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FACTORS OF TRUST IN HUNGARIAN AGRICULTURE – SOME EXPERIENCES BASED ON SHOLTES' MODEL¹

CZYNNIKI ZAUFANIA W ROLNICTWIE WĘGIERSKIM – DOŚWIADCZENIA NA PODSTAWIE MODELU SHOLTERSA

Key words: cooperation, Hungary, Sholtes' model, trust

Słowa kluczowe: współpraca, Węgry, model Sholtersa, zaufanie

JEL codes: Q12, Q13

Abstract. The paper examines factors affecting trust among the Hungarian agricultural producers. Our research has focused on the role of two factors on the basis of the widely referred trust model: faith in loyalty and faith in capability. The empirical results clearly confirm the hypothesis of the theoretical model, which states that partners will trust each other if their faith is high both in loyalty and in competence. Our research has also pointed out that the level of trust between partners is determined differently by the two examined factors: it is statistically proved that the impact of faith in loyalty is higher than the other factor. These research results fully correspond to the outcomes of recent research projects in the similar field.

Introduction

The positive economic effects of cooperation between farmers have been in the focus of many research programs in the recent years. The research results have mostly concluded that the cooperation arrangements among agricultural producers may contribute to the reduction of production costs as well as to the rise in profit from production [Nagy, Takács 2001, Larsen 2008]. From this aspect, the cooperation between farmers can especially be important in the agriculture of countries which can be characterized with massive structural and efficiency issues [Pavillard 2005]. Hungary and Poland – among others – also belong to this group [Takács-György, Sadowski 2005]. The importance of the cooperation is justified by the continuous reforms of the Common Agricultural Policy [Baksa, Vásáry 2013].

It is a regrettable conclusion, however, that the cooperation activity of Hungarian farmers is far behind that of the farmers in the developed Western-European countries. The research on the topic has identified the low level of trust as one of the many reasons behind the low cooperation willingness [Bakucs et al. 2008, Takács, Baranyai 2010].

The role of trust in cooperation arrangements has also been examined by several research projects and it has been proved that the high level of trust among partners is inevitable for the efficient and well-functioning cooperation [Bakucs et al. 2008, Dudás, Fertő 2009]. These empirical results have motivated the current research, too. The aim of the study is to explore and identify those factors which have key role in the development of trust.

The study has the following structure: the next part briefly summarizes the research works dealing with trust, including the ad hoc trust model which provides the theoretical background of the current research. Following the introduction of research hypotheses, the „Material and Methods” chapter describes the data collection and evaluation connected with the research. Finally, the main outcomes of the research are introduced, as well as the subsequent conclusions based on them.

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Theoretical background

Trust is very important in human relations, thus it is very significant in the cooperation among farmers, too. Questions of trust – as research topic – have become the focus of interest in many scientific fields during the recent decades.

Trust as a subject of study in (agricultural) economics is a relatively new phenomenon in spite of the fact that it has been used widely in sociology, anthropology and other “soft” disciplines. However, in the last 25 years the number of publications on trust in the economics literature has grown vastly [McAllister 1995, Wilson 2000, Borgen 2001, Hansen et al. 2002, Szabó 2010, Sholtes 1998]. We used Sholtes’s trust model as a basis in our research (based on earlier research experiences [Baranyai et al. 2011]).

Peter Sholtes [1998] placed trust in the matrix of loyalty and capability. We can speak about trust if the faith in loyalty as well as in capability has high values among the partners (Tab. 1). The present study aims to test this theoretical model empirically. It is important to note that researchers in Hungary have already tested the model and successfully validated it [Baranyai et al. 2011]. The database that was used for testing, however, relied only on the data collected from Fieldcrops farms and the element number of the sample too low (N = 132) for the generalization of results, but it could be the basis for the initial diagnosis of the studied phenomena. The present study tries to test the theoretical model on a more representative sample.

Hypothesis – we have drafted and examined the following hypotheses in our research:

- H1. Higher level of trust is developed if the faith in loyalty as well as in capability has high values among the partners.
- H2. The faith in the loyalty and capability of partners is equally important regarding the level of trust.

