Comparison of the value added development in the agricultural and food sectors and the efficiency of its creation

Komparácia vývoja pridanej hodnoty v poľnohospodárstve a potravinárstve a náročnosti jej tvorby

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Abstract: The article summarises the results of the analysis of value added (VA) in agriculture and food industry and the share of intermediate consumption in the value added. The results show that during 1993–2000, the Slovak agricultural sector (farming, hunting, forestry and fisheries), where farming is clearly dominant, together with the construction sector, reported the most significant decline in their relative contribution to the overall value added created in the national economy, whereas the contribution of market services increased. The moderate increase (1998, 1999) in the contribution of the food sector to the total value added in the national economy, as well as to industrial production (2000), has been brought to a halt and, eventually, began deflating. The tendency of declining participation of the agricultural sector in value added was also typical for the EU member states and for the CEFTA countries. Agriculture remains dominant in terms of its contribution to value added in the agri-food sector (54.5% in the year 2000). In the category of land-farming holdings, the share of intermediate consumption in value added increased (both in co-operatives and business companies, whether loss-making or profitable). The farmers in mountainous areas spent per 1 SKK of value added 0.65–1.42 SKK more of intermediate consumption than farmers in the maize production area and 0.54–1.32 SKK more than farmers in the sugar-beet production area. In the production of foodstuffs, beverages and tobacco processing, which is more demanding in terms of consumed inputs than agricultural production (the same is true for developed economies), the ratio between intermediate consumption and value added differed depending on the branch concerned. Agriculture was one of the most demanding sectors in terms of fixed asset investments necessary to generate value added. The initial decline was brought to stop in 1998 and the relative share of fixed assets (FA) in value added (VA) started to increase, particularly in the year 2000, mainly under the influence of increased support to farmers' capital investments. Although the creation of value added in agricultural co-operatives initially demanded more investments in fixed assets than it was the case in farming business companies, the difference narrowed over the time. The group of loss-making entities reported the FA/VA ratios twice as high as the group of profitable entities, which sends a signal to the former to revise the structure of their production and to improve management practices. Similarly as in the case of intermediate consumption, also the FA/VA ratio increased as the production conditions deteriorated. The ratios in the production of foodstuffs and beverages (without tobacco processing) were significantly lower than those in the farming sector. In 1999, the lowest FA/VA ratio occurred in the production of durable bakery products and the highest in the production of fruit and vegetable juices.

Key words: national economy, production of foodstuffs, agriculture, value added, intermediate consumption, fixed assets

Abstrakt: V príspevku sa prezentujú výsledky skúmania vývoja pridanej hodnoty (PH) v poľnohospodárstve a potravinárstve a náročnosti jej tvorby, z ktorých vyplynulo, že slovenské pôdohospodárstvo (poľnohospodárstvo, poľovníctvo, lesné hospodárstvo, chov rýb a rybolov) s dominantnou váhou poľnohospodárstva patrilo v rokoch 1993–2000 spolu so stavebníctvom k výrobným odvetviam s najvýraznejším poklesom ich podielu na národohospodárskej pridanej hodnote v prospech trhových služieb. Mierne oživenie účasti výroby potravín na celkovej pridanej hodnote národného hospodárstva v rokoch 1998 a 1999, ako aj na priemyselnej výrobe sa v roku 2000 zastavilo s opätovným medziročným znížením tohto podielu. Tendencie znižovania účasti poľnohospodárstva na PH boli a sú charakteristické aj pre krajiny EÚ a zoskupenia CEFTA. Dominantná váha poľnohospodárstva na pridanej hodnote v agropotravinárstve SR pretrváva (54,5 % v roku 2000). V podnikoch hospodáriacich na pôde sa náročnosť pridanej hodnoty na medzispotrebu vyjadrená výrobnou spotrebou zvyšovala (v poľnohospodárskych družstvách aj obchodných spoločnostiach, v skupine ziskových aj stratových subjektov). Za skúmané obdobie sa v horskej oblasti vynaložilo na 1 Sk pridanej hodnoty o 0,65–1,42 Sk viac medzispotreby ako v kukuričnej oblasti a o 0,54–1,32 Sk viac ako v repárskej oblasti. Vo výrobe potravín, nápojov a spracovaní tabaku, ktorá je na medzispotrebu náročnejšia ako poľnohospodárska výroba (to platí aj pre hospodársky vyspelé krajiny), sa náročnosť PH na medzispotrebu vyvíjala v jednotlivých skupinách výrob rozdielne. Pôdohospodárstvo patrilo medzi najnáročnejšie odvetvia vo viazanosti investičného majetku k vytvorenej PH. V poľnohospodárskej prvovýrobe sa v roku 1998 pokles

