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DETERMINANTS OF TRUST IN THE INDONESIAN POTATO INDUSTRY: A COMPARISON AMONG GROUPS OF POTATO FARMERS

Eka Puspitawati[1][2]

[1] School of Agriculture, Food and Wine, the University of Adelaide, SA, 5005, Australia. Phone: +61403733198, Fax: +60883037109, email: eka.puspitawati@adelaide.edu.au.
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Abstract:
Indonesia's potato industry is undergoing a rapid transformation, presenting producers with new and profitable opportunities to participate in sales to the modern channels. However, few farmers are involved in the new channels. This study offers an analysis of three groups of potato farmers' perceptions of trust in their buyers. The aim is to understand the many different ways producers can enter modern chains and how different channels suit the individual characteristics of different producers. We surveyed 50 farmer field schools (FFS) producers, 60 Indofood suppliers, and 192 general potato farmers (GPF) in the largest potato producing area in Indonesia, West Java. Using MANOVA and linear regression methods, the study reveals that flexibility and dependence are determinate factors of trust in the three groups. Particularly among the FFS producers, relative price and firm size are factors identified to increase the farmers' trust. Farmers contracting with Indofood establish the relationship with the firm in terms of reputation and flexibility. On the other hand, the GPF has more concerns about buyers offering price transparency and joint problem solving. This article provides a conceptual model and an empirical analysis of the buyer-seller relationship in the potato industry in Indonesia.

Keywords: buyer-seller relationships, trust, potato industry.

Introduction

The Indonesian food markets are undergoing a profound and extremely rapid transformation, with implications to the supply chain (Gulati and Reardon, 2007). Therefore, the farmers enter the supply chain in many different ways and modes of marketing which suit their individual characteristics.

In the Indonesian potato industry, the farmers do not have equal opportunities to participate in modern marketing channels. Natawidjaja et al. (2007) indicated low penetration of the farmers to the modern market, with only 3.3 percent of potato growers in West Java channeling their products to modern markets such as firms and supermarkets. It seems that there are difficulties in linking smallholders into the modern

chains. Some difficulties within the relationship can be due to differences between perceptions of buyers and the sellers in terms of establishing, utilizing and changing points of view in the relationships (Leminen, 2001).

Hence, studies of relational marketing have become essential in agriculture industries (Batt, 2003; Gyau and Spiller, 2008; Boniface et al., 2010). Establishing relationships with buyers expects farmers to reduce much of the risk and uncertainty currently presented in their transactions (Batt, 2003). Moreover, relational marketing variables such as communication and cultural similarity provide long-term buyer-seller relationship benefits (Boniface et al., 2010) and it becomes more difficult for competitors to enter the markets (Kalwani and Narayandas, 1995). The benefits can differ among agricultural industries and among farmers who are influenced by individual farmers' decision making relationships. Even though most potato farmers in Asia have adopted a long-term orientation towards securing regular supplies of seed potatoes (Batt and Rexha, 1999), the different styles of individual and corporate behavior may inhibit (Cunningham, 1982) or support the buyer and seller relationships. In terms of relational marketing concepts, the critical determinant of good relationships is trust (Morgan and Hunt, 1994).

This study considers three main forms of participation in the potato marketing chain in Indonesia. These are Farmer Field School (FFS) farmers, Indofood farmers and farmers selling to the general population. The FFS refers to all potato farmers who were involved in a FFS potato-brassica project, which provided an opportunity for learning-by-doing, based on principles of non-formal education in order to agroecological concepts and develop integrated pest management (IPM) skills through self-discovery activities practiced in the field (Ooi, 1996). The second group, the contract farmers, sells their

products under forward contracts to the Indofood company, which is the largest food processing company in Indonesia. The third group is general potato farmers (GPF) who were not involved in the FFS project or the Indofood partnership. These farmers often sell their products directly to the market or other middle men. The three groups are expected to have different characteristics and behaviors related to trust in their relationships between buyers and sellers. Thus, in this paper we aim to investigate the determinants of trust within the three groups of potato farmers in Indonesia; the Farmer Field School (FFS), Indofood and general potato farmers population (GPF).

The remaining part of the article is organized as follows: first, we present an overview of the Indonesian potato industry. Then, we explain the theoretical and conceptual model used in this study. In the next section, we outline the research methodology and data analyses using MANOVA and linear regression. The results are discussed and conclusions drawn, and last section highlights conclusions and implications.

The potato industry in Indonesia

Potato marketing in Indonesia is dominated by general trading and contract farming schemes (Saptana et al., 2010). General trading refers to an informal and flexible relationship between sellers and buyers and the commodity price is defined in an agreement (Saptana et al., 2006; Saptana et al., 2010). The traders' positions in determining prices are usually higher than the farmers as the farmers have tight relationships in terms of loans for buying seed, fertilizer, pesticide, and household goods. On the other hand, contract farming is 'an agreement between farmers and processing

and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices' (Eaton and Shepherd, 2001).

