Member or customer? Farmer commitment to supply cooperatives

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Abstract
Cooperative scholars have warned that member commitment is decreasing, which may impact the efficiency and viability of the cooperative. This study explores the determinants of farmer commitment to supply cooperatives. Moreover, the commitment of customers of cooperative is compared with the commitment of customers of IOFs. Based on a survey among Dutch animal farmers who purchase feed from an IOF or a cooperative, we found that farmers’ commitment to their feed supplier is affected by market positioning, customer relationships, cooperative characteristics and social network. Members’ commitment to their supply cooperative is particularly influenced by their participation in the governance of the cooperative, exit costs, perceived low prices, and some elements of social network. Customers of cooperatives are more loyal to their supplier than customers of IOFs.

Keywords: member commitment, agricultural cooperative, marketing

1. Introduction

Member commitment is an important issue for farmer-owned cooperatives. As agricultural cooperatives become larger and more diverse, both in membership and activities, the commitment of their members is no longer self-evident (Bhuyan, 2007; Fulton, 1995; Lang and Fulton, 2004; Fulton and Giannakas, 2007). Farmers have become more critical towards the cooperative, community norms about membership have become weaker, and farmers have more alternatives for buying their inputs and selling their outputs. Cooperatives, however, need their members for efficient operations, planning, capital contributions, and participation in the governance of the organization (Österberg and Nilsson, 2009).

Our paper focusses on member commitment in farm supply cooperatives. Most of the literature on member commitment in agricultural cooperatives deals with marketing cooperatives. This focus can be explained by the restructuring processes among marketing cooperatives over the last two decades (Grunert et al., 1996; Meulenberg and Viaene, 2005). Due to market liberalization, changing consumer preferences and increasing concentration in food distribution, marketing cooperatives were forced to enhance their customer orientation (Bijman, 2010). Supply cooperatives have received much less attention in studies on member commitment.

Farmers have a dual relationship with their supply cooperative. On the one hand, farmers are customers of the supply cooperative. This relationship is described in the
marketing literature, which focusses on buyer-seller relationships. On the other hand, the same farmers are members of the cooperative, which implies they jointly own the cooperative firm. Member commitment can be determined both by the member-cooperative relationship and by the customer-supplier relationship. No studies exist that have disentangled these two elements of member commitment to supply cooperatives.

The paper has the following objectives. First, it wants to present a comprehensive definition and operationalization of customer commitment that can be applied to both supply cooperatives and supplying IOFs. Second, it seeks to identify the factors that determine customers’ commitment to supplying firms. Third, it seeks to identify and explain the difference in customer commitment between the members/customers of a cooperative and the customers of an IOF. The paper is based on an empirical study among animal farmers in the Netherlands, conducted in 2010.

This paper is structured as follows. In section 2 we present a brief review of the literature on the importance of member commitment to cooperatives, on the determinants of member commitment and customer commitment. In section 3 we present our methods and data, while section 4 gives the empirical results. Discussion of our findings and concluding remarks are presented in section 5.

2. Literature review

2.1 Importance of member commitment for cooperatives

Commitment is considered important for the viability of cooperatives. According to Fulton and Giannakas (2007: 93), member commitment is “of vital importance to the organization and to the well being of the members – as membership commitment wanes, so does the financial and organizational health of the organization and with it its ability to provide goods and services to the members.” But why is member commitment so important for cooperatives? Spiller and Wocken (2006) and Österberg and Nilsson (2009) have presented a number of arguments, relating to efficient operations, efficient decision-making, low cost of capital, and low transaction costs. The argument about efficient operations poses that committed members are willing to enter into a long-term relationship with the cooperative firm, giving the latter the opportunity to make long-term investments. The other three arguments coincide with the often used tripartite relationship between members and their cooperative; members have a control relationship, a financing (or ownership) relationship and
a transaction relationship with their cooperative. We now briefly discuss these three arguments; the argument about efficient operations is to our opinion not specific for cooperatives.

First, as cooperatives are member-governed organisations, members are needed in the governing (or controlling) bodies such as participation in the General Assembly, in the Board of Directors and in special committees. Members need to vote in the election of directors, need to give consent (or disapproval) for major investment, and need to control the decisions of board and management (Bhuyan, 2007). Committed members are more likely to hold the management and the board to high standards of performance (Trechter et al., 2002). If members are not committed, they may not want to invest time and effort in participating in the governance of the cooperative. Participation and commitment have a mutual effect. Österberg and Nilsson (2009) found that members perception of their participation in the governance of the cooperative positively affects member commitment to the cooperative. Not only does participation in the governance support commitment to the organisation in general, it also supports commitment to the decisions of the board of directors and thereby makes implementation of those decisions more easy. In other words, the more committed the membership the more likely the cooperative can make decisions by consensus, which in turn supports smooth and efficient implementation of decisions (Reynolds, 1997).

