Why (not) cooperate? Modelling cognitive determinants of farmers' motivation to join producer groups in Romania

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Abstract.

In Romania, after the breakdown of the communist regime, collective farms were replaced by a large number of small-scale private farms. Although cooperation seems to be a favorable choice for these smallholders, it did not develop so far. This paper explores the factors that determine the intention formation of Romanian fruit and vegetable farmers to join marketing cooperatives in the form of so-called Producer Groups. Our theoretical framework refers to Ajzen's Theory of Planned Behavior, modelled by a Structural Equation Model. Intention formation is mainly influenced by expectations for better prices and easier access to capital. Perceived family support is another significant factor while confidence in own capabilities and resource endowment do not seem to play an important role. The level of distrust is generally high, but not significant as a driver of the intention to cooperate in PGs.

1. Introduction

Following the regime change in 1989, agricultural production in Romania today is characterized by a dualistic farming structure. There is a small group of large-scale farms on the one side (about 30,000 farms cultivating 100 ha and more), and on the other side almost four million smallholders cultivating less than 2 ha on average (Calinescu, 2012). This persistently high number of small scale farms is linked with a low level of commercialisation and wide-spread rural poverty. It would, in theory, imply an urgent need of self-help organizations to deal with typical market failures that smallholders face, and to improve their economic well-being. However, as observed in almost all post-socialist economies, smallholders showed a strong resistance in forming or joining self-help organizations. The impact of socialist legacy persists, as low trust among farmers themselves seems to be a strong obstacle to cooperation (Bijman et al., 2012). With respect to Romania, it is argued that "the majority of rural households reject cooperation (…) owing to lack of tradition and spirit of cooperation in certain regions as well as negative experience of formal cooperation during the time of socialism and transition" (Balint and Wobst, 2006: 119). Consequently, there are almost no service cooperatives while the number of agricultural production cooperatives stands at around 70 (Calinescu, 2012).

As EU member Romania is eligible for CAP funding through which so called producer groups (PG) are currently supported by Measure 142. The aim of this measure is to encourage the establishment of organizations of mutual support. PGs are marketing cooperatives and as such are supposed to form and function on a voluntary and democratic basis. At the same time they are incentivized by subsidies and have to plan and report their activities in exchange for financial support in accordance with EU rules. After a slow start, the number of Romanian PGs has increased gradually since 2009. In 2011, their total number stood at 152, most of them registered as limited liability companies (Calinescu, 2012). Whether this shows that small-scale farmers have become more positive towards cooperation during the last years cannot be proven at this stage.

In this contribution we will analyse whether and under which conditions small scale farmers, who are not organized so far, are open for joining organizations of mutual support. To the best of our knowledge, this is the first attempt of a farmer-level approach in this field in Romania. Our study deals with the formation of the intention of smallholders to join a marketing cooperative in the form of a CAP supported PG. It draws on the Theory of Planned Behavior (TPB) (Icek Ajzen, 1991) and gives fine-grained insights on the individual decision-making. We ultimately aim at contributing to the understanding of why cooperation does not seem to work well among post-socialist

smallholders and under which conditions the willingness to cooperate may be formed. The motivation and obstacles for cooperation are an extremely relevant, but under-researched field with view to small farms' development in Eastern Europe. Our study offers valuable contributions to research as we not only present new and very recent empirical data on a relevant rural development issue, but we also contribute to theory by applying the TPB on the widely understudied rural population and will provide validation of its constructs in a field in which it was not operationalized before.

This contribution is structured as follows. In the next section an overview of cooperation theory is presented. We also give a summary of the TPB which we use for modelling the main factors influencing farmers' intentions to join a PG. Section 3 gives an account of the study design and research methodology. Section 4 presents the results of our PLS model. Section 5 provides some arguments about the limits of our approach. Section 6 offers final conclusions.

2. Theoretical background

This section briefly introduces theoretical motivations to form and join self-help groups. The theories of cooperation stress that it is the individual who seeks personal benefits through cooperation. This justifies an analysis that builds on a behavioral theory to analyze the formation of cooperation intentions.

2.1. Cooperation among small scale farmers

Small scale farmers in Romania, like in general their colleagues all over the world, often operate in isolation and lack adequate access to financial services, channels for marketing, input supply, and advisory services. Most often, prices are depressed and other market failures can be observed, like opportunism by market partners and hold up situations (Cook, 1995). Their farms are not only small, but are fragmented to a large degree, which prevents efficient farm production and limits their income potential. In such a situation it might be expected that small scale farmers join hands and collaborate in order to overcome these deficiencies. Following behavioural theory (March & Simon, 1961) individual people voluntarily unite if they perceive that they can achieve more together than individually. Self-determined individuals decide to form or join a group of mutual assistance, if the total inducements (incentives) offered to them by this organization exceed the contributions expected of them. Whoever joins a group intentionally expects to be able to utilize the group's benefits to realize one's own needs and interests. The incentives to join cover material

benefits as well as immaterial ones. The latter include self-realization, prestige, esteem or friendship, while material benefits are refer to economic outcomes like higher incomes due to better bargaining power and/or access to markets (Ringle 1994).

Individuals might collaborate informally in loose groups within families and among friends or formally in form of producer groups, associations or agricultural service cooperatives which are registered as legal entities to do business activities. Participation in these groups allows small farms to achieve economies of scale. However, at a certain stage of economic development, self-help groups have to be formally registered to participate effectively in economic life. In general, groups are registered as agricultural service cooperatives or producer groups (i.e. as associations or, as mostly observed in Romania, as limited liability companies).

As already pointed out by Draheim (1955) the individual not only joins a business organization ("cooperative enterprise"), but also becomes member of a social group ("cooperative society"). It is an association of individuals. Hence, social relations among (potential) members are vital. They influence the objectives and self-conception of the organization (Fürstenberg, 1994). Individuals will only join an organization and stay loyal if they have a certain level of (interpersonal) trust among each other. They must have a certain degree of confidence that the co-members fulfil their obligations and observe their given commitments. This implies that organizations of mutual support rely on relational contracts to overcome problems of moral hazard, asymmetric information and adverse selection (Jones & Kalmi, 2009).

Most empirical studies conclude that the primary motive for membership in producer groups or service cooperatives is the attainment of economic advantages, like to make use of potential economies of scale and build up a stronger bargaining position (Laurinkari, 1994). However, regardless of joining an informal group or a formal (registered) organization, members aim to increase their individual benefits and not to maximize profits of the joint unit. Therefore, the individual motivation should be in the focus of research.

There is a long tradition of mutual self-help organizations among small-scale farmers. Particularly agricultural service cooperatives used to play a vital role not only in Western and Central Europe, North America or Japan, but also in pre-communist Romania, particularly in the former Hungarian part. Their long-lasting success has shown that they have to be guided by the principles of self-help, self-administration and self-responsibility. Members as the owners of their cooperative fulfil three roles, i.e. as users/beneficiaries, controllers and financiers (Golovina & Nilsson, 2011).

The set-up of mutual self-help organizations is not a uniform procedure. The impulsion for their formation might come from different actors. Basically, they might be formed from above, e.g. by the administration in order to pursue political interests ("top-down"). In general, these types of groups were not successful in the long run. Alternatively, groups have been formed from within by the potential beneficiaries themselves ("bottom-up"). However, while these people must have a certain understanding for joined collaboration, charismatic leaders used to be of vital importance in convincing their fellow farmers to join forces. These persons might have been small scale farmers themselves, but, in general, they have been persons with a certain status and prestige living in the local area, like teachers, priests and mayors. History has shown that, in general, these selfless promoters not belonging to the group were vital in forming and guiding self-help groups and service cooperative during their first years. They were stepping back over time once the groups could manage on their own (Müller, 1994).

