

# Competitiveness analysis of agricultural enterprises in Slovakia

## *Analýza konkurencieschopnosti poľnohospodárskych podnikov na Slovensku*

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**Abstract:** Competitiveness can be analysed at various levels of the economy: at the product level, the enterprise level, the sector level, or the level of the entire economy. Several measures exist for each of these levels. This paper focuses on those used for the analysis of enterprises, particularly agricultural enterprises farming in Slovakia. Our research has been done on a selected sample of agricultural enterprises farming in Slovakia. Using "Recourse Cost Ratio" (RCR coefficient) has allowed investigating the differences in competitiveness between co-operatives and business companies, between the enterprises farming in better and worse soil and natural conditions as well as among various size groups of 111 agricultural enterprises. The research has proved that the optimal values of RCR coefficient revealed, that the common feature of all the competitive enterprises was their type of production oriented on solely plant production, possibly plant and meat production (there was no case of competitive enterprise with solely meat production). As for the different legal forms, we found out that more competitive were business companies than co-operatives. Considering different soil and natural conditions, there were better results observed in the group of enterprises farming in better soil and natural conditions.

**Key words:** competitiveness, agricultural enterprise, Recourse Cost Ratio

**Abstrakt:** Konkurencieschopnosť možno hodnotiť na rôznych stupňoch ekonomiky: na úrovni produktu, podniku, odvetvia ako aj celého hospodárstva. V našom príspevku sa zameriame na analýzu konkurencieschopnosti podnikov. K výskumu sme využili vybranú vzorku poľnohospodárskych podnikov hospodáriacich na Slovensku. Pomocou RCR koeficientu sme hodnotili konkurencieschopnosť podnikov z hľadiska jednotlivých právnych foriem, odlišných prírodných podmienok ako aj rôznych veľkostných skupín 111 poľnohospodárskych podnikov. Výsledky výskumu potvrdili, že spoločným znakom všetkých konkurencieschopných podnikov bol typ výroby zameraný na rastlinnú výrobu, prípadne rastlinnú a živočíšnu výrobu (ani v jednom prípade nedosiahol optimálne hodnoty RCR koeficientu podnik zameraný výlučne na živočíšnu výrobu), väčšinou išlo o obchodné spoločnosti a to situované v lepších prírodných podmienkach.

**Kľúčové slová:** konkurencieschopnosť, poľnohospodársky podnik, RCR koeficient

Numerous authors have been analysing the determination of competitiveness. In spite of this fact, neither in the professional literature nor in practice a generally accepted definition of competitiveness can be found. This fact can be attributed, among other, to the discrepancies between the levels of the single analytical methods, since competitiveness can be examined both on the levels of regions, branches of industry and enterprises, as well as on product level. The interpretation on the level of enterprises seems to be simpler. Módos (2001) considers an enterprise to be competitive if it is able to pursue its activity profitably in the long run, as well as keep and/or widen, respectively, its domestic or foreign market share.

According to Freebairn (1986), competitiveness is an indicator of the ability to supply goods and services in the location and form at the time they are sought by buyers, at prices that are as good as or better than those of other potential suppliers, while earning at least the opportunity cost of returns on resources employed. There is in fact no single definition of competitiveness in the

economic literature. The difficulties in defining competitiveness are due to the various dimensions of this concept. The above definition, however, seems to be widely accepted in the economic literature. Its main advantage lies in that it does not consider only the output markets, but also considers the factors of production.

Competitiveness (Ramos et al. 1994) is a complex variable from the conceptual point of view and hard to approach empirically; therefore, easy solutions should not be expected. Nor is there a definition precise enough to include all aspects affecting or interrelating with competitiveness, since most definitions are only partial in nature.

The competitiveness of an enterprise (Cuervo 1993) can be measured by its capacity to produce goods and services for the open market that is increasingly demanding, and at the same time, to create value, i.e., obtaining profit from capital invested equal to or higher than its opportunity cost. In an open market (Gallardo et al. 2003), a farm is considered to be competitive if it is capable of

offering its products at the world market price while remunerating the factors of production, at least at the market remunerating level. The productivity of the factors is therefore of vital importance. Therefore, the only way of approaching the competitiveness of a farm is to analyse whether it is capable of remunerating all its factors of production, in different situations of public support.