Second, one of the basic characteristics of all cooperatives is member-ownership, which implies that members provide the majority of the equity capital needed for running the cooperative business. Low commitment of members results in low willingness of members to provide equity capital, which is particularly problematic when the cooperative needs additional funding (Cook, 1995). Next to supplying equity capital, members are also asked to provide debt capital on voluntary basis. Less committed members are less inclined to lent money to their cooperative, or require a higher interest rate. In sum, a committed membership leads to lower costs of capital for the cooperative.

Third, commitment reduces transaction costs in the member-cooperative transactions (Fulton, 1999). Transaction costs are low when the chance of opportunistic behaviour by members is low. Committed members are less likely to behave as free riders in their dealings with the cooperative. In addition, committed members may be more willing to exchange private information with the cooperative firm, such as information on the quality of the products delivered. If the cooperative cannot fully trust its members, it has to install expensive control measures which raises transaction costs. Thus, member commitment lowers the cost of the transactions between members and cooperative.
2.3 **Determinants of member commitment**

Member commitment to a cooperative is defined as the willingness of members to continue selling through the cooperative (or buying from the cooperative in the case of a supply cooperative) even when outside alternatives are more attractive. For instance, Fulton (1999: 423) defines member commitment as “the preference of co-op members to patronize a co-op even when the co-op’s price or service is not as good as that provided by an investor-owned firm (IOF).”

What factors determine member commitment to cooperatives? What characteristics of the members and the cooperative, and what conditions internal and external to the cooperative, lead to high or low levels of member commitment? Both in the marketing literature and in the literature on member commitment, social and economic determinants are often distinguished. A third factor determining member commitment, typical for cooperatives, relates to organizational issues.

One of the social factors affecting member commitment is trust. In the marketing channel literature, trust has been found to positively affect commitment in a buyer-seller relationship (Morgan and Hunt, 1994). In a study on commitment to group purchasing organisations, Doucette (1997) found that trust positively affected member commitment. In his study on social mechanisms in cooperatives, Borgen (2001) has posited that the more members identify with the cooperative, the more they trust the leadership of the cooperative, and the more they are willing to commit themselves to the strategies of the cooperative. Hansen et al. (2002) found that trust among members and trust between members and the management of the agricultural cooperative are important predictors of group cohesion, which is a measure of the strength of members’ desires to remain in a group (co-op) and, thus, their commitment to it.

Organisational factors also influence member commitment in cooperatives. For instance, Trechter et al. (2002) found that a member who has served on a board of directors, served on a cooperative committee, or received cooperative education, tends to be more committed to the cooperative. Also Österberg and Nilsson (2009) have shown that member participation in the governance of a cooperative enhances member commitment.

Fulton and Giannakas (2001) argue that member commitment is determined by the belief that the cooperative is operating on behalf of the member. The authors present five determinants of member commitment, all contributing to the perceived quality of the supply
cooperative. First, the price of product or service provided by the cooperative has to be right. “Member commitment is also likely to be low when the co-op is unable to maintain production efficiency, because higher costs raise prices regardless of the objective pursued by the co-op” (Fulton and Giannakas, 2001: 1264). Second, members need to perceive a connection between the success of the cooperative and the success of the members individually. A lack of connection, for instance if there is real or perceived cross-subsidization among different activities, negatively affects member commitment. Third, higher member heterogeneity may lead to lower commitment, because heterogeneity makes it more difficult for the cooperative to demonstrate that it is operating in the best interests of all the members. Fourth, the way property rights are defined and allocated in the cooperative may affect commitment. When property rights are vaguely defined (Cook 1995), it is more difficult for the cooperative to convince all members that it is operating on their behalf, thus leading to the perception among members that others are free riding on the group. Fifth, internal governance structure affects commitment. When cooperative decision-making is not transparent and not responsive to member needs, and when it is subject to manipulation by member subgroups or by the management, members are less likely to perceive that the cooperative is acting in their best interests. These five determinants fall in the economic (determinants 1 to 4) and organisational (determinant 5) categories distinguished above.

