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REGIONAL DIFFERENCES IN THE EUROPEAN UNION IN THE PAST AND NOWADAYS

REGIONÁLNE ROZDIELY V EURÓPSKEJ ÚNII V MINULOSTI A DNES

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For a long time specialists have been following up with different attention territorial disproportion of European economic development in accordance with different aspects. In the European Union, from the point of view of economic development, the main territorial process is focused on the underdeveloped member states, on the elimination of the macro-regional differences (convergence), and on the regional cooperation. Economic disproportions in the enlarged European Union are more notable than before. Though the joining of the new member states has already started, the disproportion inside these countries has been growing up till now. The aim of this paper is to outline the past and present situation, starting with the explanation of reasons and roots of the economic disproportion on the European continent and showing the increase of the territorial disproportion in the enlarged Europe.

Key words: integration, regional policy, competitiveness, economic interests, labour

The Historical Dimension of the European Regionalism

According to some authors (Baranyi, 2004; Enyedi, 1976; Nemes Nagy, 1990) we can go back to the 15th – 16th century to find the roots of the region differences. In American Immanuel Wallerstein's (Baranyi quotes, 2004) conception the European world economy arose at the beginning of the 16th century. He claims that the new world economy did not bear one big empire sign; it was the most important sign of denotation which characterized entity. The most important feature of the „European world economy" has emerged as a fact of becoming bigger than any legally defined political unit.

The „European world economy" has been created on the base of capitalistic production and it was formed over the earlier evolved order of European work division. It all meant that some European territories, most of them in the eastern and western parts, were significantly affected. It resulted in acumination of centre-periphery connection within the continent. The centre-periphery theory (Baranyi, 2004) characterizes mainly the capitalistic connections and first of all refers to the international economy. Among the representatives of the different centre-periphery theories there is the understanding that in the centre and periphery connection system the long-distance natural displacement can come after. It means that centre and periphery territories can be changed: centre territory can be changed into periphery and vice versa.

From the beginning of the 16th century it could be observed that there was a strong difference between European world's economic centre and periphery territories. For many years this difference brought clearly out-lining contradiction towards the Western and the Eastern Europe (in front and behind the Elbe territories). Developing trends and features have become different and the role of European division of labour in western and eastern areas has changed. It coincides with the settled changes as a consequence of the great geographic discoveries. The East European countries have been dropped out of the geographic discoveries advantages and as a result we had to experience ceasing the trade routes between Europe and Asia.

In this period the economic crisis has begun and brought contradictory results in Eastern and Western Europe. Feudalism was gradually eliminated in Western Europe and the capitalistic economic system started its formation, which meant the beginning of modernization. In opposition to this, in the Eastern Europe the modernization process got stuck, after all the territories behind the Elbe avoided the main united economic-social processes. Hereby, it gave the possibility for feudalism to be reinforced once more. The Eastern Europe expanded territory; partly because of the role within the European division of labour it has become a crop exporter and a raw material distributor for the Western industrialized Europe.

European economic division continued to exist for several centuries and in the 20th century political disorganization deepened it even more.

The Determination of the Regional Differences in European Union

The regional policy in first times of the European integration at the present definition does not figure as the aim of signatories. In the second article of the Rome Agreement it is stated, that „the aim of the agreement is to subservience of the member-states for conceptual development and the improvement of the life style", but the aim of the formation of the concrete regional policy is not involved in this document. The funding member states in the Rome Agreement (123 articles) have created the European Social Fund, which with its limited authority and financing arrangements is dealing with recruitment and re-training of labour force. From there also the establishment of the European Social Bank which participated in the program of financing the underdeveloped regions stems from. In this case it provides services for the economic enlargement.

Six founding member states were from the most developed European territories, that is why there was no need for the regional policy. Except for some states (e.g. Italy), there was not any significant difference. During the creation of the European Community the specialists working there shared the opinion that comparatively small difference would disappear

with progressing integration. They supposed that the underdeveloped territories would introduce comparative advantages as the consequence of unobstructed intermigration of the wages and new production, as well as they would benefit from relatively low prices of the goods. With the help of comparative advantages, the underdeveloped territories would start growing without any significant state interventions. The beginning of 60's was the period of upsurge, so it seemed the specialists were right.

In the middle of 60's some territories despite the advantages broke off balking the European integration development. In the middle of 60's and at the beginning of 70's there was a fallback in the European integration process. According to the regional studies, imagination of the territorial disproportion can be understood together with the economic and social development. Behind the formation of the disproportion there is the pursuit of maximum economic efficiency, so the disproportions arise from the fact that the economy looks for the optimal allocation. The territorial disproportion claims are required only when the disproportion of the chances is formed, namely people living in the underdeveloped regions in comparison with the others have worse chances for sufficient living standards, cultural and carrier opportunities.

Nowadays one of the main aims of the EU is the closing up of the different development of the territories, its validation confirms the Union active structural policy. One of the most important aims of the European integration is the decrease of the economic disproportion between some regions and countries and because of that, growth of some underdeveloped areas. During the enlargement of the European Union, it became clear that the integration not only decreased, but also certainly increased the differences between the territories (for example Greece). The difference between territorial developments can become a source of serious political tension and thus it puts into question the capability of the European Union to effectively fulfil its functions. That is why it became so important to strengthen stronger economic and social cohesion (Marselek et al., 2005; Kumar Singh et al., 2008).

The Reasons of the Regional Differences

The regional differences in Europe are significant. What is the reason for this situation?

How it is possible that there are the differences about 7.5 times higher between the most developed and underdeveloped regions? One of the most important and exciting research questions of the regional study is the definition of the reasons of differences or at least the systematization of the facts forming these reasons. For a long time the research results could be valued touching upon economic, social, historical and geographical reasons, or touching upon demographical characteristics, or aspects of economic activity and production experience, or environmental situation, or touching upon the encouraging and limiting actions taken by the political establishments. According to Rechnitzer (2005) and summarizing him shortly, the most important and the best circumscribing as well as the most accurate explanative facts are as follows:

Firstly, the geographical situation should be mentioned, which means the region placement, possible directions and connections with larger economic, developmental centres. The cities or regions having larger European developing positions or connections with them possess greater producing potential of income.

The next important and well measurable fact is the economic structure base. It matters which economic structure is possessed by the region, what kind of the inner market they have and how much they are capable to deliver. Furthermore, the constitution is determinant as well. After all, definite provinces attract new branches creating possibilities for employment, increasing income. This leads to the conclusion that more economic factors can appear.

Defining the size of the population and its composition, following factors are decisive: active earning proportions, limitation, competence, the structure and changes of employment; and it is very important to know the health of the population and its evolution.

The infrastructure of the region should not be disregarded, as well as transport means and connections (attainability, logistic possibilities), complement of outset elements, available line infrastructure systems, but nowadays we should distinguishably treat the presence of the info-communication systems and their availability.

Finally, we should distinguish the place, the region spirits and genius loci factors. Here we should list such capabilities which cannot be measured or can be measured with difficulties, which can be followed from the region or settlement, past values, complex capabilities and can be present in some form, effect the population, those who are interested in it (for example, investors, tourists, who is going to settle down).

The Economic Disproportions in the Enlarged European Union

As the consequence of 2004 and 2007 enlargement processes, the economic differences even deepened in

Figure 1 The European Union – National level
Source: EUROSTAT

Obrázok 1 Európska únia – národná úroveň
Zdroj: EUROSTAT

European Union (figure 1). After all, most of the new member states' economic development was significantly lagging behind the EU-15 states.

The problem of the territorial disproportions has been in the functioning of European Union for a long time after all the basis of communities, or rather its goods, services; capital and labour force (persons) free flow from territories of different development level has been limited. Nevertheless, during the enlargement process of states, this problem arose among the former and new EU states. In the new EU states the economic production significantly declined in comparison with the former EU-15. The community regional policy aimed at the decrease of differences between underdeveloped and developed regions of member countries by creating the European Regional Developing Fund (1975), through which significant community money has been used for underdeveloped regions. In the times, when this aim has been renewed in Structural Funds and with accession of Ireland, Greece, Portugal and Spain, it was created as well as the Cohesion Fund in 1992.

One of the most important indicators of economic enlargement and welfare in European Union is purchasing power capacity parity of GDP per capita in proportional comparison to EU-15 (figure 2).

Measuring the value of purchasing power capacity parity shows very well the inequality between countries and regions and their development in time. The most successful story had Ireland, joined in 1973, where at the beginning GDP per person it did not reach a half but in 2004, this state was considered the second most developed one in European Union. Greece joined in 1981, in 1986 Portugal and Spain became members of the Community and their economic performance increased since the accession, but only Spain reached the 15th average in 2004 (Villányi et. al, 2009). The process of accession to macro-economy has significantly developed since the change of the system and according to WIIW model counting (Havlik, 2003) to 2015 Slovenia and the Czech Republic will overtake the present cohesion average of the states, Hungary and Slovakia will approximate it. According to Eurostat data, Slovenia has reached 76 % of EU-15 average, while the Czech Republic 61.3 %, the Slovak Republic 48.6 % and the Republic of Hungary 58.7 %. There are significant differences shown in Fig. 2. However, the situation in 2006 showed the great upgrading of the new member states in comparison to the previous period. To the end, we wish to underline that after all, the Maastricht criteria can be reached only under the condition of the increased economic performance.

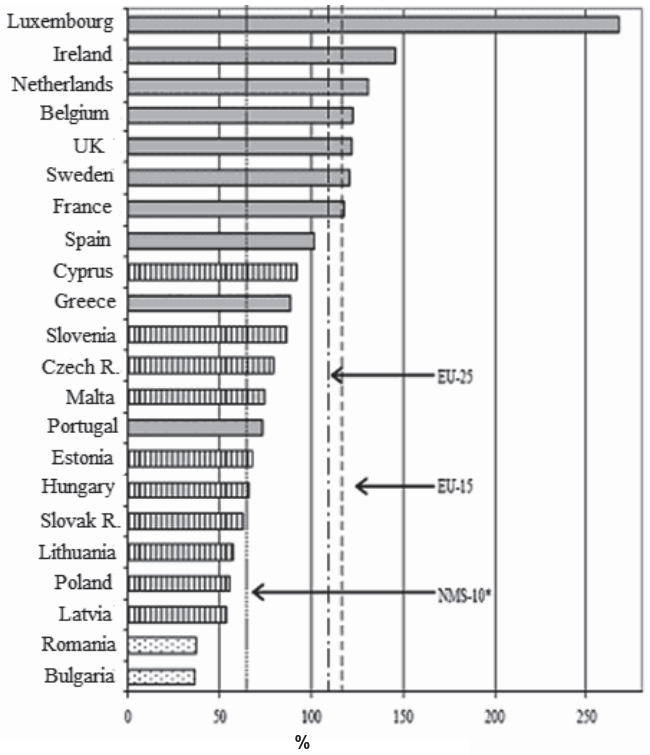

Figure 2 Per capita GDP in the EU-27 in 2006
Source: EUROSTAT
Obrázok 2 HDP na obyvateľa v EÚ-27 v roku 2006
Zdroj: EUROSTAT

It is worth to review the differences from the point of view of territorial (regional) arrangement system of the European Union (NUTS). In the Fig. 3 the darker shading shows the bigger specific GDP categories, so the form of a „blue banana" is lined out: a well-known territories of South England, the Benelux states, the Ruhr province, the Rhine, and North Italy, where significant part of EU economic performance has been concentrated. The lighter shading shows more developed territories: except Eastern Middle European city regions, on the territories of former EU-15 states: South Italy, Greece, Portugal and France performed 75 % of EU average in 2007.

Viewing regions of the 27 members of European Union, 1/4 of the population lived in the regions with more than 125 % of GDP average; 1/4 lived in the regions marking less than 75 % of the average and the half in the zone from 75 to 125 %. As much as 41 % of the population of 10 states joined in 2004, almost all the population of Bulgaria and Romania, lived in the areas with less than 50 % of the average. At the same time, GDP per person in each former EU-15 states took over the half of 27 country average.

Arranging 268 regions of EU-27 states according to GDP per capita, at the beginning the EU-15 member states can be seen. Among them during the last 10 years on the first six places the same regions are found, only their order has been changed.

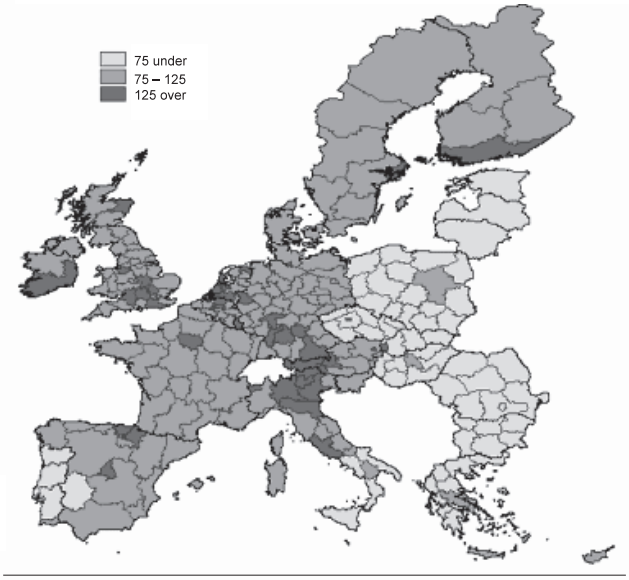

Figure 3 GDP per person in EU-27 in 2004
Source: EUROSTAT
Obrázok 3 HDP na obyvateľa v EÚ-27 v roku 2004
Zdroj: EUROSTAT
(1) pod 75, (2) nad 125

Among new member countries from the first 10 places only Prague has dropped out (12.). Except it, in the Central and Eastern Europe only Bratislava (39.) can be distinguished as the next advantageous region. At the end of the rating zone only Romanian and Bulgarian regions are seen. The indicator is three times higher in the leading Internal-London than the last Romanian region. If we do not take into consideration Romanian and Bulgarian areas, the difference decreases by 8.6 times. In this case, 7 Polish, 2 Hungarian (North Hungary and North Plain), as well as Slovakian region would form the last ten places. As far as the difference from the EU-15 member states is concerned, the difference is only 5.6 times. The late rating zone is closed by Greece, Portugal and over sea French regions.

For the first glance, there is a remarkable difference between the first and last 10 regional specific structures. From additional brute value the proportion of services in the first 10 cases except one, everywhere is above 80 % and agriculture almost cannot be seen, while in the last 10 economic structures, there is about 20 % of the agricultural proportion.

Management of the Regional Differences

To the national policy regional issues, higher and higher importance is devoted. The regional policy holds together and materializes the principles, aims, techniques and organizations of the country policy. The regional policy stands for sector (branch) policy completing it by territorial aspects and in consequence with its help it expresses extensional appearance by reinforcing territorial approach. This means, for example, that the industrial policy can be defined only in the territorial dimension or transport policy can be collated unequivocally on the base of the regional coherence, but educational or agricultural political issues can always be covered in concrete territorial coherence. The situation of the regional policy is not simple opposite the sector policy, as the horizontal aims often coincide with traditional branch (vertical) aims, in this way there is a struggle for validation of extensity in different development aims.

In European Union, the principles, aims and the assets for accomplishment and systematization of organizations have been continuously formed since the 80's. From 1988 Structural Funds have been created, they represent larger and larger proportion in European Union budget and allow the member states to decrease the differences with the help of definite principles and strict rules. The elements of regional political Quaker Dom using its principals take into the consideration the European values (Rechnitzer, 2005).

The first principle is concentration and addiction, i.e. drawing together, uniting the sources of development (for example, disadvantageous areas, where GDP is below 75 % of the average of the European Union), the concentration of aims (for example, designation of the problem regions), and expectation and demanding of the contribution from the local/territorial characters.

The second principle is planning, programming, monitoring. In the case of regions the developing plans are necessary, it is reasonable to see in advance, to think over the future, the resources should be accurately specified, as well as their utilization mode. It should not be neglected that during the accomplishment and at its end the aims and results should be presented.

The third principle is the regional political cooperation, organizational and institutional systems, which can guarantee it. Gradually, organization system has been created, regional development institutions have been established (Council, Agency), and on small area levels the partners' cooperation has appeared. The problem can be noticed when mixed structures are functioning, after all there are counties and regions and county leaders appear in the region, so they should have double awareness, evaluation and system of interests. This is not easy; however, the processes can be implemented.

Finally, the principle of subsidiarity and decentralization should be mentioned; it means that the decisions should be put on the level where there are the most visible due to the competence and accomplishment.

Support for 2007 to 2013 Programmed Period

The aim of the EU cohesion policy is the promotion of economic, social cohesion, the decreasing of inequality. From previously shown measuring numbers we can see, that regional differences are significant despite the fact that the decrease of inequality has already started.

With the help of European Regional Development Fund, European Social Fund and Cohesion Fund, from 2007 to 2013 the European Union has converted 307 billion Euros for the decrease of the differences. On the base of three main community priorities, the regions are competent to call for regional different legal titles. The highest amount, 177.8 billion Euros can be given to the so called convergence regions: among them 6 Hungarians, South Italian, South Spanish, Portuguese and Greek regions. The regions (so called „phasing out" areas), where GDP, because of the effects of statistics going together with increasing of EU, hardly could overtake the threshold, participated in continuously decreasing subsidization from target oriented resources. Because of its size, Poland has been entitled to get the greatest support (59 billion 698 million Euros). Hungary could count on the sixth biggest resource up to 22 billion 386 million Euros, in addition to 3.8 billion Euros from Agricultural and Rural Development Fund, or 34.4 million Euros from European Fisheries Fund. All together, Hungary with 15 % of domestic national financing can get 8 000 billion HUF from Union support between 2007 and 2013.

