AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Compliance with Rules and Sanctions in Producer Groups in Poland*

ILONA BANASZAK AND VOLKER BECKMANN*****

Abstract

This paper examines the determinants of compliance with rules and imposing sanctions in Polish farmer cooperative organizations called producer groups. The main task performed by these groups is to organize joint sales of the output produced by individual farmers. Members of some groups broke the group rules and sold their output independently of the group without the group permission. The results show that the likelihood of unpermitted sales outside the group is significantly negatively affected by the price premium which members get for their output and positively affected by the group size. The likelihood of imposing sanctions on the farmers who broke the group rules is significantly negatively affected by the price premium and positively affected by having a long-term contract by the group. Price premium also negatively affects the severity of the imposed sanctions.

Key words: cooperation, compliance, sanctions, producer groups, Poland.

* The research was supported by the Integrated Development of Agriculture and Rural Areas Project (IDARI) funded within the 5th Framework Program of the European Commission and the Multi-Level Governance of Natural Resources Project (GoverNat) funded within the 6th Framework Program of the European Commission. We also acknowledge comments on the research from Prof. Dr. Dr. hab. Konrad Hagedorn, Dr. Piotr Matczak and anonymous referees.

** Ilona Banaszak (corresponding author) is with the Institute for Forecasting, Slovak Academy of Sciences, Phone: +421910260439, Fax: +421252495029, e-mail: progiban@savba.sk / ibanaszak@yahoo.co.uk.

*** Institute for Environmental Management, Brandenburg University of Technology Cottbus (BTU), and the Division of Resource Economics, Humboldt University of Berlin.

 © ISSN 0377–7480

Introduction

The globalization and internationalization of food trade is causing significant institutional changes that affect, in particular, small agricultural producers and the livelihoods of rural communities. The markets are becoming buyer driven and down-stream segments are determining quality and safety standards, packaging requirements, and consistency of supply (Biénabe et al., 2007: 3). Establishing farmers' co-operative organizations – which could help farmers to increase the amount of goods offered on the market, save on transaction costs, and overtake a portion of the profits conventionally gained by a middleman – could be expected as an important response to such a problem. Farmer organizations are particularly attractive for smallholders. Acting collectively gives smallholders a chance to reduce transaction costs of accessing inputs and outputs, obtain better market information, introduce new technologies, and access high value markets (Markelova et al., 2009).

While the cooperative sector has been evolving and gaining importance over the last 150 years in Western Countries, such as Austria, Germany, and Denmark, the initial development of the sector and the original accumulation of social capital and local networks in Central and Eastern Europe was destroyed by the communist regime. The communist regime introduced a command and control system into the cooperatives, which was destructive to their self-governing functions and eventually led to a lack of member involvement. As the socialistic farms grew in size, their members adopted a wage-worker mentality in relation to the enterprise and its property (Chloupkova et al., 2003: 249, 250). Distrust based on the past experience, strong individualism, and slow progress towards cooperation characterizes cooperative organizations in post-socialist countries (Wilkin et al., 2007: 102, 103; Chloupkova, 2002: 12).

Lack of trust and not fulfilling group agreements are observed in the Polish cooperative marketing organizations called producer groups. These groups appeared in Poland in the mid 1990s. Participation in producer groups is voluntary. The main aim of producer groups is to introduce agricultural output produced by individual farmers to the market. Groups marketing bigger quantities of the product are able to negotiate a higher price premium and access markets not available to smaller producers (Banaszak, 2008: 76).

Despite of all the prospective benefits of collective action on the markets, most of the existing groups in Poland report problems with members' commitment and loyalty. The main problem is individuals selling independently of the group without the group permission. Selling products outside the group reduces the profits of all the other members and, in the long run, can destroy the group due to problems with fulfilling contractual obligations. Thirty three out of forty producer

groups examined in this article reported to have problems with members who broke the group rules and were selling their output outside of their groups without the group permission. At the same time only 15 of the 33 groups imposed sanctions on the farmers performing unpermitted sales outside the group.

In this article we analyze the unpermitted sales situation and search for the factors which influence the group decision to impose a penalty on the deviators. This paper is organized as follows: Section 2 presents the literature review and formulates propositions to be further tested, Section 3 presents the methodology of the research and basic information about the researched organizations, Section 4 presents the results of the research and, finally, Section 5 concludes and discusses the practical implications of the findings. The findings show that the variable representing the price premium which the members get for selling their products through the group has the strongest explanatory power regarding both rule-breaking and the imposing of sanctions. Group characteristic variables are also significant.