There are few empirical studies on the factors that influence member commitment in cooperatives, and most of it has been carried out in North America. The most extensive study on the determinants of member commitment in cooperatives is Trechter et al. (2002). These authors found the following results. The commitment level declines as the level of formal education of a member increases. In contrast, being active in the governance of the cooperative tends to increase committed to the cooperative. No support was found for the often theorized hypothesis that older farmers, due to the horizon problem, will have a lower level of commitment. As to cooperative characteristics, the size, complexity, and type of cooperative are all systematically related to commitment. The complexity of the cooperative structure, as indicated by the number of sites from which the cooperative operates has a significant and negative relationship with member commitment. As to the type of cooperative, the authors found that supply cooperatives generally have more committed members than for instance marketing cooperatives. Also the communication strategy of the cooperative affects member commitment. The authors found a statistically significant relationship between member commitment and communications with the manager, and between member commitment and the number of press releases issued by the cooperative per year. Good
communication with the manager is strongly related to member commitment in a positive way. Press releases may relate to the general perception of the cooperative in the community; more press releases lead to higher commitment. The impact of communication on member commitment is of direct interest to the management of the cooperative, as communication is a variable that is to a large extent under control of the management.

2.4 Determinants of customer commitment

Commitment of customers to their supplier has been extensively studied in the field of relationship marketing and marketing channel management. Commitment typically has been defined as a channel member’s intention to continue the relationship (e.g. Anderson and Weitz, 1989; Dwyer et al., 1987). Of the different elements of commitment distinguished by organizational scholars, affective commitment and calculative commitment have been argued to be the most relevant for interorganisational relationships (Mathieu and Zajac, 1990). Affective commitment expresses the extent to which channel members like to maintain their relationship with specific partners, while calculative commitment measures the degree to which channel members experience the need to maintain a relationship given the significant anticipated termination or switching costs associated with leaving (Geyskens et al., 1996).

The distinction between affective commitment and calculative commitment is important because the two types have different determinants. While affective commitment is mainly influenced by social factors like trust and identity, calculative commitment is particularly related to the extent of dependency between customer and supplier and to the direct benefit that customer and/or supplier obtains from continuing the relationship. The extent of dependency varies with the alternative options available and with the extent of such costs. Dependency leads to termination costs or switching costs. The extent of direct economic benefit of a particular relationship is determined by the expected benefits of the alternative options. The assessment of current offer in terms of price, quality, delivery and other services compared to offers from other suppliers determines whether continued trading takes place.

Morgan and Hunt (1994: 23) have defined commitment as “an exchange partner believing that an ongoing relationship with another is so important as to warrant maximum efforts at maintaining it; that is, the committed party believes the relationship is worth working on to ensure it endures indefinitely.” Morgan and Hunt (1994) found the following factors to positively influence commitment in buyer-seller relationships: relationship
termination costs, relationship benefits, shared values, and trust (the latter determined by communication and absence of opportunistic behaviour).

Normative elements do not seem to play any role in commitment as conceptualized in the relationship marketing literature. For cooperatives, however, normative commitment has traditionally been important, because they operated in small rural communities. With the growth of the cooperatives beyond local communities, this normative commitment may have changed. In addition, ideology has always played a major role in promoting farmers to become member. Cooperatives not only were perceived as beneficial for rural economic and social development, they were also considered as important vehicles for introducing democratic decision-making in rural communities. Thus, in these communities, commitment to the local cooperative often was (and may still be) the norm.

In the literature on relationship marketing no clear distinction is made between loyalty and commitment. For instance, Oliver (1999) defines consumer loyalty as a “deeply held commitment to rebuy or repatronize a preferred product or service in the future, thereby causing repetitive same brand or same brand-set purchasing, despite situational influences and marketing effort having the potential to cause switching behavior” (Oliver, 1999: 34; italics in original).

2.5 Definition, determinants, and hypotheses

Our research question requires a definition of commitment that incorporates member commitment and customer commitment. On the basis of this review of the literature on customer commitment and member commitment, we have developed an operational definition of customer commitment that includes three elements: loyalty, identity, and effort. Loyalty relates to that part of commitment that measures the willingness of the farmer to continue patronizing the supplier. Identity relates to that part of commitment that measures the adherence to the goals, norms and values of the supplier. Effort relates to that part of commitment that measures the willingness to invest in the continuation of the relationship.