The Future of European Union

One of the most often asked questions is: "Where will be the borders of European Union in the future?" The geographical localization or both political and economic interests of Europe will allocate it. According to last years' decisions, Balkan states, Albania, Croatia, Macedonia, Bosnia-Herzegovina, Serbia and Montenegro can be anticipated as new members of EU. For a long time Turkey belongs to the applicants but it is difficult to say when it can get a membership. In West, the membership of Norway, Switzerland and Iceland is an open question. For a long time they should be supposed to be the members. As a result of gradual increasing, the European Union can consist of 35 to 38 states. Taking into consideration the meaningful number of new states, which are significantly different in their characteristics, the next accession process will take long-time. As from the EU point of view as well as from the considered states positions, it could be expected that they will become the EU members within next 20 to 25 years.

In contrary, there is a wide agreement that Russia due to the various reasons cannot be the member of the EU (and presumably the member of NATO) in the foreseeable future. At the same time, the Union has strategic interest in stable and prosperous Russia that is why in long terms it would be necessary to have extensive and close safety and economic

connections as well as institutional structure with Russia. This can mean the full acceptation of the safety agreements (about the military questions, actions against organized criminality or drug-traffic etc.), or a broad free trade system which would ensure accession to the huge and potentially increasing Russian market, which would have compatible market elements. From perspective point of view, a lot of politicians think about European Economic Area (or Norway) type of agreements.

Concerning the European Union borders, there are questions about Ukraine, Belarus, as well as two trans-Caucasus states (Georgia and Armenia), because of their geopolitical situation, language, culture or religious links and interests. During the past century they formed traditional special connections with orthodox Russia. In the future they can strengthen their cooperation with EU.

Conclusions

Opposite the common macro-economics in the EU the fact is, that the development differences between the states and regions in the EU were in the past, and nowadays they still are, significant. Though they decreased in the past years, the essential principle is that in the EU, regional policy accomplishing the cohesion targets should be carried out.

From the above said, there is the following message to our economic policy: the present regional differences, soluble structural problems should be handled by ourselves, the Union resources; policies can be considered only as additional assets and really they will help to improve our countries competitive capability, if acceptable domestic conception will be formed. The Union experience allows concluding that structural resources on the macro level contribute to support the process of rejoining but the inner cohesive process cannot be supported significantly.

The aim for the future of any part of the European Union, for any place where people live is that the people should have the possibility to create favourable living conditions for themselves.

Súhrn

Počas dlhej doby odborníci sledovali odlišný územný nepomer európskeho ekonomického vývoja v súlade s rôznymi aspektami. Z hľadiska ekonomického rozvoja sa územné procesy v rámci Európskej únie zameriavajú hlavne na zaostalé členské krajiny, na odstránenie makro-regionálnych rozdielov (konvergencie), a na spoluprácu v rámci regiónu. Rozšírením Európskej únie je ekonomický nepomer viditeľnejší ako predtým. Hoci pripojenie nových členských krajín už začalo skôr, disproporcia v týchto krajinách rastie dodnes. Cieľom tohto príspevku je načrtnúť minulosť a súčasnosť, vysvetlením pôvodu a tiež dôvodu ekonomickej disproporcie na európskom kontinente. Súčasne poukazuje na zvýšenie územného nepomeru v rozšírenej Európe.

Kľúčové slová: integrácia, regionálna politika, konkurencieschopnosť, hospodárske záujmy, práca

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INCOME SITUATION OF THE HOUSEHOLDS IN THE SLOVAK AND THE CZECH REPUBLIC

PRÍJMOVÁ SITUÁCIA DOMÁCNOSTÍ V SLOVENSKEJ A ČESKEJ REPUBLIKE

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This paper deals with the income situation of households in the Slovak Republic and the Czech Republic in the years 2005 – 2008.The Slovak Republic and the Czech Republic have recently experienced phases of economic growth and periods of economic crisis; this fact affects the standard of living and household behaviour and affects the formation of the life-style. Accession of the Slovak Republic and the Czech Republic to the EU opened up the new opportunities not only in the formation of incomes but also in changes of consumer habits of the population in both states. The basis for these changes was given before 1989, since when it has been possible to monitor realization of reforms. In this process, a new structure of income and expenditures was gradually formed. Assessment of the standard of living of the population and its development is affected by several indicators. The key indicators that allow assessment of the standard of living and its development are the money income, consumption and expenditure for food, housing, culture, education and health care. Data on the household incomes and the household expenditures for the stated needs point at the standard of living of the population as well as various social groups. The reciprocal comparison of the differences in expenditures for basic living needs of the household is important, too.

Key words: income, expenditures, households, income situation in the Slovak Republic, income situation in the Czech Republic

The paper aims to identify changes and development in consumer behavior of the population in the Czech Republic and the Slovak Republic within the years 2005 – 2008. Measuring the market size, identifying trends and the ability to predict the future development (Lesáková, Hanuláková a Vokounová, 2006) are the critical factors in identifying opportunities and risks of the market including food. On the majority of markets, there is unstable total demand or demand for individual foods and fluctuationsare documented, so reliable prediction of the future demand and consumption is a key factor affecting the knowledge. It is helpful in formulating the tasks of providing nutrition policy and food needs of the population in socio-economic conditions.

The paper laid the accent on analysis and determinants qualifying the consumer demand for food with accent on the analysis and determinants of cash income. The amount of income, its resources and structure are determined by social position of the population especially in the labor market. The transformation process and expression of the financial crisis led into creation of relatively stable household groups and official statistics provides an overview of income and expenditure of the households.

In the Slovak Republic, 25 % of the households reach the lowest level of income, the pensions and social funds are the prevailing source of revenue. Their expenditure structure is typical for poor households, which must reduce their consumption. Statistical Office of the Slovak Republic provides the input empirical data on net incomes and expenditures of the households by net money income per capita for the years 2005 – 2008.

Income development of households is analysed in economic studies in relation to the political, economic and social situation in society. These are the factors that affect income inequality, and vice versa, they present the instruments of social policy, which affect income situation of households. The article then focuses on the income differentiation of households also in the Czech Republic. For the representation of income inequality, the Lorenz curve is most often used. The Lorenz curve, as statistically detected, lies somewhere between absolutely fair and totally unequal distribution, and can be interleaved with growing exponential curve. Next way how to measure household's income inequality is by Gini's coefficient (G), which represents variation of the Lorenz curve form the ideal. Absolutely equal distribution of income has the value $G = 0$. The effort to get closer to the ideal conditions leads in developed democratic states, including the Czech Republic, to redistribution. Within the redistribution, income is reduced by taxes, fees and other charges as well as increased transfer payments. Together with income inequality and its distribution, it is focused on households with income on the poverty line (Stejskal and Stávková, 2010). Poverty can be measured according to the basic life necessities, and this concept of absolute poverty is addressed by Maslow (Boháčová, 2010). Poverty can be measured as the proportion of food on total expenditure. The curve, which represents dependence of expenditure on a good on total income of consumer, is called the Engel curve (Macáková a i., 2010).

As for the Czech Republic, in the survey was applied measuring poverty line by setting 60 % of equalised median of household's income.

For detailed poverty assessment, the Gini coefficient can be used as well as indicators of material deprivation. Deprivation can be explained as physical and mental suffering. It's a lack of whatever, what is considered by specific society as valuable. The value could by represented by standard of living such as income, housing, work, health, household, education or leisure time.

Very important is the subjective perception. Some people do not perceive deprivation; even though they are deprived according to the measurement results. If the person begins to

suffer materially, it is likely that later it causes mental and social deprivation. The homelessness is considered the most serious problem of deprivation.

Therefore, developed countries use the institute of redistribution through social transfers. Social transfers are all financial flows from the government directly to individuals and households in the social context. Transfers can be defined as one-sided transaction. They are the major expenditure of fiscal policy. The main function of transfers is to reduce the impact of unequal income distribution. The word "social" means supportive or solidary – in practice the majority, living in relative affluence, helps needy minority (weaker). This system protects certain groups of people who are in difficult situations against the exclusion from the society. The social system should support and encourage self-sufficiency of people and their desire to improve the difficult living situation. Income differentiation and the effect of social transfers on income differentiation is not very frequent topic in the literature due to of missing empirical data or difficulties with data gathering.

Roženský (2009) deals with mechanism of transfers to mitigate the impact of unequal income distribution, from a theoretical point of view. Večerek (2001) deals with income differentiation in terms of development of the CR before 1989 and after 1989. The structure of social transfers is made up of state benefits (benefits paid with respect to income of the family and benefits paid to families regardless of family income), pension, and benefits of material poverty, health insurance system, disability, unemployment and social services. Analysis of income differentiation according to the above mentioned considerations can be made only when a sufficient amount of relevant information exists. Sources of information are the EU-SILC (European Union – Statistics on Income and Living Conditions). The key variable, obtained by this survey is disposable monthly income per one household member. Objective of this paper is to analyse income differentiation of households, households from poverty level, the depth of poverty, material deprivation and the effect of social transfers to the redistribution of income.

Material and methods

To analyse the survey in the Slovak Republic, there were used the methods of descriptive statistics and trends of development using the base and chain indices and the average growth factor. Analysis of the expenditure and household consumption, which resulted from their inclusion in the income quartile, was made by using the regression and correlation analysis. We based it on the regression model, and following premise:

$$RVkj = f(RPK) + ekj \qquad (1)$$

where:

RVkj – real expenditure of households in the *k*-income quartile ($k = 1, 2, 3, 4$)
– for the *j*-food commodity, model is determined by the relation:

$$RVkj = Qkj \times Pkj$$

where:

RPK – the real money incomes of households in *k*-income quartile
Pkj – the real price of the *j*-purchased commodity in the *k*-income-quartile
Qkj – purchased quantity of *j*-purchased commodity in the *k*-income-quartile
ekj – random variable

In addressing the relation (1) we used the log-hyperbolic function:

$$RV_{kj} = \exp\left(a + b\frac{1}{RP_k}\right) \qquad a > 0,\ b < 0 \qquad (2)$$

that appropriately described the process according to real food expenditure and its dependent on real income, which has the asymptote characterizing the saturation of demand and describes trends in spending, or consumption and the large fluctuations in revenue Sznajder and Adamczyk, 2000. In addressing the demand function (1) after its transformation to a linear form, we used the method of least squares.

The suitability of different models depends on the course description of food expenditures, food consumption and the real income was considered by using the coefficient of determination R^2 and parameters of regression equations using the Student´s t-distribution.

The basic variable in the analysis of income differentiation of households in the Czech Republic is the level of disposable monthly income of households from the project EU-SILC (European Union – Statistics on Income and Living Conditions). This project implemented a unified methodology of the European Union since 2005. Statistical characteristics of the file (mean, median) are determined by a standard method (D-FYZ) and also converted the equalised unit (D-EKV) according to adopted common EU methodology (household means an adult with coefficient 1, each additional adult rate is recalculated with coefficient 0.5 and every child has coefficient 0.3). All other calculations and conclusions are based on equivalent values. Poverty threshold is set at a median of 0.6. It is based on theoretical knowledge of the income distribution variables (Stejskal and Stávková, 2010). The basic indicator for the determination of income inequality is the Gini coefficient. Mathematically it is formularized as follows:

$$G = 0.5 - \int_0^1 F(x,d)dx \qquad (3)$$

where:

x_i – is a cumulative value of population variable and d_i is an income variable

Measurement of inequality in income is done using the Lorenz curve. In absolutely equal allocation the curve (line shaped) has angle of 45 degrees to the x-axis (x-axis contains the percentage of households, y-axis percentage of revenue). The Lorenz curve, represented by the empirical values is located between absolutely equal and unequal distribution of income. This curve can be interleaved by exponential growth curve. The Gini coefficient represents the variation of the actual Lorenz curve to the ideal curve. Absolutely equal distribution of income gives Gini coefficient the value $G = 0$.

Results and discussion

Development of Cash Income and Consumption Expenditures in the Slovak Republic

Available funds and resources of the households are sensitive factors for the ongoing processes in the social and economic

Table 1 Money incomes and expenditures of private households in quartile segmentation by net money income per person in 2005 – 2008

Coefficient (1)		1st quartile (2)	2nd quartile (3)	3rd quartile (4)	4th quartile (5)
Real money incomes (6)	average in Euro (7)	1 649.68	2366.92	2 948.23	4 577.69
	index 2008/2005	2.165	2.310	2.323	2.579
	growth coefficient (8)	1.073	1.079	1.079	1.089
Real consumer expenditures (9)	average in Euro (7)	1 688.48	2 316.01	1 688.48	4 197.18
	index 2008/2005	2.095	2.098	2.095	2.118
	growth coefficient (8)	1.069	1.069	1.069	1.071

Source: SO SR, own calculations
Consumer price index (previous year = 100)

Zdroj: Štatistický úrad SR, vlastné výpočty
Index spotrebiteľských cien (predchádzajúci rok = 100)

Tabuľka 1 Príjmy a výdavky domácností v kvartiloch podľa výšky čistého príjmu na osobu v rokoch 2005 – 2008
(1) koeficient, (2) prvý kvartil, (3) druhý kvartil, (4) tretí kvartil, (5) štvrtý kvartil, (6) skutočné peňažné príjmy, (7) priemer v eurách, (8) koeficient rastu, (9) skutočné spotrebiteľské výdaje

spheres of the society. The amount of the money income of the households, their sources and structure are primarily determined by their position in the labour market (Nagyová, 2009).

The transformation process in Slovakia has contributed to the creation of relatively stable household groups. The empirical analysis (Pacáková, Šípková and Sodomová, 2005) shows that the net annual money income of the Slovak households reported a non-symmetrical distribution with characteristic prolonged right end. Predominant are the households with low income. The differentiation was increasing gradually, and even if nominal earnings rose in all households, part of the households (families with more children, pensioners) are still at the level of low income and even destitution. The first quarter of household incomes located between the bottom quartile and median value, disposed with an average annual real income of 1 649.68 € per household member (Table 1).

Household income in the third quartile was in real value 2 948.23 € and 1.8 times higher than the household income in the first quartile. In the fourth quartile it was as many as 2.8 times higher than the mentioned household income in the first quartile. Growth coefficient (k') of real income since 2005 has had an increasing trend and has ranged in diameter from 7.3% in the first income quartile (k' = 1.073) up to 9.7 % in the fourth – the highest income quartile.

Adaptation mechanisms and the ongoing development showed the non-standard features and on the scale of income bands the part of households was situated in the low-income zones with a sharp drop to the average values and slower growth of the households (Figure 1).

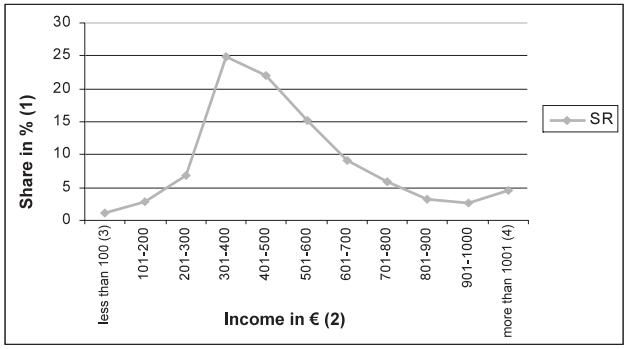

Figure 1 Monthly disposable income per person in Euro in the Slovak Republic
Source: SO SR, own calculations

Obrázok 1 Mesačný disponibilný príjem v SR na osobu v eurách
Zdroj: Štatistický úrad SR, vlastné výpočty
(1) podiel v %, (2) príjem v €, (3) menej ako 100, (4) viac ako 1 001

Average annual equivalent disposable income (Statistical office…, 2010) of the households in Slovakia was 6 629 €. The interval of disposable income per person and month from 101 € to 400 € was found in 50.0 % of four-person households. The Gini coefficient that measures the inequality of income distribution (Statistical office…, 2010) marked the value 24.8. Threshold for determining the real poverty of the EU Member States is the income level of one equivalent household member in amount of 60.0 % of median equivalent income (Kubicová, 2007). The results of the harmonized EU SILC survey showed that the risk of poverty rate after social transfers in the family with two children in 2008 in Slovakia was 9.9 % and in families with three or more dependent children it was 27.9 %.

Uneven development of pensions was reflected in consumption expenditures of the population. Total consumption expenditures by households in the fourth income quartile increased on average by 7.06 % (k' = 1.0706) per year, and the first quartile of consumption expenditure growth marked 6.9 %. Incomes of the households in the first quartile were insufficient to cover necessary consumption expenditures, so that part of the expenditures could be covered only through savings, loans and also undocumented (black) income. Real food expenditures were, on the other hand, counterfactual with a downward trend. Unlike the total consumption expenditure of the households with the lowest incomes which increased on average by 4.54 % per year (k' = 1.045), the households located in the higher income quartiles of the median food expenditures increased on average by 4.1 % (k' = 1.041).

In the absolute terms, household consumption expenditures in the fourth income quartile were only two and a half times higher than actual expenditures in the first income quartile. Expenditures for food and soft drinks were only 1.67 times higher than in the lowest income households. This confirms knowledge of Engel that the costs and quantitative demand for food grows slower than the income of population (Rovný, Dobák and Récky, 2008).