2.2. The Theory of Planned Behaviour

The TPB follows the logic of individual utility-maximizing decision making. It thus embraces the idea that a behavior such as taking part in a self-help organization is first and foremost driven by the individual considerations. The theory predicts intentions, defined as the antecedents of the actual behavior[1], by three components ("cognitive constructs"): attitudes towards the behavior, subjective norms and perceived behavioral control (Figure 1).

When the model is adapted to the plan of joining a self-help group or cooperative, it can be interpreted as follows. First individuals form beliefs. (Icek Ajzen & Fishbein, 2005) distinguish three types of beliefs – behavioral, normative and control beliefs (left hand side of Figure 1). The projection of what will be the outcome if one is involved in a group represents the behavioral belief. It corresponds to the expectations of the potential group member. This conceptualization contains the subjective perception for utility held by the decision-maker and provides a bridge to the common economic approach (Möllers and Buchenrieder 2005, Douglas and Shepherd 2002 and 2000). If positive outcomes are expected, positive attitudes towards joining a group of mutual support are developed.

Normative beliefs reflect what one considers the norm in society with regard to cooperation. Has cooperation a positive connotation from the point of view of others or not? What will the family,

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[1] At this point, it is important to keep in mind that there is a difference between the intention and actually transforming this intention into behavior. Sometimes objective obstacles prohibit the realization of start-up plans. Such obstacles might arise from changing circumstances or from misjudgment. For example, a farmer might believe that the local cooperative will accept him as a member, but later discover that this is not the case.

friends and peers of the decision-maker think and say? This belief is adjusted on the basis of personal propensity to follow the norms or to deviate from them. From this subjective norm is established.

Control beliefs deal with the perceived difficulties of cooperation. If one believes in one's own ability to face and overcome all the possible hurdles on the way to cooperation, this is an important facilitator to developing the intention to join a group of mutual support. For example, many people may think that they lack the ability to deliver necessary paperwork or to fulfil other membership obligations. In the TPB, this individual perception of own abilities to overcome expected hurdles is termed perceived behavioral control.

All three constructs - attitudes, subjective norm, and perceived behavioral control - together form the intention to act in specific way, e.g. to join a group of mutual support. This operationalization is in line with and reflects important elements of the economic theory of cooperation as presented above. By joining a self-help group or cooperative, the individual farmer seeks to reach to a higher level of utility and considers for the decision making both economic and immaterial benefits that depend on social relations and perceived transaction costs.

Figure 1 **The *Theory of Planned Behavior***
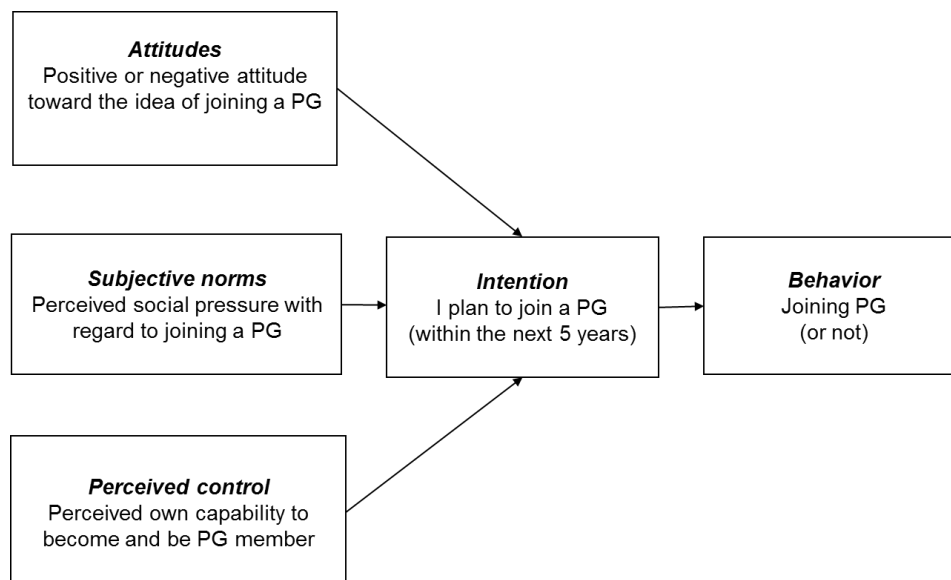
Source: Adapted from Icek Ajzen and Fishbein (2005).

3. Study design and methods

Section 3.1 describes the empirical data set and study design. The data was analyzed using a Structural Equation Model which we introduce in Section 3.2.

3.1. Study design

This work is part of an empirical study conducted in 2013 in Romania. Its main aim was to gather first-hand insights on cooperation of small farmers and in particular on the motivation and obstacles for joining PGs promoted in the framework of the CAP. Here we concentrate on the data that was collected specifically for modelling the intention formation of smallholders when they consider joining PGs.

The survey instrument applied is a structured questionnaire, tailor-made to capture the concepts of the TPB with view to factors that determine the formation of the intention to join PGs. We closely followed Ajzen (2006) in the design of questions relating to TPB constructs. The questionnaire furthermore covers general demographic characteristics, as well as detailed questions on the marketing strategies of the farmers.

The study was carried out in Galati county, a region with many small, but commercial vegetable farmers, the target group of our research. Interviews were conducted by one of the co-authors in the native language. The selection of respondents was done randomly from smallholders gathering on the local wholesale market. The target group was defined as currently being no PG or cooperative member. After removing observations with missing values from our sample of 117 farmers, the final sample consists of 106 cases (Table 1). Almost all of these farmers are – despite their small farm sizes - full-time farmers whose income is mainly coming from tomatoes and other vegetables (Figure 2).

Table 1   Selected sample characteristics, N=106

Gender	81% men
Age	min: 18years; max:84 years; average: 44 years
Farm size (land)	min. 0.6 ha, max. 24 ha; average 2.83 ha
Full time farmers	97%
Share of non-farm income in HH income	93% state to not have any non-farm income
Farm is officially registered	40%
Farm education	70 % have no farm training; 26% participated in short courses
Receiving farm subsidies	82%

Source: Own calculations.

Figure 2   Which is the most important crop for your farm in terms of income?
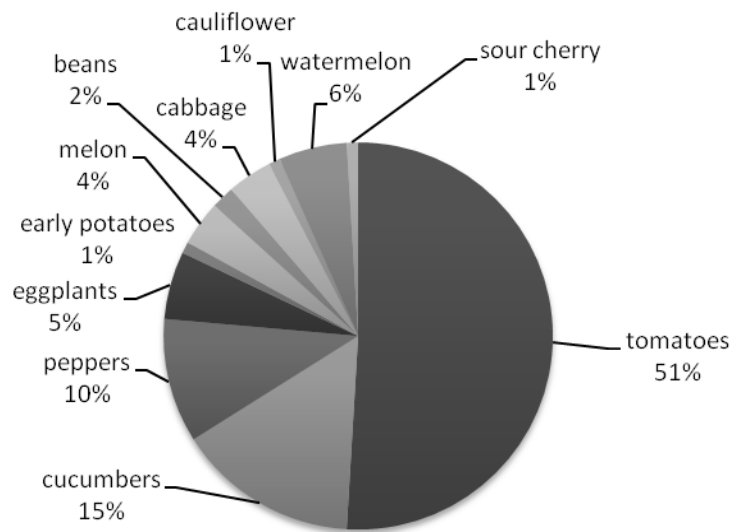
Source: Own calculation.
Note: The percentages show the share of farmers who indicated the respective crop as most important for his/her
         farm income.