The literature also provided us a long list of potential determinants of customer commitment. We have grouped these determinants into four categories: market positioning, customer relationships, cooperatives characteristics and social network. Under market positioning we have clustered those (economic) factors that provide direct benefit for the farmer: low price, high product quality, high transaction services, high quality of the sales representatives, and attractiveness of alternative suppliers. The second category brings
together a number of determinants that represent customer relationship. From the relationship marketing literature we know that customer commitment is also determined by a personal relationship with the seller, the quality of the communication in the relationship, the extent of trust in the relationship, the expectation about the (future of the) relationship, and the extent of the farmer’s dependence on the relationship. The third category consists of determinants that relate to the social and professional network in which the farmer participates. This category includes commitment of other customers, positive references provided by other customers, the number of other customers in the neighbourhood, and the extent to which the supplier is involved in the professional network of the farmer. In addition to these three groups of determinants, which are assumed to affect customer commitment to both IOF and cooperative suppliers, we distinguish a number of factors that are specific to cooperatives. This fourth group of determinants includes exit costs, communication about strategy, trust in the cooperative, and participation in the governance of the cooperative.

In order to assess whether these potential determinants really affect customer commitment, we test the following hypotheses:

H1: Market positioning positively influences customer commitment
H2: Customer relationships positively influences customer commitment
H3: Cooperative characteristics positively influences customer commitment
H4: Social network positively influences customer commitment

3. Data and methods

3.1 The sample

In 2008, the Netherlands had 30 companies (with more than 50 employees) producing animal feed. However, the Dutch market for animal feed was dominated by 5 large companies, who accounted for almost 70% of the market (ter Horst and Oppewal, 2009). Of these five companies, three were cooperatives and two were IOFs. The other 30% of the market was serviced by both cooperatives and IOFs. The number of professional farmers with animals (cattle, pigs, goats, sheep, horses, and chicken) was approximately 45,000.

In April of 2010, a 2-page questionnaire was send out, by regular mail, to 500 animal farmers throughout The Netherlands. In order to have a good representation of different farmers with different animals, 166 questionnaire were send to poultry farmers, 167
questionnaires to cattle farmers, and 166 to hog farmers. Out of these 500, 135 were returned, giving a response rate of 27%. Due to several incomplete questionnaires and some farmers having terminated their farm, eventually 116 questionnaires could be used for the analysis (which is a 23% response rate).

Of the 116 respondents, exactly one half were member of cooperatives and one half were customer of an IOF. Of these 116 farms, 53 had cattle, 41 had hogs, 30 had poultry and 3 had other animals. Eleven farmers had more than one type of animals.

3.2 Measures

All the concepts in our model were measured using a questionnaire with statements (see Appendix 1 for the list of statements). Respondents rated the statements on a 5 point Likert scale anchored by ‘not agree’ (1) versus ‘agree’ (7). For all measures factor scores are used in further analyses. The properties of each measure are provided below.

Measurement properties are assessed with principal component analysis (PCA) and reliability analysis (Cronbach’s Alpha). The PCA of each measure should provide support for a one component solution. Indications for a one component solution are a scree plot with a sharp decrease in Eigenvalue from the first to the second component and a gradual decrease in Eigenvalues from the second component onwards; an Eigen value of the second component, which is smaller than one, and a first component that accounts for a minimum of 50% of the variance in the items (Hair, Anderson, and Tatham, 1992). Moreover, all items should have a loading on the first component (before rotation) higher than 0.6. Finally the reliability of the scale as indicated by Cronbach’s Alpha should be higher than 0.6.

Discriminant validity was tested by including all items in a PCA with one component for each measure. This was done separately for measures related to market positioning, customer relationship, cooperative characteristics, and social network. All items should have the highest loading on the expected component.

Table 1 shows the results of the assessment of the measures. Measures that meet all the criteria will not be discussed. The measured discussed below are highlighted in the table. Customer commitment was considered a second order factor comprised of loyalty, identity, and effort. Loyalty, identity, and effort meet all the criteria for good measurement properties, including discriminant validity. However, they are highly correlated and thus a PCA including the factor scores of these measures provides support for a second order factor model. Thus customer commitment is used as one single dependent variable in our model.
“Attractiveness of alternative offers” did not meet the criteria for discriminant validity because three out of the four items loaded on the same component as “high product quality”. However, these items were not added to the measure for “high product quality” because the items were supposed to measure something else, which would reduce the face validity. Consequently attractiveness of alternative offers is not considered in further analyses.

One item from our measure for the personal relationship with the supplier was removed from the measure because it had a low item loading on the first component (0.42), which resulted also in a low variance explained. This item referred to multiple contacts in the supplying firm, while other items did not do that explicitly. After removing this item the measure met all the criteria.