Literature review and hypotheses

Loyalty and commitment problems in cooperative marketing organizations

A few authors point out that member commitment, loyalty, and trust to other members and the managerial board are crucial factors for achieving success by farmer cooperative marketing organizations. Bruynis (1997) executed an empirical survey with 52 American marketing cooperatives through which he found eight keys that lead to a successful cooperation. The author points out that using marketing agreements to secure business volume commitments from the members was one of these eight keys. Other keys to success included implementation of a management training process; employing an experienced, full-time general manager; regularly distributing accurate financial statements among the management team; and utilizing human resources (Bruynis, 1997: 54). Iskow and Sexton (1992), who present the results of an empirical survey carried out with bargaining associations of U.S. fruits and vegetables representing 36 commodities, point out that the associations' most common obstacles were lack of volume control and the inability to attract membership.

Hansen et al. (2002) investigates the effect of trust on the relationships between members and management teams. A questionnaire addressing scale of trust measurement was carried out among members of two marketing cooperatives in the US. The authors concluded that trust among members and cooperative management is an important indicator of group cohesion. Trust influences the strength of a member's desire to remain in the cooperative and his/her commitment

to it. Markelova et al. (2009) put forward that rule monitoring and enforcement is important for ensuring transparency in marketing cooperatives. Allowing members to develop their own rules might lead to developing a stronger identity with their organizations. The authors also argue that organizational structure and rules are critical for any form of collective action (Markelova et al., 2009: 4).

In this article we investigate how group characteristics affect the problem of compliance with rules and imposing sanctions in the Polish producer groups. Compliance with rules is understood to be the selling of the farmers' product through the producer group. Defection is understood to be the selling of the products by a member farmer outside the group without the group permission to e.g. a competing middleman. Imposing sanctions is understood as sanctions imposed by the group on the defecting member.

Parameters affecting the likelihood of defection and imposing sanctions

We might expect the most important parameter affecting the decision of members of producer groups whether to comply with group rules and sell their produce through the group or defect and sell the produce independently, is the price premium members get for their output sold through the group and entering by a producer group a long-term contract with a fixed price. The higher the premium, the more attractive it will be for group members to sell their products through the group, thus price premium is expected to affect negatively the probability of experiencing sales independently of the group. Similarly, the probability of imposing sanction on the defecting member is expected to decrease with increasing price premium as selling products outside in such situations decreases the defector's earnings, so we expect additional group pressure is in such situation not needed.

Furthermore, a group that enters a long-term contract with a fixed price may face a situation where the price offered on the spot market will be higher than that stated in the contract. Even if this is a temporary case, it increases the benefits of selling outside the group and thus increases the probability of experiencing defection. The defection also lowers the earnings of the cooperating farmers. Since the quantity of the product sold through the group decreases, the per-unit transaction costs increase and the group may also lose contracts with purchasers. A long-term contract variable will therefore be expected to increase the likelihood of imposing sanctions.

In addition to financial and market factors, there are also group characteristics which could affect the likelihood of both experiencing a deviation from the group and imposing sanction towards the deviators. One such factor is group size. Due to increasing organization costs, bigger groups find it harder to communicate and coordinate their actions (Olson, 1965: 59-60, Kollock, 1998: 201). From a

transaction costs perspective, we might expect that a larger group size would reduce the value of both costs of breaking the rule for the other farmers and costs of imposing the sanction for the other farmers. The more members a group has, the less costly the defection of one member is for the group. However, if the group is large, the social and organizational costs of imposing sanctions are expected to be lower. Consequently, the group size is expected to have an indeterminate impact on the likelihood of exercising sanctions.

Other factors affecting compliance with group rules are repetition and member acquaintance. Groups where members interact more durably or frequently increase identifiability, and information about individuals' past actions are expected to cause higher cooperation (Axelrod, 1984: 62-63). Knowing the identity and history of other group members allows the group to develop reputations that allow the members to respond in an appropriate manner (Kollock, 1998: 199, Kleindorfer et al., 1993: 247-251). Aggarwal (2000: 1490-1491) provides empirical evidence that family relationships among group members facilitate group investments. We might expect that prior acquaintance will negatively affect the benefits of sales outside the group and thus will decrease the likelihood of unpermitted sales. However, we might also expect that in a situation where the group members know each other well, the cost of imposing sanctions will be higher, decreasing the likelihood of imposing sanctions on the deviators.