## MATERIAL AND METHODS

To analyse the competitiveness of enterprises, we used the “Resource Cost Ratio”(RCR). This coefficient is simply calculated as the costs of non- tradable domestic inputs (physical capital, land, and labour, in the main) divided by tradable product revenues minus tradable input costs. If the RCR lies between zero and 1.0, there is evidence of “competitive advantage” because the value of domestic resources used in production is less than the value of the exchange they earn. If the RCR is negative, the costs of tradable exceed commodity returns and there is a disadvantage in production. If the RCR is greater than 1.0, the value of foreign exchange earned is not sufficient to cover the costs of non-tradable domestic inputs.

Using the resource cost ratio, we evaluate the competitiveness of 111 agricultural enterprises divided according to their different legal forms, soil and natural conditions and also according to their various size. In the group of the analysed enterprises, there were included the following legal forms: co-operatives, limited liability companies and joint-stock companies while the major part of these enterprises were co-operatives (56%). Because of the very low number of joint-stock companies (only 8%), we decided to join this group with the group of the limited liability companies, thus we considered

only two legal forms: co-operatives and business companies. The group of enterprises we divided also according to different soil and natural conditions they are farming in. The enterprises farming in worse soil and natural conditions were characterised by the price group of soil from 1 to 15. All the other enterprises farming on the soil from the price groups 16 to 20 created the group we called better soil and natural conditions. Finally, we assorted all the enterprises also according to their size. Considering the fact that we analysed some enterprises oriented solely on plant production as well as some other enterprises oriented solely on animal husbandry, it would not be correct to identify different size groups of enterprises by their acreage of agricultural land. That is why we decided to use another criteria to sort the enterprises. According to the Act 231/1999 Coll. which identifies the large, small and medium enterprises, the criterion for small enterprise is the number of employees 0–49, for small enterprise 50–249 and as a large enterprise, there is considered every enterprise with more than 250 employees.

## RESULTS

To evaluate the competitiveness of an enterprise, we used the RCR coefficient. The average values of this coefficient show insufficient competitiveness of the analysed enterprises in the years 1999 to 2000. Just in the year 2001 the enterprises were able to earn by their production activities enough resources to cover expenses on production factors. In the other years, they could have covered these expenses only with the help of subventions. The strongest influence of subventions on the competitiveness of enterprises was revealed in the year 2000 mainly in the group of enterprises farming in worse soil and natural conditions. This impact was so strong, that the enterprises farming in worse conditions were in better competitive position than the group of enterprises from better soil and natural conditions during the two years 2000 and 2001. On the other side, there were observed very high values of RCR coefficient in the group of small enterprises in the year 2000. It was also the only one year when the small enterprises lost their comparative advantage. A deeper view onto the enterprises with optimal values of RCR coefficient showed, that the common feature of all competitive enterprises was the type of production directed on plant production, or plant and meat production. There was no case of competitive enterprise with solely meat production. Mainly the more competitive were business companies situated in better soil and natural conditions (Table 2).

Whereas the previous table informed us about the influence of subsidies on the competitiveness enterprises expressed by the RCR coefficient, in the next part we try to quantify the influence of the change of subsidies as well as the other factors on the change of the RCR coefficient in analysed period. As we can see in the Chart 1, the highest influence on the change of the RCR coefficient in the year 2000 in comparison to the year 1999 was

Table 1. General characteristics of analysed group of enterprises

| Groups of enterprises              | Number | Percentage |
|------------------------------------|--------|------------|
| Legal form                         |        |            |
| Co-operative                       | 62     | 56         |
| Limited liability company          | 40     | 36         |
| Joint-stock company                | 9      | 8          |
| Total number                       | 111    | 100        |
| Soil and natural conditions        |        |            |
| Better soil and natural conditions | 56     | 50         |
| Worse soil and natural conditions  | 55     | 50         |
| Total number                       | 111    | 100        |
| Size groups                        |        |            |
| Small enterprises                  | 35     | 32         |
| Medium enterprises                 | 66     | 59         |
| Large enterprises                  | 13     | 9          |
| Total number                       | 111    | 100        |