Capability/Zdolności

The value I consider my partner is capable and qualified/*Wartość wskazująca według mnie jak mój partner jest zdolny i jakie posiada kwalifikacje*

		Low/Niska	High/Wysoki
		High/ <i>Wysoka</i>	SYMPATHY/ <i>SYMPATIA</i>
Loyalty/Lojalność The value I believe my partner likes me and he will support me in future/ <i>Wartość wskazująca wg mnie jak Mój partner mnie lubi i będzie mnie wspierał w przyszłości</i>	Low/ <i>Niska</i>	MISTRUST/ <i>BRAK ZAUFANIA</i>	RESPECT/ <i>SZACUNEK</i>

Table 1. Development of trust among partners on the basis of loyalty to each other and the presumed capability level

Tabela 1. Rozwój zaufania wśród partnerów na podstawie lojalności względem siebie i założonych zdolności i kwalifikacji

Source: own construction based on [Sholtes 1998]

Źródło: opracowanie własne na podstawie [Sholtes 1998]

Material and methods

Our research is based on primary database. Data had been collected through a questionnaire survey in order to identify the factors playing key role in the development of trust among agricultural producers. The online questionnaire survey, which was performed in summer 2015, helped to collect information from 7,728 farming units. Substantially incomplete questionnaires were filtered out in the process of cleaning the database (the criterion we set and used for deleting was completeness level below 10%) thus the final element number was 5,902 (N = 5,902). It is important to note, however, that the sample – in spite of the high number of elements, with reference to the way of sampling – cannot be regarded as representative.

We used the trust model of Sholtes in compiling the research questionnaire (see theoretical background). According to this, two questions (Q1 and Q2) were put for measuring the general level of trust in farmers. The faith of respondents in the loyalty of fellow farmers was measured by two items (Q3 and Q4), while the opinion about their capability was involved in one item (Q5). The respondents could reply to each question in a scale from 1 to 5. The questions in the survey are presented in the Table 2. We have used the following statistical methods in the research: descriptive statistics, t-tests, one-way ANOVA with Post Hoc Tests, hierarchical ANOVA and linear regression.

Results

First of all, some features of the examined sample are outlined. By analysing the staff conditions of farm management, the following main conclusions can be drawn: the leader of the farm in more than three-fourth of surveyed farms is male, the average age is around 50 years. The heads of the farms have 20-year experiences in farming on average. As regards their qualifications, it can be declared that most of the respondents have high-school qualifications (29.7%), skilled worker (23.7%) or college/BA/BSc (21.4%) qualifications. 66.4% of respondents reported about agricultural qualifications. Regarding the dependence on income from agricultural activities, it can be declared that about one-third of them have no income from other than agricultural sources; while one-fifth of respondents use the income from farming activities only as a supplementary source of subsistence, which provide less than 25% of their full income. The question must have been rather delicate considering that 793 respondents ticked „I cannot judge/do not want to respond” option when completing the questionnaire.

By examining the material conditions of farming, it can be concluded that most of the responding farms own some land, only 259 farms have no land at all. As regards livestock, 2.662 farms have some in different volumes. The average value of technical resources (machines, buildings etc.) used for the support of farming was around HUF 18,8 million (approx EUR 63.000) per farm.

The average annual sales revenues – indicating the economic performance by the economic units – amounted to HUF 14,3 million (approx EUR 48.000). As it had been presumed, most of the farming units had less than HUF 1 million (about EUR 3.300) revenues, while altogether only 247 farms realized more than 100 million HUF (approx EUR 333.000) revenues in 2014. Around 500 respondents refused to answer or could not give any substantive information regarding the