Food expenditures in the pattern of consumption expenditures were reduced in all income groups of households. The highest food expenditures for beverages and catering (32.51 %) reported households in the first income quartile.

The most significant decline in food expenditure (Table 2) was in the highest income quartile of the households by 6.84 percentile points, in the third income quartile by 7.4 percentile points where the food expenditure occupied 29.94 % share in the structure of consumption expenditures.

As a result of a fall of interest rates, the revenues from income and property have declined, too. The convergence of payment structures to the structures of the EU Member States

Table 2 Structure of the consumption expenditures of households in the Slovak Republic per person per year in %

Households (1)	Consumption expenditures (=100) (2)	2005	2006
1st quartile (3)	food, beverages and catering (7)	39.66	32.51
	non-food goods (8)	31.76	30.49
	services (9)	24.16	27.96
	other net expenditures (10)	4.42	9.04
2nd quartile (4)	food, beverages and catering (7)	38.68	31.72
	non-food goods (8)	29.31	31.92
	services (9)	26.43	27.08
	other net expenditures (10)	5.58	9.28
3rd quartile (5)	food, beverages and catering (7)	37.34	29.94
	non-food goods (8)	29.65	29.66
	services (9)	25.69	30.68
	other net expenditures (10)	7.31	9.73
4th quartile (6)	food, beverages and catering (7)	31.81	24.97
	non-food goods (8)	29.97	28.17
	services (9)	29.08	31.26
	other net expenditures (10)	9.13	15.60

Source: SO SR, own calculations
Zdroj: Štatistický úrad SR, vlastné výpočty

Tabuľka 2 Štruktúra spotrebných výdavkov domácností v SR na osobu a rok v %
(1) domácnosti, (2) spotrebné výdaje, (3) prvý kvartil, (4) druhý kvartil, (5) tretí kvartil, (6) štvrtý kvartil, (7) potraviny, nápoje a stravovanie, (8) tovary okrem potravín, (9) služby, (10) iné čisté výdaje

has been accelerated, especially in housing, transportation, food services, although when compared to the EU-15 countries, food expenditures of Slovak households are still high (Kubicová and Kádeková, 2010). Changes in food consumption and non-food goods has been made on the basis of changes in the assortment of goods through the reasons concerning the large shopping centers and a large proportion of the products of the foreign provenance (Horská, 2011).

In the structure of consumption expenditures it was possible to observe the consequences of different dynamics of nominal income growth and cost of living. The spending on services and other expenses increased significantly in the third and especially fourth income quartile. Expenditures on clothing and footwear in 2008 were three times higher than in households with the lowest incomes. In the fourth income quartile the households spent four to five times more funds for transport, culture, recreation, furniture and home furnishings than in the first quartile.

The overall increase in spending on services (Table 2) was attributable to the growth levels of rent and municipal services. In 2008, compared with 2005, expenditures of this kind increased in all households. The highest increase was in expenditures for services (by 2.2 percentile points) and in expenditures for services and other expenses (by 6.5 percentile points). It was allowed due to particular household income in the fourth quartile as an indication of the possibility of higher claims and ensuring the living standards compared with families falling into the first, or second income quartile.

The size of consumer spending affects many factors such as tradition, family age structure, socio-economic situation of individual households and their economic environment. The results confirm that the poorer the household was, the higher were its expenditures to meet the basic living needs such as nutrition, housing, healing and lower discretionary spendings for culture, recreation and education (Kleinová and Kretter, 2011).

Changes in the level of income create a different room for maneuver for individual households. The problem is still in a high proportion of expenditure on food, beverages and catering (Table 2). This causes the pension restrictions and the sensitive consumer behavior responding to the changes in prices of goods and services. A significant part of the households, especially in the first and in the second income quartile with notable changes in prices, reduces consumption and expenditure on individual foods and in the physical units. Changes in food consumption and food expenditure pattern were analyzed from the perspective of the individual aggregate food groups and attainment of disposable money income of individual households. We focused primarily on food groups, which are indispensable and irreplaceable in ensuring the basic nutritional needs of household members.

In the Table 3 it can be observed that during the eleven seasons there had been changes in the structure of household consumption as follows:

- the growth in expenditure for vegetables, including potatoes and other tuberous plants,
- the fluctuations in expenditure in the direction of growth and decline in expenditure for milk, cheese and eggs.

Money spent on each aggregated food group and income elasticity of expenditure beyond saturation across household income groups were examined using the regression analysis. From the number of possible regression functions used in the investigation of economic phenomena we chose as an appropriate the log-hyperbolic function allowing to analyze the income elasticity of demand and to estimate the limit of saturation of demand.

Table 3 The share of money expenditures for the aggregated food groups of the total expenditure for food and soft drinks per person per year in %

Food groups (1)	2005	2008
Milk, cheese and eggs (2)	17.2	16.3
Vegetables, potatoes and tuberous plants (3)	5.7	6.5
Fruits (4)	6.1	5.4

Source: SO SR, own calculations
Zdroj: Štatistický úrad SR, vlastné výpočty

Tabuľka 3 Podiel peňažných výdavkov na agregované skupiny potravín z celkových výdavkov na potraviny a nealkoholické nápoje na osobu a rok v %
(1) skupiny potravín, (2) mlieko, syry a vajcia, (3) zelenina, zemiaky a hľuzovité rastliny, (4) ovocie

In the households with the lowest income, 1 % increase of income was reflected on average by 0.595 % increase in expenditures for milk, cheese and eggs. The households in the second and the third income quartile consistently elastically responded to the demand for dairy products while more wealthy households showed lower (E_I = 0.427 %) expenditure elasticity. The 1 % increase in average income responded by 0.427 % increase in spending and the level of saturation could be expected to spending limit 214.25 € for milk, cheese and eggs per person per year (Table 4).

Consumer demand for vegetables is characterized by relatively high flexibility, which was reflected in all income groups of households. The households with the lowest income elastically responded to demand for vegetables, potatoes and tuberous plants. This income group of households responded to 1 % income increase by increasing of demand by 1.165 % and their demand for vegetables is seen as an elastic one. The

Table 4 The course of dependence, saturation and income elasticity of expenditures for milk, dairy products, cheese and eggs from the real income of households by income quartiles

Income groups (1)	Parameters of functions (2)	Income elasticity E_I (3)	Saturation limit (4)	R^2
1st quartile (5)	$\ln RV_1 = 5.062 - 981.55 \frac{1}{RP_1}$	0.595	157.95	0.975**
2nd quartile (6)	$\ln RV_2 = 5.308 - 1\,415.4 \frac{1}{RP_2}$	0.598	201.96	0.967**
3rd quartile (7)	$\ln RV_3 = 5.329 - 1\,491.8 \frac{1}{RP_3}$	0.506	206.32	0.965**
4th quartile (8)	$\ln RV_4 = 5.367 - 1\,954.6 \frac{1}{RP_4}$	0.427	214.25	0.967**

Source: own calculations
** Statistically proven parameter, significance level $\alpha = 0.01$

Zdroj: vlastné výpočty
** Štatisticky preukazné parametre, hladina významnosti $\alpha = 0,01$

Tabuľka 4 Vývoj závislostí, príjmové elasticity a bod nasýtenia pri výdavkoch na mlieko, mliečne výrobky, syr a vajcia z reálneho príjmu domácností podľa príjmových kvartilov
(1) príjmové skupiny, (2) vlastnosti funkcie, (3) príjmová elasticita, (4) limit saturácie, (5) prvý kvartil, (6) druhý kvartil, (7) tretí kvartil, (8) štvrtý kvartil

Table 5 The course of dependence, saturation and income elasticity of expenditures for vegetables, potatoes and chervil plants from the real income of households by income quartiles

Income groups (1)	Parameters of functions (2)	Income elasticity E_I (3)	Saturation limit (4)	R^2
1st quartile (5)	$\ln RV_1 = 4.500 - 1\,921.8 \frac{1}{RP_1}$	1.165	90.06	0.914**
2nd quartile (6)	$\ln RV_2 = 4.586 - 2\,215.4 \frac{1}{RP_2}$	0.936	98.11	0.943**
3rd quartile (7)	$\ln RV_3 = 4.575 - 2\,727.1 \frac{1}{RP_3}$	0.925	97.03	0.939**
4th quartile (8)	$\ln RV_4 = 4.683 - 2\,906.8 \frac{1}{RP_4}$	0.636	108.1	0.960**

Source: own calculations
** Statistically proven parameter, significance level $\alpha = 0.01$

Zdroj: vlastné výpočty
** Štatisticky preukazné parametre, hladina významnosti $\alpha = 0,01$

Tabuľka 5 Vývoj závislostí, príjmové elasticity a bod nasýtenia pri výdavkoch na zeleninu, zemiaky a hľuzovité rastliny z reálneho príjmu domácností podľa príjmových kvartilov
(1) príjmové skupiny, (2) vlastnosti funkcie, (3) príjmová elasticita, (4) limit saturácie, (5) prvý kvartil, (6) druhý kvartil, (7) tretí kvartil, (8) štvrtý kvartil

Table 6 The course of dependence, saturation and income elasticity of expenditures for fruit from the real income of households by income quartiles

Income groups (1)	Parameters of functions (2)	Income elasticity E_I (3)	Saturation limit (4)	R^2
1st quartile (5)	$\ln RV_1 = 3.778 - 951.8 \frac{1}{RP_1}$	0.577	43.74	0.879**
2nd quartile (6)	$\ln RV_2 = 4.150 - 1\,368.1 \frac{1}{RP_2}$	0.578	63.48	0.872**
3rd quartile (7)	$\ln RV_3 = 4.159 - 1\,158.6 \frac{1}{RP_3}$	0.393	64.00	0.799**
4th quartile (8)	$\ln RV_4 = 4.437 - 1\,931.8 \frac{1}{RP_4}$	0.422	84.60	0.892**

Source: own calculations
** Statistically proven parameter, significance level $\alpha = 0.01$

Zdroj: vlastné výpočty
** Štatisticky preukazné parametre, hladina významnosti $\alpha = 0,01$

Tabuľka 6 Vývoj závislostí, príjmové elasticity a bod nasýtenia pri výdavkoch na ovocie z reálneho príjmu domácností podľa príjmových kvartilov
(1) príjmové skupiny, (2) vlastnosti funkcie, (3) príjmová elasticita, (4) limit saturácie, (5) prvý kvartil, (6) druhý kvartil, (7) tretí kvartil, (8) štvrtý kvartil

limit of elasticity is close to the demand for this food group in the households in the second and the third income quartile. Demand for vegetables in the households with the highest incomes was inelastic and 1 % increase of income caused an average 0.636 % increase in expenditures for this food group (Table 5). Then, the limit of saturation of demand for vegetables was reached on the level of spending 108.1 € per person per year.

Income elasticity of demand for fruits showed a similar course (Table 6) depending on the elasticity of demand and consumer expenditures which was reflected in the household demand for milk and dairy products. From the results we can conclude that the demand for fruits showed the lowest level of tightness, depending on real disposable incomes compared to the other food commodities analyzed in this paper.

Development of Cash Income and Expenditures in the Czech Republic

Basic information about income situation of Czech households in the years 2005 – 2008 is in Table 7.

Table 7 shows that the average income per household member in the years 2005 to 2008 increased from 9.152 CZK to 10.901 CZK. Average income per one household member (D-FYZ) can be used for comparison of the development in the years 1988, 1992 and 1996, Večerek (2001) states. It is based on Mikrocensus survey realized by the Czech Statistical Office using very similar methodology to indicator D-FYZ. In 1988, Večerek (2001), presented the value of 1.858 CZK per 1 household member, in 1992 the value of 2.808 CZK and in 1996 the value of 5 292 CZK. In 2005 it reached the value of 9.152 CZK and in 2008 the value of 10.901 CZK for a household member (Table 7). Development of indicators in selected years between 2005 and 2008 related to 2005 as a basis represents the Table 8.

The Table 8 contains two characteristics of D-and D-FYZ ACS; due to all calculations for comparison are based on recalculated (equalized) household members. The average monthly income of household member D-ACS has increased from 12 232 CZK in 2005 to 14 627 CZK in 2008 which is a difference of 19.5 %. The median for this period increased by 21.9 %. The large relative increase in median income indicates a favorable income situation of households. Higher average

Table 7 Income situation of the Czech households

Characteristics (1)	2005	2006	2007	2008
Average D-FYZ (income per month per one household member) (2)	9 152	9 455	10 184	10 901
Average D-EKV (income per month per one equalized household member) (3)	12 232	12 629	13 620	14 627
Basic index – average income per month D-EKV in % (4)	100	103.25	111.35	119.58
Median in CZK (5)	10 500	10 958	11 815	12 798
Poverty threshold in CZK (6)	6 300	6 575	7 089	7 679
Absolute number of households at risk of poverty (7)	296	486	578	628
Relative number of households at risk of poverty in % (8)	6.80	6.49	5.97	5.56
The Gini coefficient (9)	0.25	0.24	0.24	0.23

Source: own calculations Zdroj: vlastné výpočty

Tabuľka 7 Príjmová situácia domácností v ČR
(1) charakteristika, (2) priemerný D-FYZ (mesačný príjem jedného člena domácnosti), (3) priemerný D-EKV (mesačný príjem jedného člena domácnosti – ekvivalizovaný), (4) základný index – priemerný mesačný príjem D-EKV (v %), (5) medián (v CZK), (6) prah chudoby (v CZK), (7) absolútny počet domácností ohrozených rizikom chudoby, (8) relatívny počet domácností ohrozených rizikom chudoby, (9) Giniho koeficient

Table 8 Basic index

Basic index in % (1)	2005	2006	2007	2008
Average income per month D-FYZ (2)	100	103.31	111.28	119.11
Average income per month D-EKV (3)	100	103.25	111.35	119.58
Median and poverty threshold in CZK (4)	100	104.36	112.52	121.89

Source: own calculations Zdroj: vlastné výpočty

Tabuľka 8 Základný index
(1) základný index, (2) priemerný mesačný príjem D-FYZ, (3) priemerný mesačný príjem D-EKV, (4) medián a prah chudoby v CZK

Table 9 Sum of household income D-EKV according to income deciles

Deciles in % (1)	2005		2006		2007		2008	
	absolute expression in thousands CZK (2)	relative expression in % (3)	absolute expression in thousands CZK (2)	relative expression in % (3)	absolute expression in thousands CZK (2)	relative expression in % (3)	absolute expression in thousands CZK (2)	relative expression in % (3)
0 – 10	2 396	4.50	4 373	4.63	6 190	4.70	7 918	4.79
10 – 20	3 232	6.07	5 810	6.15	8 199	6.22	10 369	6.28
20 – 30	3 653	6.86	6 545	6.93	9 217	6.99	11 620	7.03
30 – 40	4 022	7.56	7 204	7.62	10 091	7.66	12 742	7.71
40 – 50	4 386	8.24	7 849	8.31	10 961	8.32	13 852	8.39
50 – 60	4 814	9.05	8 597	9.10	12 005	9.11	15 202	9.20
60 – 70	5 384	10.12	9 560	10.12	13 380	10.15	16 887	10.22
70 – 80	6 180	11.61	10 914	11.55	15 266	11.58	19 176	11.61
80 – 90	7 317	13.75	12 970	13.72	18 117	13.75	22 604	13.68
90 – 100	11 837	22.24	20 681	21.88	28 349	21.51	34 823	21.08

Source: own calculations Zdroj: vlastné výpočty

Tabuľka 9 Súčet príjmov domácností D-EKV podľa výšky príjmov v decilových skupinách
(1) decily v %, (2) absolútne vyjadrenie v tis. CZK, (3) relatívne vyjadrenie

Table 10 Basic needs of households

Number of households (1)	Material deprivation – basic needs in % (2)							
	a week of holiday (3)		meat, fish, poultry every other day (4)		sufficient heating of a flat (5)		new clothes (6)	
	2005	2008	2005	2008	2005	2008	2005	2008
Total (7)	57.02	58.29	80.83	86.08	89.20	92.72	65.85	x
Living below the poverty threshold (8)	22.97	23.57	58.45	67.04	79.39	81.69	40.54	x

Source: own calculations Zdroj: vlastné výpočty

Tabuľka 10 Základné potreby domácností

(1) počet domácností, (2) materiálna deprivácia – základné potreby v %, (3) týždenná dovolenka, (4) mäso, ryby alebo hydina každý druhý deň, (5) dostatočné vykurovanie bytu, (6) nové šaty, (7) spolu, (8) život pod prahom chudoby

income per household member reached more households. Table 9 presents the frequency of households in different deciles for better orientation in income differentiation.

The decile distribution table is understood by rule, that the first two deciles represent households known as lower class; from the third to the eighth deciles include households known as middle class and households from ninth and tenth deciles represent higher class. Table 9 shows that in the period 2005 – 2008 the differences between lower and higher class increased, which is understood as a negative state.

