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METHODOLOGY FOR ASSESSING THE COMPETITIVENESS OF AGRICULTURAL ENTERPRISES

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Abstract

The purpose of this article is to develop and validate a methodology for analyzing and assessing the competitiveness of agricultural enterprises. The process of establishing a methodology for analyzing and assessing the competitiveness of agricultural enterprises covers two main stages – (1) identification of indicators for analyzing and assessing the competitiveness of agricultural enterprises and (2) validation of indicators for assessing the competitiveness of agricultural enterprises. The main methods used for designing the methodology are the multi-criteria analysis method and the expert assessment method. The markers for diagnostics of competitiveness of the agricultural enterprise are - competitiveness of the products produced by it; degree of adaptability towards the changing environment; price leadership and product differentiation; availability of innovation activity, degree of concentration of capital in the business model, etc.

Key words**:** *competitiveness, competitive advantage, agricultural enterprise, innovation, efficiency*

INTRODUCTION

Competitive ability is a phenomenon that exists in every ecosystem as a core ability for survive. It is characteristics of all living organisms, a property that determines the biological feature to survive in dynamic and chaotic environment. There is a wide dispute across researchers about the origin of competitiveness of enterprise. Some part of research community [29], [6], [19], [15], [16], [10], [14] and [17] declare that competitiveness of the enterprise should be linked with the *competitive ability of products and services provided by the entity*.

According to [28], "products are competitive when their quality is higher at minimum production costs compared to the competitors" [2]. "Product quality" means "the set of properties that determine the suitability of a given product to satisfy certain needs in accordance with its purpose" [9]. The interplay between the product quality and the level of competitive ability of the enterprise and its business processes is essential. The main barrier in defining the competitiveness of provided goods and services by agricultural enterprise is that the quality is a strictly subjective perspective of consumer as such there is still no reliable tool for its measurement. The subjective aspect of the product quality derives from the fact that when byers consuming the product, they attached to it different level of importance and measure in a different way the utility that they obtained. This specific character of product quality sets obstacles for quantitative assessment of quality and competitive ability of product as second order effect.

According to Pride, the main role „in assessing the competitiveness of products should be played by the consumer" [23]. It is the consumer who measure the success of the efforts made by marketing managers of the company to react to the market conditions. The main weaknesses of the idea that product quality determines its ability to compete on the market is directed towards the fact that quality management use standards that guarantee the quality of provided good and services. These standards are used as tools for evaluation of deviations in business processes in agricultural enterprise, i.e. they play role of controllers in the production and marketing processes. By taking quality management as fundamental factor for achieving competitive

ability of enterprise, managers may remain blind to changes in market conditions and may focus only on internal environment and its control [17].

Some researchers [4], [20], [31], [2], [22] associate the competitive ability of enterprise with *the efficiency of resources* used in production process. Other part of research community such as 21], [7], [30], [33], [3], [5] link the competitive ability of enterprise with *the degree of adaptability to the changes in business conditions*. According to [4], [24], [25] the competitiveness of an enterprise can be assessed by its *profitability* (return on assets and equity). Other researchers such as [14], [12], [34] and [1] declare that competitive ability of enterprise is in close relationship with the size of the *market share.* According to them the market share is a reliable marker of competitive ability of company as a whole. The market share as e competitive factor is depending on the management of two business processes: *price leadership and product differentiation.*

Price leadership is an ability of entity to produce goods and services at a lower production costs compared to the main competitors. According to [18], [28] the main source of this competitive factor is the ability of company to realize economies of scale. Economies of scale is a prerogative concerning the ability of managers to reduce and production costs on level that main competitors could not reach. By providing these conditions the economies of scale play a major role in strategic planning of product price. Establishment of economies of scale can lead to offer the cheapest product to the market segment. The other important component of good market leadership expressed by the size of market share is the ability to introduce an adequate product differentiation. This is the marketing image built in costumers that by consuming the offered goods and/or services of company they receive additional benefit that no one competitor is offering at the moment in certain market segment. With the product differentiation the company aim to establish a loyal demand across the consumers. According to [32], [34], the competitive ability of the enterprise is based on the availability of *innovations* and process that provide them. Other researchers, such as [35], declare that the lack of innovations or the low level of adoption of innovations by the company will reduce its competitive ability in long-term period. According to [13], [11], [5] the innovations are a key factor for increasing the competitive ability of the company. The aim of adoption of these innovations is to achieve a higher efficiency of resources involved in production process and to reduce the level of production costs. The competitive ability of enterprise also depends on whish part of the *value chain it is located.* Some researchers such as [11], [27], link the competitive ability of enterprise with the *exploitation of value generated along the value chain.*

In most of the cases, the enterprises that create new value (innovation) fail to "retain" it and exploit it for long-term profit in the industry. In addition, it should be noted that a cmpany is competitive when it generates and/or exploits an already developed value chain so that its market share grows steadily over time.