Source: own calculations

Table 2. The values of the RCR coefficient

| RCR coefficient (average) | 1999              |                | 2000              |                | 2001              |                |
|---------------------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|
|                           | without subsidies | with subsidies | without subsidies | with subsidies | without subsidies | with subsidies |
| All enterprises           | 1.00              | 0.84           | 1.86              | 0.80           | 0.93              | 0.78           |
| Cooperatives              | 1.01              | 0.84           | 2.00              | 0.70           | 0.91              | 0.75           |
| Business companies        | 1.00              | 0.84           | 1.61              | 0.98           | 0.98              | 0.82           |
| Worse natural conditions  | 1.24              | 0.93           | 1.99              | 0.30           | 0.95              | 0.76           |
| Better natural conditions | 0.93              | 0.81           | 1.82              | 0.95           | 0.93              | 0.79           |
| Small enterprises         | 0.96              | 0.78           | 2.25              | 0.61           | 0.89              | 0.74           |
| Medium enterprises        | 1.07              | 0.92           | 1.53              | 0.99           | 0.99              | 0.84           |
| Large enterprises         | 0.88              | 0.78           | 1.03              | 0.81           | 0.87              | 0.73           |

Source: own calculations

made by the change of costs of production, particularly costs of material and energy. The increase of this indicator caused the increase of the RCR coefficient by 32.735%. Also the impact of the growth of production and sales of goods was significant and helped to decrease of the RCR coefficient (by 21.828% thanks to the change of production and 20.292% thanks to the sales of goods change). There were also other factors contributing to the RCR coefficient decrease, especially the changes of sales of products and services as well as the change of inventories. The positive influence was also due to the increasing of subsidies, which caused the decrease of the RCR coefficient in the year 2000 in comparison to the year 1999 by 11.007%.

A different situation appeared in the year 2001, when the influence of the change of production costs was not

as marked as it was in the previous year (22.72% influence). The highest influence on the decrease of the RCR coefficient was found by the production growth (46.845%) especially the growth of the sales of products and services. Their increase implicated the decrease of the RCR coefficient and so made the competitiveness of enterprises stronger by 43.268%. In the year 2001 compared to the year 2000, there was a slight decrease in subsidies (by 27.772%) that negatively affected the change of the RCR coefficient by 5.545%.

Since in the first part of our competitiveness analysis we identified the significant influence of received subsidies on the RCR coefficient especially in the group of enterprises farming under worse soil and natural conditions, in the other part we were interested to find out whether the change in received subsidies had a sig-

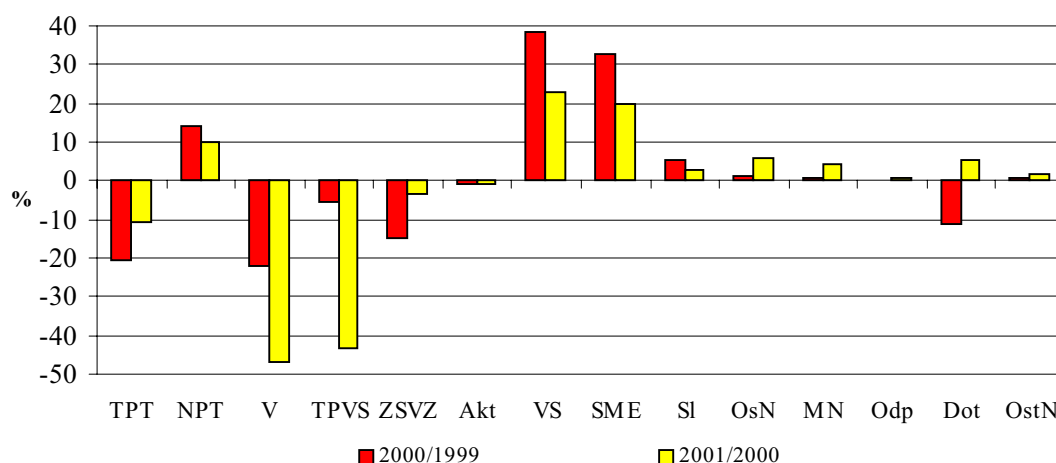


Figure 1. Influence of the change of selected factors on the change of the RCR coefficient (in %)