Calculations of poverty indicators (Table 8) show that 6.8 % of households in 2005 lived at poverty threshold. Threshold of poverty in this year was represented by the income of 6 300 CZK per 1 household member monthly. In 2008, 5.56 % lived at poverty threshold, which was 1.24 % less than in 2005 and the poverty threshold was at 7 679 CZK. The Gini coefficient in surveyed period declined from 0.25 to 0.23, which indicates the decreasing income differentiation. To comment, we state the Gini coefficient which is mentioned by Večerek (2001) for the period he documented in his paper. In 1988, the Gini coefficient was 0.19. This corresponds to the fact that in the period of planned management the income differentiation is relatively low; it is mainly influenced by demo Figureical factors (age, sex, number of children), thus by the "needs". In 1992 the Gini coefficient reached the value 0.25, in 1998 it reached the value 0.27. The increasing value of the Gini coefficient signifies increasing income differentiation, increasing influence of socio-economic factors as education and ability to succeed in the labor market. The increase of income differentiation among 1990 – 1998 also reflects the changes in society, the transition to a market economy and democratic principle of government in society. These reasons correspond to the decline of the Gini coefficient of income differentiation in 2005 and 2008, when the society was stabilizing and gradually adapting to those changes. For representation, the Lorenz curve is shown in Figure 2, based on values from 2008.

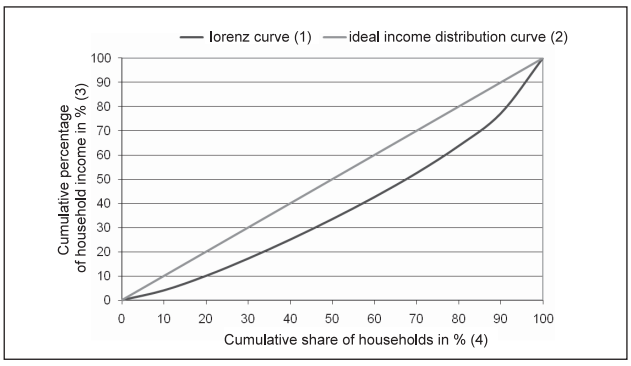

Figure 2 Lorenz curve in 2008
Source: own calculations

Obrázok 2 Lorenzova krivka v roku 2008
Zdroj: vlastné výpočty
(1) Lorenzova krivka, (2) krivka ideálneho rozdelenia príjmu, (3) kumulatívne percento príjmu domácnosti, (4) kumulatívny podiel domácností

Income of the inhabitants of the Czech Republic is mainly spent for the basic needs – the results of survey are shown in Table 10.

In 2005, 57.02 % of households could afford a week of holiday away from home, in 2008 the number increased to 58.29 %. In 2005, meat was eaten every other day by 80.83 % of households and also in this category there is an increase to 86.08 %. Within the question about basic needs, the most positive answers were found for fulfilling the need "sufficient heating of a flat", in 2005 it was 89.20 % of households and in 2008 this value increased to 92.72 %.

At-risk-of-poverty households could afford a week of holiday away from home in 23 % in both years. There was a positive development for these households in the field of food, compared to 2005 there was increase to 67.04 %, which is 8.59 %. About 80 % of at-risk-of-poverty households are content with sufficient heating in both years.

Conclusions

In the advanced economies, the human needs were shifted to a higher level of needs within Maslow's Needs Triangle, where the basic level is formed by the physiological needs. Consumers expect the food to be wholesome to contribute to the protection of their health and the consumers by this way also demonstrate their image and life attitude. Pension elasticity of these attributes is changed simultaneously with the income growth. The consumer demand shifts towards more valuable, better processed and prepared foods and intermediate products. During the transformation period in the SR there originated the differences in income and wealth, reflected also in total consumption and expenditures for food. The real and nominal incomes of the households were in the fourth quartile 2.8 times higher than the household income in the first quartile. A high proportion of the household food expenditures limits the households in decisions about the amount and structure of the consumed food. The different income levels and price developments are strongly reflected in the changes in the structure of consumption expenditures. In the evolution of the consumer demand and structure of expenditures over the eleven year period, the following trends can be observed:

- declining but still high share of expenses for food, beverages and catering, but these were reduced on average by 4.9 – 7.5 percentile points by transition to the higher income quartiles,
- the costs for services and other net expenses increased significantly, especially in the households of the income groups located on the right side of the median income distribution,
- increasing of expenditures for bread and bakery products, vegetables including potatoes and tuberous plants,

- the small differences in income elasticity of demand for milk and milk products,
- the high income elasticity was reflected in the households with the lowest income, particularly in the demand for vegetables, potatoes and other tuberous plants. By transition to the higher income quartiles, the income elasticity of demand fell in all food groups and was the lowest in the households in the fourth, the highest income quartile,
- there were negative high prices of the consumer goods and services in comparison with the level and growth of incomes in the meaningful part of the Slovak households. Limit for the risk of poverty in the households with two children rose since 2005 from 4 737.4 € to 6 183.3 € in 2008 (Statistical office…, 2010). After social transfers, 9.9 % of households with two children and 27.9 % of households with three or more dependent children were below the poverty line.

In the Czech Republic, the analysis of income differentiation revealed the improvement in income situation of households in surveyed years. The average income per household member increased by 19.5 %, the median value increased by 21.9 %. This indicates more frequent values around the average. When the poverty threshold increased from 6 300 CZK to 7 679 CZK, the number of at-risk-of-poverty households declined from 6.8 % to 5.56 %. The value of the Gini coefficient declined from 0.25 to 0.23, which also indicates reduction of income differences. Factors influencing this situation are evident from results of the survey of segmented households. The financial economic problem becomes more and more the social and political problem. The influence of social income demonstrably contributes to restriction of income inequality, but the following facts are also shown, at first not all items of social transfers work always positively and then they are not always reversibly properly targeted. With regard to complexity of income differentiation of households and the use of all instruments to remove income inequalities, all analyses of empiric data, which inform not only about development of income but also about impacts of redistribution, are substantiated and useful.

Súhrn

Príspevok sa zaoberá príjmovou situáciou domácností v Slovenskej a Českej republike v rokoch 2005 až 2008. Slovenská a Česká republika v poslednom čase zaznamenali fázy ekonomického rastu ako aj obdobie hospodárskej krízy. Táto skutočnosť má nemalý vplyv na životnú úroveň a správanie domácností a tvorbu ich životného štýlu. Samotný vstup Slovenskej a Českej republiky do EÚ otvoril nové možnosti nielen pri vytváraní príjmov, ale aj pri zmenách spotrebných zvyklostí obyvateľov v oboch štátoch. Základom pre tieto zmeny bol rok 1989, od tejto doby bolo možné sledovať implementáciu reforiem. V tomto procese sa postupne vytvorila nová štruktúra príjmov a výdavkov. Hodnotenie životnej úrovne obyvateľov a jeho vývoj sa vykonáva na základe niekoľkých ukazovateľov. Kľúčové indikátory, ktoré umožňujú hodnotenie životnej úrovne a jej rozvoj sú peňažné príjmy, spotreba a výdavky na potraviny, bývanie, kultúru, školstvo a zdravotníctvo. Spotrebiteľský dopyt sa posúva smerom k vyšším cenám za kvalitnejšie spracovanie potravín a polotovarov. Reálne a nominálne príjmy domácností v Slovenskej republike boli v štvrtom kvartile sledovaného obdobia v priemere 2,8-krát vyššie než príjem domácnosti v prvom kvartile. Vysoký podiel výdavkov domácností SR na potraviny obmedzuje domácnosti pri rozhodovaní o výške a štruktúre spotreby potravín. Rôzne úrovne príjmov a cien sa výrazne odrážajú v zmenách v štruktúre výdavkov na spotrebu. V ČR analýza príjmovej diferenciácie ukázala zlepšenie príjmovej situácie domácností sledovaných v rokoch 2005 až 2008. Priemerný príjem na člena domácnosti vzrástol o 19,5 %, stredná hodnota sa zvýšila o 21,9 %, to znamená častejšie hodnoty okolo priemeru. Dôležité je aj vzájomné porovnanie rozdielov vo výdavkoch na základné životné potreby domácnosti. Faktory ovplyvňujúce tento stav sú evidentné z výsledkov prieskumu segmentácie domácností.

Kľúčové slová: príjmy, výdavky domácností, príjmová situácia v Slovenskej republike, príjmová situácia v Českej republike

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VPLYV VEREJNÝCH FINANCIÍ NA FINANČNÉ HOSPODÁRENIE PODNIKOV POĽNOHOSPODÁRSKEJ PRVOVÝROBY

EFFECT OF PUBLIC FINANCES ON FINANCIAL MANAGEMENT OF AGRICULTURAL PRIMARY PRODUCTION

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The primary goal of the article is to evaluate the influence of direct taxes and social security system on agricultural enterprises. We focus on the impact of the direct taxes – land tax, building tax, road tax and income tax. The analysis also deals with contribution to the insurance funds related to employees. This contribution can be considered as taxation as well. The analyzed individual data for agricultural enterprises cover the period from 2004 to 2009 and represent 80% of agricultural land in the Slovak Republic.

Key words: public finance, agriculture, taxes, land tax, building tax, road tax, income tax

Finančné hospodárenie podnikov poľnohospodárskej prvovýroby je oproti podnikom pôsobiacim v ostatných odvetviach hospodárstva podstatne viac ovplyvnené sférou verejných financií, a to ako na strane príjmov reprezentovanou dotáciami, tak aj na strane výdavkov reprezentovanou výdavkami daňového a poistného charakteru. Vplyvom daňovej sústavy na vývoj slovenského poľnohospodárstva v deväťdesiatych rokoch sa vo svojich prácach zaoberali najmä Chrastinová (1999) a Bojňanský (1996, 2001). Súvisiacu problematiku dane z pozemkov a stanovovanie jej ceny rozpracoval Buday (2000, 2001) a Bradáčová (2006). Predkladaný príspevok kontinuálne nadväzuje na uvedené práce a tak dáva ucelený pohľad na veľkosť dopadu nákladových daní a odvodov do poistných fondov na vývoj poľnohospodárstva až do roku 2009. Naviac tento dopad rozširuje o problematiku príjmov dotačného charakteru a celkového salda príjmov a výdavkov, čím umožňuje hodnotiť celkový vzťah medzi sektorom poľnohospodárstva a sférou verejných financií. Posúdením vzťahu dotácií a daní v súbore poľnohospodárskych podnikov sa zaoberali vo svojej práci aj Střeleček a Lososová (2004).

Materiál a metódy

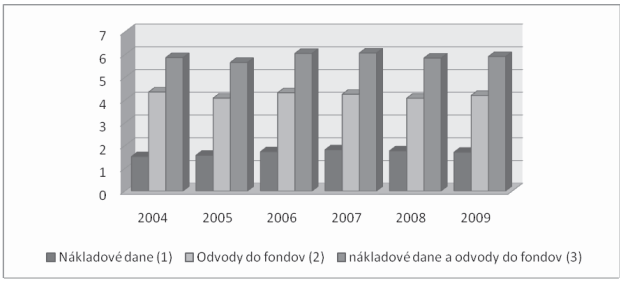
Pri predmetnej analýze sa vychádzalo najmä z údajov získaných z Informačných listov Ministerstva pôdohospodárstva a rozvoja vidieka Slovenskej republiky sumarizovaných za jednotlivé okresy v časovom horizonte rokov 2004 – 2009. Takto získané údaje reprezentujú podniky poľnohospodárskej prvovýroby, ktorých podiel na obhospodarovanej pôde je cca 80 %. Keďže ide o súbor podnikov, východiskovou analytickou metódou sú prepočty na ha poľnohospodárskej pôdy, prípadne na pracovníka a pod. Základnou hodnotiacou metódou je porovnávacia metóda týchto ukazovateľov v sledovanom časovom období.

Aj keď sa v rámci predkladanej analýzy prednostne skúma vplyv daňovej sústavy na vývoj poľnohospodárstva, nebolo možné neprihliadnuť v tejto súvislosti aj na tzv. odvodové zaťaženie poistného charakteru, ktoré je tvorené zákonnými sociálnymi nákladmi súvisiacimi so zamestnávaním pracovníkov a to predovšetkým zákonným poistením hradeným zamestnávateľom. Uvedené odvodové zaťaženie poistného charakteru možno chápať ako dodatočný daňový odvod, ktorý sa terminologicky označuje aj ako daňová kvóta II.

Uvedená problematika bola hodnotená na základe finančných výsledkov z výkazov Súvaha, Výkaz ziskov a strát a Vybrané ukazovatele podnikov za časový horizont rokov 2004 – 2009. Zdrojom údajov boli Informačné listy Ministerstva pôdohospodárstva Slovenskej republiky a rozvoja vidieka (ďalej len IL MP SR). Základný súbor tvorili všetky právnické osoby v Slovenskej republike.

Výsledky a diskusia

Rozsah vplyvu nákladových typov daní, t. j. dane z príjmov, daní z nehnuteľností a dane z motorových vozidiel vrátane odvodov do poistných fondov vyplýva z údajov uvedených v tabuľke 1 a z obrázku 1. Ich celkový vplyv sa pohybuje v rozmedzí od 5,5 % do 6 % na celkových nákladoch s vrcholom v rokoch 2006 a 2007, pričom podiel odvodov do poistných fondov bol relatívne stabilný s výkyvom ±0,1 % za celé sledované obdobie. Z hľadiska zaťaženia pripadajúceho na 1 ha poľnohospo-



Obrázok 1 Podiel nákladových daní a odvodov do poistných fondov v podiele k celkovým nákladom v %

Figure 1 The proportion of cost taxes and contributions to insurance funds with relation to total costs in %
(1) cost taxes, (2) contribution to insurance funds, (3) cost taxes and contribution to insurance

Tabuľka 1 Nákladové dane a odvody do poistných fondov v poľnohospodárskych podnikoch v €.ha^{-1}

	2004	2005	2006	2007	2008	2009
Nákladové dane (1)	19,6	22,5	23,5	27,1	29,2	24,3
Odvody do poistných fondov (2)	56,1	58,6	58,7	63,7	67,4	59,8
Nákladové dane a odvody do poistných fondov celkom (3)	75,7	81,1	82,2	90,8	96,6	84,1
Celkové náklady (4)	1 289,8	1 433,4	1 357,5	1 495,7	1 652,1	1 421,2
Výsledok hospodárenia (5)	20,6	-0,9	7,3	37,9	27,6	-65,1

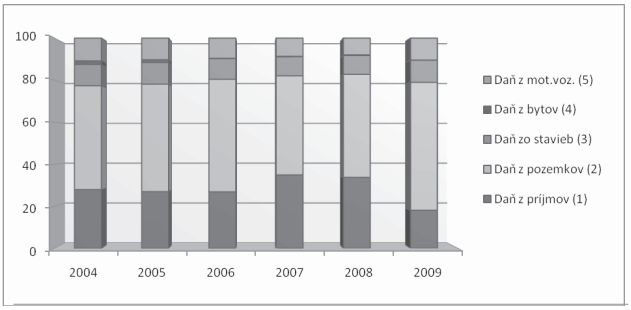
Zdroj: Informačné listy, Ministerstvo pôdohospodárstva a rozvoja vidieka Slovenskej republiky, vlastné prepočty
Source: Information sheets, Ministry of Agriculture and Rural Development, own calculations

Table 1 Cost taxes and contributions to the insurance funds in agricultural enterprises in €.ha^{-1}
(1) cost taxes, (2) contribution to insurance funds, (3) cost taxes and contribution to insurance funds, (4) total farm costs, (5) economic result (+ profit, - loss)

dárskej pôdy možno v sledovanom období pozorovať sínusový vývoj s vrcholom v rokoch 2007 a 2008, keď zaťaženie dosiahlo úroveň presahujúcu 90 eur na ha poľnohospodárskej pôdy.

Celkovo možno konštatovať, že zaťaženie podnikov poľnohospodárskej prvovýroby nákladovými typmi daní, vrátane odvodov do poistných fondov v porovnaní s celkovými nákladmi je relatívne nízke. Na druhej strane toto zaťaženie pripadajúce na 1 ha poľnohospodárskej pôdy, a to najmä v roku 2008, keď dosiahlo úroveň 96,6 €.ha^{-1} možno považovať za už značné, ktoré môže v niektorých prípadoch zásadne ovplyvniť parciálnu rentabilitu, a to najmä výkonov rastlinnej výroby.

Z hľadiska štrukturálneho zastúpenia jednotlivých nákladových typov daní tak, ako to vyplýva z obrázku 2, mali rozhodujúci vplyv na výšku daňového zaťaženia poľnohospodárskej prvovýroby dane z nehnuteľností, a to najmä daň z pozemkov, ktorá bola v priemere 2,5-krát väčšia ako daň z príjmov resp. 5-krát väčšia ako daň z motorových vozidiel, resp. daň zo stavieb. Vplyv dane z bytov v rámci daní z nehnuteľností bol úplne zanedbateľný.



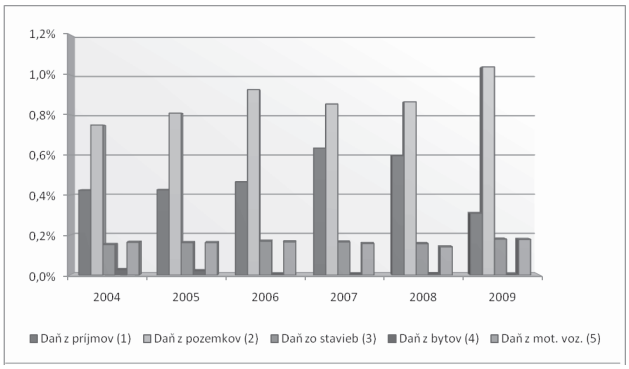
Obrázok 2 Štruktúra nákladových daní v %
Figure 2 Structure of the cost taxes in %
(1) income tax, (2) land tax, (3) building tax, (4) tax on apartments, (5) vehicle tax

Dane z nehnuteľností

Daňové zaťaženie daňou z pozemkov tak, ako to vyplýva z tabuľky 2 sa v priemere pohybovalo v intervale 9,66 až 14,77 € na 1 ha poľnohospodárskej pôdy, pričom celé sledované obdobie sa vyznačuje jeho neustálym rastom, ktorý dosahuje v roku 2009 viac ako 50% nárast oproti roku 2004. Uvedený nárast je spôsobený najmä priebežným rastom sadzieb dane, ktoré sú v kompetencii samosprávnych orgánov, t. j. obcí, ale tiež aj snahou podnikov o lepšie využitie pôdneho fondu, ako aj snahou o zvýšenie objemu dotácií charakteru priamych platieb.