zaťaženosti tvorby pridanej hodnoty investičným majetkom zabrzdil s postupným medziročným zvyšovaním najmä v roku 2000, čo ovplyvnil rýchlejší pokles pridanej hodnoty ako investičného majetku aj pod vplyvom zvýšenia podpory kapitálových investícií. Tvorba PH v poľnohospodárskych družstvách bola náročnejšia na investičný majetok ako v obchodných spoločnostiach, ale rozdiely tejto náročnosti sa postupne zmenšovali. Skupina stratových subjektov dosahovala približne dvojnásobne vyššiu viazanosť investičného majetku k PH ako ziskové subjekty, čo je signálom pre stratové subjekty na zhodnotenie štruktúry ich výroby a uplatňovaného systému riadenia. Náročnosť tvorby pridanej hodnoty v poľnohospodárskej prvovýrobe na investičný majetok sa obdobne ako na medzispotrebu smerom k horším výrobným podmienkam zvyšovala. Vo výrobe potravín a nápojov (bez spracovania tabaku) bola táto náročnosť podstatne nižšia ako v poľnohospodárskej výrobe. Najnižšiu náročnosť v roku 1999 mala výroba trvanlivých pekárenských výrob a najvyššiu výroba ovocnej a zeleninovej šťavy.

Kľúčové slová: národné hospodárstvo, výroba potravín, poľnohospodárstvo, pridaná hodnota, medzispotreba, investičný majetok

INTRODUCTION

The evaluation of the development of value added and the impact of intermediate consumption and investments on the value added by Slovak agri-food sector, as well as its comparison with other economic sectors and developed economies, deepens the knowledge acquired from the analysis of value added and offers solutions aimed at ensuring a more efficient restructuring and devising support schemes that may increase value added and thus make the agri-food sector competitive internationally.

Professor F. Hutník is one of those authors whose work (1997, 1998) focuses on various aspects of value added. According to Hutník, neither agriculture nor food industry have yet acquired the ability to generate sufficient funds to finance their reproduction needs based on the real increment of value added and/or gross domestic product (GDP). Comparison with the development of value added in industrialised countries underscores the importance of intensifying investments in the Slovak agricultural sector. In order to make the sector competitive, any investment policy must induce the necessary food industry restructuring and make its technologies and distributions channels much more efficient. Hutník believes that the economic success of the Slovak agri-food sector can only be achieved through the long-term GDP (VA) growth in real terms, provided, however, that the GDP growth in agriculture and food industry outpaces the average growth rate in the national economy. According to Hutník, Slovak agriculture stands a good chance of becoming a significant economic sector. There are several reasons why this has not been the case so far (e.g. the method of ownership transformation, price regulation, lending conditions of commercial banks, methods and forms of granting subsidies, activities of various state support funds). Also M. Grznár described the importance of value added (1998,1999). Taking five industrialised European states as the example (Belgium, Germany, France, Italy, the Netherlands) Grznár evidenced that the labour productivity in agriculture grew twice as quickly as the national average, whereas the service sector has the fastest growing employment despite the lowest productivity of labour. The purpose of structural changes is to harmonise gross value added (GDP) with the relative weight of the sectors in terms of employment. The high share of inputs in the final production indicates their insufficient utilisation and is one of the reasons behind the low productivity of labour per worker.