According to [25] and [9] conditionally speaking, there are two types of actors in the value chain. The first ones are those who generate new value along the chain or create a new value chain (inventors). The other ones are those who focus their efforts on the exploitation of the created value (exploiters). The network of values thus established creates conditions for both competition and cooperation between these two types of actors. That often results in establishing strategic alliances between those generating the value and those exploiting it, and these alliances aim at the benefit of all participants. It is clear from all that has been said so far that competitiveness depends, above all, on the relationship between the enterprises in the value chain.

MATERIALS AND METHODS

When defining the competitive ability of the agricultural enterprise, it is necessary to take into account its special features. The specificities determine the different

approaches to achieving competitive ability in the sector [5]. All characteristics inherent to competitive ability, at enterprise and sector level, are achieved by realizing the competitive advantages of the entities in the industries. Therefore, when analysing the competitive ability of the agricultural enterprise, the impact of the processes of *specialization*, *concentration* and *integration* of the branches in the sector must be taken into account. As a result of these processes specific cross-sectoral links are formed and they are the basis for sustainable development and competitiveness of enterprises and the sector.

The purpose of this article is to develop and validate a methodology for analysing and assessing the competitiveness of agricultural enterprises.

RESULTS AND DISCUSSIONS

The design of methodology is based on two main fundaments – (1) identification of factor for analysing and assessing the competitive ability of agricultural enterprises and (2) validation of those factors as assessing tools. Multi-criteria analysis and the expert assessment method are used as a toolkit for assessment of level of competitiveness.

Identification and validation of drivers, markers and indicators for assessing the competitiveness of agricultural enterprises.

The identification and validation of drivers, markers and indicators - hereinafter referred to as "indicators" - for assessing the competitiveness is carried out through multi-criteria analysis. There is a potential list of indicators evaluated by experts from different scientific and practical fields – economists, technologists, agronomists, managers and marketers. Based on their assessments, the final set of indicators is formed and they are used to assess the competitiveness of agricultural enterprises and the sector as a whole. The methodology is divided into different steps, comprising literature review, multi-criteria assessment, selection of indicators, integration of indicators, field research, data analysis and assessment of applicability. As a result of an extensive literature review, a list of indicators that take various aspects of competitiveness into account is drawn up. A special place among them is occupied by:

-Indicators used by national and international institutions;

-Specific indicators (used in the scientific literature);

-Indicators created by the authors of the methodology presented.

Table 1. Description of the expert assessment criteria of the proposed list of indicators for assessment of the competitiveness of agricultural enterprises

Criteria for expert selection		**Description**
1 & 2	Distinctive power by (1) time/(2) place	The ability to reflect by (1) time/(2) place the differences due to external factors and to factors resulting from the management
3	Analytical value	The indicator should be scientifically valid, i.e. to be calculated by means of established scientific terms
4	Measurability	The indicator should be easy to measure.
5	Transparency	The meaning of the indicator should be clear to understand as well as unambiguous.
6	Appropriateness	The indicator should help to take into account the effect of the management of competitive factors
7	Transferability	It should be possible for the indicator to be used in different types of business structures
8	Relevance	The indicator should be as relevant as possible in terms of competitiveness relevant to the database

Source: adapted model after Borisov et al (2013) [3].

In Multi-Criteria Expert Assessment (MCA), the validation of potential indicators is carried out by experts. They are selected based on their competence and commitment to solving problems related to competitiveness in the agricultural sector. The indicators and experts are grouped thematically into panels that form the different aspects of competitiveness. The assessment of potential indicators by the experts is carried out according to eight principles included in the criteria of expert selection (CES) – Table 1.