In summary, the likelihood of both experiencing a deviation from the group rules and the likelihood of exercising punishment against the deviators will be affected by financial and market factors such as price premium and possession of a long-term contract. However, group structure factors such as group size and prior acquaintance are expected to influence the values of the game parameters changing both rates of unpermitted sales outside the group and imposition of sanctions on the defectors.

Research design and basic data about producer groups

Methods and techniques of the research

Producer groups in one province were selected as the object of the research. Wielkopolska is one of the 16 provinces in Poland and is located in the western part of the country. The province covers 9.53% of the area of the country, and is inhabited by 8.66% of the population in Poland (GUS, 2004:1). The province was selected as the research cluster since it has long traditions of rural cooperation – reaching back to the 19th century – and the number of producer groups in this province was the highest in the country at the time the research was carried out (Banaszak, 2008: 74).

The research employed a cross-sectional research design across producer groups. The research was carried out in 2005. That time there were 40 producer groups registered in the Wielkopolska Province which were functioning and performing the task of organizing joint sales. We carried out a survey questionnaire with leaders of all producer groups in the Province. Consequently, 40 producer groups are subjected to the empirical analysis in this article.

Computation of variables

To determine the relationship between the variables, the statistical technique of probit regression modeling was employed. The probit model extends the principles of generalized linear models such as regression analysis and is applied to cases of dichotomous dependent variables. They are used to understand the relevance of multiple independent variables in predicting a dependent variable. The probit model uses the function of the inverse of the standard normal cumulative distribution function. The probit model enables a use of a mixture of categorical and continuous independent variables in relation to a dichotomous categorical dependent variable (Greene, 2003: 667, 675-676).

The occurrence of sales outside the group, that is deviation (*D*) from the group rules, and the occurrence of sanctions (*S*) are treated as dichotomous dependent variables in two separate econometric models. The independent variables that the theories predict will influence compliance with the rules and the exercising of sanctioning are price premium (*PP*), possession of a long-term contract (*Con*), group size (*GS*), and prior acquaintance (*Acq*):

$$D_i = \beta_0 + \beta_1 PP + \beta_2 Con + \beta_3 GS + \beta_4 Acq + \varepsilon_i$$
$$S_i = \beta_0 + \beta_1 PP + \beta_2 Con + \beta_3 GS + \beta_4 Acq + \varepsilon_i$$

where i=1, …, n producer groups in the sample

We will also test how the distinguished dependent variables affect the severity of sanctions imposed (*s*). This will be measured using an ordered probit model that uses the form $s_i^* = \beta' x_i + \varepsilon_i$, where s_i^* is the dependent variable where the imposed by the group i sanction severity is coded as 1,2, or 3; β' is the vector of estimated parameters and x_i is the vector of explanatory variables (in this case *PP, Con*, *GS*, and *Acq*) and ε_i is the error term. Given an imposed sanction, a producer group falls in category m if $\mu_{m-1} < s^* < \mu_m$. The data on the sanction severity, s, are related to the underlying latent variable s*, through thresholds μ_m, where m = 1,2,3. This corresponds to oral sanctions (1), financial sanctions (2), and expulsion from the group (3).

Empirical results

Basic facts about producer groups

The cooperative movement in Poland has a long but difficult history. The communist regime restricted voluntary cooperation and introduced a command-and-control system into cooperatives which was destructive to their self-governing functions and eventually led to a lack of member involvement (Chloupkova et al., 2003: 249). Producer groups are the first bottom-up, voluntary organizations which appeared in Poland after the transformation. Their main purpose is to jointly sell their members' output. Jointly selling the output both improves the market position of the members and may also lead to higher prices. Additionally, associated farmers may benefit from information and knowledge sharing within the group. The formation of producer groups does not, however, imply a change in the property rights of the means of production. The farmers jointly own only profits of their group but they do not merge their farms into one firm. Therefore the agreements on joint sales farmers sign with their groups are difficult and costly to enforce through courts. Producer groups have to rely on their own internal mechanisms of enforcing farmer agreements.

Forty examined in the research groups associated 3,763 farmers. The largest proportion of the groups was established in 1998, 1999 and 2000. The biggest fraction of the groups were initiated by one of the farmers (43%), and others by political protests which brought farmers together (19%), extension services (17%), processing companies (19%), municipality cooperatives (4.9%), or outside businessmen (2.4%).

Most of the groups associated were hog producers (56%) and vegetable producers (24%). Except organizing joint sales of members' output, the groups were also involved in organizing training and educational activities for their members (80%), organizing joint purchases of the means of production (65%), integration events (61%), and joint transportation of the products (34%).