Mezera and the collective of authors (1998) conclude that the processing of foodstuffs, expressed as the volume of value added, reaches the volumes generated in the transportation sector and chemical industry, which, in a developed economy, is a sign of economic development. Germany, UK, France, Spain and Italy are in the lead of those EU member states whose food industry largely contributes to the overall gross domestic product. The first three countries are typical for large-scale food processing corporations that employ modern production processes. At the same time, products with higher value added are also in high demand in these countries.

The purpose of this article is to present the conclusions of the paper "Analysis of the Value Added in Agriculture and Food Industry" prepared within the framework of the scientific project "Formation of the Agricultural and Food Market in Slovakia and Globalisation". This work has broadened the previous knowledge and indicates future possibilities for the preparation of support programmes and other measures aimed at making production more efficient and competitive, particularly when Slovakia becomes a part of the EU unified market.

MATERIAL AND METHODS

The information and data on gross domestic product, intermediate consumption, fixed assets, investments, and the national economy of Slovakia, particularly in the agricultural and food sectors, were taken from both domestic and international statistics, publications and reports in the time series from 1993 onward. The analysis and synthesis of the information on the development of value added in the Slovak agriculture and food sector and its comparison with the EU and CEFTA involved the processing of the relevant data, calculations of the share of intermediate consumption and fixed assets in value added.

RESULTS AND DISCUSSION

Development of value added in agriculture and food sector in relation to the national economy of Slovakia

The participation of agriculture and food sector in the value added of the entire economy has been on a moderate decline during the period under review (since 1993), similarly as the contribution of other sectors producing market products, whereas the contribution to value added of service-oriented sectors, particularly the banking and insurance sectors, continued to increase (Table 1). The main reasons behind the declining participation of Slovak agriculture in value added comprised the growing disparity between the input and output prices, accompanied by a decline in agricultural output.

The trend of declining contribution of agriculture to the overall value added has also been typical for the EU member states (with the exception of Portugal) and the CEFTA countries. In 1999, the rate of contribution in the EU spanned from 0.7% (Sweden and Luxembourg) to 7.1% (Greece), with the average at 1.8%. From among the CEFTA countries, the smallest rate was recorded in the Czech Republic (1.3%) and the highest in Romania (13.9%). While in the recent past (1999), almost all the EU member states reported annual increases in the relative contribution of agriculture to gross domestic product, the decline within the CEFTA either continued or stagnated.

The moderate increase (1998 and 1999) in the level of the food processing and industrial sectors' contribution to the overall value added slackened in the year 2000, when the food processors' and industrial sector's contribution to value added fell from 3.75% to 3.35% and from 15.4% to 13.8%, respectively. This was mainly due to the increase in intermediate consumption (by 13.2%), driven primarily by growing input prices, including the prices of basic raw materials, compared with the growing output of foodstuffs (8.5%).

The considerable volatility in the level of value added generated by farmers and food processors is reflected in the contribution of these two components to the value added generated by the agri-food sector, with farmers being dominant (Figure 1).

This development indicates that the ongoing process of restructuring in the agri-food sector, which should make food processors dominant in terms of their contribution to the value added, and thereby competitive, is fairly complex and slow. Apart from the business environment, this is also due to the low purchasing power of the population and the poor quality of management. The shift in the weight of value added from farmers to food processors occurred also in the developed countries. According to Hutník, this turn in favour of food processors occurred in Germany between 1960-1970 and in the US between 1980-1990. According to our calculations, the contribution of farmers to the value added created in the German agri-food sector has been fairly constant in recent years and oscillated around 37–38%.

Share of intermediate consumption in value added

Despite objective differences as to the degree in which intermediate consumption participates in value added

Table 1. Contribution of individual economic sectors to aggregate value added in the national economy of Slovakia (%)