3.2. Structural Equation Modelling

We analyze the intention formation with view to joining PGs along the constructs suggested by the TPB. For our analysis we use Partial Least Squares (PLS), a non-parametric approach that is suitable for complex modelling constellations with multiple variables even if the number of observations is limited. The method can be used for both explorative and confirmatory analyses. We apply a confirmative approach by operationalizing the TPB. Such operationalization was tested by many authors in other fields (Armitage & Conner, 2001; Webb & Sheeran, 2006).

PLS maximizes the explained variance of the dependent variable(s) by conducting sequential estimations of a number of fixed equations. Thus, it deals with only one part of the whole model network at a time. The model is prediction oriented, and this is aligned with our aim to explain the intention of farmers to join a PG. Another important advantage is that the model can explicitly deal with non-tangible phenomena. This is in particular useful for cognitive constructs such as attitudes or intentions that are operationalized in our TPB model.

The intangible TPB constructs are represented by measurable indicators, in our case in the form of perceptual variables. These indicators are fed into the so called 'measurement models'. There are two types of measurement models: formative and reflective ones (Coltman, Devinney, Midgley, & Venaik, 2008). In the reflective operationalization the latent variable causes the indicators (the indicators reflect it), while in the formative one the indicators cause (form) the construct. The same

construct can be operationalized in either way. In line with the recommendations for testing construct validity by means of multiple-indicator multiple-cause (MIMIC) analysis (also known as redundancy analysis), we used both formative and reflective indicators (Chin, 1998).

The TPB analyses a behavior that will take place in the near future, in our case fixed to the next five years after the inquiry. As cross-sectional data is analyzed, no statement about the effective behavior of the respondent can be done. This means that we measure the strength of the intention to join, and assume (in line with the literature on the TPB) that the actual behavior is strongly influenced by this intention. Our main interest is thus in identifying the impact of behavioral determinants on the strength of the cooperating intention. Table 2 shows the list of the suggested variables with their wording. The summary statistics for all variables are shown in Table A1 in the Appendix. Intenders clearly prevail in our sample with about two thirds of farmers showing a positive intention to cooperate (Figure 3). This means that the general interest in joining PGs is higher than maybe expected.

Figure 3   Distribution of intention variables in %, N=106
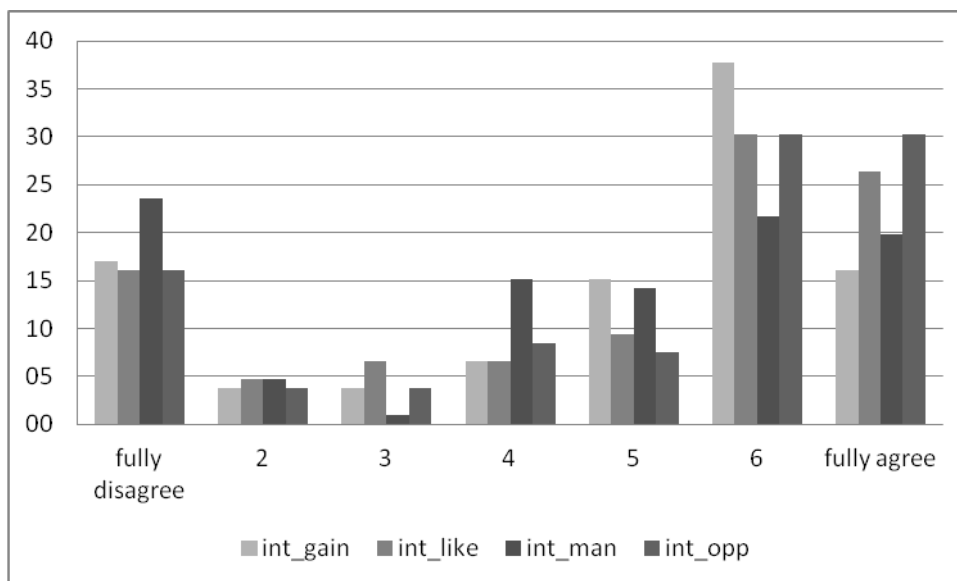
Source: Own calculations.
Note: int_gain = When I think of the benefits of PGs, I plan to join one during the next five years
          int_like = When I think about PGs, I would like to become a PG member in the next five years
          int_man = During the next five years I plan to change my farm management by joining a PG
          int_opp = If the opportunity arises, I would become a member of a PG during the next five years
          All variables are measured on 7-item Likert-style scales (e.g. fully disagree-fully agree) with lower scores
          indicating lower degree of agreement.

Table 2　　Operationalisation of TPB variables

Intent	
int_gain	When I think of the benefits of PGs, I plan to join one during the next five years
int_like	When I think about PGs, I would like to become a PG member in the next five years
int_man	During the next five years I plan to change my farm management by joining a PG
int_opp	If the opportunity arises, I would become a member of a PG during the next five years
Attitude-reflective	
a_adapt	If I were to join a PG in the next 5 years, as a producer I would be better adapted to the demands of the market
a_good	For me, being a member of a PG would be very good
a_helpful	For me, being a member of a PG would be helpful
a_improve	I believe that joining a PG will improve the situation of my farm
a_valuable	For me, being a PG member would be valuable
Attitude-formative	
a_acc_cap	If I were to join a PG in the next five years, I would be able to access capital for my farm business more easily
a_depend	If I were to become a member of a PG, I would not like it to have to give up some autonomy
a_trust	I have no problem trusting the other farmers
a_fees	If I were to become a member of a PG, I would not like it to have to pay a members fee
a_paperwork	If I were to become a member of a PG, I would not like it to have to deal with more bureaucracy than now
a_price	If I were to join a PG in the next five years, I would receive a better price for my products
a_reputation	If I were to join a PG in the next 5 years, I would earn a better reputation in my village
a_subsidy	Receiving subsidies as member of a PG would make me interested in joining a PG
a_train	If I were to become a member of a PG, I would be better trained as farm manager
Norms	
sup_family	My family is in favor of me joining a PG
sup_fellows	My fellow farmers are in favor of me joining a PG
Perceived Behavioral Control (*PBC-reflective*)	
pc_easy	For me, to be a member in a PG within the next five years will most likely be easy
pc_i_can	I can overcome the obstacles one usually faces when becoming a member of PG
pc_obey	I believe I will be able to obey the rules and regulations of the PG
pc_possible	For me, to be a PG member within the next five years will most likely be possible
Perceived Behavioral Control (*PBC-formative*)	
pc_fees	If you were to become a part of a PG how easy would you handle the financial burden of member fees
pc_nooutsale	How easy would you handle the obligation to market almost all your production through the PG
pc_notready	If you were to become a part of a PG how easy would you handle the fear of you not being ready for a PG
pc_resour	I think I have all the resources required to be a member of a PG
pc_skills	I think I have all the skills required to be a member of the PG
pc_time_cost	I think it would take a big effort in terms of own time invested to become member of a PG

Source: Own presentation.

Note:　　PG – Producer group. All variables are measured on 7-item Likert-style scales (e.g. fully disagree-fully agree) with lower scores indicating lower degree of agreement.