Daňové zaťaženie pri dani zo stavieb sa v priemere pohybovalo v intervale 1,98 až 2,60 € na 1 ha poľnohospodárskej pôdy. Rovnako pri tejto dani možno pozorovať tendenciu neustáleho rastu, aj keď miernejšieho na úrovni necelých 30 %, čo je opäť spôsobené najmä rastom sadzieb dane.

Vyššie uvedený rastový trend možno pozorovať aj pri percentuálnom vyjadrení podielu týchto daní na celkových nákla-



Obrázok 3 Podiel nákladových daní v pomere k celkovým nákladom v %
Figure 3 Proportion of cost taxes in relation with total costs in %
(1) income tax, (2) land tax, (3) building tax, (4) tax on apartments, (5) vehicle tax

Tabuľka 2 Nákladové dane v poľnohospodárskej prvovýrobe v €.ha^{-1}

	2004	2005	2006	2007	2008	2009
Daň z príjmu (1)	5,47	6,11	6,32	9,49	9,86	4,40
Daň z pozemkov (2)	9,66	11,59	12,57	12,78	14,29	14,77
Daň zo stavieb (3)	1,98	2,21	2,31	2,48	2,60	2,56
Daň z bytov (4)	0,33	0,29	0,03	0,04	0,09	0,02
Daň z motorových vozidiel (5)	2,12	2,33	2,26	2,36	2,33	2,54
Celkové náklady podniku (6)	1 289,8	1 433,4	1 357,5	1 495,7	1 652,1	1 421,2
Výsledok hospodárenia (7)	20,6	-0,9	7,3	37,9	27,6	-65,1

Zdroj: Informačné listy, Ministerstvo pôdohospodárstva a rozvoja vidieka Slovenskej republiky, vlastné prepočty
Source: Information sheets, Ministry of Agriculture and Rural Development, own calculations

Table 2 Coast taxes on agricultural prime production in €.ha^{-1}
(1) income tax, (2) land tax, (3) building tax, (4) tax on apartments, (5) vehicle tax, (6) total farm costs, (7) economic result (+ profit, - loss)

doch poľnohospodárskych subjektov tak, ako to vyplýva z obrázku 3, keď celkový podiel daní z nehnuteľností sa pohybuje v intervale 0,93 % až 1,22 %. Samozrejme aj v tomto prípade má rozhodujúce postavenie daň z pozemkov, ktorá patrí z hľadiska poľnohospodárskych podnikov medzi najvýznamnejšie nákladové typy daní, pričom medzi základné faktory ovplyvňujúce jej výšku patria sadzba dane a výška ceny predmetných pozemkov. Problémovou oblasťou je najmä oblasť stanovovania ceny pozemkov, pričom je potrebné zdôrazniť, že súčasný systém centrálneho výpočtu ceny pôdy je dlhodobo neudržateľný a postupne sa budú musieť pevné ceny meniť na tzv. smerné ceny, ktoré budú tvoriť východiskový základ nielen na stanovenie predajnej ceny poľnohospodárskej pôdy, ale aj na jej zdanenie tak, ako je to realizované vo väčšine krajín EÚ.

Daň z motorových vozidiel

Dosah dane z motorových vozidiel na subjekty podnikajúce v poľnohospodárskej prvovýrobe je čiastočne eliminovaný okruhom motorových a prípojných vozidiel, ktoré podliehajú zdaneniu tak, ako to vyplýva z nasledujúcich skutočností:

- Predmetom dane sú motorové vozidlo a prípojné vozidlá kategórie M, N a O, čo znamená, že sa jedná o motorové vozidlá s najmenej štyrmi kolesami projektované a konštruované na prepravu cestujúcich alebo tovaru a k ním prípojné vozidlá. Z uvedeného vyplýva, že tu nepatria motorové vozidlá, ktoré majú dve alebo tri kolesá, napríklad jednonápravové kultivačné traktory a ich prívesy, samochodné poľnohospodárske a lesné stroje, pojazdné pracovné stroje a pod.
- Vyšší územný celok môže vo svojom všeobecno-záväznom nariadení oslobodiť od dane okrem iných aj vozidlá používané výhradne v poľnohospodárskej výrobe a v lesnej výrobe.

Celkový výber cestnej dane v rámci sledovaného obdobia mal mierne stúpajúci trend pohybujúci sa v intervale od 2,12 do 2,54 €.ha^{-1} poľnohospodárskej pôdy s dvomi rastovými obdobiami, a to v roku 2005 a 2009, čo súviselo najmä so zvyšovaním sadzieb tejto dane, ktoré sú v kompetencii vyšších územných celkov.

Z hľadiska podielu na celkových nákladoch sa táto daň pohybovala pod úrovňou 0,2 %, čo pre finančné hospodárenie väčšiny podnikov poľnohospodárskej prvovýroby nemusí mať zásadný vplyv, snáď len s výnimkou podnikov s rozvinutou špecializovanou výrobou nadväzujúcou na základnú rastlinnú a živočíšnu výrobu, v prípade ak si prepravné činnosti zabezpečujú vo vlastnej réžii, čo si vyžaduje vlastnenie príslušného počtu motorových a prípojných vozidiel.

Daň z príjmu

Daňové zaťaženie daňou z príjmov sa v priemere pohybovalo v intervale 4,40 až 9,86 € na hektár poľnohospodárskej pôdy, pričom najvyššiu úroveň dosiahlo v roku 2007 a 2008, čo súviselo s celkovo dobrými hospodárskymi výsledkami poľnohospodárskych podnikov v tomto období. Naopak, najnižšiu úroveň dosiahlo toto zaťaženie v roku 2009 v súvislosti s prehlbujúcou sa finančnou krízou.

V porovnaní s daňovým zaťažením pri ostatných nákladových daniach možno konštatovať, že v prípade dane z príjmov ide o druhé najvýznamnejšie daňové zaťaženie, čo vyjadruje aj percentuálny podiel tejto dane na celkových nákladoch. Uvedené konštatovanie je však značne individuálne a závisiace od hospodárenia konkrétneho poľnohospodárskeho podniku. V porovnaní so situáciou do roku 2000 však možno pozorovať diametrálne ťaživejší dopad tejto dane na finančné hospodárenie poľnohospodárskych podnikov. Toto bolo spôsobené skutočnosťou, že od roku 2000 došlo zo strany zákona o daniach z príjmov k podstatnej zmene v prístupe k zdaňovaniu prijatých investičných a prevádzkových dotácií, ktoré sa od tohto roka v plnej výške stávajú základom dane, čo následne viedlo k podstatnému zvýšeniu daňovej povinnosti z titulu dane z príjmov.

Príjmy a výdaje podnikov poľnohospodárskej prvovýroby vo väzbe na verejné rozpočty

Z hľadiska fiškálneho posudzovania dopadu sektora poľnohospodárskej prvovýroby na verejné rozpočty je rozhodujúce dosiahnuté saldo finančných prostriedkov, ktoré plynú do tohto sektora alebo z neho.

Rozhodujúci objem finančných prostriedkov plynúcich do sektora poľnohospodárskej prvovýroby je reprezentovaný prevádzkovými a investičnými dotáciami poskytovanými z prostriedkov Európskej únie, resp. štátneho rozpočtu. Za celé sledované obdobie vykazoval tento objem finančných prostriedkov rastúci trend od úrovne 265 mil. € v roku 2004 na úroveň 437 mil. € v roku 2009.

Naopak, zo sektora poľnohospodárskej prvovýroby plynú finančné prostriedky do štátneho rozpočtu a do samosprávnych rozpočtov jednotlivých obcí a vyšších územných celkov. Uvedené rozpočty pre účely našej analýzy spájame do jedného súhrnného verejného rozpočtu a posudzujeme globálne. Do vyššie uvedených rozpočtov plynú jednotlivé nákladové typy daní a spotrebné dane. V prípade nákladových typov daní ide už o vyššie zmienené dane, a to daň z príjmov právnických osôb, dane z nehnuteľností a daň z motorových vozidiel. V prípade spotrebných daní ide o daň z pridanej hodnoty a jednotlivé selektívne spotrebné dane, a to najmä daň z minerálnych olejov, daň z vína a daň z liehu.

V sledovanom období bol objem finančných prostriedkov plynúcich do verejných rozpočtov z titulu týchto daní relatívne stabilný, keď sa pohyboval v intervale od 150 mil. do 160 mil. €, s výnimkou roku 2009, keď vzhľadom na prehlbujúcu sa finančnú krízu poklesol na úroveň 138 mil. €.

Tak, ako vyplýva z tabuľky 3 celkové saldo príjmov a výdajov verejných rozpočtov z uvedených titulov dosahovalo záporná hodnotu, čo znamená, že takto vybrané daňové príjmy nepokrývali objem výdajov reprezentovaných dotačnými prostriedkami. Vývoj tohto salda za celé sledované obdobie vykazuje rastúci trend, pričom za sledované obdobie sa jedná o jeho 2,7-násobné prehĺbenie. V roku 2009 dosiahol čistý príspevok finančných prostriedkov plynúci z verejných rozpočtov do podnikov poľnohospodárskej výroby čiastku takmer 300 mil. €.

Vzhľadom na skutočnosť, že do sektora poľnohospodárskej prvovýroby plynú prostredníctvom verejných rozpočtov aj dotácie z prostriedkov Európskej únie je potrebné, z hľadiska vyčíslenia skutočného čistého salda verejných rozpočtov Slovenskej republiky, od týchto finančných prostriedkov abstrahovať, čo reprezentuje tabuľka 4. Vzhľadom na skutočnosť, že v analyzovanom súbore podnikov poľnohospodárskej prvovýroby absentovali údaje týkajúce sa štruktúry prijatých dotácií z hľadiska ich pôvodného zdroja, tak pre účely výpočtu skutočného salda bolo aplikované priemerné percento podielu dotácií z prostriedkov Európskej únie k celkovému objemu poskytnutých dotácií. V sledovanom období sa toto percento pohybovalo v priemere na úrovni 66 až 67 %. V takomto prípade tak, ako vyplýva z tabuľky 4 skutočné saldo verejných rozpočtov Slovenskej republiky by v sledovanom období, s výnimkou roka 2009, dosahovalo kladné aj keď klesajúce hodnoty. Uvedené znamená, že v skutočnosti podniky poľnohospodárskej prvovýroby, s výnimkou roka 2009, mali pozitívny vplyv na celkové finančné hospodárenie verejných rozpočtov Slovenskej republiky.

Tabuľka 3 Saldo verejných rozpočtov v tis. €

	2004	2005	2006	2007	2008	2009
Daň z pridanej hodnoty (1)	35 871	28 166	31 529	24 172	7 728	11 843
Spotrebné dane (2)	613	269	156	242	148	239
Daň z príjmu (3)	8 576	9 785	9 944	14 610	14 623	6 592
Dane z nehnuteľností (4)	18 769	22 575	23 448	23 551	25 193	25 983
Daň z motorových vozidiel (5)	3 326	3 733	3 549	3 633	3 460	3 801
Príspevky do poistných fondov (6)	88 027	93 834	92 333	98 021	100 045	89 519
Príjmy ver. rozpočtov celkom (7)	155 182	158 362	160 959	164 229	151 198	137 977
Výdaje verejných rozpočtov (8)	265 495	298 118	342 937	381 256	406 704	437 761
Saldo príjmov a výdajov VR (9)	-110 313	-139 756	-181 978	-217 028	-255 505	-299 783
Podiel príjmov VR na výdajoch VR (10)	0,59	0,53	0,47	0,43	0,37	0,32

Zdroj: Informačné listy, Ministerstvo pôdohospodárstva a rozvoja vidieka Slovenskej republiky, vlastné prepočty
Source: Information sheets, Ministry of Agriculture and Rural Development, own calculations

Table 3 Balance of public budgets in thousands €
(1) VAT, (2) excise taxes, (3) income tax, (4) property tax, (5) vehicle tax, (6) contributions to insurance funds, (7) public budget revenues, (8) public budget expenses, (9) public budget balance, (10) proportion of public revenues in public expenses on agriculture

Tabuľka 4 Saldo verejných rozpočtov bez finančných prostriedkov EÚ v tis. €

	2004	2005	2006	2007	2008	2009
Výdaje verejných rozpočtov bez EÚ (1)	88 498	99 373	114 312	127 085	135 568	145 920
Saldo príjmov a výdajov VR (2)	66 684	58 989	46 647	37 143	15 630	-7 943
Podiel príjmov VR na výdajoch VR (3)	1,75	1,59	1,41	1,29	1,12	0,95

Zdroj: Informačné listy, Ministerstvo pôdohospodárstva a rozvoja vidieka Slovenskej republiky, vlastné prepočty
Source: Information sheets, Ministry of Agriculture and Rural Development, own calculations

Table 4 Balance of public budget in thousands € without EU funds
(1) public budget expenses without EU funds, (2) balance of public budget, (3) proportion of public revenues in public expenses on agriculture

Záver

Celkovo je možné konštatovať, že zaťaženie podnikov poľnohospodárskej prvovýroby nákladovými typmi daní, vrátane odvodov do poistných fondov, je relatívne nízke. V porovnaní s celkovými nákladmi dosahuje toto zaťaženie úroveň necelých 6 %, z čoho rozhodujúci podiel reprezentuje daň z pozemkov. V prepočte na jeden ha poľnohospodárskej pôdy toto zaťaženie predstavuje čiastku cca 90 €.ha^{-1}, čo možno považovať už za značné, ktoré môže v niektorých prípadoch zásadne ovplyvniť parciálnu rentabilitu, a to najmä výkonov rastlinnej výroby.

Z hľadiska porovnania prijatých finančných prostriedkov v podobe investičných a prevádzkových dotácií s výdajmi vo forme daní a odvodov do poistných fondov do štátneho rozpočtu a samosprávnych rozpočtov možno konštatovať v prípade podnikov poľnohospodárskej prvovýroby záporný vplyv na celkové saldo verejných rozpočtov. Avšak pri abstrahovaní finančných prostriedkov pochádzajúcich zo zdrojov EÚ je, naopak, vplyv podnikov poľnohospodárskej prvovýroby za celé sledované obdobie 2004 až 2009, s výnimkou roka 2009, na celkové finančné hospodárenie verejných rozpočtov SR pozitívny.

Súhrn

Hlavným cieľom článku je vyhodnotiť vplyv priamych daní a systému sociálneho zabezpečenia na poľnohospodárske podniky. Zameriavame sa na dopad priamych daní – dane z pozemkov, dane zo stavieb, cestnej dane a dane z príjmu. Analýza sa tiež zaoberá odvodmi do poistných fondov týkajúcich sa zamestnancov. Tieto odvody môžeme tiež považovať za zdanenie. Jednotlivé analyzované údaje za poľnohospodárske podniky pokrývajú obdobie rokov 2004 až 2009 predstavujúce 80 % poľnohospodárskej pôdy Slovenskej republiky.

Kľúčové slová: poľnohospodárstvo, dane, daň z pozemkov, daň zo stavieb, cestná daň, daň z príjmu

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INTERNATIONAL SYNCHRONISATION OF THE PORK CYCLE
MEDZINÁRODNÁ SYNCHRONIZÁCIA CYKLU BRAVČOVÉHO MÄSA

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The development of pork prices has been analysed since the 1920s. Well known economic concepts such as Hanau's pork cycle or Ezekiel's cobweb theorem are based on the empirical analysis of pork markets. We analyze whether pork price developments in different countries have become more synchronised over time. In a first stage of our analysis, annual pork price data collected by the FAO reveals much heterogeneity of pork price developments across countries. However, for some groups of countries the observed price patterns are very similar or even identical. This is especially the case for neighbouring countries with integrated pork markets, such as the members of the European Union (EU). We then compare pork price developments in Germany and the USA based on 36 years of monthly producer prices for slaughter pigs. Since the middle of the 1990s cyclical pork price movements in the USA and Germany have become increasingly synchronous. We attribute this to two developments: the fact that the USA has become a large net exporter of pork over this period, and policy reform in the EU that has strengthened the link between international and EU feed prices.

Key words: pork cycle, cobweb theorem, cycle synchronisation, Hodrick-Prescott filter

The existence of the so-called 'Pork Cycle' was first recognized by Hanau (1927) for the German pork market and by Coase and Fowler (1935) for the pork market in Great Britain. These authors hypothesised that a positive shock on the demand side for pork, for example, leads to increasing producer prices for pigs in the short-run because farmers cannot expand their supply immediately. Assuming the naive expectation that the current observed high prices of pork will persist in the future, farmers will increase pig production because of its expected higher profitability. This decision to increase production will have an impact on the supply of slaughtered pigs about one year later at the earliest – that is the time it takes to produce piglets and fatten them for slaughter. This larger slaughter volume reduces the producer price as the supply exceeds the demand for pork. This development has a negative impact on the profitability of pig production so that farmers with high marginal costs drop out of pig production. As a consequence, the supply of slaughter pigs decreases in the medium-run and the producer price increases again, leading to another round of the pork cycle.