Source: own calculations

Abbreviations: TPT – sales of goods, NPT – costs of goods sold, V – production, TPVS – sales of products and services, ZSVZ – change of inventories, Akt – activation, VS – costs of production, SME – costs of material and energy, SI – services, OsN – personnel costs, MN – costs of wages, Odp – depreciation, Dot – subsidies, OstN – all other costs of which the influence was too low to analyse them separately

nificant influence on the change of the RCR coefficient. These and also the other impacts of the changes of analytical factors on the change of the RCR coefficient are showed in the Figures 2 and 3 separately for the group of enterprises farming in worse soil and natural conditions as well as in the group of enterprises farming in better soil and natural conditions.

In the group of enterprises farming in worse soil and natural conditions, there were both in the year 2000 and also in the year 2001 very important the impacts of chang-

es of inventories. Their growth led firstly to decreasing of the RCR coefficient and had 150.153% influences but on the contrary in the next year there was negative influence 119.095%. In the year 2000 compared to the year 1999, the costs of production increased by 40.929% mainly because of the rise in the costs of services by 254,946 %. This increase negatively influenced the decrease of the RCR coefficient by 82.733%. The subsidies received by enterprises increased in the year 2000 in comparison to the year 1999 only by 2.99% but their influ-

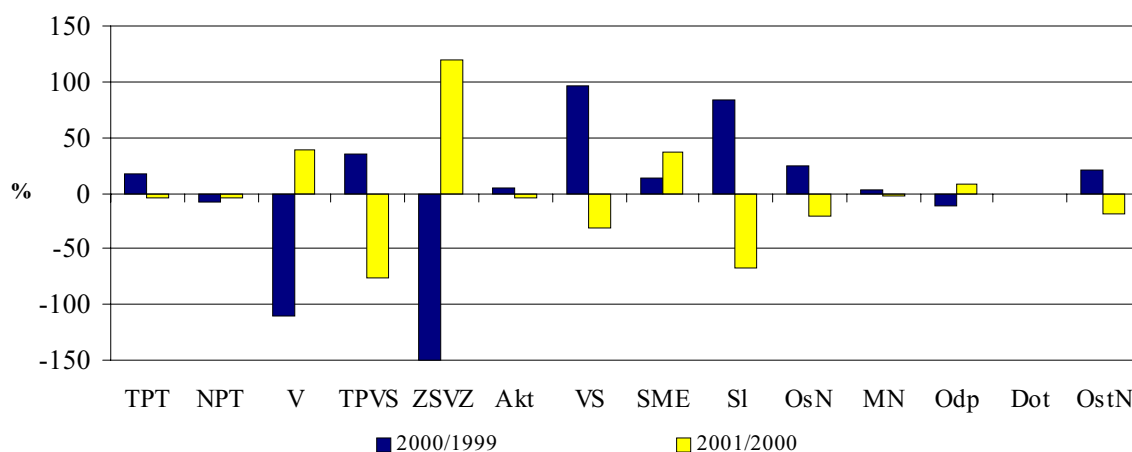


Figure 2. Influence of the changes of analytical indicators on the change of the RCR coefficient in the group of enterprises farming in worse soil and natural conditions (in %)

Source: own calculations

Abbreviations: TPT – sales of goods, NPT – costs of goods sold, V – production, TPVS – sales of products and services, ZSVZ – change of inventories, Akt – activation, VS – costs of production, SME – costs of material and energy, SI – services, OsN – personnel costs, MN – costs of wages, Odp – depreciation, Dot – subsidies, OstN – all other costs of which the influence was too low to analyse them separately