4. Results and discussion

We engage in simultaneous estimation of the identified relevant factors in a complex Structural Equation Model. Following TPB, we constructed a specification where intention is predicted by attitudes, social norms and perceived behavioral control. For the calculation we used SmartPLS (Ringle et al., 2014) and applied the path-weighting scheme with 1000 iterations. The results of this estimation are shown in Figure 4. Before we interpret the model, we will prove its validity by showing that the constructs are operationalized correctly and represent valid measures of the theoretical concepts (Diamantopoulos & Winklhofer, 2001).

4.1. Measurement (outer) models

We start with the validation of reflective measurement models and then proceed to the formative ones. Afterwards we assess and interpret the structural results. As explained in Section 3.2 we used redundancy analysis for achieving higher model validity. Because there is a difference in the way reflective and formative measurement models are estimated and validated, they have to be analyzed separately.

4.1.1 Validation of reflective constructs

Three of our constructs are operationalized in a reflective mode: *Attitudes reflective, PBC reflective* and *Intent* (Figure 4). Following Fishbein and Ajzen (2010) and due to the multidimensionality of the construct *Norms*, no reflective indicators are used in this case. Since there is no single criterion for the quality of reflective models, a summary of the widely-accepted thresholds for reliability and validity for our reflective constructs is presented in Table 3.

The criteria for composite reliability (Chronbach's alpha), convergent validity (AVE) and discriminant validity (cross-loadings, Fornell-Larcker and HTMT) all satisfy the recommendations. Here we would like to point out that HTMT is the superior criterion for discriminant validity (Henseler et al., 2014). Based on the listed criteria, no problems could be recognized and thus we consider the suggested reflective operationalisation of constructs valid and reliable.

Figure 4   Results from PLS estimation for predicting the intention to join a producer group within 5 years, N=106
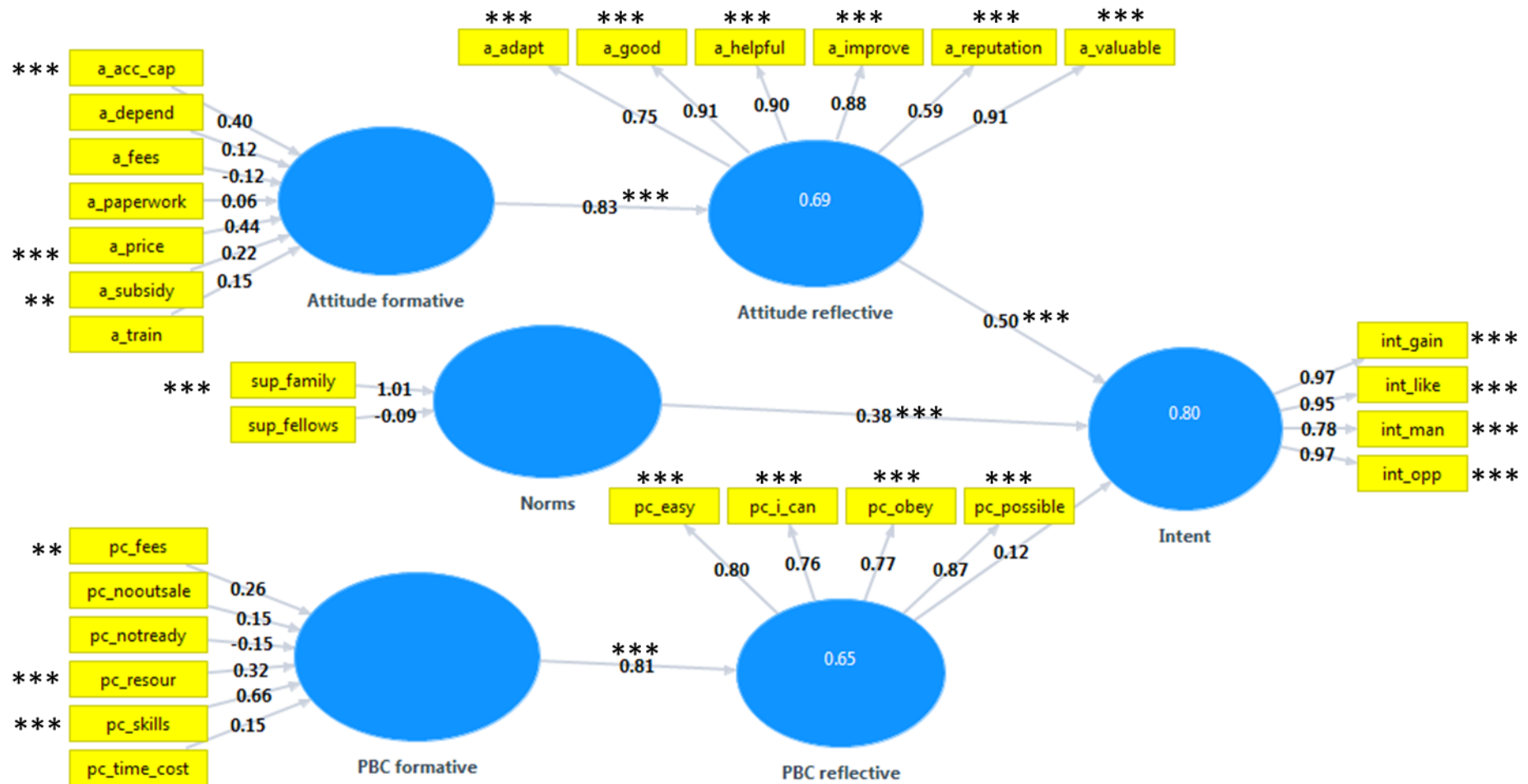
Source: Own calculation with SmartPLS version 3.1.5 (Ringle et al., 2014)
Note: *** - significant at 1%; ** - significant at 5%. Path-weighting scheme, 1000 iterations. Bootstrapping with 5000 samples.

Table 3 Diagnostics of reflective measurement models

	Recommended threshold	*Attitude reflective*	*PBC reflective*	*Intent*
Chronbach's alpha	(>0.7)	0.91	0.81	0.94
AVE	(>0.5)	0.69	0.64	0.84
Outer loadings	(>0.7)	✓	✓	✓
Cross-loadings	Cross-loadings < outer loading	✓	✓	✓
Fornell-Larcker	AVE^0.5>construct crossloadings	0.88>0.80	0.80>0.70	0.92>0.84
HTMT	(≤0.9)		HTMT	
Attitude reflective - Intent			0.90	
Intent – PBC reflective			0.75	
Attitude reflective – PBC refl.			0.80	

Source: Own calculations with SmartPLS version 3.1.5 (Ringle et al. 2014).
Note: For Fornell-Larcker the value of the highest latent variable cross-loading is shown. AVE – average variance extracted; HTMT – heterotrait-monotrait ratio; PBC – perceived behavioral control.

4.1.2 Validation of formative constructs

Formative operationalization requires a census of relevant indicators in which **all relevant factors** which cause (form) the latent construct are covered. A solid theoretical grounding based on insights from the literature and qualitative research should inform the choice of indicators (Diamantopoulos & Winklhofer, 2001). We use formative operationalization for all three cognitive constructs. For the *Norms* construct, we rely on only two indicators which were chosen after a pretest showed that with view to our research question only the family and fellow farmers are relevant peer groups. A longer list of indicators was selected based on our literature review and solid country knowledge for the constructs *Attitude-formative* and *PBC-formative* (see Table 2 for the wording). To prove if the final selection of indicators truly explains the construct, we apply redundancy analysis (Chin, 1998) for the these two formative constructs. [2] For this we estimate a PLS model containing only two latent variables – one represented the construct as formed by its indicators, and the other as forming the indicators (Figure 5).