At roughly the same time, Ricci (1930), Schultz (1930), and Tinbergen (1930) analysed the relationship between supply and demand reactions more generally and formulated own theoretical explanations for cyclical price fluctuations. A few years later, Ezekiel (1938) combined these explanations and published the so-called 'Cobweb-Theorem'. As an example, he cited self-induced cyclical price fluctuations on pork markets in several countries due to the nearly inelastic supply reaction of the pork producers in the short-run and the highly elastic supply reaction in the long-run.

In the following decades the pork cycle was repeatedly a subject of interest in the agricultural economic literature. Harlow (1960), for example, determined a length of four years for the fluctuations of pork prices of the USA, which corresponds to the empirical results of Hanau (1927) and Coase and Fowler (1935). However, this contradicts Ezekiel's Cobweb-Theorem which predicts a cycle length of only two years, i.e. double the length of the time period between the decision to increase production (by producing piglets) and the ensuing effect on the supply side of the market (increasing numbers of slaughtering pigs).

This contradiction has never been resolved in a convincing manner in the literature. Another puzzle is how the pork cycle can be maintained given the fact that countercyclical behaviour on the part of pork producers would be highly profitable (Hayes and Schmitz, 1987). Part of the explanation could lie in the fact that the pork cycle does not fluctuate regularly. External shocks, such as increasing feed costs due to poor harvests or an outbreak of the swine fever, periodically disturb the cycle making it impossible to predict. To account for irregular fluctuations, Talpaz (1974) decomposed a time series of pork prices into component cycles using Fourier methods. Other authors proposed non-linear models and chaos theory, e.g. Chaves and Holt (1991), Holzer and Precht (1993), and Streips (1995). Recently, Holt and Craig (2006) test the forecasting ability of a time-varying smooth transition autoregressive model (TV-STAR) of pork prices.

In our study we take the existence of cyclical pork price fluctuations as given, whether they are due to the 'classic' cobweb proposed by Ezekiel (1938) or some other (combination of) explanation(s). The focus of our analysis is the question whether the pork cycle in different international markets has become more or less synchronised over time. Specifically, we hypothesise that as a consequence of the ongoing liberalisation of agricultural markets in many countries, and of the ensuing increases in pork trade, pork price fluctuations in different countries will have become increasingly synchronous over time.

To test this hypothesis we draw on two separate types of analysis. First, we analyse the correlation of pig price data from over 100 countries. Second, we analyse 36 years of monthly data on producer prices and numbers of slaughtered pigs in the USA and Germany – the second and the third largest pig producing countries in the world after China. We apply the Hodrick-Prescott-Filter (Hodrick and Prescott, 1997) to isolate countercyclical movements of prices and slaughtered volumes

in both countries, and to provide evidence that pork price fluctuations in these two markets are indeed becoming increasingly synchronous.

Material and methods

In the first stage of our analysis we use the annual producer prices for slaughter pigs (in US-$) collected by the FAO. All in all the FAO provides data for 122 countries between 1991 and 2008 (18 years). We exclude 9 countries with more than two missing values from further calculations, leaving 113. The heterogeneity of the remaining countries is very high. Besides large pork-producing countries such as China and the USA, the data include, for example, a number of small island states in the Pacific or the Caribbean, as well as a number of predominately Islamic states where pork production and consumption presumably play a negligible role.

Harding and Pagan (2006) suggest analysing the synchronisation of the minima and maxima of time series to generate insights into the similarity of price developments. Therefore, we generate the first differences of all price data series and create a dummy variable (1/0) to distinguish between increasing (first difference is positive) and decreasing (first difference is negative) slaughter pig prices. If two countries have identical series of increasing and decreasing prices, the coefficient of correlation between their dummy variable series will equal one. Analysing the FAO's data from 113 countries produces a total of 6,328 pairwise correlations ($[113^2 - 113]/2$) which reflect the regional integration of pork price developments within the European Union in contrast to the rest of the world.

In the second stage of our analysis we compare more frequent data from the USA and Germany. For the USA we use weekly price observations provided by LMIC (2010) for Iowa and South Minnesota hog prices on carcass basis which we aggregate to monthly data by arithmetic averaging of four or five observations per month. Nearly 40 percent of all pigs of the USA are slaughtered in these states. The slaughter volumes are taken from annual reports of the USDA (1974 – 2009). Monthly producer prices and slaughter volumes for Germany are provided by the national statistical office (Statistisches Bundesamt 2010, ZMP 1974 – 2008).

We use the Hodrick-Prescott-Filter to extract cyclical movements from the data. This filter decomposes a time series y_t into two components: a trend component g_t and a stationary rest component r_t (1):

$$y_t = g_t + r_t \quad \text{for } t = 1, ..., T \tag{1}$$

The decomposition is the result of the following optimization problem (2):

$$\min_{\{g_t\}_{t-1}^{T}} \left\{ \sum_{t=1}^{T} r_t^2 + \lambda \sum_{t=1}^{T} \left[(g_t - g_{t-1}) - (g_{t-1} - g_{t-2}) \right]^2 \right\} \tag{2}$$

which depends on the value of a positive parameter λ which can be any positive number. λ penalizes the variability of the time series y_t, so that the higher the value of λ, the smoother the computed trend component. For a very large λ the difference between g_{t-1} and g_t converges to a constant β for the entire data series and the trend component becomes a linear trend $g_t = g_o + \beta t$. At the other extreme, if λ is set equal to 0, the trend component is the series y_t itself.

Using a relatively small value for λ (e.g. 1,000), we get a trend component $g_t^{\lambda=1,000}$ which contains the overall long-run smooth trend as well as cyclical fluctuations. If we choose a multiple of this value (e.g. $\lambda = 100,000$), the cyclical behaviour of the trend component $g_t^{\lambda=100,000}$ disappears and only the long-run smooth trend is left. We isolate the cyclical component of the time series by dividing the smooth trend plus cycle component by the smooth trend component:

$$g_t^{cyc.} = \frac{g_t^{\lambda=1,000}}{g_t^{\lambda=100,000}} \tag{3}$$

Finally, we analyse the synchronisation of these cyclical components of the US and the German pork prices and the corresponding slaughter volumes using linear regression models.

Results and discussion

Pork price developments in different countries

Prior to recent decades, most farmers produced only a few pigs and sold them on regional markets. Trading over long distances and especially across borders was not common. Besides the problems of transporting live or slaughtered pigs and the lack of information about the price developments in neighbouring countries, import barriers for pigs and pork meat (tariffs and various veterinary restrictions) prohibited many trading activities. As a result, markets were not integrated and a specific pork cycle could be observed for each country – even for neighbouring countries.

To study whether this has changed, we use the annual producer prices for slaughter pigs collected by the FAO and calculate all possible pairwise correlation coefficients for the 113 countries. Of course, perfect positive correlation could occur by chance. But since a series of 17 price changes allows for 2^{17} = 131,072 permutations, the probability of a perfect positive correlation occurring by chance among 6,328 pairwise correlations is low.

The results indicate that several groups of countries do display identical annual price movements over the sample period. These groups are:

- Belgium, France, the Netherlands and the Czech Republic,
- Denmark and Germany,
- Togo and Niger,
- Cameroon and Equatorial Guinea,
- Macedonia and Cape Verde.

With the exception of Macedonia and Cape Verde, all the other pairs involve direct or close neighbours. Common price movements are observable between locally integrated markets, such as between Togo and Niger or between Cameroon and Equatorial Guinea. The group comprising Belgium, France, the Netherlands and the Czech Republic differs from the pair Denmark and Germany by the direction of only one price change, from 2006 to 2007. So the pairwise correlation coefficient between these country groups is also strongly positive ($r = 0.87$). It comes as no surprise that pork price fluctuations within the European Union are highly synchronised. This applies especially to the 'old' member states Belgium, Denmark, France, Germany and the Netherlands, as all of these countries have traded pigs and pork with each other for a long time. Indeed, pork price

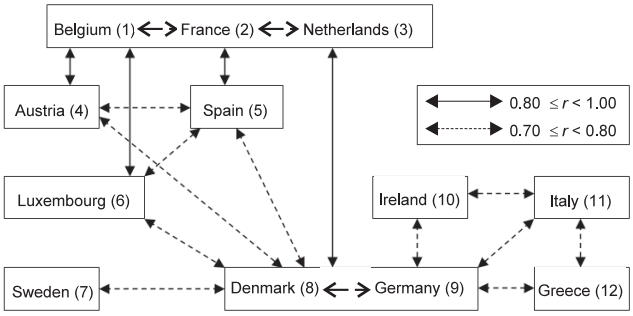


Figure 1 Correlation coefficients for the pork price development of EU-15 countries
Source: own calculations based on FAO (2011)

Obrázok 1 Korelačné keoficienty cenového vývoja bravčového mäsa v krajinách EÚ-15
Zdroj: vlastné výpočty, FAO (2011)
(1) Belgicko, (2) Francúzsko, (3) Holandsko, (4) Rakúsko, (5) Španielsko, (6) Luxembursko, (7) Švédsko, (8) Dánsko, (9) Nemecko, (10) Írsko, (11) Taliansko, (12) Grécko

movements in nearly all countries of the EU-15 are positively correlated with each other (Figure 1). Only Great Britain, Portugal and Finland have shown pork price developments during the last two decades which are not very similar to rest of the EU-15 (pairwise correlation coefficients less than 0.70).

The positive correlation coefficients shown in Figure 1 indicate a common 'pork cycle' which is confined to Europe. This cluster of countries with similar pork price developments is unique in the data we study. Only Eastern Europe also shows many positive correlation coefficients – but these are all smaller. We therefore conclude that there is regional market integration between the following countries: Russia, Armenia, Republic of Moldova, Latvia, Lithuania, Estonia, Poland and the Czech Republic. Note that the Czech Republic displays the same price movements as Belgium, France and the Netherlands; this suggests some similarities in pork price developments in Eastern and Western Europe. Since the period after 1990 has been characterised by increasing trade and integration between the EU and these Eastern European countries, with some of them becoming full EU members themselves in 2004, this result also comes as no surprise.

To test whether these positive coefficients of correlation between pork price movements are statistically significant we generate a distribution of correlation coefficients under the assumption of independent pork price developments. We create 100,000 pairs of times series of price increase/price decrease dummies for two countries and calculate the corresponding correlation coefficients. When generating these series we account for the fact that the probability of a price increase changes from year to year in our FAO sample: for example from 2007 to 2008 the pork prices increased in 87.3 % of the 113 countries (the highest such proportion in the FAO sample), and from 1997 to 1998 this proportion was only 24.8 % (the lowest such proportion). Hence, the median of the simulated distribution of correlation coefficients equals 0.169, and only less than one quarter of the values are negative. Based on this distribution we would expect a perfect coefficient of correlation ($r = 1$) in only 0.8 of 6,328 cases, and a coefficient between 0.8 and 1.0 in 10.4 cases. In fact, many more high correlations are observed (Table 1), and most of these are between countries in Europe, with twelve members of the EU-15 being responsible for nearly half of the observed correlation coefficients greater than 0.80.

Synchronisation of the pork cycle of the USA and Germany

The results presented above suggest pork price movements are synchronised in regions where trade has been liberalised and the infrastructure required to integrate markets for a perishable product such as pork is available. However, these results are based on only 18 years of annual data and are therefore not able to cast any light on whether price movements have become more or less synchronised over time.

We therefore next consider longer, high-frequency pork price series in the USA and Germany. These countries do not trade pork directly with each other but they are important pig producing countries, accounting for 10 and 5 % of world production, respectively (FAO, 2010). China accounts for about 46 % of the world pig production, and Fengying, Ling and Jieying (2009), based on an analysis of monthly data since 1996, find evidence of a pork cycle in China with an average length of 42 months, which corresponds to the cycles lengths observed in Europe and the USA. Hence, it would be interesting to include China in our analysis as well. However, the monthly time series of pork prices and slaughter quantities that are available for China are considerably shorter that those for the USA and Germany, which date back to 1974.

The price and slaughter series employed are presented in Figure 2a and 2b. Cyclical price movements are clearly visible, as are seasonal fluctuations in slaughter volumes and an overall increase in slaughter volumes over most of 1974 – 2009 period in both countries. The German data prior to reunification in 1990 only apply to West Germany, and this leads to a structural break in the data (especially apparent in a jump in slaughter volumes – Figure 2b) which does not, however, have a major effect on our analysis.

We first decompose the price and slaughter volume series into trend and cyclical components using the filter proposed by Hodrick and Prescott (1997) who also provide guidelines on the values that are appropriate for capturing fluctuations of different periodicities. The dependence of the Hodrick-Prescott-Filter on the subjective choice of is criticised in literature (see e.g. Kauermann, Krivobokova and Semmler, 2011). However, the method is straightforward and transparent, and the application below produces results which are robust over a range of values.

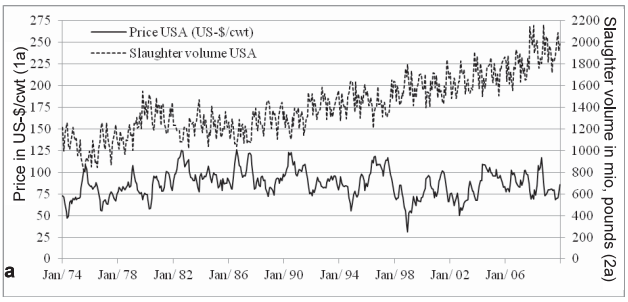
Figure 3 illustrates the application of the Hodrick-Prescott--Filter for the λ values of 1,000 and 100,000 to the monthly US pork prices. Altogether we can observe 8 – 10 cycles of the

Table 1 Expected and observed correlation coefficients

	Expected number (1)	Observed number (2)	Of which Western and Eastern European countries (3)	Of which only EU-15 members (4)
r = 1	0.8	10	7	4
0.80 ≤ r < 1.00	10.4	32	24	15
0.70 ≤ r < 0.80	61.0	94	27	18

Source: own calculations based on FAO (2011) Zdroj: vlastné výpočty, FAO (2011)

Tabuľka 1 Očakávané a vypočítané korelačné koeficienty
(1) očakávaný počet, (2) zistený počet, (3) z toho krajiny západnej a východnej Európy, (4) z toho členov EÚ-15



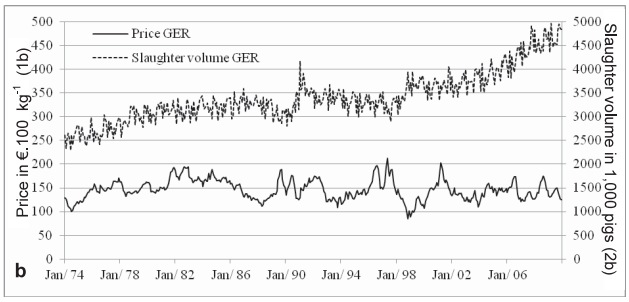


Figure 2a,b Prices and slaughter volumes of pork in the USA and Germany
Sources: USDA (1974 – 2009), LMIC (2010), Statistisches Bundesamt (2010), ZMP (1974 – 2008)

Obrázok 2a,b Ceny a porážková hmotnosť bravčového mäsa v USA a Nemecku
Zdroj: USDA (1974 – 2009), LMIC (2010), Štatistický úrad Nemecka (2010), ZMP (1974 – 2008)
(1a) cena v USD/100 libier (jednotka hmotnosti), (2a) cena v €.100 kg^{-1}, (1b) objem porážok v mil. libier, (2b) objem porážok v tis. ošípaných

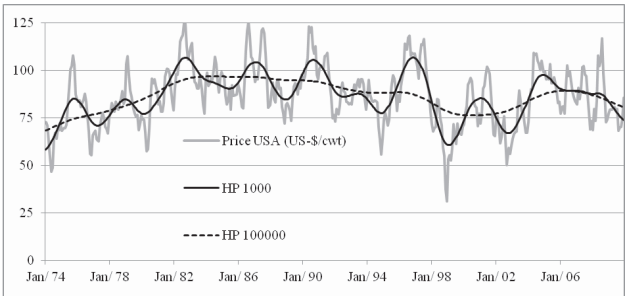


Figure 3 Application of the Hodrick-Prescott-Filter to pork prices from the USA
Source: own calculations based on LMIC (2010)

Obrázok 3 Aplikácia Hodrick-Prescottovo filtru na ceny bravčového mäsa v USA
Zdroj: vlastné výpočty, LMIC (2010)

cyclical component – depending on whether the weakly observable maxima in 1993 and 2008 are counted or not – which indicates over the whole time period of 36 years an average length of the pork cycle of around four years.

By dividing both filtered series corresponding to Equation (3) the results indicate first that in both the US and Germany price movements and slaughter volumes are cyclical (see Figures 4a and 4b).