After having agreed to participate, the experts receive the following documents: a list of characteristics of indicators (name, assessment sustainability, description, source, calculation method, information needed, assessment and interpretation scale) and guidance with regard to the assessment procedure. Based on these documents, the experts, according to their thematic affiliation, assess each indicator in terms of these eight principles (Table 1). The experts use a 4-point rating scale for assessing an indicator in terms of relevance with each of the 8 principles as follows: 0 – not relevant, 1 – low degree of relevance, 2 – a strong degree of relevance and 3 – a very strong degree of relevance.

Reporting is done according to a scale where the indicators with a score above a given threshold are being selected. The indicator selection criterion includes the score received by the expert for each indicator and the average score on the eight principles. The different expert scores on each indicator are synthesized into an "arithmetic mean" formed as an expert consensus score equal to the weighted average score obtained from the sum of all experts' scores on a given indicator. The selected indicators are included in a questionnaire to be used in a test survey in selected agricultural enterprises.

Validation of the indicators for analysis of the competitiveness of agricultural enterprises

The indicators used for the assessment and diagnosis of competitive ability of agricultural enterprises are validated by application of multi-criteria analysis and expert assessment method. These include the drivers, markers and indicators for assessing the competitive ability. A group of 33 experts took part in the indicator validation process and they validated the compliance of the indicators with the principles set out in the methodological part.

Figure 1 shows the expert assessment of the drivers used for diagnostics of enterprise competitiveness.

The individual scores of each individual driver are synthesized into an "arithmetic mean" formed as an expert consensus score (ECS) equal to the weighted average score obtained from the sum of all experts' scores for a given driver. The drivers that have received an ECS score above 2.5 are defined as reliable with regard to the underlying principles in the validation of indicators (see the figure, green bars).

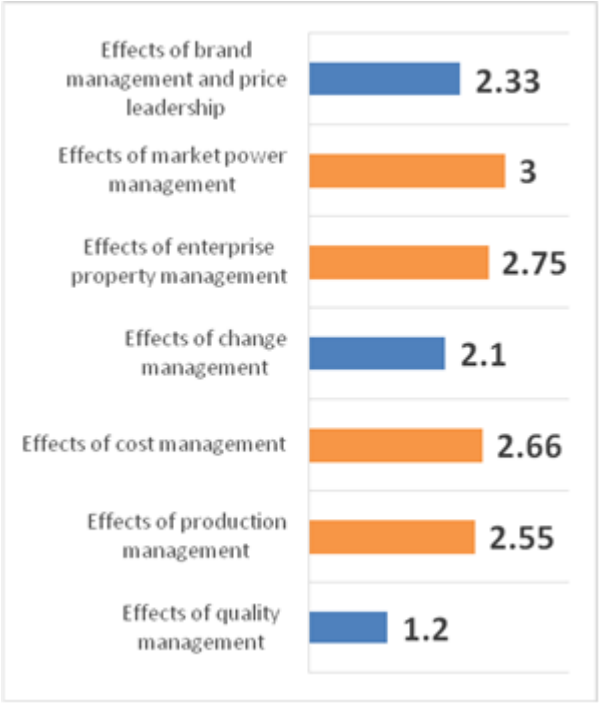

Fig. 1. Expert assessment of the validity of the drivers for competitiveness of agricultural enterprises.
Source: own research, 33 experts were included in it, 2020.

The drivers indicated as reliable by the experts are the effects of: (1) market power management - the indicator score is 3.00; (2) the enterprise property management (with indicator score - 2.75); (3) cost management – the indicator score is 2.66 and (4) production management – the indicator score is 2.55.

Figure 2 shows the summarized expert assessment of the reliability of the markers for the competitive ability of agricultural enterprises. Of all 22 markers, 11 markers have been validated as reliable by the experts.

The experts declare the that markers with high reliability for diagnostics of agricultural enterprises are the following: (1) market share - with a score of 3.00; (2) profit and return - with a score of 3.00; (3) the competitive advantages - with a score of 3.00; (4) the brand with a score of 3.00; (5) loyal demand with a score of 3.00; (6) the offer of unique value - score 2.8; (7) participation in strategic alliances in the value chain - score 2.65; (8)

the efficiency of the resources used - score 2.55; (9) the availability of new business models - score 2.55, and the liquidity of the enterprise - score 2.55.

