

FOREIGN OWNERSHIP AS A DRIVER OF QUALITY MANAGEMENT IN SLOVAK AGRIBUSINESSES: APPLYING MBNQA MODEL

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Abstract: Despite attention being paid to quality management in the literature, little empirical research has been conducted on developing the link between adoption of quality management approach and business performance in agricultural enterprises, and moreover, only a few empirical studies have investigated this issue in Central and Eastern Europe. The conducted empirical survey examines the relationship between adopting the quality management approach and business performance from the perspective of agricultural enterprises in Slovakia. The empirical findings are based on 70 responses from agribusinesses in Slovak Republic. To measure the adopting of quality management approach the MBNQA model was used. The authors have used linear regression as an evaluation method. Based on the results it can be concluded the adopting of quality management approach is determined by ownership. The enterprises owned by the owner from abroad adopt the quality management approach more readily than the domestic ones. This study contributes to the European research that studies the relation between quality management and business performance of agribusinesses by means of an empirical investigation in agricultural organizations in a transition economy such as Slovakia.

Keywords: MBNQA model, quality management, business performance, foreign ownership, agribusiness

JEL Classification: Q13, M11, O13

INTRODUCTION

Since 1989 majority of Central and Eastern European countries have gone through many democratic reforms which stimulated economic liberalization in the agricultural sector (Kennedy, 1999; Deininger, 2003; Swinnen and Rozelle, 2009). Another historical milestone was joining the European Union in 2004. Since becoming the EU member state, the agribusinesses in Slovakia are challenged by cheaper products and products of superior quality from other member states. Some agribusinesses have responded to this

challenge by embracing a broader view of quality. The firms began to stress the management of quality in all phases and aspects of the business. Successful implementation of strategic quality management is not an easy task and changes are required. However, the implementation process in some companies is more difficult than in others. We presume that in agriculture it can be determined by a) the size of the farm (measured by the utilized area), b) the type of production (the specialization towards live or crop production) and c) the ownership structure of a farm (foreign capital). The role of quality

management in the company is to improve the business performance.

The agriculture in Slovakia is specific in many regards (Ciaian et al., 2009; Pokrivčák and Rajčániová, 2014). In Western Europe, the USA and other developed countries the agricultural sector is usually dominated by relatively small family farms. The situation is different in Central and Eastern European countries (CEEC) where a dual structure of farms exists and there are large corporate farms and relatively small family farms (Ciaian et al., 2009).

The quality in agriculture is usually dealt with from the point of view of water and soil quality (Lenat, 1984; Hamilton and Helsel, 1995; Birkhofer et al., 2008; da Silva et al., 2015) and food quality and safety (Grunert, 2005; Verbeke, 2005; Carvalho, 2006; Kafetzopoulos and Gotzamani, 2014). The literature exploring the quality management approach in agriculture is lacking (especially in CEEC). This paper extends the existing research on quality management in agriculture by examining the impact of selected factors on adopting the quality management approach in agricultural enterprises and examining the link between adoption of MBNQA quality management model approach and business performance in agricultural enterprises.

The rest of the paper is structured as follows: section 2 reviews the empirical literature on management of quality, section 3 presents the data and the methodology, in section 4, empirical results are summarized and implications are discussed, section 5 concludes the paper.

1. LITERATURE REVIEW

With increased access to information, with a strong desire for knowledge, and with increased standards, both companies and consumers pay an important attention to quality and information technologies, which are, on the one hand, a sure path to success for an entrepreneur and, on the other hand, the confirmation of a correct choice for a consumer (Dinu, 2011, p.667). Due to the growing demands of customers and several food crises, quality assurance schemes

have become increasingly popular in agribusiness. Whereas in the beginning, certification systems emphasized pure product control, these days such systems seek to establish comprehensive quality management (Schulze et al., 2008).