Characteristics of the dependent variables

Deviation from the group rules was measured by asking the interviewees a question whether, at the moment the research was carried out, there were any incidents of sales independent of the group without permission. The reaction towards defectors was measured by asking the respondents whether there were any sanctions imposed for outside sales without group permission. The respondents were also asked to specify what kinds of sanctions were in use.

The majority of the groups (33 or 82.5%) reported having problems with members' unpermitted sales outside the group. Only 15 of them (45.45% out of the 33 cases), imposed sanctions against the members who broke the rules. In four cases (27%)

the sanctions were only oral, in two cases (13%) financial and in nine cases (60%) the deviants were expelled from the group (Table 1).

Characteristics of the independent variables

The price premium offered to the members was measured by asking the interviewees to give the average difference between the price which the members received and that which non-member farmers received. On average, farmers associated in producer groups got 9.5% more for their output. The most successful group in these terms was able to negotiate a 39.3% higher price than that available for non-associated farmers. The standard deviation equaled 11.4%. Twenty-five groups, comprising 61% of those performing joint sales, had a long-term contract with their buyers (Table 1).

The producer groups on average associated 94 members. The smallest group had only five members, the biggest 700. The standard deviation was therefore quite high at 135. Furthermore, the members were quite heterogeneous. Only 12.5% of group leaders said their members had similar economic potentials (Table 1).

Prior acquaintance was measured by inquiring whether the members knew each other before the establishment of the producer group. In most cases all the members had known each other before (57.5%); in 37.5% of the cases, the majority of the members had known each other before; in only two groups (5%) the majority of the members had not known each other before (Table 1).

Table 1: Descriptive statistics for the dependent and independent variables

Variables	Measurement (Mean Value)	Coding	N	Mean	Min.	Max.	S. D.
Dependent variables							
Sales outside	Are there any incidents of sales independent of the group without permission?	1-Yes 0-no	40	0.825	0	1	0.38
Imposing sanctions	For groups that reported unpermitted independent sales: Did the group impose any sanctions on members who sold their products outside without group permission?	1-Yes 0-no	33	0.45	0	1	0.51
Type of sanction	For groups that imposed sanctions: What was the type of imposed sanction?	1-Oral 2-Financial 3-Expelled from the group	15	2.33	1	3	0.90
Independent variables							
Price premium	Percentage that group members receive for their products sold through the group above what non-members receive on the market.	%	40	9.55	0	39.30	11.56
Possession of a long-term contract	Does the group have a long-term contract with its buyers	1-Yes 0-no	40	0.63	0	1	0.49
Group size	Number of members	No.	40	94.08	5	700	134.89
Prior acquaintance	Had the members known each other before group establishment	1-no members had known the others, 2-majority hadn't known each other, 3-some hadn't known each other, 4-all members had known each other	40	3.53	2	4	0.59

Regression modeling results

The incidence of independent sales is negatively correlated with the variables indicating price premium (p=0.0047) and positively correlated with prior acquaintance (p=0.062). The exercise of sanctions is positively correlated with the variable indicating possession of a long term contract (p=0.011). The variable indicating prior acquaintance is also negatively correlated with the variable representing possession of a long term contract (p=0.0224) and the number of group members (p=0.0002). Due to colinerality the regression was additionally run stepwise. Stepwise methods help to evaluate the individual contribution of dependent variables to the regression equation (Menard, 2002). Regression modeling results are shown in Tables 2 (probit regression) and 3 (stepwise probit regression).

Table 2: Probit regressions results

Independent variable	**Sales outside**	**Imposing sanctions**
Price premium	-0.127 ** (0.061)	-0.062* (0.034)
Having a long-term contract	3.712 (2.828)	1.701 *** (0.602)
Group size	0.014* (0.009)	0.002 (0.003)
Prior acquaintance	4.893 (3.357)	0.943 (0.643)
Pseudo R2	0.531	0.270
No. of obs.	40	33

Notes: Standard errors in parentheses.

*** significant at 0.01 level

** significant at 0.05 level

* significant at 0.10 level

The price premium which the group members get for their output appears to have the strongest predictive power with regard to the occurrence of sales outside the group. The lower the returns the members get for following the group rules and marketing their output through the group and the more attractive the benefits from breaking the rules for the member are, the more likely the members will search for outside options and break the group agreements. Also in line with theoretical

predictions, this variable negatively influences the likelihood of exercising sanctions against deviators, while the sign suggests that there is an inverse relationship between these two variables. We might assume, therefore, that the higher the price premium, the less the payoffs are affected by the costs of breaking the rules for the group.