	1993	1994	1995	1996	1997	1998	1999	2000
Value added, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
– agriculture, fisheries, hunting	7.29	7.53	6.22	5.38	5.18	5.70	4.53	4.53
– agriculture	–	–	5.64	4.63	4.48	4.96	3.98	4.01
– industrial production	25.11	26.30	28.54	27.20	25.31	24.34	24.31	24.30
– production of foodstuffs	–	–	3.80	3.76	3.29	3.15	3.75	3.35
– chemical production (oil. rubber)	–	–	5.59	5.32	4.56		3.97	4.07
– generation and distribution of electricity. gas and water	6.24	5.23	4.70	4.87	3.84	4.16	4.10	4.13
– construction sector	7.40	5.16	8.24	8.02	7.80	7.03	5.79	5.32
– market services	45.56	49.09	46.32	42.63	45.11	42.76	46.87	48.82
– trade, hotels and restaurants	20.44	23.61	15.15	14.16	14.01	14.84	15.58	16.88
– transport, storage, postal services and telecommunications	12.39	9.82	10.82	11.23	10.76	10.57	11.12	11.33
– banking and insurance plus other public market services	12.74	15.66	20.35	17.24	20.34	17.35	20.17	20.61
– non-market services	14.88	13.65	13.70	13.73	15.39	13.04	13.89	13.34

Source: Statistical Yearbook of the Slovak Republic 1997–2000
Macroeconomic indicators of quarterly national accounts and value added for Q1-4, Slovak Statistical Office, 2000 – internal calculations based on figures (at current prices)

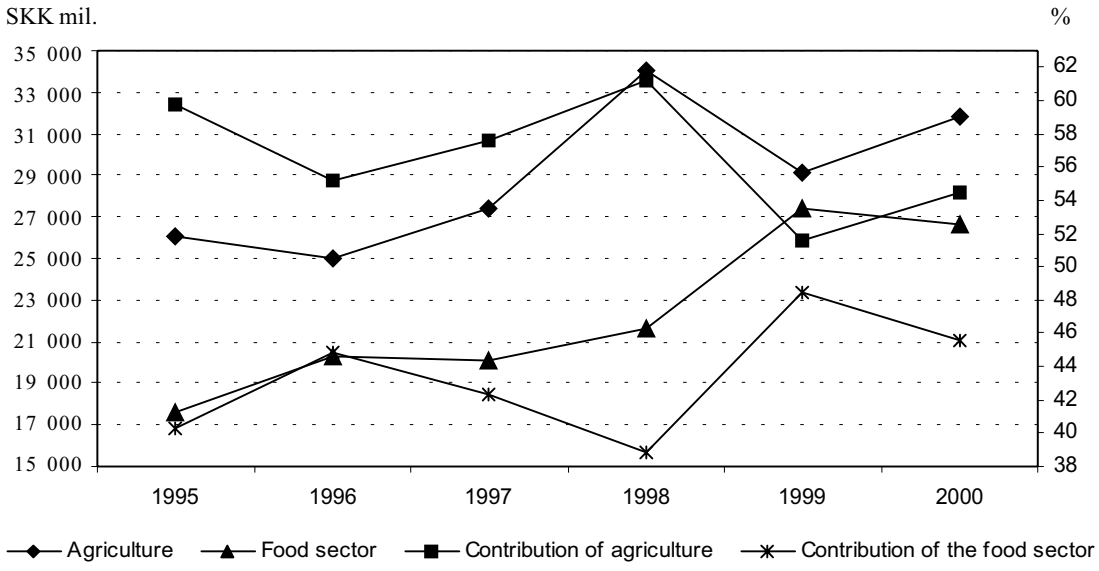

Figure 1. Value added in Slovak agriculture and its contribution to total value added in the economy

across various sectors of the national economy, the relationship of intermediate consumption and value added is a significant indicator that can be used to assess the development and to identify solutions aimed at averting the negative trends. Slovak agri-food sector, dominated by primary agricultural production, belongs to the sectors with the average participation of intermediate consumption in value added. To create 1 SKK worth of value added, the agri-food sector (and also other economic sectors) spent less on intermediate consumption than in 1993. In the production of foodstuffs, beverages and tobacco processing, the lowest share of intermediate consumption in value added between 1993 and 2000 was reported in 1999, a year otherwise favourable to most economic sectors (Table 2).