Total quality management (TQM), as a tool created to manage and to control quality, is an approach to management embracing both social and technical dimensions aimed at achieving excellent results effectively and efficiently, which needs to be put into practice through a specific framework. Most TQM definitions emphasize the concepts such as continuous improvement, customer focus, human resource management and process management. Some authors also include soft and hard TQM elements, organization performance and benchmarking as well (Talib et al., 2012, p.264). There are two broad dimensions of TQM: social (soft) and technical (hard) (Prajogo and Sohal, 2004; Rahman and Bullock, 2005; Lewis et al., 2006; Fotopoulos and Psomas, 2009; Psomas et al., 2014). Social part of TQM deals with human resources management and includes leadership, teamwork, employee support, employee engagement, employee empowerment, top management commitment, strategic quality planning, employee involvement, supplier involvement. Technical part is focused on improving production methods, benchmarking, control charts, procedures to make improvement of goods and services towards customers. The main driver to Quality management system implementation is effectiveness of all operations within the organization as well as productivity enhancement. The increase of productivity and profitability is linked to savings that support a competitive advantage of a company. Prajogo and Sohal (2003) recognize TQM is known worldwide as a tool that provides a company with a competitive advantage. To achieve a sustainable competitive advantage a TQM culture is primarily required Fotopoulos and Psomas (2009). Quality management systems aim to ensure highly competitive and consistently high quality products or services and a better corporate image that subsequently

could lead to market share increase or market expansion. These quality management models are increasingly more important in period of globalization where competitors can easily emerge from a country all over the world.

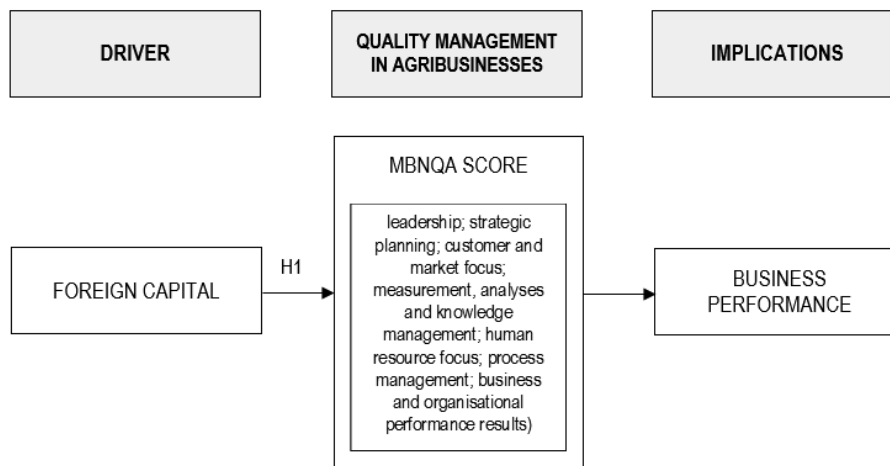
The quality in the company should be evaluated by the more models, such as the Deming Prize, EFQM Excellence Model, and the MBNQA. The main idea of these models is to create competitive advantage based on improvement of all activities in small, medium, and large enterprises. Quality management models are used as a guide to TQM implementation by a large number of organizations. Findings support the EFQM Excellence Model as an operational framework for TQM, and also reinforce the results obtained in previous studies for the MBNQA, suggesting that quality award models really are TQM frameworks. Malcolm Baldrige National Quality Award was created in 1987 by the U.S. Commerce Department and established by U.S. Congress in the same year in order to raise awareness of quality management and to encourage the American businesses and all other organizations to practice an efficient control of quality for products and services (Bujna et al., 2012; Korenko et al., 2013). The model was created to offer an excellence quality standard and also to help companies to achieve a high level of performance (Garvin, 1991). The Malcolm Baldrige National Quality Award (MBNQA) has evolved from a mean of recognizing the best quality management practices to a comprehensive framework for world class performance, where it is widely used as a model for process improvement (Flynn & Saladin, 2001). Winn and Cameron (1998) examine the validity of the proposed relationships among the MBNQA dimensions. Research of Curkovic et al. (2000) shows that MBNQA and its criteria do capture TQM core concepts. Wilson and Collier (2000) empirically test the relationships between the Baldrige Award constructs. Goldstein and Schweikhart (2002) investigate the extent to which the improvement of Baldrige criteria leads to

improved results. Lee et al. (2003) test the link between MBNQA criteria and performance. MBNQA is a model of excellence to recognize best practices in management of the companies. Application of this model is based on seven criteria: leadership, strategic planning, customer focus, measurement, analysis and knowledge management, human resources focus and performance results. Garvin (1991) described it as "The most important catalyst for transforming American Business." Furthermore, Juran (1994) argues that the MBNQA is a helpful model for improving to world class quality. The Baldrige model is collectively sound and robust with respect to the measurement criteria, and that level of robustness has not changed over time.