The path coefficient linking the two constructs is indicative of the validity of the designated set of formative indicators. According to Chin's (1998) recommendation the desired minimum value that should be reached is 0.80 is for the path between the formative and reflective construct. If the formative indicators fail to reach at least 64% in explaining the variance of the latent construct, then the formative set of indicators cannot be considered as valid representation of the reflective construct. Figure 5 shows that both the structural coefficients and values of R^2 are exceeding the minimum recommendations. It appears that the formative indicators of *Attitudes* are performing a bit better than those of *PBC-formative* (69% variance explained vs. 66%). For a first

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[2] Fishbein and Ajzen (2010) do not suggest alternative reflective operationalization of the normative construct and consequently no reflective items are foreseen in our data collection. Therefore, the construct *Norms* is also not part of the redundancy analysis.

operationalization of TPB constructs in the context of smallholders' intention formation to join PGs, we consider the reached values for both latent variables as good.

Figure 5   MIMIC (redundancy) analysis for *Attitude* and *PBC*
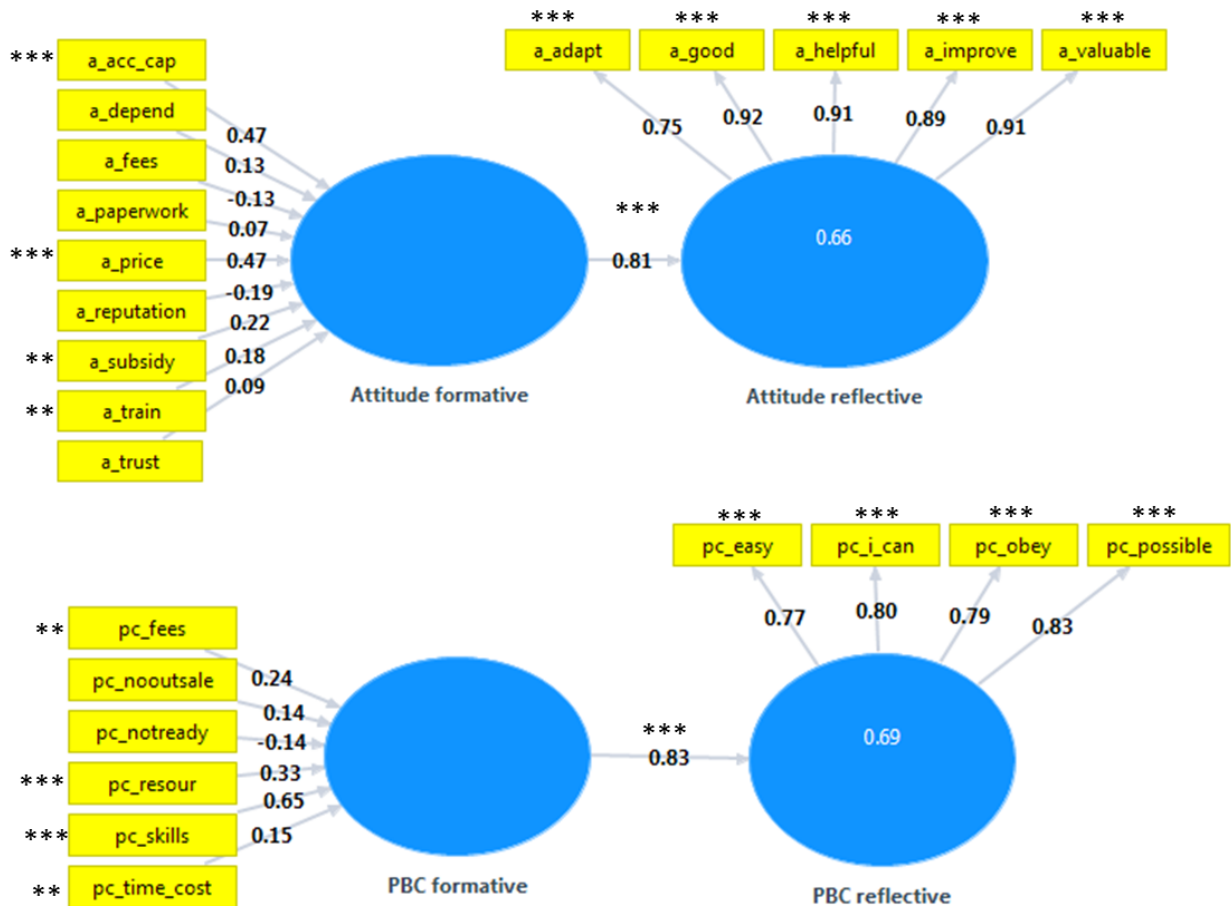
Source: Own calculation.
Note: Ovals represent latent variables, rectangles stand for measurable indicators.

Because the formative PLS estimation follows the logic of ordinary least squares regression, it is crucial to control for eventual multicollinearity problems. Hair et al. (2014) warn against variance inflation factors (VIF) above five. The highest VIF we obtained from the formative constructs is 2.86 giving us confidence that multicollinearity is not an issue in our formative specification.

As a last step of the validation of the formative operationalisation, we focus on the relevance of the separate indicators by analyzing their outer weights. With the help of the bootstrapping procedure (5000 samples) we can show that the outer weights are significantly different from zero. The results are already indicated by the significance levels in Figure 5 above. We can see that for the *Attitude-*

formative construct the indicators a_depend, a_fees, a_paperwork, a_reputation and (surprisingly) a_trust are not significant when it comes to explaining the variance of this latent variable.

Insignificant indicators may be caused by a relatively high number of variables and the relatively small sample size (Cenfetelli & Bassellier, 2009). Those indicators that could not reach significance in the redundancy analysis and with outer loadings below 0.5 are potential candidates for removal: a_depend, a_fees, a_paperwork and a_trust for *Attitude-formative* and pc_nooutsale together with pc_notready for *PBC-formative*.[3] However, removing non-significant indicators would lead to omitting theoretically relevant facets of the latent construct. So we decided to not drop them, because empirical benchmark values for comparison are lacking and the theory as well as own qualitative results suggest that these are crucial dimensions needed to reach content validity. We will therefore continue the estimation with these indicators, but recommend future studies to cross-check and fine-tune the formative operationalisation.

4.2. Structural (inner) model

The assessment of the structural model provides insights on how good the specification predicts the intention to join a PG, and what the relations between the latent constructs are. Again, this is based on ordinary least squares, and multicollinearity should be ruled out in order to receive non-biased coefficients. The key criteria for assessing the structural model is the significance of path coefficients, the level of variance explained (R^2), and the effect size.