One item from our measure for trust in the relationship with the supplier was removed from the measure because it had a low item loading on the first component (0.47). This item referred to the need for contractual arrangements (reversed), which apparently is not the exact opposite of trust.

One item from our measure for dependence on the relationship was removed from the measure because it had a low item loading on the first component (0.05), which also resulted in an eigenvalue of the second component that was higher than 1. This item referred to the difficulty of replacing the sales representative of the suppliers, which apparently is not the same as replacing the supplier.

When, after purification of the individual measures (not discussed), all items that measure cooperative characteristics were included in one PCA, it showed that a two component solution was appropriate. All items of the measures for communication about strategy, cooperative trust, and cooperative governance showed high loadings on one component. We decided, therefore, to included these items in one single measure labelled participation, which showed good measurement properties.

<p>| Table 1. Measurement scale properties |</p>
<table>
<thead>
<tr>
<th>Scale</th>
<th># items</th>
<th>Eigen value</th>
<th>Variance explained</th>
<th>Lowest item loading</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer commitment</td>
<td>3</td>
<td>0.48</td>
<td>69</td>
<td>0.83</td>
<td>0.78</td>
</tr>
<tr>
<td>Loyalty</td>
<td>5</td>
<td>0.70</td>
<td>65</td>
<td>0.72</td>
<td>0.86</td>
</tr>
<tr>
<td>Identity</td>
<td>6</td>
<td>0.82</td>
<td>61</td>
<td>0.71</td>
<td>0.87</td>
</tr>
<tr>
<td>Effort</td>
<td>4</td>
<td>0.58</td>
<td>65</td>
<td>0.75</td>
<td>0.82</td>
</tr>
<tr>
<td>Market positioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low prices</td>
<td>3</td>
<td>0.59</td>
<td>70</td>
<td>0.76</td>
<td>0.77</td>
</tr>
<tr>
<td>High product quality</td>
<td>3</td>
<td>0.45</td>
<td>76</td>
<td>0.84</td>
<td>0.84</td>
</tr>
<tr>
<td>Good transaction service</td>
<td>4</td>
<td>0.61</td>
<td>75</td>
<td>0.76</td>
<td>0.87</td>
</tr>
</tbody>
</table>
High quality sales representatives  4  0.71  67  0.64  0.82  
Attractiveness of alternative offers  4  1.01  52  0.39  0.68  
  • Attractiveness of alternative offers  3  0.70  66  0.69  0.74  
Customer relationship  
  • Personal relationship  4  0.71  58  0.69  0.74  
  • Relationship communication  4  0.57  68  0.80  0.84  
Trust in the relationship  4  0.87  58  0.47  0.68  
  • Trust in the relationship  3  0.51  73  0.82  0.81  
  • High expectations about the relationship  4  0.79  61  0.76  0.78  
Dependence on the relationship  6  1.03  50  0.05  0.76  
  • Dependence on the relationship  5  0.77  61  0.65  0.83  
Cooperative characteristics  
  • Exit costs  3  0.63  68  0.73  0.77  
Communication about strategy  4  0.67  64  0.68  0.80  
  • Cooperative trust  4  0.93  55  0.38  0.67  
  • Cooperative governance  4  0.90  55  0.42  0.70  
  • Participation  10  0.89  54  0.61  0.90  
Social network  
  • Commitment of other customers  2  0.27  87  0.93  0.84  
  • Positive references from other customers  2  0.37  82  0.90  0.77  
  • Customers in the neighborhood  1  
  • Supplier involvement in professional network  1  

3.3 Analyses

We use Ordinary Least Squares (OLS) regression to test the relationships in our model. We use an F-test to test whether groups of variables (e.g. such as the variables related to market positioning) are significant explanatory variables. In other words, we restrict the coefficients for these variables to 0 and test whether the residual sum of squares in this restricted model is significantly higher than in the unrestricted model.

We also test for mediation by systematically omitting groups of variables (Baron and Kenny, 1986). Mediation of variables B in the relationship between A and C is proven when:

1. B has a significant influence on C when A and B are both included as independent variables in the regression.
2. A does not have has a significant influence on C when A and B are both included as independent variables in the regression.
3. A has a significant influence on C when B is not included as a dependent variable in the regression with C as the dependent variable.

A, B, and C can also be groups of variables.
4. Results

Results of regression analyses of customer commitment on market positioning, customer relationships, cooperative characteristics, and social network, individually support Hypotheses 1 to 4 (see Table 2).