2. METHODOLOGY

The purpose of the study is to evaluate the link between foreign ownership and quality management in agribusinesses in Slovakia. For the purpose of the study the level of adoption of quality management approach is measured using MBNQA model. The authors assume that MBNQA score indicates the economic performance of the farm. The descriptive (initial mapping of the field) and exploratory (determining the significance of impact of foreign ownership and examining the link between MBNQA score and economic performance of the farm) research approaches have been chosen (Fig. 1).

Fig. 1: Adopting the quality management approach in agribusinesses in Slovakia



Source: Own processing

We set up following hypothesis:

H1: The adopting of concept of quality management in agribusinesses in Slovakia is affected by the foreign ownership.

To evaluate the influence of foreign ownership the authors used analysis of variance (ANOVA). The variables are MBNQA scores in the individual areas (MBNQA Score: leadership; strategic planning; customer and market focus; measurement, analysis and knowledge management; human resource focus; process management; business performance results) and the overall MBNQA score. Grouping variable (factor) is foreign ownership (FOR_O).

The survey was performed from January 2016 to June 2016. Out of the 150 questionnaires sent to randomly selected agribusinesses 70 valid questionnaires returned (the total number of agribusiness companies (cooperatives and companies; we did not sent any questionnaire to small family businesse) was 1490 in 2014We enquired about the capital structure of the farm. Any company in which the foreign capital does not exceed 50% is considered as domestic company for the purposes of the paper.

The majority of questionnaire items were scaled from 1 to 7 (the Likert-type scale). Value 1 corresponded to the absolute disagreement of the respondent with the statement in the

wording of the item (formulated as a positive statement), whilst value 7 corresponded to the absolute agreement of the respondent. The rest of the questionnaire items were categorical. The reliability of the questionnaire was verified by means of Cronbach's alpha. With regard to the achieved results it is therefore possible to regard the reliability of the measurement instrument as sufficient (Tab. 1). The construct validity was verified by means of factor analysis using the varimax rotation of factors. It is the most commonly used method for rotation procedure. Varimax rotation of factors is an orthogonal method of rotation that minimises the number of variables with high loadings on a factor, thereby enhancing the interpretability of the factors (Malhotra and Birks, 2006). The suitability of applying the factor analysis was verified on the basis of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO test) and Bartlett's test of sphericity. The results of both testing statistical methods were satisfactory (Bartlett's test: $p < 0.05$; KMO test > 0.7). The assumptions of applying the factor analysis were met. The factor analysis identified background factors which altogether explained almost 70% of the total variance. Based on the fact the identified factors fully correspond with questionnaire's content, we regard the construction validity of the measurement instrument satisfactory (Tab. 1).

Tab. 1: Reliability and Validity evaluation

	Nr. of items	$\alpha^1 > 0.7$	KMO ² > 0.7	χ^2 ; df; p ³	Nr. of factors	Factors cumulative %
Leadership	13	0.889	0.801	564.9; 78; 0.000	3	69.935
Strategic Planning	16	0.939	0.845	795.2; 120; 0.000	4	75.621
Customer and Market Focus	13	0.886	0.830	465.6; 78; 0.000	3	67.242
Measurement, Analysis, and Knowledge Management	15	0.900	0.839	641.1; 105; 0.000	3	65.438
Human Resources Focus	17	0.891	0.822	629.2; 136; 0.000	5	71.364
Process Management	17	0.877	0.788	542.1; 136; 0.000	4	65.982
Business/Organizational Performance Results	13	0.881	0.798	439.7; 78; 0.000	3	63.139