Furthermore, as predicted by the cobweb theorem, prices and slaughter volumes fluctuate counter-cyclically to one another. To illustrate this we estimate the following linear regression model:

$$\ln\left(\frac{p_{t+1}}{p_t}\right) = \beta_0 + \beta_1 \cdot \ln\left(\frac{q_{t+1}}{q_t}\right) + e_t \qquad (4)$$

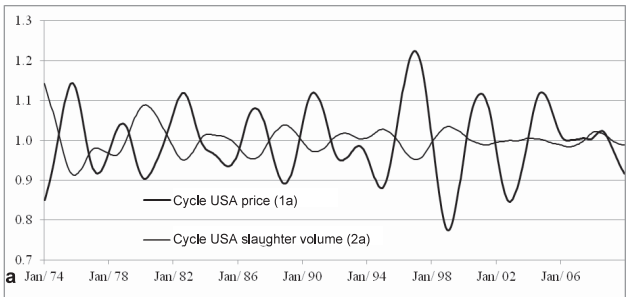
the results of which are presented in Table 2.

Table 2 Regression of pork price changes on contemporaneous changes in the volume of slaughtered pigs

	USA		Germany (1)	
	coefficient (2)	p-value (3)	coefficient (2)	p-value (3)
$\hat{\beta}_0$	0.001	0.847	0.000	0.986
$\hat{\beta}_1$	-0.332	<0.001	-0.075	0.048

Source: own calculations
Zdroj: vlastné výpočty

Tabuľka 2 Regresné koeficienty pre riešenie závislosti medzi cenou bravčového mäsa a množstvom jatočných prasiat
(1) Nemecko, (2) koeficient, (3) p-hodnota



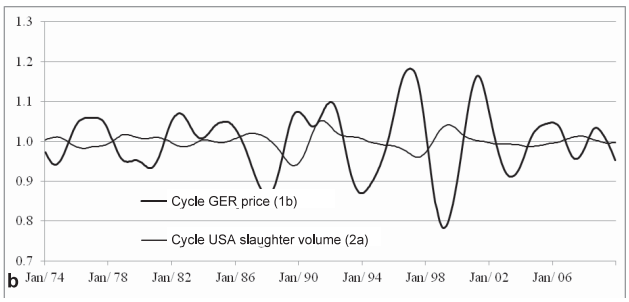


Figure 4a,b Cycles for prices and slaughter volumes of pork in the USA and Germany
Source: own calculations

Obrázok 4a,b Cyklus vývoja cien a porážkovej hmotnosti bravčového mäsa v USA a Nemecku
Zdroj: vlastné výpočty
(1a) cyklus vývoja cien v USA, (2a) cyklus vývoja objemu porážok v USA, (1b) cyklus vývoja cien v Nemecku, (2b) cyklus vývoja objemu porážok v Nemecku

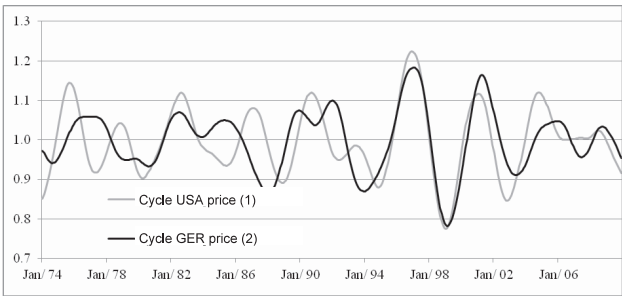


Figure 5 Comparing the price cycles for slaughtered pigs in the USA and Germany
Source: own calculations

Obrázok 5 Porovnanie cenových cyklov pre jatočné prasatá v USA a Nemecku
Zdroj: vlastné výpočty
(1) cyklus vývoja cien v USA, (2) cyklus vývoja cien v Nemecku

Table 3 Synchronisation of the pork price cycles in the USA and Germany

	1974 – 1994			1995 – 2009		
	coefficient (1)	std. dev. (2)	p-value (3)	coefficient (1)	std. dev. (2)	p-value (3)
$\hat{\beta}_0$	0.000	0.001	0.209	0.000	0.000	0.084
$\hat{\beta}_1$	-0.052	0.091	0.571	1.022	0.041	0.000

Source: own calculations Zdroj: vlastné výpočty

Tabuľka 3 Synchronizácia cenových cyklov bravčového mäsa v USA a Nemecku
(1) koeficient, (2) štandardná odchýlka, (3) p-hodnota

The estimated $\hat{\beta}_1$ coefficients for both the USA and Germany have negative signs and are significantly different from zero at the 5 % level, confirming that pork prices fall as slaughter volumes increase, and vice versa.

We next compare the cyclical components for the producer prices in the USA and Germany. The visual evidence in Figure 5 suggests that there was no synchronisation between the cycles during the first half of the time series, with prices in the US sometimes increasing while those in Germany were decreasing, and vice versa. However, there appears to be evidence of increasing synchronisation since the early 1990's. While the directions of the price changes from one month to the next in the US and Germany are identical only in 41 % of the observations (r = -0.16) between 1974 and 1994, this share increases to 76 % (r = 0.52) between 1995 and 2009.

We test whether there is an increasing synchronization of the pork cycles in the USA and Germany by estimating the following double-logarithmic model (5) using the data in Figure 5 for different sub-periods between 1974 and 2009.

$$\ln\left(\frac{g_{t+1}^{cyc.,USA}}{g_t^{cyc.,USA}}\right) = \beta_0 + \beta_1 \cdot \ln\left(\frac{g_{t+1}^{cyc.,GER}}{g_t^{cyc.,GER}}\right) + e_t \qquad (5)$$

The results are presented in Table 3. While there is no evidence of synchronisation of the cyclical components of pork prices in the USA and Germany between 1974 and 1994, we can reject the null hypothesis of no synchronisation between 1995 and 2009. Moreover, the estimated coefficient of 1.022 is not significantly different from one, which is the value we would expect in the case of perfect synchronisation.

Conclusions

The evidence presented in this paper suggests first that the development of pork prices is very heterogeneous in different countries of the world, although there are clusters of countries, in particular the members of the European Union, in which pork prices do move together. Second, cyclical pork price movements in the USA and Germany have become increasingly synchronous since the middle of the 1990s.

The following facts provide possible explanations for this development: First, during the last decade the USA has become a net exporter of pig meat. While only 2 % of US production was exported in 1990, this share increased to 21 % in 2008. Therefore, over time the USA has increasingly had to compete with the exporting countries of the European Union for world markets. As a result, US markets have become increasingly exposed to the effect of price fluctuations on world markets. Although Germany itself has only recently become a net exporter of pork, the strong market integration in the EU-15 that was illustrated above means that Germany is essentially part of a large net exporting region that includes such major exporters as Denmark and the Netherlands. Second, the so-called MacSharry reform of the EU's Common Agricultural Policy in 1993, and subsequent reform steps in 2000 and 2003 have led, among other things, to reduced price support for grains in the EU. Today, grain prices in the EU are directly linked to world market prices. As a result, beginning in the 1990s and increasingly until today farmers in the EU and the US face similar prices for all the major feed components in pork production (oilseed and other grain substitute prices in the EU have always followed world market levels due to the EU's GATT/WTO commitment to import these duty free).

Future work could consider a number of factors. First, the analysis could be extended to other major pork producers such as China and Brazil, subject to data limitations. Second, we have neglected the influence of exchange rates on the synchronisation in our study. While local currency prices are important from the producer's point of view, trade flows and prices are influenced by exchange rates. Third, we have focused on producer prices for slaughter pigs, but producer behaviour will be driven not by pork prices alone but rather by the profitability of pork production. Profitability depends not only on pork prices but also on prices for inputs such as piglets, feed and energy, which could be considered in a more comprehensive analysis. Finally, alternatives to the Hodrick-Prescott-Filter could be employed to address the concern that this filter is subjective.

Súhrn

Vývoj cien bravčového mäsa je analyzovaný od roku 1920. Známe ekonomické koncepty cyklu bravčového mäsa podľa Hanaua alebo Ezekielova pavučinová teoréma sú založené na empirickej analýze trhu s bravčovým mäsom. V práci analyzujeme či sa vývoj cien bravčového mäsa v rôznych krajinách stáva v čase synchronizovanejším. V prvej časti našej analýzy ročných FAO údajov o cenách bravčového mäsa, vykazuje vývoj cien bravčového mäsa v jednotlivých krajinách značnú heterogenitu. Avšak pozorovaný vývoj cien v niektorých skupinách krajín je veľmi podobný, alebo dokonca identický. Je to zvlášť prípad susediacich krajín s integrovanými trhmi bravčového mäsa, ako sú napr. členské krajiny Európskej únie (EÚ). Následne porovnávame vývoj cien bravčového mäsa v Nemecku a USA s využitím 36 ročného časového radu mesačných údajov cien jatočných ošípaných platených výrobcom. Od polovice 90. rokov sa stáva cyklický vývoj cien bravčového mäsa v USA a Nemecku synchronizovanejším. Pripisujeme to dvom faktorom: jednak skutočnosti, že sa v tomto období USA stali veľkým čistým exportérom bravčového mäsa a tiež reforme politík v EÚ, čo posilnilo väzbu medzi medzinárodnými a cenami krmív EÚ.

Kľúčové slová: cyklus bravčového mäsa, pavučinová teoréma, synchronizácia cyklu, Hodrickov-Prescottov filter

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THE IMPACT OF THE ECONOMIC CRISIS ON THE LABOUR MARKET

VPLYV EKONOMICKEJ KRÍZY NA PRACOVNÝ TRH

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The aim of this article is to give an overall picture of the impact of the economic crisis by comparing one of the leading participants of world economy (EU-27) with Hungary and its neighbouring country, Slovakia. On the basis of the results we outline the tendencies and changes to be expected in Hungary by evaluating our most important labour market indicators. According to the macroeconomic indicators, the global economic crisis has had a great impact on the Member States of the European Union including the Slovak Republic and Hungary.

Key words: economic crisis, labour market, employment, unemployment, GDP

In this article, we deal with the impacts of the economic crisis, starting in 2008, on the labour market with respect to Hungary and Slovakia. Some analysts say we have been over the worst period of it while others call the attention to the possibility of its strengthening again. The present situation in some European countries like Iceland, Greece, Portugal or perhaps Spain tends to prove the latter assumption. Instead of predicting the future, we evaluate the impacts of the economic crisis with help of the labour market indicators in terms of the goals set by the EU.

The aim of this article is to give an overall picture by comparing one of the leading participants of world economy (EU-27) with Hungary and its neighbouring country, Slovakia. On the basis of the results, we outline the expected tendencies. First, we describe the goals set by the European Union, followed by a short summary of the reasons for the economic crisis and its characteristics, which is necessary because of its impacts on the labour market. After that, we evaluate the situation in terms of employment, unemployment and GDP and the shortfalls in the strategies of the European Union. Finally, we describe the expected tendencies.

Results and discussion

Employment and the goals of the European Union

The Lisbon goals

In 2000, the Lisbon Strategy set the goal "to make the EU the most competitive, knowledge-based economy in the global market". This goal is often supposed to have been motivated by the perception that the EU was lagging behind the American economy.

We describe the goals in terms of the labour market with special regard to employment and training.

To promote participation in the labour market and to improve the qualitative and quantitative indicators the following goals were set by 2010:

- increasing the total labour market participation rate to 70 %,
- increasing the participation rate of women in the labour market to 60 %,
- increasing the labour market participation rate of people over 50 to 50 %.

Improvement of qualification:

- lowering the number of people aged 18 – 24 having only primary and secondary education by 50 % by 2010,
- spreading the culture of lifelong learning with the help of social partners.

In order to achieve a 70 % employment rate in the EU-25, 6 million new jobs should have been created. (This goal did not concern Romania and Bulgaria because at that time they were not members of the EU.) As compared to the labour potential of the EU-25, this number of jobs is not very high, but because of the crisis, the goal has become unattainable. This will be supported by figures in what follows.

Europe 2020

The attainable strategic aim of the present vision 'Europe 2020' is to transform Europe into a leading, competitive, continuously developing, knowledge-based network economy which is environment-sensitive, socially inclusive and delivers growth, a high level of employment and social progress in a sustainable way. These objectives are simpler and better orientated than the Lisbon strategy which set much more and complicated targets from among which the most important ones have not been met.

Each member state has adopted national programmes for the strategies (National Response Plan.)

'Europe 2020' assessed the weaknesses of the earlier strategy and listed the following three priorities:

- smart growth: the development of economy based on knowledge and innovation,
- sustainable growth: resource-effective, environment-friendly and competitive economy,
- inclusive growth: a high rate of employment, encouragement of economy to ensure social and territorial cohesion.

As a new element of the strategic plan, five headline targets have been agreed to measure progress. Two of these targets concern the labour market:

- to raise the employment rate of the 20 – 64 year-old to 75 % by employing more young and elderly people and those with low qualifications and by integrating more legal migrants,
- to improve the quality and efficiency of education and training, to reduce school drop-out rates by 10 %, to increase the rate of the 30 – 34 year-old completing third level education to 40 %.

Concerning the above targets, the ambitions of Hungary included in the national programme (National Response Plan) are as follows:

Hungary has targeted to increase the employment rate to a minimum of 63 %, to a real value of 70 % and to a maximum value of 75 %. In order to meet this target it is necessary to introduce structural reforms improving national competitiveness and employment significantly. To ensure a dynamic growth of the employment rate from 2013 on, besides structural reforms we need:

- the economic policy focusing on the creation of new jobs,
- the tax policy decreasing the burdens of live work,
- new education and training policy based on the demands of the labour market.

The new measures in education policy, an active labour market policy and the increase in workforce mobility may contribute to the growth of this rate.

As to the increase in the rate of adults with tertiary educational attainment, Hungary has targeted a minimum rate of 27 %, a real rate of 30.3 % and the maximum rate of 33.3 %.

Hungary has also undertaken to increase the number of students completing their studies successfully and within the specified length of training. The modernization of vocational training and the educational and structural measures concerning tertiary education will result in a higher rate of inclusion of the 20 – 24 age group into post secondary training or its equivalent form relevant to the demands of the labour market.

The migration of graduates has been increasing in Hungary. This programme is also aimed at ensuring favorable conditions to decrease its rate.

Hungary has been making progress in implementing the strategy of lifelong learning. This necessitates:

- decreasing drop-out rates and the number of students who get their degrees beyond the specified length of training,
- development of foreign language teaching and teaching subjects in foreign languages in higher education.

The increase in the number of post secondary courses offered by Hungarian institutes of higher education enables the structure of the Hungarian tertiary education to meet the demands of mass training by providing a high level of education in the form of short, specialized courses.

The world economic crisis

The antecedent of the global economic crisis was the American sub-prime mortgage crisis. The reason was the saturation of the credit market. Because of that, lending banks started to pay their attention to sub-debtors who would not have borrowed money in the old system of credit policy. This financial crisis of changing intensity started from the real estate and banking sectors of the USA at the end of 2006 and it had a great impact even on the European banks. The decline of the American economy affected the whole world economy and its impact can be still felt. It caused the recession of the Euro Zone, which involved a dramatic decrease in issuance and consumption as well as the narrowing of external and domestic markets. The crisis first appeared in the financial markets, and it rippled in other fields of economy later. In the labour market of Hungary, it was at the multinational companies that the dramatic impacts could be felt. They were as follows:

- in order to maintain its competitiveness, the General Electric (GE) made 500 Hungarian employees redundant (MTI, October 30th 2008),
- a Hungarian subassembly of Audi in Győr stopped working for a month (Index, 22nd November, 2008),
- Nokia Plant in Komárom, Hungary stopped working for 8 days (25th November 2008).

It became evident that the widening of the gap between real economy and the speculative growth of the financial sector would lead to a dramatic crisis. At present, the European countries are focusing on the short-term tasks of crisis management. Among the means of crisis management are the Lisbon and the Europe 2020 strategies worked out by the EU and described before in this article.

In the member states of the EU during this period, GDP went down by 5 – 8 % as compared on an annual basis, and later, from the beginning of the third quarter of the year 2008, there was a slight improvement thanks to the governmental measures taken to stimulate economy. This trend continued in 2010.

Objectives vs. Reality

We assess and compare the impacts of the crisis using the following three indicators: GDP, employment and unemployment.

GDP

Hungarian economy touched the bottom in the second quarter of 2009 when GDP fell by 6.7 % as compared with the same period of the previous year. Then in the first quarter of 2010, GDP started to rise slowly, and this trend has been still going on. Prosperity is determined by two opposite factors:

- on one hand it is stimulated by export sales targeted at the Asian region both directly and indirectly (through our partner, Germany),
- on the other hand, falling domestic demand has been retarding economic growth in the recent period (MNB, 2010).

The European Union seems to have managed to overcome the crisis, which is mainly due to the economic growth in West European countries.

The difference between South European and West European countries is ever growing. The highest rise in GDP has been measured in Germany, which means that its close economic partners like Hungary and Slovakia might expect a similar growth.

Even before the crisis, the situation of employment in Europe was not reassuring at all. This is reflected in the online survey conducted by an international market research firm ACNielsen in 2005 among jobseekers (Nielsen, 2006).

The differences in the economic conditions can be felt in the labour markets of the Member States of the European Union. Despite some similarities, this difference e.g. between Hungary and the Slovak Republic has remained, although the two countries have been trying to improve the situation in their labour markets with their own response plans.

The narrow cross-section in employment in Hungary is demonstrated by the second lowest employment rate in the EU, 60.5 % (see Table 1) which has not changed for two years.

