the sector or region (or both in the 1st quadrant). In rural areas, total change of incomes is formed above all by the regional component ($r = 0.9$; with significant differences in dynamics of sectors in rural areas and in the Czech Republic as a whole). In non-rural areas, the industry mix component is significant ($r = 0.74$; with significant differences in the dynamics of sectors and national economy).

CONCLUSION

The aim of the paper was to compare incomes of Czech rural and non-rural households. Positive skewness and high kurtosis is a typical feature of household incomes. A similarity with log-normal distribution can be presumed from histograms; however fit tests of theoretical and empirical distribution denied it – mainly due to high kurtosis. The difference of incomes of rural and non-rural households was significant ($p < 0.05$ in 2005; $p < 0.001$ in 2008). Detailed classification of households according to the size of the municipality revealed that the difference was caused by the level of incomes in the capital city of Prague; there was no significant difference in incomes of households according to the municipality size. The share of households with incomes of less than 60% of an average net income per consumer unit decreased from 14% in 2005 to 11.6% in 2008.

Households staying in the group with lowest incomes consisted mainly of retired people (in rural areas) and of unemployed (in non-rural areas) in both years. The head of those households had lower education and their incomes were depended mainly on social benefit incomes (pensions, welfare benefits).

The results of the shift-share analysis revealed that the change of incomes of rural areas is under the greatest influence of the regional component; households in non-rural areas are mostly influenced by the industry mix component.

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REFERENCES

BLIEN, U., WOLF, K., 2002: Regional development of employment in eastern Germany: an analysis with an econometric analogue to shift-share techniques. *Papers in Regional Science*, Vol. 81 (3), pp. 391–414. ISSN 1056-8190.

DAVIS, J., MACK, N., KIRKE, A., 1997: New perspectives on farm household incomes. *Journal of Rural Studies*, Vol. 13 (1), pp. 57–64. ISSN 0743-0167.

DINC, M., HAYNES, K. E., 1999: Sources of regional inefficiency. An integrated shift-share, data envelopment analysis and input-output approach. *The Annals of Regional Science*, Vol. 33 (4), pp. 469–489. ISSN 0570-1864.

DIVILA, E., DOUCHA, T., 2005: Typologie a příjmové postavení zemědělských domácností v České republice. *Politická ekonomie*, Vol. 53 (4), pp. 495–511. ISSN 0032-3233.

DUNN, E. S., 1960: A statistical and analytical technique for regional analysis. *Papers and Proceedings of the Regional Science Association*, Vol. 6, pp. 97–112.

ESTEBAN, J., 2000: Regional convergence in Europe and the industry mix: a shift-share analysis. *Regional Science and Urban Economics*, Vol. 30 (3), pp. 353–364. ISSN 0166-0462.

GILBERT, A., 2004: Earning in rural and non-rural areas of Scotland. Stirling: scotecon.

GUSTAFSSON, B., SHI, L., 2002: Income inequality within and across counties in rural China 1988 and 1995. *Journal of Development Economics*, Vol. 69 (1), pp. 179–204. ISSN 0304-3878.

HALLERÖD, B., LARSSON, D., GORDON, D., RITAKALLIO, V.-M., 2006: Relative deprivation: a comparative analysis of Britain, Finland and Sweden. *Journal of European Social Policy*, Vol. 16 (4), pp. 328–345. ISSN 0958-9287.

HILL, B., 1999: Farm Household Incomes: Perceptions and Statistics. *Journal of Rural Studies*, Vol. 15 (3), pp. 345–358. ISSN 0743-0167.

CHAPLIN, H., DAVIDOVA, S., GORTON, M., 2004: Agricultural adjustment and the diversification of farm households and corporate farms in Central Europe. *Journal of Rural Studies*, Vol. 20 (1), pp. 61–77. ISSN 0743-0167.

JARVIS, S., JENKINS, S. P., 1998: How much income mobility is there in Britain? *The Economic Journal*, Vol. 108 (447), pp. 428–443. ISSN 0013-0133.

LABUDOVÁ, V., VOJTKOVÁ, M., LINDA, B., 2010: Application of Multidimensional Methods to Measure Poverty. *E & M Ekonomie a management*, Vol. 13, (1), pp. 6–21. ISSN 1212-3609.

LAYTE, R., MAITRE, B., NOLAN, B., WHELAN, C. T., 1999: Income, Deprivation and Economic Strain: An Analysis of the European Community Household Panel. Working Paper 2 for the Panel TSER Project, June 1999. The Economic and Social Research Institute.

Living conditions (EU-SILC). [online]. [cit 29. 8. 2010]. Available at www: http://www.czso.cz/csu/redakce.nsf/i/zivotni_podminky_(eu_silc).