As it was difficult to obtain comparable information prepared by the Slovak Statistical Office for agriculture in the 1993-2000 period, we assessed the share of intermediate consumption in value added based on the information on primary agricultural production obtained from the sectoral survey conducted by the Ministry of Agriculture. Our calculations showed that in the primary agricultural production, the share of intermediate consumption in value added continued to increase. This was main-

Table 2. Intermediate consumption to value added in individual sectors of the national economy

Economic activity	Intermediate consumption/Value added							
	1993	1994	1995	1996	1997	1998	1999	2000
National economy	2.10	1.87	1.68	1.76	1.61	1.65	1.56	1.72
Agriculture, hunting, fisheries	1.64	1.26	1.34	1.96	1.53	1.52	1.37	1.30
Industrial production	3.56	2.71	2.79	2.65	2.68	2.64	2.54	2.97
– production of foodstuffs	4.67	4.60	4.26	3.03	2.36	3.38	2.40	2.79
Generation and distribution of electricity, gas and water	2.76	3.16	2.93	3.14	4.02	2.95	2.87	4.04
Construction sector	1.78	2.18	2.19	1.96	2.52	1.89	1.74	1.82
Trade, hotels and restaurants	1.97	1.84	0.97	1.45	0.87	1.87	1.89	1.63
Transport, storage, postal services and telecom	1.33	0.98	0.96	1.16	1.34	1.20	1.08	1.18
Banking, instance and other public market services	1.09	0.92	0.86	0.74	1.04	0.85	0.67	0.66
Non-market services	0.82	0.71	0.70	0.66	0.78	0.54	0.53	0.56

Source: Statistical Yearbook of the Slovak Republic, 1996 (years 1993–1995)
Macroeconomic indicators of quarterly national accounts and value added for Q1-4, 2000 – internal calculations

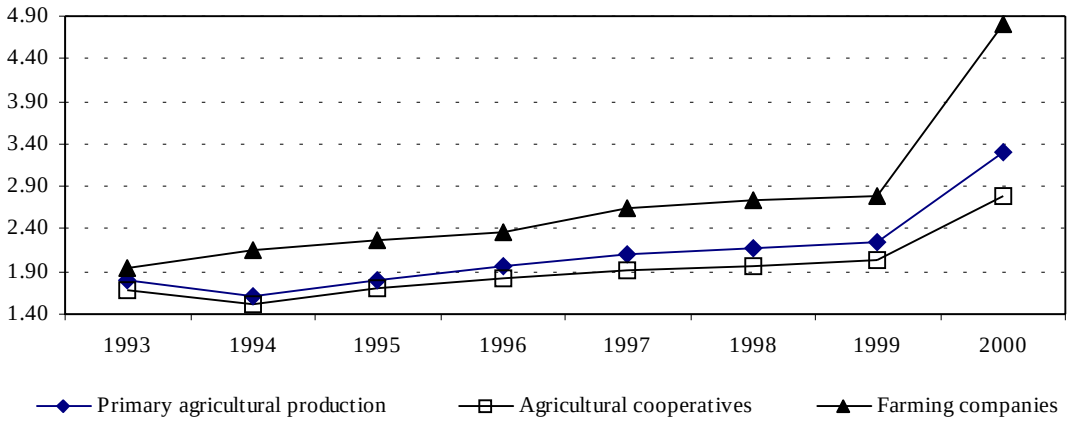

Figure 2. Intermediate consumption (inputs consumed in production) to 1 SKK of value added

ly due to the growing disparity between the input and output prices, rather than by the intensification of agricultural production and its positive impact on per hectare yields and animal efficiency. This is obvious if we look at 1994, which was the only year over the past decade when the gap between the input and output prices narrowed, which contracted the share of intermediate consumption to value added. The higher share of intermediate consumption in value added in the category of business companies (i.e. holdings other than co-operatives and individual farmers) indicates their better position as far as the financing of their reproduction is concerned compared to agricultural co-operatives (Figure 2). In this connection, the optimisation of intermediate consumption in terms of its effects on value added plays an important role. The differences in the share of intermediate consumption in value added between profitable and loss-making agricultural holdings can be given as an example (Table 3).