Table 2. The questions of the survey

Tabela 2. Pytania w kwestionariuszu badania

Trust (TR)/Zaufanie
Q1. I think most of my fellow farmers are trustworthy (tr_1)/ <i>Myślę, że większość z moich kolegów rolników jest godnych zaufania</i>
Q2. I think, most of my fellow farmers are honest (tr_2)/ <i>Myślę, że większość z moich kolegów rolników jest szczerą</i>
Loyalty (LOY)/Lojalność
Q3. I think my fellow farmers definitely keep their words (loy_1)/ <i>Myślę, że większość z moich kolegów rolników dotrzymuje słowa</i>
Q4. I think my fellows would never do any harm to me if the conditions of farming changed (loy_2)/ <i>Myślę, że moi koledzy rolnicy nigdy nie wyrządzili by żadnej krzywdy, jeśli warunki produkcji rolniczej uległyby zmianie</i>
Capability (CAP)/Zdolności
Q5. I think my fellow farmers are appropriately qualified and possess the competence and knowledge required for farming/ <i>Myślę, że moi koledzy rolnicy mają odpowiednie kwalifikacje, kompetencje i wiedzę wymaganą dla prowadzenia działalności rolnej</i>

Source: own study

Źródło: opracowanie własne

Table 3. Descriptive statistics of the variable set

Tabela 3. Statystyka opisowa

Descriptors/Deskrytory		tr_1	tr_2	TR	loy_1	loy_2	LOY	CAP
Mean/Średnia		2.95	2.94	2.94	3.09	2.94	3.01	3.14
CI (95%)	lower bound/ <i>dolna granica</i>	2.92	2.92	2.92	3.06	2.92	2.99	3.12
	upper bound/ <i>górną granica</i>	2.97	2.97	2.97	3.11	2.97	3.04	3.17
St. Dev.		1.00	0.99	0.96	0.99	1.08	0.95	1.02

Source: own calculation

Źródło: obliczenia własne

question. The major proportion of surveyed farms were typically field crop farms (58.3%), or vegetable and fruit producers (17.6%), which means that most of their revenues come from these types of activities.

The descriptive statistics of responses given to questions in Table 2 are summarized in Table 3. The level of general trust among farmers was measured by two questions (Q1 and Q2). As it was mentioned, the respondents could evaluate on a scale from 1 to 5, according to this, the 2.95 and 2.94 average values belonging to tr_1 and tr_2 questions indicated a slightly lower than median (3) trust level. The TR value, as the indicator of the general trust level, was determined as the simple arithmetic mean of these two latter items.

The issues of trust among partners were examined in relation to their faith in loyalty and capability. According to the results, the item measuring the faith in capability received higher scores than the items used for measuring loyalty. Comparing the values of scales aggregated with arithmetic averaging (LOY and CAP), the higher level of faith in capabilities can be proven statistically, too. Furthermore it is interesting that there is only a moderately strong relation between the two variables which means that the two approaches discussed above represent two different dimensions for the farmers as well.

In the next phase of research, the testing of Sholtes trust model was carried out. The LOY and CAP scales were divided into two parts (High and Low) by using the mean belonging to them. On the basis of this, 4 groups were formed. In what follows the level of general trust (TR) was examined in these groups (Tab. 4).

The results of examinations performed with descriptive statistics were checked by one-way ANOVA and Post Hoc Tests, too. Our results clearly prove that the assumption based on Sholtes trust model is correct, it is statistically proven that the average level of trust (TR-mean) in indi-

Table 4. Level of trust (TR) in the individual groups

Tabela 4. Poziom zaufania w grupach indywidualnych

		Level of Capability (CAP)/Poziom zdolności	
		Low/Niski	High/Wysoki
Level of loyalty(LOY)/ Poziom lojalności	High/ Wysoki	Group/Grupa 1 TR-mean: 3.28 CI (95%): [3.22-3.34] n= 769 (SYMPATHY/SYMPATIA)	Group/Grupa 2 TR-mean: 3.62 CI (95%): [3,58-3.66] n= 1468 (TRUST/ZAUFANIE)
	Low/ Niski	Group/Grupa 3 TR-mean: 2.53 CI (95%): [2.50-2.56] n= 2979 (MISTRUST/BRAK ZAUFIANIA)	Group/Grupa 4 TR-mean: 2.91 CI (95%): [2.84-2.97] n= 686 (RESPECT/SZACUNEK)

Source: own calculation

Źródło: obliczenia własne

Table 5. Summarizing table of Post Hoc Test
 Tabela 5. Podsumowanie testu Post Hoc Test