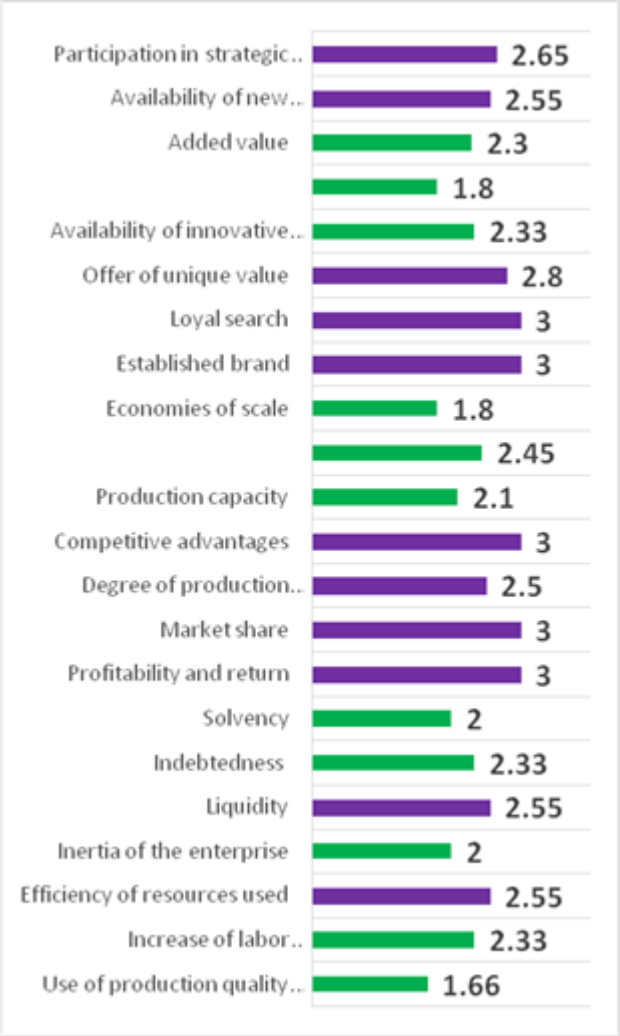

Fig. 2. Expert assessment of the validity of the markers for competitiveness of agricultural enterprises.
Source: own research, 33 experts were included in it, 2020.

The next element of the analytical apparatus for analysis and assessment of competitiveness, subject to validation, are the assessment indicators at agricultural enterprise level.

Considering the presented 30 indicators, the experts have validated that 13 of them (the indicators with an ECS score above 2.5) can be used with high reliability in the study (Figure 3).