The share of intermediate consumption in value added in the primary agricultural production is significantly influenced by production practices, by the location of production in terms of climatic and natural conditions, and by the development of non-agricultural business. Between 1993–2000, the share of intermediate consumption in value added increased as the production conditions deteriorated. The only exception were the years 1999 and 2000, when farmers in the mountainous production area spent less intermediate consumption per 1 SKK of value added than farmers in the potato-oats production area and, in the year 2000, also in the potato production area. During the period under review, per 1 SKK of value added, farmers in mountainous production area spent by 0.65–1.42 SKK more than farmers in the maize production area and by 0.54–1.32 SKK more than farmers in the sugar-beet production area; the difference was the biggest in 1997 and the smallest in 1995 (Table 4).

Also other CEFTA countries were characterised by a fairly volatile relationship between intermediate consumption and value added. A more stable development in the EU member states is attributable to a higher degree of proportionality between the prices of inputs and farmers prices in terms of their growth, although even the most developed countries do not report a 100% parity between the input and output prices. Nevertheless, the existing farmers' income support facilitates the intensification of production and substitution of live labour which, at some point, adversely affected the share of intermediate consumption in value added, but the situation eventually stabilised.

Compared with farmers, the producers of foodstuffs, beverages and tobacco products reported lower shares of intermediate production in value added. The differences in the value of intermediate consumption needed to

Table 3. Intermediate consumption (inputs consumed in production) to value added in profitable and loss-making entities

	Intermediate consumption/Value added (in SKK)							
	1993	1994	1995	1996	1997	1998	1999	2000
Profitable entities	1.50	1.42	1.60	1.67	1.82	1.97	1.93	2.82
Loss-making entities	2.05	1.90	2.19	2.71	3.08	2.62	2.96	4.32

Source: Analysis of development in agriculture and food sector during 1990–1998, RIAFE Bratislava, figures for 1993–1997 – internal calculations
Information Newsletters of the MASR, RIAFE (figures for 1998–2000) – internal calculations

Table 4. Intermediate consumption to value added in the primary agricultural production according to individual production zones

Production zone	Intermediate consumption/value added (in SKK)							
	1993	1994	1995	1996	1997	1998	1999	2000
Maize	1.58	1.44	1.61	1.68	1.81	1.91	1.92	2.96
Sugar beet	1.80	1.56	1.72	1.87	1.91	2.08	2.16	2.97
Potato	2.01	1.76	2.16	2.26	2.47	2.91	2.83	4.34
Potato-oat	2.27	2.10	2.25	2.55	2.87	2.48	3.06	4.41
Mountainous	2.37	2.17	2.26	3.01	3.23	2.79	3.02	3.74

Source: Analysis of development in agriculture and food sector during 1990–1998, RIAFE Bratislava (figures for 1993–1997) Information Newsletters of the MASR, RIAFE (figures for 1998–2000) – internal calculations

create value added are, similarly as in the farming sector, given by the specialisation of food production. The contribution of intermediate consumption to 1 Slovak crown worth of value added shows that in 1999, most branches of the food sector reported lower figures, which is a positive sign. In the production of foodstuffs and beverages, this share was reduced by 9% year-on-year in average, the only exceptions being the processing of milk and the processing and canning of fruit and vegetables. A more detailed breakdown of the food sector by individual branches shows that the lowest share of intermediate production in 1 SKK of value added was in the production of starch (1.41), durable bakery products (1.77) and beer (1.93). The worst parameters of this indicator were shown in the production of meat products (12.86) and the production and processing of milk (7.86). The most significant increase of the share of intermediate production in value added was reported by meat processors (2.5 times year-on-year). Also the EU member states and other developed countries of the world reported a higher share of intermediate consumption in value added compared with the farm production.

Fixed assets and investments in relation to value added

The relationship between fixed assets (both tangible and intangible) and the value added during the period under review (1993–1998) shows that agriculture, along with the network industries (generation and distribution of electricity, gas and water), belonged among the sectors with the highest share of fixed assets in value added, while the relevant proportion in the food sector was lower. The ratio between fixed assets and value added declined continually in the farming sector and increased moderately in the food sector (similarly as in other sectors of the national economy).