In the Slovak Republic, employment has gradually decreased – although to a lesser degree – in the past three years, which is typical for the whole of the EU-27. The majority of employment shortfall is concentrated in some groups of jobseekers. These are as follows (the differences from the European average are shown in brackets):

- people with low educational attainment (-20 % points),
- middle-aged males (-25 %points),
- part-time employees (-17 % points),
- mothers with small children (-12 %points),
- employees over 55 (-10 % points).

Table 1 Associated statistics for the determinants of motivation in companies X and Y

Years (1)	EU-27 (2)			Hungary (3)			Slovakia (4)		
	changes in GDP% (as compared with the previous year) (5)	employment (6)	unemployment (7)	changes in GDP% (as compared with the previous year) (5)	employment (6)	unemployment (7)	changes in GDP% (as compared with the previous year) (5)	employment (6)	unemployment (7)
2000	3.90	–	9.4	4.90	–	6.4	1.37	–	19.1
2004	2.59	67.4	9.3	4.52	62.1	6.1	5.00	63.7	18.6
2008	0.50	70.4	7.1	0.83	61.9	8.0	5.82	68.8	9.6
2009	-4.13	69.1	8.9	-6.69	60.5	10.1	-4.78	66.4	12.1
2010	1.76	68.6	9.6	1.21	60.5	11.2	4.02	64.6	14.4
2011*	1.78	–	9.5	2.40	–	11.5	4.00	–	13.3

*1st quarter of the year * prvý kvartál roku 2011
Source: edited from the periodical issues of KSH, Eurostat and IMF
Zdroj: KSH, Eurostat a MMF

Tabuľka 1 Makroekonomické ukazovatele a ukazovatele trhu práce dvoch vybraných krajín za posledných desať rokov v porovnaní s EÚ-27
(1) roky, (2) EÚ-27, (3) Maďarsko, (4) Slovenská republika, (5) % zmena HDP v porovnaní s predchádzajúcim rokom, (6) zamestnanosť, (7) nezamestnanosť

The employment shortfall of Hungary is considerable as compared with the average of the European Union while that of Slovakia is close to the average of the EU.

In 2012, the increase rate employment might accelerate to 3.5 – 4.0 % if the retarding indicators of 2011 improve. Some large-scale investments might also contribute to this improvement.

The tax decrease in Hungary could also give an impetus to consumption, which might influence employment positively.

Unemployment

As a result of the crisis, 2 million jobs were axed in the European Union – more than half of them in Spain – in 2008.The fastest increase rate was among young males, the smallest rate was measured among females. At the beginning of 2009, redundancies rose at an accelerated rate. The unemployment rate of the EU-27 shows the highest value in Spain and the lowest one in the Netherlands. According to the figures of the first half of 2010, the number of unemployed and the unemployment rate exceeded the level of the same period of the previous year in the whole of the Union. This means that the Hungarian and Slovakian trends showing an increasing rate of unemployment (Table 1) cannot be considered exceptional. Although the employment rate of 2010 did no change in Hungary as compared to the previous year, the increase in unemployment rate continued, however, at a slower pace. There are several reasons why the stagnation of employment is accompanied by an increase in unemployment.

One of them is the recent extension of retirement age, which had a favorable impact on the labour force supply while demand has not really grown yet. Job-losers are being included in the social and social security systems to a smaller and smaller extent, so they remain permanent job seekers.

Based on these tendencies, the EU set up the goals described earlier in this article. The Member States of the EU have met these goals to different extent as shown in Table 2.

It is clear from Table 2 that some of the countries managed to meet the goals. It is especially true for North European countries which could meet all three goals. However, we can say that the average data both for the EU-27 and the EU-15 show shortfall from all the three examined targets. Hungary has the largest shortfall in employment. It is actually the highest percentage among the countries of the European Union. Together with Slovakia, we are in the last third in female employment. The European goals and the efforts to ensure equal opportunity influenced female employment to a lesser degree. We have to face shortfall in the employment of the older age group, too. We are in the last third of the rankings similarly to Slovakia.

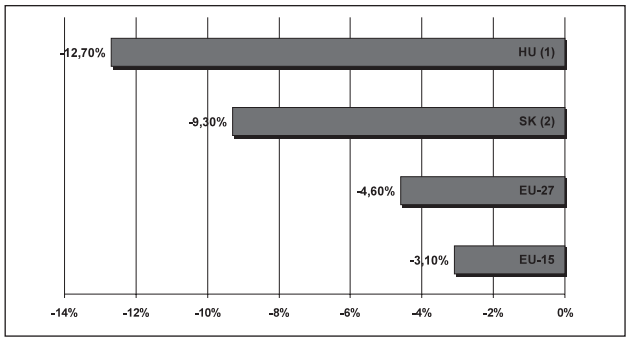

Figure 1 Shortfall from the 70% employment target
Source: edited by using OECD Employment Database, 2010
Obrázok 1 Odchýlka od 70% cieľovej zamestnanosti
Zdroj: Databáza zamestnanosti OECD, 2010
(1) Maďarsko, (2) Slovenská republika

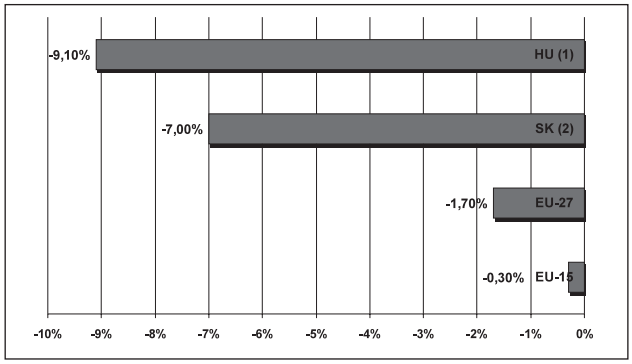

Figure 2 Shortfall from the 60% female employment target
Source: edited by using OECD, Employment Database, 2010
Obrázok 2 Odchýlka od 60% cieľovej zamestnanosti u žien
Zdroj: OECD, Databáza zamestnanosti, 2010
(1) Maďarsko, (2) Slovenská republika

Figure 1 which demonstrates the shortfall from the Lisbon goals separately, gives a clear picture of the employment shortfall. Unfortunately, the Hungarian shortfall is nearly 13 %. The only country with a higher value is Malta. This means that Hungary has the second worst result within the EU. In fact, the level of employment was stagnating in Hungary even before the recession. Slovakia, however, closed the year 2010 with rates closer to the target. Its shortfall is 9.3 %, which ranks it in the mid-third among the Member States of the EU.

Table 2 The shortfall of the member states of the EU from the Lisbon goals at the end of 2010

Country (1)	Shortfall (2)		
	total (3)	female (4)	older aged (5)
	from employment targets (absolute%) (6)		
BE (Belgium)	-8.0	-4.7	-15.6
BG (Bulgaria)	-8.3	-2.4	-7.4
CZ (Czech Republic)	-3.9	-2.7	-4.0
DK (Denmark)	0.0	0.0	0.0
DE (Germany)	-0.6	0.0	0.0
EE (Estonia)	-0.6	0.0	0.0
IE (Ireland)	-0.9	0.0	0.0
EL (Greece)	-8.6	-12.1	-7.6
ES (Spain)	-4.4	-5.3	-5.4
FR (France)	-5.4	0.0	-11.7
IT (Italy)	-11.3	-13.4	-16.2
CY (Cyprus)	0.0	0.0	0.0
LV (Latvia)	-1.7	0.0	0.0
LT (Lithuania)	-5.1	0.0	0.0
LU (Luxemburg)	-6.4	-5.0	-17.1
HU (Hungary)	-12.7	-9.1	-16.9
MT (Malta)	-14.3	-23.1	-21.7
NL (The Netherlands)	0.0	0.0	0.0
AT (Austria)	0.0	0.0	-11.4
PL (Poland)	-13.0	-9.4	-20.3
PT (Portugal)	-2.2	0.0	0.0
RO (Romania)	-11.2	-7.2	-8.6
SI (Slovenia)	-2.2	0.0	-16.5
SK (Slovakia)	-9.3	-7.0	-14.4
FI (Finland)	0.0	0.0	0.0
SE (Sweden)	0.0	0.0	0.0
UK (United Kingdom)	0.0	0.0	0.0
EU-27	-4.6	-1.7	-5.3
EU-15	-3.1	-0.3	-3.4
Target of 2010 (7)	to reach 70%	over 60%	to reach 50%

Source: OECD, Employment Database, 2010
Zdroj: OECD, Databáza zamestnanosti, 20010

Tabuľka 1 Odchýlka členských štátov EÚ od lisabonských cieľov na konci roka 2010
(1) krajina, (2) odchýlka, (3) celkom, (4) ženy, (5) ľudia v staršom veku, (6) od cieľov v oblasti zamestnanosti v %, (7) cieľ roka 2010

As regards to the two examined countries, female employment shows the largest shortfall from the targets of 2010. From among the two countries, the figures of Hungary (Figure 2) seem to be less favorable. These low indicators of female employment are closely related to the fact that part-time employment is not widespread in Hungary. In the past ten years, there has been no significant change in the shortfall of male employment rate from the average of the EU, which is not favorable either, but the figures for female employment warn us of declining tendencies.

Considering the average of the 27 Member States of the European Union, the employment rate of the older age group reflects a worse situation (Figure 3). Unfortunately, the largest target shortfall was registered in this group in the two examined countries. Hungary has a higher rate than Slovakia.

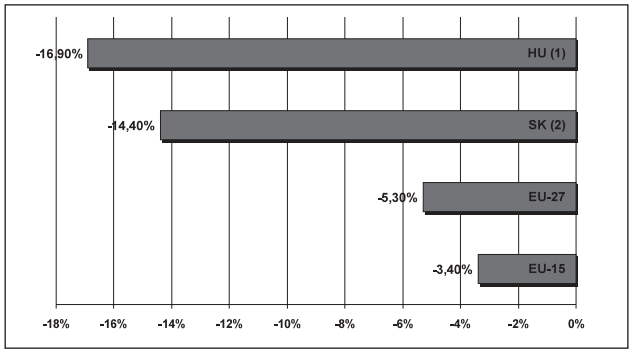

Figure 3 Shortfall from the 50% old-age employment target
Source: edited by using OECD, Employment Database, 2010

Obrázok 3 Odchýlka od 50% cieľovej zamestnanosti u ľudí v staršom veku
Zdroj: OECD, Databáza zamestnanosti, 2010
(1) Maďarsko, (2) Slovenská republika

Short-term changes in the labour market in Hungary and Slovakia

The measures taken by the Hungarian government were aimed at narrowing the potential circle of inactive people without income. In 2010, 37.1 % of the 15 – 64 age-group were found inactive, which is by 8.4 % higher than the average of the Union. Although the introduced and planned measures have not resulted in an increasing job supply yet, several factors contributed to an increase in employment: at the end of the first quarter of 2010 the number of employed people was by 18,000 higher than one year before. This increase concerned the processing industry mainly, and within this industry especially the jobs requiring higher educational attainment. Inactive people intending to enter or reenter the labour market must be continuously taken into account as a potential supply.

The total amount of inactive people is quite large as compared to the size of the Hungarian labour market. Hungary has the highest rate of inactive men in the EU-27. As to the rate of inactive women, Hungary ranks fourth after Malta and Italy and has the same rate as Greece.

In Slovakia, the rate of inactive people is slightly higher than the average of the EU-27. This difference is bigger in the case of women: it amounts to 5 % points.

In most Member States of the EU new measures targeting pensioners – the largest group of inactive people – and students have been introduced or are going to be introduced in the future.

Retirement age will rise from 62 to 65 in Hungary. This change is to be introduced gradually: every year the age of retirement will rise by half a year. In the light of this, the expected fall in the number of inactive people will take place in a longer period. However, by the time retirement age reaches 65, life expectancy will have been higher, which will result in a lower rate of decrease in the number of retired inactive people. Male life expectancy was 70.8 years, female life expectancy was 78.7 years in Slovakia in 2008. In Hungary, male expectancy was 70 years, female expectancy was 78 years in the same year (WHO Database).

At present, there are more people entering the labour market than retiring in Slovakia. In three years time this situation will reverse. Nowadays employers tend to avoid hiring people around 50. The issue has some medical and health-care aspects as well. Although life expectancy at birth is rising, it is also true that 60 – 70 year-old people cannot perform as well as their younger colleagues. It is especially true for physical work.

Table 3 The rate of employment in terms of the highest educational qualification in the 25 – 64 age group comparing the average of the EU-27, the republic of Slovakia and Hungary

Country (1)	Level 0 – 2 = Primary			Level 3 – 4 = Secondary			Level 5 – 6 = Tertiary		
	1997	2004	2008	1997	2004	2008	1997	2004	2008
EU-27	48,2	47,1	48,1	67,1	70,0	70,6	82,2	82,6	83,9
Slovakia (2)	–	13,9	15,9	–	66,2	70,1	–	82,3	83,8
Hungary (3)	28,3	27,3	28,0	65,6	65,7	63,3	81,5	82,2	79,5

Source: edited from the Labour-force Survey of KSH
Zdroj: KSH – prieskum pracovnej sily

Tabuľka 3 Miera nezamestnanosti v Slovenskej republike a Maďarsku podľa najvyššieho dosiahnutého vzdelania vo vekovej skupine 25 – 64-ročných v porovnaní s priemerom EÚ-27
(1) krajina, (2) Slovenská republika, (3) Maďarsko

The government plans to tighten up the system of early retirement, which will also result in a decrease in the number of pensioners. The only exception for that is the opportunity for women to retire early after spending 41 years at work. All these measures are intended to lead to an improvement of the active/inactive rate, which will also contribute to meeting the goals of EU 2020.

The Hungarian government also intends to lower the school leaving age from the present 18 years to 16, which will result in a further decrease in the rate of the inactive. This measure is not in complete accordance with the intention of the EU to improve the qualification of people entering the world of work.

There is a firm intention to determine the number of students in tertiary education by taking into account the demographic factors, namely the continuously decreasing age groups, also to limit the length of time, which can be spent in higher education, and finally to harmonize higher education output with the demands of the labour market.

For this reason, the government is going to decrease the number of first-year students from the present 53,000 per year to 30,000 by 2014. This raises the question whether this measure will endanger the target set by Hungary to raise the number of graduates by 27 – 33 % by the year 2020.

A recent representative survey conducted in Hungary showed that those with a higher education degree could find employment within 3 – 4 months after graduation. Therefore, they do not increase the number of the unemployed which they contribute to with 10% only at present.

Table 3 shows that the employment rate of graduates is high both in Hungary and in the Slovak Republic.

It can be generally stated that the higher the level of education, the higher the rate of employment. It is also clear that the most endangered group is the one with primary education. In Slovakia, it is even more difficult to find a job with primary educational attainment. In fact, their rate is one third of the average of the EU. Hungary has larger shortfall in the employment of people with secondary or tertiary educational attainment. Slovakia nears the average of the EU in terms of the employment of people with tertiary educational attainment.

In Hungary, the above-mentioned changes in education and the efforts to stop the depreciation of degrees are important targets for the government. This would change the present rates as well.

It must be mentioned that Austria and Germany have made their labour markets free for the Slovakian and Hungarian job seekers. In a poll involving 6 000 people, 5 % of the questioned in Hungary and 4 % in Slovakia said they would consider finding a job in these two countries, which is contrary to the expectations. Therefore, it does not have a significant impact on the employment rate of active people.

Migration is a major problem in the case of doctors. In the past few years, the number of doctors who have found a job abroad (in the UK, Germany, Italy and Austria) is the same as the number of those having graduated from medical universities in Hungary. Because of the recently accepted regulations of the EU limiting the working hours and the number of attended patients, there is a significant shortage of doctors as well as other skilled health professionals. The EU estimates this shortage of public health officers to reach 2 million by 2020. According to WHO estimations, the shortage of doctors has already reached 2.5 million globally and that of other health workers has amounted to 2 million. This is expected to have a further 'sucking effect' in both countries which must be dealt with. One possible solution is to recruit students from the Member States of the EU and other parts of the world and provide paid education for those who want to become doctors and health workers.

Conclusion

In respect of the total, female and old-age employment, the Lisbon goals of the European Union have been reached neither in the Slovak Republic nor in Hungary. In spite of the recent development in economy, this disadvantageous situation necessitates a number of important measures in both countries. In order to meet the employment targets of 2020, we need an economic policy which focuses on creating jobs, a tax policy decreasing the burdens of live work and an education and training policy which is harmonized with the situation in the labour market. In the short run, it is possible to decrease the rate of inactive population by raising retirement age determined also by the increase in life expectancy at birth. In education, it is necessary to continue training specialists who are demanded in the labour market. Such are trainings aimed at eliminating the labour shortage in health care in Europe and in the whole world.

The figures in both countries show that people with higher educational attainment are in a more favourable position in the labour market. That is why we must be careful with reducing the number of students in higher education, if it is necessary at all.

Súhrn

Berúc do úvahy makroekonomické ukazovatele možno konštatovať, že globálna ekonomická kríza mala významný dopad na členské štáty Európskej únie vrátane Slovenskej republiky a Maďarska. Nepriaznivo ovplyvnila vývoj HDP a nezamestnanosti. Najnovšie štatistiky však naznačujú, že tento rok možno očakávať zlepšenie celej situácie. Avšak Lisabonské ciele týkajúce sa nezamestnanosti neboli dosiahnuté vo väčšine krajín vrátane Slovenska a Maďarska v stanovenom termíne. Aby sa