Possession of a long-term contract does not have a significant impact on the likelihood of sales outside the group; however, it does have the most significant predictive power for the exercise of sanctions. We posit that having a long-term contract significantly increases the costs of breaking the rules for the group and that the group, therefore, will be more willing to punish the deviating member.

The number of group members had a positive impact on the likelihood of experiencing sales outside the group. We suppose that, as suggested by Olson (1965) and Kollock (1998), bigger groups experience more problems with communication and action coordination. The results of the stepwise regression are similar, except that it shows the variable indicating prior acquaintance significantly impacts the likelihood of sales outside the group (Table 3). The more acquainted the group members were beforehand, the more likely they were to experience a deviation from the group rules. This contradicts the theoretical prediction that information about individuals' past actions is expected to cause higher cooperation (Axelrod, 1997: 62-63). Groups which were established among people who knew each other very well (e.g. among neighbors) tended to have a much less advanced governance structure; the group leaders often complained about difficulties with discipline among members, who were often their close friends or relatives but who were also sometimes involved in neighborhood conflicts (Banaszak, 2008: 80). If one organization has too many overlapping social relationship layers, that organization might have difficulties in performing professional and business functions. Prior acquaintance was strongly negatively correlated with the variable indicating the number of group members. This is logical, since the bigger the group the less probable it is that the members know each other before establishing the group.

We also tested whether the parameters influence the type of sanction exercised. Due to the low number of observations, the regressions were run separately for each independent variable. The sanctions were ordered from the lightest to the most serious: oral sanctions (1), financial sanctions (2), and expulsion from the group (3). As presented in Table 4 only one variable, price premium, was significant and negatively affected the likelihood of the severity of the sanction. We may stipulate that in a situation where the price premium is high, serious sanctions are not needed since the loss of the high price premium is a sufficient penalty on its own.

Table 3: Stepwise probit regressions results (*p*<0.1)

Independent variable	**Sales outside**	**Imposing sanction**
Price premium	-0.089 ** (0.036)	-
Having a long-term contract	-	1.270** (0.512)
Group size	0.011** (0.006)	-
Prior acquaintance	1.485** (0.677)	-
Pseudo R2	0.416	0.148
No. of obs.	40	33

Notes: Standard errors in parentheses.
** significant at 0.05 level

Table 4: Ordered probit regression for the type of sanction, regressions run separately

Independent variable	**Type of sanction: 1-oral, 2-financial, 3-expel** Ordered probit
Price premium	-0.362 ** (0.153)
Pseudo R2	0.293
No. of obs.	15
Possession of a long-term contract	0.505 (0.924)
Pseudo R2	0.010
No. of obs.	15
Group size	0.001 (0.002)
Pseudo R2	0.002
No. of Obs.	15
Prior acquaintance	0.066 (0.632)
Pseudo R2	0.000
No. of obs.	15

Notes: Standard errors in parentheses.
** significant at 0.05 level

Conclusions

Many studies advocate that entering producer organizations can help farmers to participate in the market more effectively and improve the livelihoods of local communities. At the same time, authors researching cooperation and cooperatives in Central and Eastern Europe point out that the communistic regime destroyed social capital and social networks and thus cooperatives in this region experience problems with distrust and lack of members' loyalty.

In this article we focused on cooperative marketing organizations – producer groups – that were established in Poland after the transformation. The most frequent problem group leaders reported was lack of members' commitment and selling the products by members independently and without the group permission. In effect the producer groups were not being able to fulfill their contractual obligations. Nevertheless, not all groups imposed sanctions on the defecting members.

We searched for both market and group structure factors that could explain why members are not loyal to their groups and also which groups are more likely to enforce sanctions. The unpermitted sales outside the group turn out to be mostly related to the group price premium. Groups which are able to negotiate in the market a high enough price premium for the members' products were less likely to have problems with members selling their products independently without the group permission. Similarly, very rational are the cases of imposing sanctions on the disloyal members. Those groups which had a long-term contract, due to increased costs of not being able to fulfill their contractual obligations, were more likely to punish the defectors.

Being embedded in the local networks measured through earlier member acquaintance increased the likelihood of disloyalty. This could be related to the legacy of the communist regime which weakened local networks and local social capital (Cholupkova et al., 2003). However, the counter explanation could be that good knowledge of each other simply increased the ability to observe defection from the group rules.