First, having 2.13 as the highest inner VIF value, we can confirm that the inner model is not plagued by **collinearity** issues. The path coefficients are indicated next to the arrows between the ovals shown in Figure 4 and correspond to the linear regression coefficients. We see that all structural paths have positive coefficients (as predicted by TPB). Supporting the validity of the preliminary redundancy analysis, the structural coefficients between the reflective and formative operationalisations remained high (0.80 for *Attitude* and 0.81 for *PBC*). The structural path between *PBC* and intention just missed the significance threshold. This means that we should not rely on *PBC* as predictor of the intent to become a member of PG. *Attitude* is the intention antecedent with

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[3] In the Appendix we present additional results showing how each of the formative indicators contributes to the construct if it is included as a single item (Table A2). When both the significance levels in the redundancy model and the absolute importance (outer loadings) hint for the contribution of the indicator, we interpret this as strong argument for retaining the respective variables in the set of formative indicators. We recognize the expectations for receiving easier access to capital (a_acc_cap) and obtaining higher prices for the farm produce (a_price) as the strongest drivers for having positive attitudes towards joining a PG. This is confirmed by the redundancy analysis. In absolute terms the next strongest indicator is the belief that one will receive better management training as a PG member (a_train). It has lower relative importance, but the outer loading table indicates that it should be kept in the formative set. In line with the suggestion of the literature we can confirm also the role of reputation (a_reputation) as crucial for shaping the attitudes of potential PG members. The attraction of potential subsidies for PG members (a_subsidy) is weaker, but still important in absolute terms. The last certain candidate for retaining in this construct is the attraction of subsidies for PG members. With regard to *PBC-formative*, we identify just the resources (pc_resour) and the skills (pc_skills) dimensions as having important absolute contribution for the formation of self-confidence. They should certainly be retained in the specification.

the highest structural coefficient (0.50), followed by the *Norms* construct (0.38). The model has 81% predictive accuracy (R^2=0.81), which without having base for comparison we interpret as very good.

In order to identify the contribution of the direct intention predictors to the total intention variance explained, we calculate the f^2effect size (Cohen, 1988). Supporting the results of the structural path coefficients, in Cohen's terms the effect for *Attitudes* is large (0.60), the one for *Norms i*s medium (0.34) while for the non-significant *PBC* it is only small (0.06).

4.3. Discussion

Model results presented in Section 4 reveal important drivers of intention formation towards joining a cooperative in the form of a PG. Typical obstacles, in economic terms referred to as transaction cost, seem to play an overall insignificant role. In our model they are depicted in the *PBC* construct which comprises factors that facilitate or hinder cooperation and which are related to the perceived ease of conducting the behaviour. Of our formative indicators three are significant in the measurement model. Beside more general concerns about skills and resources that are needed (or have to be obtained) when joining a PG, membership fees are one important obstacle that determines the *PBC* construct. Boosting cooperation does not seem to depend on the abilities of farmers to deal with the paperwork or with their skills: The producers consider themselves capable of conducting all the steps necessary for becoming a PG member, but this does not necessarily mean that they want to do so. The insignificance of the structural path coefficient suggests that compared to *Attitude* and *Norms*, practical obstacles as depicted in our formative measurement model, are not decisive when the intention to joining a PG is formed.

Attitudes have the highest and significant influence on cooperation intentions. This means that if smallholders perceive the expected outcome of joining a PG as positive, this is a strong driver of intention formation. From the formative measurement indicators we conclude that economic reasoning and expected financial benefits are predominant. Three significant indicators relate to financial advantages perceived by the farmer: PG membership is expected to allow easier access to capital, to achieve better prices when selling the produce, and to open up possibilities to receive subsidies. Thus, we conclude that cooperation and PG membership are strongly incentivized by the fact that PGs are a way to solve typical economic problems that small farms in Romania are confronted with. Financing farm investments and achieving production growth is for many smallholders almost impossible since they face difficulties to access bank loans, are often not eligible for farm support under the CAP of the EU, and face tremendous problems to market their

produce (Birhala and Möllers, 2013). Even for our case of small, but commercially-oriented farmers a marketing cooperative could therefore facilitate investments and improve marketing opportunities. Accessing subsidies is identified as important financial incentive that attracts farmers into PGs. Subsidization bears, however, a strong risk for the sustainability of the cooperation when the interest of the farmers is led by short-term financial considerations. Although not significant in the final model, the MIMIC results show that the belief that through the PG membership farmers will improve their management skills might be relevant. This points at a sample of farmers who are clearly aware that the desired higher farm incomes can be reached through better management, both individual management of their farming activities as well as through the higher level cooperative management.

One reason why cooperation in Romania is currently still at a low level might be seen in the fact that the participation in cooperatives depends on the perceived support of the family. This means that if the family members do not support the idea of joining a PG, the probability of forming a positive intention is significantly lowered. Other peer groups seemed to play no role according to our qualitative investigations, which pointed towards family and fellow farmers as the only relevant groups. Our model suggests that fellow farmers are not significantly influencing the cooperative behavior through norms, but we assume that they play a role in the formation of attitudes where they may be perceived as role models. From qualitative results we find for an existing PG that cooperative formation may indeed be related to the common interest within a family. One of the PGs that we researched in more detail was initiated by a larger group of relatives and close friends who joined their forces to improve their business opportunities and to make use of the support offered for PGs under the CAP. In this case one important barrier to cooperating could be overcome: lack of trust. This lack of trust is a well-known phenomenon in the debate on the low level of cooperation in countries with a socialist legacy. In our model, the formative indicator trust showed no significant effect. However, this might be related to a generally very high level of distrust for both intenders and non-intenders (see Figure A1 in the Appendix) and/or a suboptimal operationalization of the trust indicator. That trust is still important is shown in a snapshot of the most common barriers for joining a PG in Figure 6 (based on an open question).

Figure 6   What is the biggest barrier for you for joining a PG?, N=94 (frequencies)
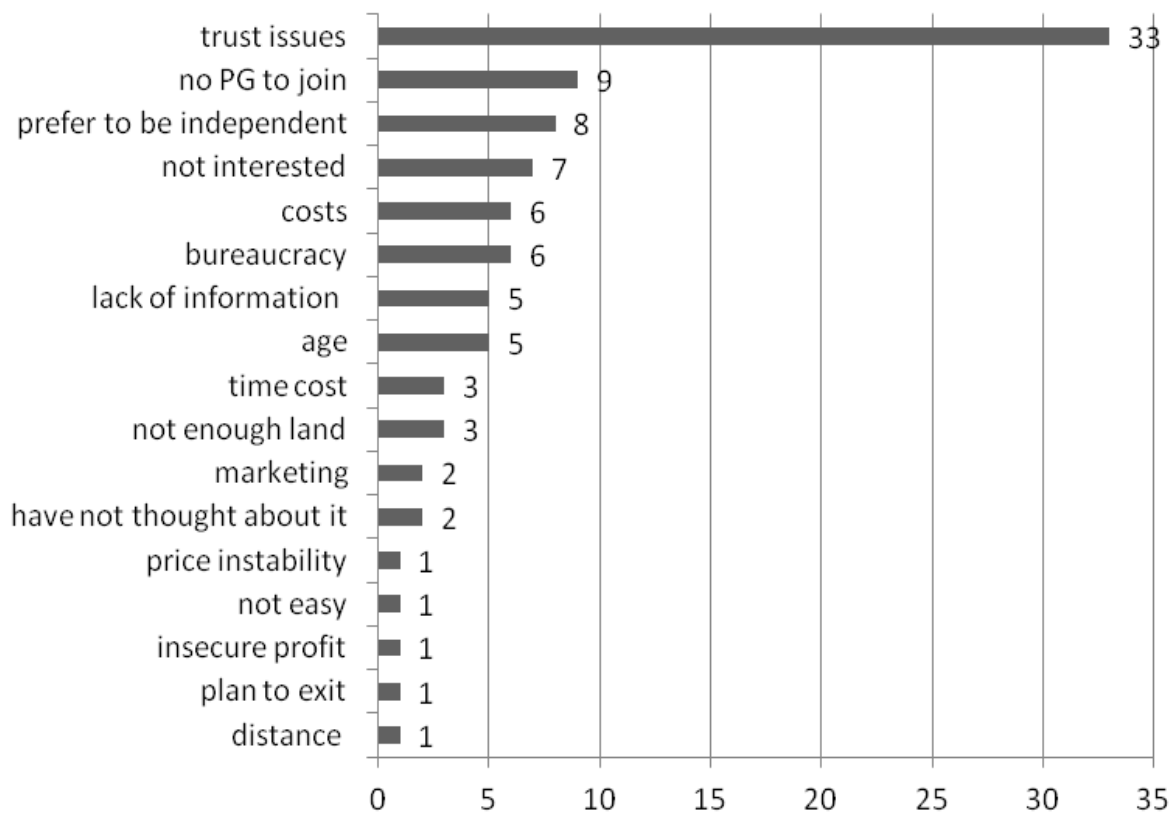
5. Limitations