¹ – Cronbach Alpha coefficient; ² – Kaiser-Meyer-Ohlin coefficient; ³ – p value

Source: Own Processing

3. RESULTS

The certified quality system (ISO) is implemented in 10 agribusinesses (14.5%). Out of total number of 70, the majority of the farms are involved in livestock as well as crop production (65.7%). There are only 2 specialized livestock producers. Only 11.9% of farms utilizes an area smaller than 100 ha. There are 16 farms utilizing area larger than 2000 ha. There are 8 farms owned by owner from abroad. Authors measured the MNBQA

score in the set of agriculture enterprises in Slovakia. In theory, the maximum MBNQA score is 1 (100%), the minimum score is 0 (0%). The higher the score, the more positive self-evaluation of the company. Authors calculated the overall MBNQA score as well as MBNQA score for every category (leadership; strategic planning; customer and market focus; measurement, analysis and knowledge management; human resource focus; process management; business performance results) separately.

Tab. 2: MBNQA scores

		FOR_O	
		no	yes
Leadership	Mean	0.63	0.82
	Minimum	0.58	0.41
	Maximum	0.67	1.00
Strategic planning	Mean	0.39	0.70
	Minimum	0.37	0.25
	Maximum	0.42	0.96
Customer and market focus	Mean	0.38	0.61
	Minimum	0.38	0.25
	Maximum	0.39	0.91
Measurement, analysis, and knowledge management	Mean	0.45	0.64
	Minimum	0.43	0.20
	Maximum	0.47	0.91
Human resources focus	Mean	0.44	0.65
	Minimum	0.37	0.29
	Maximum	0.50	0.95
Process management	Mean	0.47	0.64
	Minimum	0.38	0.24
	Maximum	0.57	0.91
Business/organizational performance results	Mean	0.60	0.75
	Minimum	0.53	0.27
	Maximum	0.68	1.00
Overall MBNQA score	Mean	0.53	0.71
	Minimum	0.48	0.28
	Maximum	0.58	0.94

Note: FOR_C=foreign capital

Source: Own Processing

The authors have applied ANOVA in order to determine whether the achieved scores (the total MBNQA score, MBNQA scores in

individual categories) are influenced by the foreign ownership. The results are given in tables 3 and 4.

Tab. 3: Foreign ownership MBNQA scores - descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Leadership	yes	8	0.626	0.047	0.017	0.586	0.665	0.580	0.670
	no	62	0.816	0.123	0.016	0.784	0.847	0.410	1.000
	Total	70	0.794	0.132	0.016	0.762	0.825	0.410	1.000
Strategic planning	yes	8	0.394	0.028	0.010	0.370	0.417	0.366	0.420
	no	62	0.703	0.159	0.020	0.663	0.743	0.250	0.960
	Total	70	0.668	0.179	0.021	0.625	0.710	0.250	0.960
Customer and market focus	yes	8	0.384	0.002	0.001	0.382	0.386	0.380	0.385
	no	62	0.606	0.162	0.021	0.565	0.647	0.250	0.910
	Total	70	0.580	0.168	0.020	0.540	0.620	0.250	0.910
Measurement, analysis, and knowledge management	yes	8	0.449	0.021	0.007	0.431	0.466	0.429	0.470
	no	62	0.636	0.172	0.022	0.593	0.680	0.200	0.910
	Total	70	0.615	0.172	0.021	0.574	0.656	0.200	0.910
Human resources focus	yes	8	0.437	0.071	0.025	0.377	0.496	0.370	0.504
	no	62	0.649	0.140	0.018	0.614	0.685	0.290	0.950

	Total	70	0.625	0.150	0.018	0.589	0.661	0.290	0.950
Process management	yes	8	0.475	0.103	0.036	0.389	0.561	0.378	0.571
	no	62	0.638	0.140	0.018	0.602	0.674	0.240	0.910
	Total	70	0.619	0.146	0.017	0.585	0.654	0.240	0.910
Business/organizational performance results	yes	8	0.604	0.082	0.029	0.536	0.673	0.527	0.681
	no	62	0.746	0.145	0.018	0.709	0.783	0.270	1.000
	Total	70	0.730	0.146	0.017	0.695	0.765	0.270	1.000
Total	yes	8	0.531	0.057	0.020	0.484	0.578	0.478	0.584
	no	62	0.711	0.125	0.016	0.680	0.743	0.282	0.944
	Total	70	0.691	0.132	0.016	0.659	0.722	0.282	0.944

Source: Own Processing

There are higher mean values in every MBNQA component in the companies owned by a foreign entity. The biggest difference in mean values can be observed in the area of “strategic

planning” (this results confirms the short time oriented planning horizons of domestic Slovak companies (Rybansky et al., 2015)) and “customer and market orientation”.