We might conclude that although group characteristics certainly play a role, the decision of farmers to participate in cooperative marketing organizations is primarily very rational and they enter them with expectations to increase their profits. As long as the group fulfils these expectations the farmers are loyal, however, if other market opportunities are more attractive, the farmers tend to break the group agreements. Although producer groups are forms of cooperative enterprises the Polish farmers perceive them as a business and do not hesitate to take advantage of other, even short term, business opportunities if it means more profits for them in the given moment. This lack of sentiments could be another

legacy of the communist system which intervened in the management of cooperatives imposing a wage-worker mentality to the cooperatives' members. Currently, the high discount rates of producer group members impose problems for producer group managers negotiating long-term contracts. Having a long-term contract increases chances the spot market price might be temporarily higher that the one in the contract, which lead to increased likelihood of unpermitted sales outside the group and in consequence may cause the group to be unable to fulfill its contractual obligations.

This problem shows that the agreements producer groups sign with their members are very important. Making the agreements more formal and legal enforcement of cases where the agreements were broken could offset the short time horizons and high discount rates. Testing this hypothesis requires further research.

References

Aggarwal, R. M. (2000). "Possibilities and Limitations to Cooperation in Small Groups: The Case of Group-Owned Wells in Southern India". *World Development*, 28(8): 1481–1497.

Axelrod, R. (1984). *The Evolution of Cooperation.* New York: Basic Books.

Banaszak, I. (2008). "Agricultural Producer Groups in Poland: Empirical Survey Results". *Journal of Rural Cooperation*, 36(1): 73–85.

Biénabe, E., Boselie, D., Collion, M.H., Fox, T., Rondot, P., van de Kop, P., Vorley, B. (2007). "The Internationalization of Food Retailing: Opportunities and Threats for Small-Scale Producers" in Vorley, B., Fearne, A., Ray, D. *Regoverning Markets. A Place for Small-Scale Producers in Modern Agrifood Chains?* Burlington: Gower Publishing Company.

Bruynis, C., Hahn, D.E., Taylor, W.J. (1997). "Critical Success Factors for Emerging Agricultural Marketing Cooperatives". *American Cooperation*: 50-54 [An annual publication of the National Council of Farmer Cooperatives, Washington, DC].

Chloupkova, J. (2002). "European Cooperative Movement – Background and Common Denominators." Unit of Economics Working Papers 2002/4, The Royal Veterinary and Agricultural University, Food and Resource Economics Institute.

Chloupkova, J., Svendsen, G.L.H., Svendsen, G. T. (2003). "Building and Destroying Social Capital: The Case of Cooperative Movements in Denmark and Poland." *Agricultural and Human Values*, 20: 241–252.

Greene, W.H. (2003). *Econometrics Analysis*, 5th Edition. New Jersey: Prentice Hall.

GUS – Central Statistical Office (2004). *Statistical Yearbook of the Republic of Poland*. Warszawa: GUS.

Hansen, M.H., Morrow, J.L., Batista, J.C. (2002). "The Impact of Trust on Cooperative Membership Retention, Performance, and Satisfaction: an Exploratory Study". *International Food and Agribusiness Management Review,* 5: 41–59.

Iskow, J., Sexton, R. (1992). "Bargaining Associations in Grower-Processor Markets for Fruits and Vegetables". Agricultural Cooperative Service (ACS) Research Report, 104.

Kleindorfer, P.R., Kunreuther, H.C., Schoemaker, P.J.H. (1993). *Decision Sciences. An Integrative Perspective*. Cambridge: Cambridge University Press.

Kollock, P. (1998). "Social Dilemmas: The Anatomy of Cooperation". *Annual Review of Sociology*, 24, 183–214.

Markelova, H., Meinzen-Dick, R., Hellin, J., Dohrn, S. (2009). "Collective Action for Smallholder Market Access". *Food Policy*, 34: 1–7.

Menard, S. (2002). *Logistic Regression Analysis. Second Edition.* Thousand Oaks: SAGE Publications.

Olson, M. (1965). *The Logic of Collective Action. Public Goods and the Theory of Groups*. Cambridge, London: Harvard University Press.

Wilkin, J., Juchniewicz, M., Milczarek, D. (2007). "Poland" in: Vorley, B., Fearne, A., Ray, D. (eds.) *Regoverning Markets. A Place for Small-Scale Producers in Modern Agrifood Chains?* Burlington: Gower Publishing Company.