Despite serious effort in validating the measures and selecting the relevant indicators, there is a chance for omitted variables bias. The limitation of cross-sectional data could be overcome if the study is replicated and the actual behavior of the farmers is observed. PLS assumes that the formative indicators are measured error-free and that the structural model is correctly specified. It also does not go with statistical inference because of its non-parametric nature. The findings should therefore be interpreted with caution. Further validation also by means of other methods (e.g. econometric or qualitative approaches) and samples is recommended. An improved measurement of the issue of trust should be in the focus of future model specification.

6. Conclusions and policy implications

This paper provided detailed insight into the individual motivation of commercially oriented Romanian small-scale farmers to cooperate. The analysis is based on a well-established and proven

theory. Resulting from a Structural Equation Model we identified the main factors which are likely to lead to form individual intentions to join a CAP supported producer group (PG) in transitional contexts such as in Romania.

We find that membership in a PG is clearly attractive for smallholders. The share of intenders is with around two thirds surprisingly high. If this will translate into high cooperation levels in the coming years is, however, difficult to judge. Our model underlines that PG membership is not constrained by important practical barriers. Overall, smallholders seem convinced that they possess all important skills and resources to be able to join. According to our results, the most important and significant influence on the intention strength originates from attitudes followed by social norms. With regard to the latter, especially the perceived social pressure (or support) by the family influences farmers in their intention to join PGs. This is not surprising since their farms are organized as family businesses and strongly depend on the labor input of the family members. As the most pronounced outcome of our analysis we identify perceived economic benefits as the highest incentive to join PGs. The positive attitudes that evolve from expected financial benefits strongly encourage PG membership.

To our surprise, trust turned out as insignificant in our model. However, we consider trust a critical issue, which was also clearly raised by the respondents. However, its role in the formation of the intention to join PGs is not fully clear. One might speculate that trust could become a key factor and important short-term constraint when intentions translate into actual behavior.

With view to policy making, our research underlines that subsidized offers such as the CAP supported PGs meet the economic and financial interests of smallholders and are thus attractive for them. To increase the willingness to cooperate in PGs it is thus important that farmers are well informed about the benefits to be expected from a PG. However, there is a known trade-off between the economic incentive that is offered through direct subsidies and the longer-term sustainability of the cooperation of the PG. Policy makers should therefore ensure that PG support will have longer-term development impacts instead of being just used as a short-termed instrument to access subsidies. The widespread mistrust is another possible threat not only to a successful translation of intentions into actual behavior, but also to the sustainable functioning of the groups. It is also connected to another issue that we did not explicitly include in our analysis: while the majority of respondents expressed an intention to join PGs, it is quite uncertain whether at least the initiative to form such groups can be done on their own account. A qualitative study about group formation in the context of Romanian smallholder farming found that the group promoters among farmers had some characteristics of a 'charismatic leader' (Birhala and Möllers, 2013). They were for example

better educated, familiar with urban environments and showed a certain degree of entrepreneurial spirit. Despite this, they needed outside support to become active. This support was given by a non-governmental organization. In this way, our findings show that small-scale farmers are ready to join PGs and make use of the financial support offered by the EU. However, there might be a need to initiate the group formation process through training and guidance through a selfless third party with some prestige (Müller, 1994) during the first years of their establishment.

Appendix

Table A1   Descriptive statistics of suggested TPB variables (N=106)

| Variable	Mean	Std. Dev.	Min	Max
int_gain	4.76	2.07	1	7
int_like	4.85	2.17	1	7
int_man	4.36	2.24	1	7
int_opp	4.99	2.17	1	7
a_adapt	5.17	1.76	1	7
a_good	4.59	2.04	1	7
a_helpful	5.00	2.00	1	7
a_improve	4.83	1.97	1	7
a_valuable	4.54	2.02	1	7
a_acc_cap	5.17	1.74	1	7
a_depend	3.41	2.34	1	7
a_trust	2.46	1.87	1	7
a_fees	3.27	2.30	1	7
a_paperwork	3.04	2.28	1	7
a_price	5.25	1.59	1	7
a_reputation	4.71	1.72	1	7
a_subsidy	5.12	2.23	1	7
a_train	5.15	1.66	1	7
a_trust	2.46	1.87	1	7
sup_family	4.87	2.18	1	7
sup_fellows	3.37	2.13	1	7
pc_easy	5.00	2.15	1	7
pc_i_can	5.50	1.77	1	7
pc_obey	5.09	2.12	1	7
pc_possible	4.97	2.16	1	7
pc_fees	3.38	2.06	1	7
pc_nooutsale	4.10	2.33	1	7
pc_notready	4.01	2.14	1	7
pc_resour	5.12	1.89	1	7
pc_skills	5.83	1.50	1	7
pc_time_cost	4.44	2.11	1	7

Source: Own calculation.

Table A2   **Outer loadings of formative indicators for *Attitude* and *PBC***

Attitude-formative	Outer loading	*PBC-formative*	Outer loading
a_acc_cap	**0.86**	pc_fees	0.32
a_depend	0.18	pc_nooutsale	0.40
a_fees	0.08	pc_notready	0.30
a_paperwork	-0.01	pc_resour	**0.83**
a_price	**0.83**	pc_skills	**0.93**
a_reputation	**0.58**	pc_time_cost	0.16
a_subsidy	**0.68**		
a_train	**0.73**		
a_trust	0.21		

Source: Own calculation.
Note: Bold numbers indicate absolute important indicators (outer loading >0.5).

Figure A1   **Distribution of the intention to join a PG (int_man) across the trust variable,**