Tab. 4: Foreign ownership MBNQA scores – ANOVA

	FOR_O
Leadership	0.000****
Strategic planning	0.000****
Customer and market focus	0.000****
Measurement, analysis, and knowledge management	0.003***
Human resources focus	0.000****
Process management	0.002***
Business/organizational performance results	0.009***
Total	0.000****

Note: **** $p < 0.001$; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$; FOR_O=foreign ownership

There was statistically significant differences in the overall MBNQA score ($p = 0.000$) based on the foreign ownership (FOR_O). This association was confirmed in each individual

CONCLUSION

This study examined the influence of foreign ownership on adopting the quality management approach in agricultural enterprises and the link between adoption of quality management approach and the business performance. To measure the adoption of quality management approach the MBNQA model was used. Research results proved that the foreign ownership can be considered a significant determinant of adopting the quality

management approach in the agricultural enterprises. ANOVA showed differences in companies with foreign capital exceeding 50% of the total capital in all components of MBNQA. This shows that there is smarter focus on quality in companies where foreign capital is allocated. These companies apply their foreign know-how from abroad. Managers of these companies are strongly focused to meet objectives and reach better economic performance in harmony with high quality processes inside the company. Usually they adopt quality management based on ISO

Source: Own Processing

standards which can help to build and improve competitive advantage on the market. Implementing the ISO standards in agribusiness companies in Slovakia should bring companies more opportunities to find business partners abroad and applying MBNQA model will provide companies better financial performance.

While this study provides useful findings about adopting the quality management approach by agricultural enterprises in Slovakia, it also has limitations that call for further research. First, the results of regression suggest that there are some factors not included into model. The number of markets where the enterprise operates could be one of these factors as well as the age of the company. Another restriction of fully applying our results is a context limitation and therefore perfect fit of our research results would be within economies in transition where foreign capital enters into market. The number of evaluated companies is not particularly high; therefore results could be slightly different if we researched more companies.

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RESOURCES

Birkhofer, K., Bezemer, M. T., Bloem, J., et al. (2008). Long-term organic farming fosters below and aboveground biota: Implications for soil quality, biological control and productivity. *Soil Biology & Biochemistry*. 40(9), 2297-2308.

Bujna, M., Prístavka, M., Burda, M. and Žitňák, M. (2012). FMECA Method Analysis. *Acta Technologica Agriculturae*. 2012(2), 29-32.

Carvalho, F. P. (2006). Agriculture, pesticides, food security and food safety. *Environmental science and policy*. 9, 685-692.

Ciaian, P., Pokrivcak, J. and Drabik, D. (2009). Transaction costs, product specialisation and farm structure in Central and Eastern Europe. *Post-Communist Economies*. 21(2), 191-201.

Curkovic, S., Melnyk, S. and Calantone, R. (2000). Validating the Malcolm Baldrige National Quality Award framework through structural equation modelling. *International Journal of Production Research*. 38(4), 765-791.

da Silva, A. M., Manfre, L. A., Urban, R. C., Silva, V. H. O., Manzano, M. P. and Norton, L. D. (2015). Organic farm does not improve neither soil or water quality in rural watersheds from southeastern Brazil. *Ecological Indicators*. 48, 132-146.

Deininger, K. (2003). Land markets in developing and transition economies: impact of liberalization and implications for future reform. *American Journal of Agricultural Economics*. 85, 1217-1222.

Dinu, V. (2011). Quality - Information Technologies - Consumer. *Amfiteatru Economic*. 13(5), 667-668.