Market positioning explains customer commitment ($F = 15.2; p < 0.01$). Market positioning, however, does not mediate the relationship between cooperative membership and customer commitment ($b = 0.31; p = 0.05$). Low price ($b = 0.14; p = 0.07$), high product quality ($b = 0.38; p < 0.01$), and high quality sales representative ($b = 0.20; p = 0.02$), positively influence customer commitment, but no support is found for a positive influence of high transaction services ($b = 0.12; p = 0.15$).

Table 2. Regression coefficients explaining customer commitment to the supplier

<table>
<thead>
<tr>
<th>Customer commitment</th>
<th>Cooperative membership</th>
<th>Market positioning (F-change)</th>
<th>Customer relationships (F-change)</th>
<th>Cooperative characteristics (F-change)</th>
<th>Social network (F-change)</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13.1 ***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21.30 ***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27.4 ***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.8 ***</td>
</tr>
<tr>
<td>R²</td>
<td>0.37</td>
<td>0.54</td>
<td>0.42</td>
<td>0.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>116</td>
<td>116</td>
<td>116</td>
<td>116</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: authors’ survey

Customer relationships also explain customer commitment ($F = 24.4; p < 0.01$). Moreover, customer relationships mediate the relationship between cooperative membership and customer commitment ($b = 0.20; p = 0.14$). Personal relationship ($b = 0.27; p < 0.01$), trust in the relationship ($b = 0.39; p < 0.01$), and dependence on the relationship ($b = 0.20; p = 0.02$), positively influence customer commitment, but no support is found for a positive
influence of relationship communication (b = 0.03; p = 0.78), and high expectations about the relationship (b = 0.11; p = 0.16).

Cooperative characteristics explain customer commitment (F = 38.7; p < 0.01), which fully mediates the relationship between cooperative membership and customer commitment (b = -0.03; p = 0.83). Both exit costs (b = 0.21; p < 0.01) and participation (b = 0.91; p < 0.01) positively influence customer commitment.

Social network also explains customer commitment (F = 13.7; p < 0.01), which also mediates the relationship between cooperative membership and customer commitment (b = 0.08; p = 0.11). Commitment of other customers (b = 0.17; p = 0.05), and positive references from other customers (b = 0.43; p < 0.01) positively influence customer commitment. No support is found for a positive influence of customers in the neighborhood (b = 0.06; p = 0.39), and suppliers involvement in professional networks (b = 0.09; p = 0.26).

Results of regression analyses of customer commitment on market positioning, customer relationships, cooperative characteristics, and social network, together support Hypotheses 2 to 4, but not Hypothesis 1. Column 2 in Table 3 shows that customer relationships (F = 3.25; p < 0.01), cooperative characteristics (F = 2.74; p < 0.07), and social network (F = 2.18; p = 0.08) directly influence customer commitment, but there is no indication of a direct influence of market positioning (F = 0.297; p = 0.88). This suggests that the influence of market positioning on customer commitment is mediated by other variables.

Customer relationships mediate the influence of market positioning on customer commitment as indicated by the results in the third column of Table 3. When customer relationships are included in the regression analyses the influence of market positioning is no longer significant (F = 0.61; p = 0.66). However, the influence of market positioning remains significant when cooperative characteristics (F = 4.15; p < 0.01) or social network (F = 5.48; p < 0.01) are included in the regression analyses.

Table 3: Regression coefficients exploring direct and indirect influences on customer commitment

<table>
<thead>
<tr>
<th>Customer commitment</th>
<th>Cooperative supplier</th>
<th>Market positioning (F-change)</th>
<th>Low prices</th>
<th>High product quality</th>
<th>Good transaction service</th>
<th>High quality sales representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.04</td>
<td>0.29</td>
<td>-0.03</td>
<td>0.08</td>
<td>0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.61</td>
<td>0.05</td>
<td>0.12</td>
<td>0.01</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.15 ***</td>
<td>0.00</td>
<td>0.23 ***</td>
<td>0.09</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.48 ***</td>
<td>0.07</td>
<td>0.31 ***</td>
<td>0.08</td>
<td>0.13</td>
</tr>
<tr>
<td>Customer relationships (F-change)</td>
<td>3.25 ***</td>
<td>Personal relationship</td>
<td>0.13</td>
<td>0.22 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relationship communication</td>
<td>-0.04</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trust in the relationship</td>
<td>0.22 **</td>
<td>0.35 ***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4 explores the differences between and thus the influence of cooperative suppliers versus IOF suppliers on market positioning, customer relationships, cooperative characteristics, and social network. There are differences between IOF and cooperative suppliers on customer commitment, market positioning, cooperative characteristics, and social networks, but not on customer relationships. Particularly cooperative suppliers have more loyal customers, lower prices, higher exit costs and more cooperative democracy, and more positive references from customers, and customers in the neighbourhood, and they are more involved in professional networks.