The decline in the fixed assets/value added ratio (FA/VA) between 1993–1998 was mainly influenced by fixed assets' disposals as a consequence of changing production structures in reaction to the shrinking demand, insufficient reproduction of assets, and the impaired access of farmers to financing. This decline was brought to halt in 1998 and the relative share of FA in VA started to increase, particularly in the year 2000, under the influence of increased support to farmers' capital investments and thanks to the obligatory investment (in irrigation technologies) of a portion of the subsidy paid to farmers as a compensation for losses suffered due to the exceptional drought in the year 2000. This development is obvious from the FA/VA ratios calculated for both agricultural co-operatives and the business company type of agricultural holdings (Table 5).

The lower level of the FA/VA ratios in agricultural companies (AC) in comparison with farming co-operatives (FC), particularly in 1993, was influenced by the process of ACs formation and the structure of their production. Overtime, these ratios began to converge. Similarly as with intermediate consumption, the managers of compa-

Table 5. Tangible and intangible fixed assets (FA) to value added (VA) in the primary agricultural production

	FA : VA (in SKK)							
	1993	1994	1995	1996	1997	1998	1999	2000
Primary production (farming)	6.46	5.03	5.06	4.47	4.02	4.15	4.29	5.40
of which: cooperatives	5.92	4.60	4.65	4.26	4.11	4.32	4.46	5.43
companies	3.90	3.56	4.02	3.75	3.25	3.39	3.54	5.01

Source: Analysis of development in agriculture and food sector during 1990–1998, RIAFE Bratislava (figures for 1993–1997) Information Newsletters of the MASR, RIAFE (figures for 1998–2000) – internal calculations

nies started to optimise the level of FA investments as their production specialised. The level of the FA/VA ratio is largely influenced by production conditions. The less favourable these conditions are, the more fixed assets are needed for farmers to create 1 SKK worth of value added. In the mountainous production area, the FA/VA ratio was two- to three time higher than in the maize production area. This difference was particularly obvious in 1997 (see Table 6).

In 1999, the value of fixed assets employed in the production of foodstuffs and beverages (excluding tobacco processing) in relation to value added decreased to the 1996–1997 level. The generation of 1 SKK worth of value added required an average of 3.48 SKK of fixed assets in the food production, which was by 6% less than in 1998. Within individual branches of the sector, the lowest FA/VA ratio occurred in the production of durable bakery products (1.92) and the highest in the production of fruit and vegetable juices (10.82), despite a significant year-on-year decline (by 37%). Quite significant changes in the FA/VA indicator occurred in the production of meat products, where the ratio quadrupled, while in the sugar production, the ratio fell by 72%.

The fixed assets used in the farming sector, particularly machinery and technologies, are typical for their high degree of obsolescence that continues to deteriorate. This is why new investments are critical and should not be delayed. The need for new investments (gross fixed capital formation) is becoming more and more pressing also in other sectors of the national economy. So far, the investments in agriculture and food processing lagged considerably behind other sectors, notably the trade and market services. Nevertheless, the pace of investment in the production of foodstuffs, beverages and tobacco products was the fastest (mainly in 1996–1998) of all branches under survey; out of 1 SKK worth of value added, 0.38 was invested (0.31 SKK was the average in the sector).

If the Slovak agri-food sector wants to remain competitive also in the united European market, the pace and volume of investments must accelerate. This can be achieved through efficient restructuring and optimised subsidy schemes that are conducive of value added. This recommendation can be substantiated by the development of the FA/VA ratio in the farming sector, which peaked in 1997 and then began to descend despite a

Table 6. Investments in fixed assets in relation to value added in various production zones of Slovakia

Production zone	FA : VA (in SKK)							
	1993	1994	1995	1996	1997	1998	1999	2000
Maize	1.58	1.44	1.61	1.68	1.81	1.91	1.92	2.96
Maize	4.77	3.78	3.82	3.24	2.87	3.07	3.09	4.12
Sugar beet	5.98	4.66	4.77	4.31	3.62	4.00	4.05	4.66
Potato	7.79	6.21	6.27	5.57	5.06	5.38	5.42	7.37
Potato-oats	9.88	8.09	7.82	7.32	7.18	6.48	7.56	8.45
Mountainous	11.14	8.98	7.80	8.78	8.56	7.33	8.21	8.69