Fotopoulos, Ch. B. and Psomas, E. L. (2009). The impact of "soft" and "hard" TQM elements on quality management results. *International Journal of Quality & Reliability Management*. 26(2), 150-163.

Garvin, D.A., 1991. How the Baldrige award really works. *Harvard Business Review*. 69(6), 80-93.

Goldstein, S.M. and Schweikhart, S.B. (2002). Empirical support for the Baldrige Award Framework in U.S. hospitals. *Health Care Management Review*. 27(1), 62-75.

Grunert, K. G. (2005). Food quality and safety: consumer perception and demand. *European Review of Agricultural Economics* 32(3), 369-391.

Hamilton, P. A. and Helsel, D. R. (1995). Effects of Agriculture on Ground Water Quality in Five Regions of the United States. *Ground Water*. 33(2), 217-226.

Juran, J. M. (1994). The upcoming century for quality. *Quality Progress*. 27(8), 29-37.

Kafetzopoulos, D. P. and Gotzamani, K. D. (2014). Critical factors, food quality management and organizational performance. *Food Control*. 40, 1-11.

Kennedy, L. (1999). Central and Eastern European Agriculture in Transition. In: Columbus, F., (Eds.). *Central and Eastern Europe in Transition*, 3(9). 221-233.

Korenko, M., Kaplik, P., Bujna, M. and Pristavka, M. (2013). Statistical Process Control in Automotive Industry. *Acta Technologica Agriculturae*. 2013(2), 39-42.

Lenat, D. R. (1999). Agriculture and Stream Water Quality: a Biological Evaluation of Erosion Control Practices. *Environmental Management*. 8(4), 333-344.

Lewis, W. G., Pun, K. F. and Lalla, T. R. M. (2006). Empirical investigation of the hard and soft criteria of TQM in ISO 9001 certified small and medium sized enterprises. *International Journal of Quality & Reliability Management*. 23(8), 964-985.

Malhorta, N. K. and Birks, D. F. (2006). *Marketing Research: An Applied Approach*, Harlow: Pearson Education Limited, 785 p.

Pokrivčák, J. and Rajčániová, M. (2014). Price transmission along the food supply chain in Slovakia. *Post-Communist Economies*. 26(4), 555-568.

Prajogo, D. I. and Sohal, A. S. (2003). The relationship between TQM practices, quality performance, and innovation performance. *International Journal of Quality & Reliability Management*. 20(8), 901-918.

Psomas, E., Vouzas, F. and Kafetzopoulos, D. (2014). Quality management benefits through the "soft" and "hard" aspect of TQM in food companies. *The TQM Journal*. 26(5), 431-444.

Rahman, S. and Bullock, P (2005). Soft TQM, hard TQM, and organisational performance relationships: an empirical investigation. *Omega*. 33, 73-83.

Rybanský, Ľ., Lančarič, D. and Maroš, M. (2015). Selected factors influencing enterprise planning horizons. Evidence from Slovakia. In ICABR 2014. Brno : Mendel University, 877-885.

Schulze, H., Albersmeier, F., Gawron, J-Ch., Spiller A. and Theuvsen, L. (2008). Heterogeneity in the Evaluation of Quality Assurance Systems: The International Food Standard (IFS) in European Agribusiness. *International Food and Agribusiness Management Review*. 11(3), 99-138.

Swinnen, J. and Rozelle, S. (2009). Governance structures and resource policy reform, insights from agricultural transition.

Annual Review of Resources Economy. 1, 33-54.

Talib, F., Rahman, Z. and Qureshi, M.N. (2012). Total quality management in service sector: a literature review. *International Journal of Business Innovation and Research*. 6(3), 259-301.

Verbeke, W. (2005). Agriculture and the food industry in the information age. *European Review of Agricultural Economics*. 32(3), 347-368.

Wilson, D. D. and Collier, D. A., 2000. An empirical investigation of the Malcolm Baldrige National Quality award causal model. *Decision Sciences*. 31, 361-383.

Winn, B. A. and Cameron, K. S. (1998). Organizational quality: an examination of the Malcolm Baldrige National Quality Framework. *Research in Higher Education*. 39(5), 491-512.