Groups/Grupy	Group/Grupa 3 (Mistrust/Brak zaufania)	Group/Grupa 4 (Respect/Szacunek)	Group/Grupa 1 (Sympathy/Sympatia)
2 (Trust/Zaufanie)	dTR = 1.09* CI (95%)= [1.03-1.16]	dTR = 0.72* CI (95%)= [0.62-0.81]	dTR = 0.34* CI (95%)= [0,25-0,43]
1 (Sympathy/Sympatia)	dTR = 0.75* CI (95%)= [0.67-0.84]	dTR = 0.38* CI (95%)= [0.27-0.49]	
4 (Respect/Szacunek)	dTR = 0.38* CI (95%)= [0.29-0.47]		

dTR = Mean difference between groups/*Średnia różnica pomiędzy grupami*

* The mean difference is significant at the 0.05 level/*Średnia różnica jest znacząca na poziomie 0,05*

Examination based on Games-Howell Post Hoc Test/*Badanie oparte na Games-Howell Post Hoc Test*

Source: own calculation

Źródło: obliczenia własne

vidual groups is significantly different: among others it can be observed that the average level of trust in Group 2 is significantly higher than in the other groups, while in the case of Group 3, it is lower than in the others. It is very interesting, that the expected values of Group 1 and Group 4 are essentially different from each other (Tab. 5). On the basis of the above, our Hypothesis 1 (H1) is confirmed.

On the basis of our hypothesis 2 (H2), we have examined the impact of faith in loyalty and capability on trust (Tab. 6). The analyses made with explanatory models prove that the level of trust is mostly determined by the faith in loyalty, although the impact of faith in capability is also very strong. Although the difference between the impact („strength”) of the two variables is differently evaluated by the statistical models (it is smaller according to the ANOVA model, while it is a bit more significant according to the linear regression), the hypothesis 2 (H2) should be rejected.

Table 6. Impact of faith in loyalty (LOY) and capability (CAP) on trust
 Tabela 6. Wpływ braku lojalności (LOY) i zdolności (CAP) na zaufanie

Factors/ Czynniki	Hierarchical ANOVA model/ <i>Hierarchiczny model ANNOVA</i>				Linear regression model/ <i>Model regresji liniowej</i>			
	Eta	BETA	Sig.	R ²	B	BETA	Sig.	R ²
LOY	0,460	0,375	0.000	0.237	0.484	0.482	0.000	0.333
CAP	0,358	0,181	0.000		0.132	0.140	0.000	

Source: own calculation

Źródło: obliczenia własne

Conclusions

The paper examines the factors affecting trust in Hungarian agriculture. The trust was analyzed in relation to two factors, the faith in loyalty and capability. Our results clearly confirm the theoretical model, according to which trust is formed if the faith in both the loyalty and the capability is high among the partners. That presumption of the theoretical model, however, is not correct which considers the impact of each factor on the trust the same. Statistical analyses have proved that the loyalty dimension is more important in the development of trust than the faith in professional competence. It is a very unfortunate conclusion for two reasons: on the one hand – according to the survey - the faith in capabilities is higher in the Hungarian agriculture than the faith in loyalty, which partly explains the low level of trust. On the other hand, the currently applied policy tools (e.g. the professional training of farmers, etc.) serve the strengthening of faith rather in professional competencies than in loyalty.

Finally, it is important to note, that the findings of the current research completely correspond to the research outputs of Zsolt Baranyai et al. [2011].

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Streszczenie

Poddano ocenie czynniki wpływające na zaufanie wśród węgierskich producentów rolnych. Wykorzystując model zaufania Sholtersa badania skoncentrowano na roli dwóch czynników: wiary w lojalność i kompetencji rolników. Badania ankietowe online przeprowadzono latem 2015 roku, wśród 5902 podmiotów. Wyniki badań potwierdziły hipotezę, że partnerzy sobie ufają, pod warunkiem, że bardzo wierzą zarówno w lojalność, jak i w kompetencje innych producentów. Wskazano również, że wpływ wiary w lojalność ma większy wpływ na zaufanie między producentami rolnym niż pozostałe czynniki, co jest zgodne z wynikami innych projektów badawczych w tym obszarze.

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