Table 4: Differences between IOF and cooperative suppliers

<table>
<thead>
<tr>
<th></th>
<th>IOF Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer commitment</td>
<td>-0.16*</td>
</tr>
<tr>
<td>Loyalty</td>
<td>-0.21**</td>
</tr>
<tr>
<td>Identity</td>
<td>-0.09</td>
</tr>
<tr>
<td>Effort</td>
<td>-0.10</td>
</tr>
<tr>
<td>Market positioning</td>
<td></td>
</tr>
<tr>
<td>Low prices</td>
<td>-0.23**</td>
</tr>
<tr>
<td>High product quality</td>
<td>0.07</td>
</tr>
<tr>
<td>Good transaction service</td>
<td>0.02</td>
</tr>
<tr>
<td>High quality sales</td>
<td>0.01</td>
</tr>
<tr>
<td>representatives</td>
<td></td>
</tr>
<tr>
<td>Customer relationships</td>
<td></td>
</tr>
<tr>
<td>Personal relationship</td>
<td>-0.06</td>
</tr>
<tr>
<td>Relationship communication</td>
<td>-0.02</td>
</tr>
<tr>
<td>Trust in the relationship</td>
<td>-0.05</td>
</tr>
<tr>
<td>High expectations about the relationship</td>
<td>-0.20</td>
</tr>
<tr>
<td>Dependence on the relationship</td>
<td>0.00</td>
</tr>
<tr>
<td>Cooperative characteristics</td>
<td></td>
</tr>
<tr>
<td>Exit costs</td>
<td>-0.26***</td>
</tr>
<tr>
<td>Participation</td>
<td>-0.19**</td>
</tr>
<tr>
<td>Social networks</td>
<td></td>
</tr>
<tr>
<td>Commitment of other customers</td>
<td>0.03</td>
</tr>
<tr>
<td>Positive references from other customers</td>
<td>-0.20**</td>
</tr>
<tr>
<td>Customers in the neighborhood</td>
<td>2.90*</td>
</tr>
<tr>
<td>Supplier involvement in professional network</td>
<td>3.05**</td>
</tr>
</tbody>
</table>
Figure 2 summarizes the results of our analyses. Only relationships that are supported by our analyses are shown in Figure 2. Differences between IOF and cooperative suppliers are underlined (where cooperative suppliers score higher on the item). Figure 2 clearly shows that cooperative suppliers have more loyal and thus more committed customers. The most important pathway for this difference are the cooperative characteristics and social network, but these relationships with customer commitment are weak. The strongest influence on customer commitment are customer relationships, but here cooperative suppliers do not score better or worse than IOFs.

**Figure 2: Summary of the results**

5. **Discussion and conclusions**

The commitment of farmers purchasing from supply cooperatives can be determined by their role as a customer as well as their role as a member of the cooperative society. Disentangling these two roles can provide important information for managers/directors of cooperatives that want to strengthen member commitment.
We have developed a comprehensive operational definition of customer commitment that allowed us to compare commitment of members of a supply cooperative and commitment of customers of a supply IOF. Customer commitment to a supplier is defined by a combination of repeated purchasing from the supplier (loyalty), positive identification with the supplier (identity), and the willingness to make investments to support the relationship with the supplier.

We provide an empirical analysis of the determinants of customer commitment in supply cooperatives and IOFs. Good customer relationships, cooperative characteristics, and social network all positively affect customer commitment. Market positioning of the supplier does not directly influence customer commitment, but is mediated by customer relationships. Thus, farmers seem to consider good relationships with their supplier more important than low price and/or high quality of products.

In comparing the commitment of members of a supply cooperative to the commitment of customers of a supply IOF, we found that typical cooperative characteristics like exit costs and opportunities to participate in the governance of the supplier positively affect member commitment. Also a number of elements in the social network (or community) of the farmer positively affect his/her commitment to the cooperative. From the perspective of the managers of the cooperative, the result for “supplier involvement in professional network” of the farmer is most interesting. This is one of the elements that managers can influence relatively easy.

In our paper we have jointly analysed the differential relationship that farmers have with their supply cooperative, being both customer and member. Recently Pascucci et al. (2011) have also applied this distinction.