Source: Analysis of development in agriculture and food sector during 1990–1998, RIAFE Bratislava (figures for 1993–1997) Information Newsletters of the MASR, RIAFE (figures for years 1998–2000) – internal calculations

Table 7. Level of investments in fixed assets and their share in value added (SKK/ha agricultural land; %)

		1993	1994	1995	1996	1997	1998	1999	2000
Primary agricultural production	1	2 399	2 612	3 136	3 575	4 747	3 899	2 890	3 869
	2	42.35	37.14	45.87	52.08	66.76	57.85	47.42	81.74
Profitable entities	1	3 623	3 932	4 203	4 705	5 851	4 813	3 606	4 767
	2	42.13	37.43	42.93	49.77	64.59	56.76	45.81	80.66
Loss-making entities	1	4 414	4 733	4 418	2 338	3 067	2 808	2 034	2 781
	2	41.30	36.70	51.15	58.06	74.03	61.13	51.22	84.14
Farming cooperatives	1	2 485	2 733	3 219	3 633	3 733	3 496	2 851	3 600
	2	42.62	37.61	45.58	49.79	50.88	50.59	43.69	67.14
Farming companies	1	3 444	4 956	4 759	4 312	7 917	4 884	2 992	4 400
	2	38.77	53.19	66.28	66.65	115.93	76.99	58.14	124.71

Source: Analysis of development in agriculture and food sector during 1990-1998, RIAFE Bratislava, Information Newsletters of the MASR, RIAFE

Notes: 1 – Investments in fixed assets (SKK/ha a. l.); 2 – Investments to value added (%)

moderate increase in the year 2000. The higher intensity of investments, particularly in the group of profitable undertakings, is a positive signal for future development of the agricultural sector in terms competitiveness. While in 1993–1995 the level of per-hectare investments made by loss-making enterprises was higher than the level achieved in the category of profitable ones, the situation turned around in 1996 (Table 7). This indicates that farmers' capital expenditures are becoming more efficient (also thanks to the system of loans from the state support fund), and so is the system of subsidies (transition from direct support to indirect support – e.g. subsidised interest rates of the loans taken to finance capital expenditures).

The level of procured investments in relation to value added differed according to the production conditions. The less favourable these conditions are, the lower the volume of per-hectare investments is (except for the potato-oats production area in 1997 and the mountainous production area in 1999). The share of investments in value added increased in all production areas and there were even years when it exceeded the level of value added, particularly in less-favoured areas.

In 1999, the share of investments to value added in the production of foodstuffs and beverages declined considerably and slipped even below the 1995 level, although the development was fairly differentiated across various branches of the sector. In the processing of milk, production of ready-made feedstuffs for farm animals, bottling of mineral water and production of non-alcoholic beverages, the share of investments to value added increased; in all other branches, the level of investments per one SKK of value added decreased compared with the year before. The lowest FA/VA indicator was reported in the production of durable bakery products, where the trend is declining.

CONCLUSION

The results of the analysis of value added in the agricultural and food sectors may have multiple applications, for example in setting priorities for the structural policy, which should take into proper account the current proportions between value added on the one hand, and intermediate consumption and investments in fixed assets on the other. The information on the correlation between the production conditions and the efficiency of value added creation can be used in setting marginal limits for the provision of support to farmers in order to make agricultural and food production more efficient, or in the application of support to such activities that preserve landscape, protect the environment and facilitate rural development. As far as the export support is concerned, priority should be given to the commodities with higher value added and lower consumption of inputs and fixed assets. In the business practice, these results could inspire agricultural managers to find optimum ways for making the most efficient use of their production factors, to adjust the structure of production and to strengthen the competitiveness of their products not only in the domestic, but also on the international market. We recommend further research into the issue with particular focus on international comparisons and subsequent recommendations toward making the production of foodstuffs more efficient and competitive on an international scale.

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