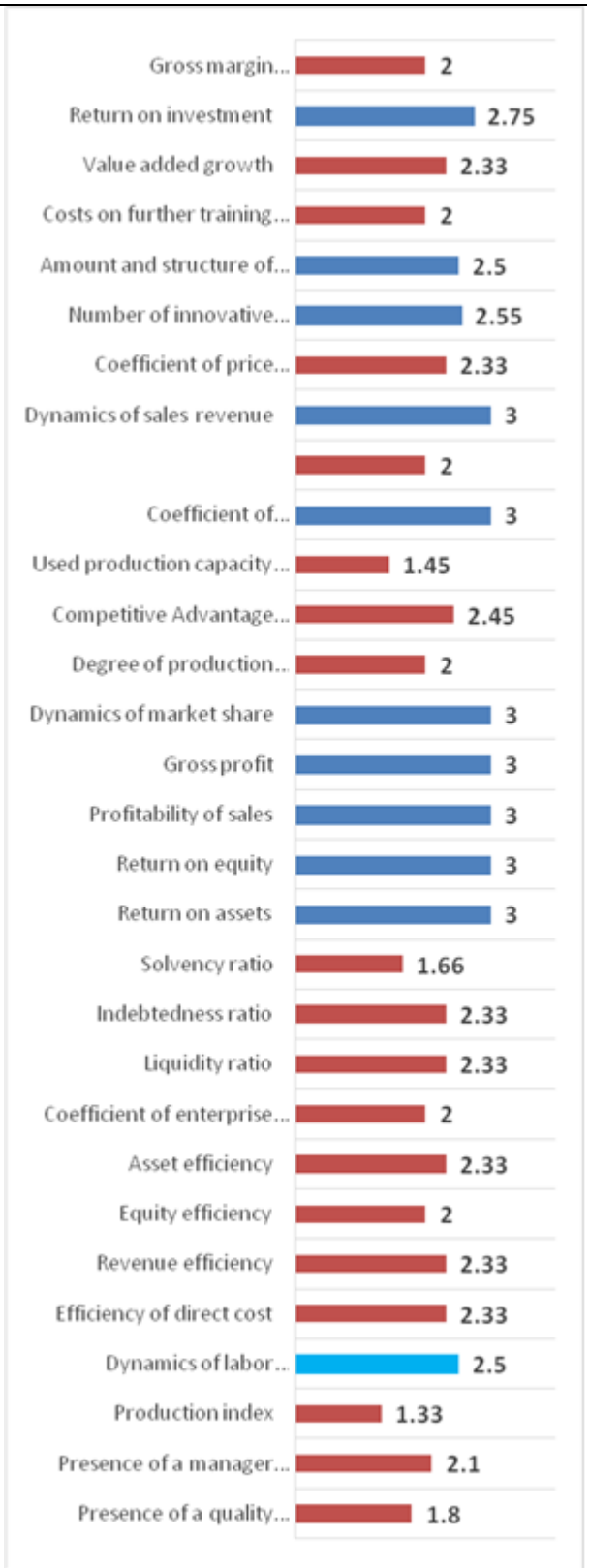

Fig. 3. Expert assessment of the validity of the markers for competitiveness of agricultural enterprises.
Source: own research, 33 experts were included in it, 2020.

In Figure 3, the blue bars reflects: (1) dynamics of market share; (2) gross profit; (3) profitability of sales; (4) return on equity - the (5) return on assets; (6) coefficient of competitiveness; (7) dynamics of sales revenue; (8) return on investment; (9) number of innovative products; (10) debt ratio; (11) liquidity ratio; (12) amount and structure of research and development costs and (13) labour productivity in the enterprise.

CONCLUSIONS

It can be outlined that in the theory of competitiveness, the management of competitive ability is perceived as science, art, skill and ability to defeat the main competitor by using one's own and/or competitor's competitive advantages while taking into account the market environment.

Competitive ability can and should be taken into account by knowing its intrinsic characteristics. There are specific factors that comply with these characteristics. Some of the factors can be used to determine the level of competitiveness (when measuring it) that the agricultural enterprise has achieved. The indicators in this study are markers of competitiveness. Another part of the indicators can be used to reveal the reasons for the achievement of a certain level of competitiveness by the agricultural enterprise. In the present study these indicators play the role of drivers of competitiveness. The limit for grouping the indicators in a group of markers or a group of drivers is conditional and is determined by the objectives of the study.

The markers for diagnostics of competitiveness of the agricultural enterprise are - *competitiveness of the products produced by it; degree of adaptability towards the changing environment; price leadership and product differentiation; availability of innovation activity, degree of concentration of capital in the business model, etc.*

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REFERENCES

[1]Armstrong, J.S., Collopy, F., 1996, Competitor orientation: Effects of objectives and information on managerial decisions and profitability. Journal of Marketing research, 33, pp.188-199.

[2]Avila, H., 1997, Evaluating the Competitive Position of an Industrial Firm, The George Washington University, Washington D.C. pp.56

[3]Borisov, P., Radev, T., Nikolov, D., 2013, Landscape as a driver for competitiveness of Pazarjik district in Bulgaria. 2nd AIEAA Conference – Between Crisis and Development: which Role for the Bio-Economy Parma, 6-7 June 2013.pp. 12-20

[4]Buckley, P., 1988, Measures of International competitiveness: A critical survey. Journal of Marketing Management, pp. 176.

[5]Chankova, L., 2001, Increasing the competitiveness of a small company by improving its innovation activity. Machinery Mechanization Magazine 4, pp. 35-38.

[6]Chobanyaneva, I., 1998, Quality Management and Competitiveness. Ed. TU, Varna. pp. 141.

[7]Galbraith, C., 1990, Transferring Core Manufacturing Techniques in High – Tech Firms, California Management Review. pp. 56 – 70.