Graphs by SEC5_14
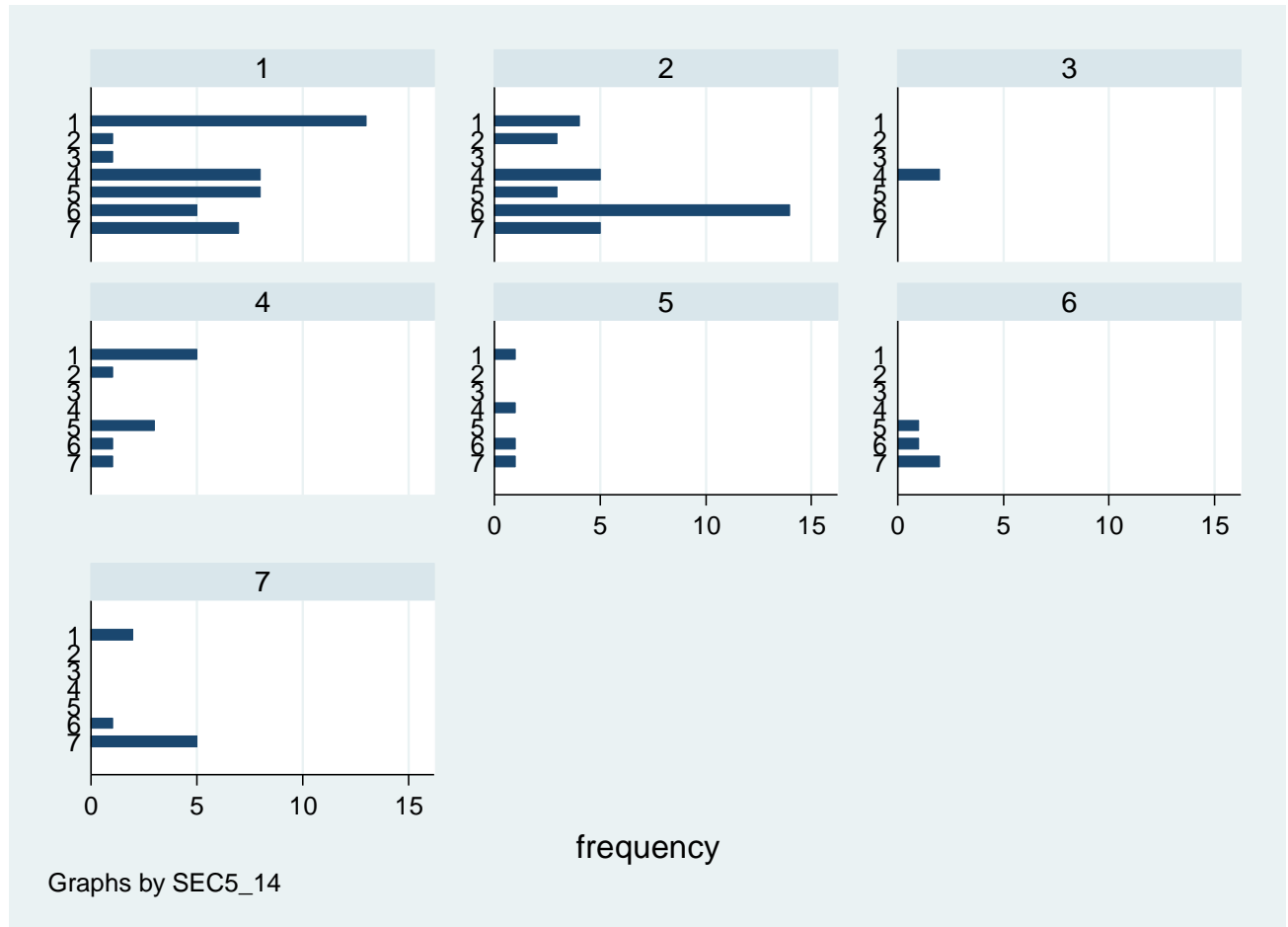
Source: Own calculation.
Note: Each box represents the frequencies for a particular level of the trust variable (a_trust). Within each box the
distribution of the intention level for the particular subgroup is shown.

7. References

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211.

Ajzen, I. (2006). Constructing a TPB questionnaire: Conceptual and methodological considerations. Retrieved August 10, 2008, from http://www-unix.oit.umass.edu/~aizen/

Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behavior. In D. Albarracín, B. T. Johnson & M. P. Zanna (Eds.), *The handbook on attitudes* (pp. 173-221). Mahwah, NJ: Erlbaum.

Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*, 471-499.

Balint, B., & Wobst, P. (2006). Institutional Factors and Market Participation by Individual Farmers: The Case of Romania. *Post-Communist Economies, 18*(1), 101-121.

Bijman, J., Iliopoulos, C., Poppe, K., Gijselinckx, C., Hagedorn, K., Hanisch, M., van der Sangen, G. (2012). Support for Farmers' Cooperatives. Final Report. Wageningen: Wageningen UR.

Birhala, B., & J. Möllers (2013). , H. S., D: . (2013). Community Supported Agriculture in Romania: is it driven by economy or solidarity? *IAMO Discussion Paper No. 144*. Halle (Saale): Leibniz Institute for Agricultural Development in Transition Economies (IAMO).

Calinescu, D. (2012). Support for Farmers' Cooperatives. Country Report Romania. Wageningen: Wageningen UR.

Cenfetelli, R. T., & Bassellier, G. (2009). Interpretation of formative measurement in information systems research. *MIS Quarterly, 33*(4), 689-707.

Chin, W. (1998). The partial least squares approach to structural equation modelling. In G. A. Marcoulides (Ed.), *Modern methods of business research* (pp. 295-335). London: Lawrenc Erlbaum Associates.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2 ed.). Hillsdale, NJ, USA: Lawrence Erlbaum Associates.

Coltman, T., Devinney, T. M., Midgley, D. F., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business Research, 61*(12), 1250-1262.

Cook, M. L. (1995). The Future of US Agricultural Cooperatives: A Neo-Institutional Approach. *American Journal of Agricultural Economics, 77*(5), 1153-1159.

Diamantopoulos, A., & Winklhofer, H. M. (2001). Index Construction with Formative Indicators: An Alternative to Scale Development. *Journal of Marketing Research, 38*(2), 269-277.

Douglas, E. J., & Shepherd, D. A. (2000). Entrepreneurship as a utility maximizing response - Entrepreneurial management. *Journal of Business Venturing, 15*, 231-251.

Douglas, E. J., & Shepherd, D. A. (2002). Self-employment as a Career Choice: Attitudes, Entrepreneurial Intentions and Utility Maximisation. *Entrepreneurship Theory and Practice, 26*(3), 81-90.

Draheim, G. (1955). *Die Genossenschaft als Unternehmungstyp* (2nd ed. ed.). Göttingen: Vandenhoeck and Ruprecht.

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior. The reasoned action approach*. New York: Psychology Press.

Fürstenberg, F. (1994). Group, The Cooperative. In E. Dülfer (Ed.), *International Handbook of Cooperative Organizations* (pp. 409-412). Göttingen: Vandenhoeck and Ruprecht.

Golovina, S., & Nilsson, J. (2011). The Russian top-down organised co-operatives – reasons behind the failure. *Post-Communist Economies, 23*(1), 55-67.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Los Angeles: SAGE Publications

Henseler, J., Ringle, C., & Sarstedt, M. (2014). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*. doi: 10.1007/s11747-014-0403-8

Jones, D. C., & Kalmi, P. (2009). Trust, Inequality and the Size of the Co-operative Sector: Cross-Country Evidence. *Annals of Public and Cooperative Economics, 80*(2), 165-195.

Laurinkari, J. (1994). Motivation for Cooperation. In E. Dülfer (Ed.), *International Handbook of Cooperative Organizations* (pp. 620-622). Göttingen: Vandenhoeck and Ruprecht.

March, J. G., & Simon, H. A. (1961). *Organizations* (3rd ed. ed.). New York: Wiley.

Möllers, J., & Buchenrieder, G. (2005). Theoretical concepts for the analysis of non-farm rural employment. *Quarterly Journal of International Agriculture, 44*, 19-36.

Müller, J. O. (1994). Strategies Employed When Establishing Co-operatives. In E. Dülfer (Ed.), *International Handbook of Cooperative Organizations* (pp. 841-846). Göttingen: Vandenhoeck and Ruprecht.

Ringle, C. M., Wende, S., & Becker, J.-M. (2014). SmartPLS 3 (Version Version 3.1.5). Hamburg: SmartPLS. Retrieved from http://www.smartpls.de

Ringle, G. (1994). Incentives of Co-operatives. In E. Dülfer (Ed.), *International Handbook of Cooperative Organizations* (pp. 461-464). Göttingen: Vandenhoeck and Ruprecht.

Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin, 132*(2), 249-268.