With increasing size of the cooperative and heterogeneity of the membership, the commitment of members to their cooperative seem to be declining. However, our results show that cooperative members are still more committed to their supply cooperative than other farmers are committed to their supply IOF. Community factors like having many members in the neighbourhood and identification with the cooperative continue to play a role, as well as typical cooperative characteristics. As to the importance of customer relationships, members of a cooperative do not differ from customers of a IOF.
References


Appendix 1. Statements in the questionnaire (originally in Dutch)

**Customer commitment**

**Loyalty**
- I will certainly keep my current supplier for more than 1 year
- I will certainly keep my current supplier for more than 3 year
- I will certainly keep my current supplier for more than 10 year
- I will easily shift to another supplier (R)
- I am loyal to my supplier

**Identity**
- I am positive about my supplier
- I recommend my supplier to my colleagues
- I am proud of my supplier
- I enjoy talking about my supplier
- I agree with the norms and values of my supplier
- I am happy to be a customer of this supplier

**Effort**
- I am willing to make adjustments on my farm in case my supplier asks me to do so
- I am willing to pay more, temporarily, if that is helps my supplier
- I am willing to put in extra effort for my supplier if that helps him
- The future of my supplier is also my concern

**Market positioning**

**Low prices**
- The products of my feed supplier are expensive (R)
- Compared to other feed suppliers, the prices of my supplier are low
- The prices of my supplier are low.

**High product quality**
- The quality of the products from my supplier is high
- Compared to other suppliers, my supplier delivers high quality feed
- The quality of the products from my supplier is above average

**Good transaction service**
- Products are delivered on time
- Products are delivered according to the agreement
- It is easy to order products
- Invoicing is easy

**High quality sales representatives**
- My sales representative is a specialist in the field of animal feed
- My sales representative know a lot of managing a farm
- My sales representative is an expert in his field
- My sales representative is no expert in providing feeding advice (R)

**Attractiveness of other suppliers**
- My supplier gives the best (technical) advice of all suppliers (R)
- Other suppliers have a better price/quality ration (V)
- If I could choose a new supplier, I would choose the same (R)
- Of all suppliers, my supplier gives the best technical advise (R).
Customer relationships

Personal relationship
I have regular contact with several people in the organisation of my supplier (V)
My supplier takes my problem serious
I have a positive relationship with my supplier
My supplier and I are friends
My supplier inspire me to get the best out of my farm

Relationship communication
My supplier and I keep each other informed about developments that are relevant for our relationship
Communication by my supplier is important for me
My supplier and me exchange a lot of information and knowledge
My supplier knows my ambitions with my farm

Trust in the relationship
My supplier lives up to his promises
It is necessary to write down the agreements with my supplier (R) (V)
My supplier is a reliable business partner
I trust the information I receive from my supplier

High expectation about the relationship
My supplier will improve the quality of his products in the near future
My supplier will take a leading position in the feed market
I expect my supplier to improve its performance in the near future
I expect my supplier to expand in the near future

Dependence on the relationship
It is easy for me to shift to another supplier (R)
Changing suppliers will cost me a lot effort and time
To shift to another supplier involves a lot trouble
I am depending heavily on my current supplier
It is easy for me to terminate the relationship with the representative of my current supplier (R) (V)
I will cost me a lot of time, money and effort to change to another supplier

Cooperative characteristics

Communication about strategy
My supplier listens to my ideas
My supplier informs me about his strategy and vision
The strategy and policies of my supplier are will known
My supplier consider it important that I am involved in his organisation

Exit costs
When I leave this supplier, my effort in supporting him has been in vain
When I leave this supplier, I will loose money
When I leave this supplier, I loose particular rights

Cooperative trust
My supplier defends my interests
I trust the board of my supplier
My supplier decide in the interests of his customers
I agree that the board of my supplier takes strategic decisions without consulting me (R) (V)
Cooperative governance
My supplier takes my advice serious
In developing his strategy, my supplier listens to his customers
I find it difficult to understand the organization of my supplier (R) (V)
I am able to influence the strategy and policies of my supplier

Social networks

Commitment of other customers
Colleague’s that buy from my supplier often have a personal relationship with this supplier
Colleague’s that buy from my supplier are very committed to this supplier

Positive references from other customers
Colleague’s that buy from my supplier are satisfied with his performance
When other talk about this supplier, it is usually positively

Customers in the neighbourhood
Many colleagues in my neighbourhood buy their inputs from this supplier

Supplier’s involvement in professional network
My supplier is involved in many study groups and extension meetings