[8]Gorynia, M., 2004, Competitiveness of Polish firms and the European Union enlargement. Competitiveness Review, Vol. 14, 1-2. pp. 336

[9]Ikherd, J., Jansen J., 2002, Agriculture, Energy and Sustainability. Agraria 253. Swedish University of Agricultural Sciences. p. 35.

[10]Ivancevich, J., 1994, Management: Quality and Competitiveness. Burr Ridge etc., Irwin. pp.237

[11]Johannessen, J., Olsen, B., 2010, The future of value creation and innovations: Aspects of e theory of value creation and innovation in a global knowledge economy. International Journal of Information Management, Issue 30, pp.502-511.

[12]Kleiman, L., 1997, Human resource management: A tool for competitive advantage New York, West. pp. 178

[13]Liao, J., 2005, Corporate restructuring, performance and competitiveness: An empirical examination. Competitiveness Review Vol.15(1):15-33. pp. 44-45

[14]Lipsey, R.E., Kravis, I.B., 1987, The competitive advantage of US multinationals 1957-1984. Banca Nationale Del Lavore, Quarterly Review, 161, pp.147-165.

[15]Lockshin, L., Bruning, E., 2000, Fundamental Elements in the Definition of Organizational Competitiveness, Gestion 2000. pp. 160-161

[16]Minko, V., Krichevsky, M., 2004, Quality and competitiveness. Peter Publishing House, Moscow. pp. 87

[17]Olsen, B., 2010, The future of value creation and innovations: Aspects of e theory of value creation and innovation in a global knowledge economy. International Journal of Information Management. 30, pp. 502 – 511.
[18]Owen, N., 1983, Economies of Scale, Competitiveness and Trade Patterns within the European Communities, Clarendon Press Oxford, pp. 145
[19]Paunov, M., 1995, Business Strategies. Dino - IM, Sofia. pp. 21 - 24.
[20]Petkov, L., 1994, Factors of the competitiveness of agricultural cooperatives. JSI magazine 6. pp. 29-30
[21]Pettigrew, A., 1987, Context and Action in the transformation of the Firm. Journal of Management studies 24(6): pp.649-670.
[22]Porter, M., 1998, On competition, Harvard Business Press. pp.188-201
[23]Pride, W., 1989, Strategic Adaptability and Firm Performance: A market – contingent perspective. Journal of Marketing 53(3): 21-35.
[24]Pride, W., Ferrell, O., 1994, Marketing: Concepts and Strategies. Farcom, pp.33-34.
[25]Priem, R. L., 2007, A consumer perspective on value creation. Academy of Management review, 32 (1), 219-235.
[26]Radev, T., 2014, Development and application of a model for wine tourism. Economics and management of agriculture. № 4, pp. 28-34
[27]Radev, T., Radeva, T., Development of Bulgarian agriculture in terms of the Common Agricultural Policy of the European Union. Proceedings of the International Bulgarian-Polish Conference "Agriculture and Rural Areas of Bulgaria and Poland in the CAP in 2014-2020 and after 2020", pp.49-59
[28]Radev, T., 2005, Marketing Management Strategy of wine production and trade. Dissertation for awarding ONS "Doctor", pp. 65.
[29]Ribov, M., 1997, Competition and competitiveness of the tourist product. Farm Publishing House, Sofia. pp. 22.
[30]Rumelt, R., 1992, Diversification strategy and Profitability. Strategic Management Journal 3 - 4, pp.359-369.
[31]Sergeev, A., 2003, Competitiveness of Russian enterprises in anticipation of Russia's accession to the world trade organization: Directions and methods of marketing research, II International Conference - Marketing in the era of globalization; concepts and trends, Burgas. 2003. pp. 162-169
[32]Terptsra, D.E., 1994, HRM: A key to competitiveness. Management Decisions 32, (9):10-14.pp.93-95
[33]Twomey, D.F., 2002, Organizational competitiveness: Building performance and learning. Competitiveness review 12(2):10. pp. 201
[34]Van Duren, Martin, L., Westgren, R., 1991, Assessing the competitiveness of Canada's Agrifood Industry. Canadian Journal of Agricultural Economics (39), pp. 727-738.
[35]Zikmund, W., 1995, Business: The American Challenge for Global Competitiveness Burr Ridge, Irwin, pp. 6-7 and pp.216 – 217.