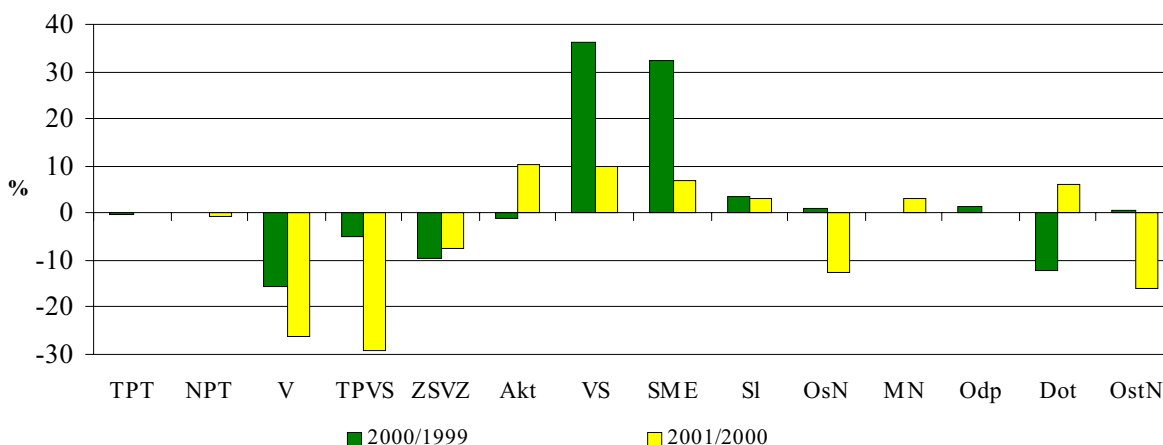


Figure 3. Influence of the changes of analytical indicators on the change of the RCR coefficient in the group of enterprises farming in better soil and natural conditions (in %)

Source: own calculations

Abbreviations: TPT – sales of goods, NPT – costs of goods sold, V – production, TPVS – sales of products and services, ZSVZ – change of inventories, Akt – activation, VS – costs of production, SME – costs of material and energy, SI – services, OsN – personnel costs, MN – costs of wages, Odp – depreciation, Dot – subsidies, OstN – all other costs of which the influence was too low to analyse them separately

ence was insignificant (0.404%). In the year 2001, the subsidies rose by 11.49% compared to the year 2000, but this influence did not play an important role in the change of the RCR coefficient (1.386%).

While the development of individual indicators influencing the RCR coefficient in the group of enterprises farming in worse soil and natural conditions considerably varied during the analysed years, in the group of enterprises from better soil and natural conditions the changes of analytical indicators during the observed period were quite similar. The year 2000 was also in this group of enterprises marked by the growth of production costs, which had 36.048% negative influence on the change of the RCR coefficient. This was caused mainly by the weighty influence of the costs of material and energy growth (32.575% influence). This decrease of the RCR coefficient was softened by positive influence of production growth (15.431% influence). The rise in subsidies in the year 2000 compared to the previous year improved the competitiveness of enterprises by 12.058%. The year 2001 was characterised by more optimistic development. The production increased especially the sales of products and services, that influenced positively the rise in the RCR coefficient (29.136% influence). There was also the rise in the costs of production but their influence was not as much negative (9.822% influence). In the year 2001, the subsidies decreased and this change weakened the competitiveness of enterprises farming in better soil and natural conditions by 6.064%.

## CONCLUSION

In this paper, there are summarised the used panel data of 111 Slovak agricultural enterprises. The main attention of this analysis was given to evaluation of competitiveness. A deeper look onto the optimal values of the RCR coefficient revealed, that the common feature of all the competitive enterprises was their type of production oriented on solely plant production, possibly plant and meat production (there was no case of a competitive enterprise with solely meat production). As for the differ-

ent legal forms, we found out that more competitive were business companies than co-operatives. Considering different soil and natural conditions, better results were observed in the group of enterprises farming in better soil in natural conditions.

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