MAREŠ, P., RABUŠIC, L., 1996: K měření subjektivní chudoby v české společnosti. *Sociologický časopis*, Vol. 32 (3), pp. 297–315. ISSN 0038-0288.

MAUDOS, J., PASTOR, J. M., SERRANO, L., 2008: Explaining the US-EU productivity growth gap: Structural change vs. intra-sectoral effect. *Economic letters*, Vol. 100 (2), pp. 311–313. ISSN 0165-1765.

PACIONE, M., 1995: The geography of deprivation in rural Scotland. *Transactions of the Institute of British Geographers, New Series*, Vol. 20 (2), pp. 173–192. ISSN 0020-2754.

PERLÍN, R., KUČEROVÁ, S., KUČERA, Z., 2010: A Typology of Rural Space in Czechia according to its Potential for Development. *Geografie*, Vol. 115 (2), pp. 161–187. ISSN 1210-115X.

PERRY, B., 2002: The Mismatch Between Income Measures and Direct Outcome Measures of Poverty. *Social Policy Journal of New Zealand*, Issue 19, pp. 101–127. ISSN 1177-9837.

PHIMISTER, E., UPWARD, R., VERA-TOSCANA, E., 2000: The dynamics of low income in rural areas. *Regional Studies*, Vol. 34 (5), pp. 407–417. ISSN 1360-0591.

POSPĚCH, P., DELÍN, M., SPĚŠNÁ, D., 2009: Quality of life in Czech rural areas. *Agricultural Economics-Zemědělská Ekonomika*, Vol. 55 (6), pp. 284–295. ISSN 0139-570X.

RIGUELLE, F., THOMAS, I., VERHETSEL, A., 2007: Measuring urban polycentrism: a European case study and its implications. *Journal of Economic Geography*, Vol. 7 (2), pp. 193–215. ISSN 1468-2702.

RINGEN, S., 1988: Direct and Indirect Measures of Poverty. *Journal of Social Policy*, Vol. 17, (3), pp 351–365. ISSN 0047-2794.

SICULAR, T., XIMING, Y., GUSTAFSSON, B., SHI, L., 2007: The urban-rural income gap and inequality in China. *Review of Income and Wealth*, Vol. 53 (1), pp. 93–126. ISSN 0034-6586.

STEJSKAL, L., PUSTINOVÁ, J., STÁVKOVÁ, J., 2010: Czech household income condition according to the EU SILC statistics. *Acta universitatis agriculturae et silviculturae Mendelianae Brunensis*, Vol. LVIII (3), pp. 251–260. ISSN 1211-8516.

STEJSKAL, L., STÁVKOVÁ, J., 2010: Living conditions of Czech farmers according to the EU statistics on income. *Agricultural Economics-Zemedelska Ekonomika*, Vol. 56 (7), pp. 310–316. ISSN 0139-570X.

STŘELEČEK, F., ZDENĚK, R., LOSOSOVÁ, J., 2009: Comparison of agricultural subsidies in the Czech Republic and in the selected states of the European Union. *Agricultural Economics–Zemědělská ekonomika*, Vol. 55 (11), pp. 519–533. ISSN 0139-570X.

STŘELEČEK, F., ZDENĚK, R., LOSOSOVÁ, J., 2010: Development of employment in less favoured areas in 2002-2006, Vol. 58 (6), pp. 761–773. ISSN 0032-3233.

STŘELEČEK, F., ZDENĚK, R., LOSOSOVÁ, J., JÍLEK, M., 2004: Social and economic points of the rural development. *Agricultural Economics-Zemědělská ekonomika*, Vol. 50 (10), pp. 431–444. ISSN 0139-570X.

TOWNSEND, P., 1979: Poverty in the United Kingdom. A Survey of Household Resources and Standards of Living. Berkeley: University of Carolina Press. ISBN 0-520-03976-9.

VANĚK, J., JAROLÍMEK, J., ŠIMEK, P., 2008: Development of communication infrastructure in rural areas of the Czech Republic. *Agricultural Economics-Zemědělská Ekonomika*, Vol. 54 (3), pp. 129–134. ISSN 0139-570X.

VAVREJNOVÁ, M., LÜPSIK, S., 2007: Some comparisons across Central and East European countries in terms the rural population living standard. *Agricultural Economics-Zemědělská Ekonomika*, Vol. 53 (1), pp. 36–44. ISSN 0139-570X.

ŽELINSKÝ, T., 2010: Analýza chudoby na Slovensku založená na koncepte relatívnej deprivácie. *Politická ekonomie*, Vol. 58 (4), pp. 542–565. ISSN 0032-3233.

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