In general, there are two types of potato marketing channels in Bandung as the majority of potato producers in Indonesia, ie. granola and atlantic (Sayaka et al., 2008). Granola referres to a common marketing channel between farmers producing granola varieties and traders selling to the main markets for household consumption. Atlantic referres to a marketing partnership between farmers' groups producing Atlantic varieties and Indofood, to supply raw materials for potato chips. The partnerships were conducted without a formal agreement between the company and the farmers.

Another study of potato marketing in Indonesia was conducted by Natawidjaja et al., 2007. They divided potato marketing channels in West Java into five groups; (1) Farmer – traditional wholesaler – wholesale market – retail market; (2) Farmer – local collector – traditional wholesaler – wholesale market – retail market; (3) Farmer – farmer group – industry specialized supplier (vendor) – food industry; (4) Farmer – traditional wholesaler – supermarket specialized supplier – supermarket; and (5) Farmer – farmer group – supermarket. The study shows that there has been a transformation of market channels in potato as a result of the increase in the modern market channels, such as supermarkets and food industries. However, the sales of the potatoes in the last 10 years are still dominated by the traditional market (almost 99%) which is represented by marketing channels 1 and 2.

Natawidjaja et al., (2007) also found that the Indonesian potato industry was not efficient as shown by the growers' value added be only 47%. Their total profit is 151% lower than growers in the modern markets. In parallel with this study, Saptana et al.

(2006) revealed that the supply chain in the Indonesian horticulture industry was not efficient as the market formed long marketing channels and an oligopsony market. Hastuti (2004) suggested that marketing cost was relatively high, while the community's access to formal financing institutions was quite low. Most traders made partnerships with farmers to maintain supply continuity, and in the mean time farmers could get capital for input productions and marketing securities.

The three groups of potato chains

In the field research, the forms of participation in the potato chain in Indonesia can be identified as the three main types, including the farmers in the Farmer Field School (FFS), those selling to the Indofood and farmers who sell to the general population.

The FFS refers to all potato farmers who are involved in the FFS potato-brasica project 2009. This project provides an opportunity for learning-by-doing, based on principles of non-formal education. In this arrangement, extension workers or trained farmers encourage farmers to discover key agroecological concepts and develop integrated pest management (IPM) skills through self-discovery activities practiced in the field (Ooi, 1996). The FFS approach represents a paradigm shift in agricultural extension: the training program utilizes participatory methods "to help farmers develop their analytical skills, critical thinking, and creativity, and help them learn to make better decisions" (Kenmore, 2002). Farmers involving this project are expected to be innovators more environment friendly to other potato farmers. In the project, the FFS farmers sell potatoes through the coordinators and or the leaders of groups.

The contract farmers sell their products under forward contracts to the Indofood company. Indofood is the largest food processing company in Indonesia, which was started as an instant noodle company in 1990. Because of the snack foods national market 87 percents remains dominated by traditional snacks, potato chips have shown an incresing trend since 2007. Indofood enchanced marketing strategies to the potential market. However, the business had to face the increase in raw material prices, packaging and distrbution costs as a result of the increasing fuel prices (Indofood, 2007). To maintain and guarantee the sustainable supply of raw materials, Indofood has built up a partnership with potato farmers by introducing a new variety for processing potato. The access to get the seed is designed through a partnership in the major potato producing areas which is concentrated in several Districts in West Java (Bandung and Garut) and Central Java (Dieng).

The third group is general potato farmers (GPF) who are not involved in the FFS project and the Indofood partnership. These farmers often sell their products directly to the market and other middle men. In Natawidjaja et al. (2007), this group can be represented as value chain 1; farmer – traditional wholesaler – traditional wholesale market – traditional retail market, and value chain 2; farmer – local collector – traditional wholesaler – traditional wholesale market – traditional retail market.

Description of variables in the model

In this study, we provide a discussion of trust and factors that may influence the development of trust in potato industry in Indonesia. Specifically, we compare the factors among the FFS program, contract, and GPS group. Some relational variables such as

flexibility, price satisfaction, communication, dependency, culture, reputation and problem solving together are expected to influence the level of trust. In addition, some demographic factors such as farm size, experience, and potato price also will affect trust.

Trust

Trust can be a significant component of social capital which together with institutional environment drives economic development (Fukuyama, 1995; North, 1990; Ostrom, 2000; Dasgupta, 2000). Trust is related to institutions and affects the costs of transacting if one's confidence in an enforcement agency falters, one is also less likely to trust people and their agreements will not be established (Dasgupta, 2000). A buyer's trust reduces the perception of risk and reduces transactions costs in an exchange relationship (Ganesan, 1994; Doney and Cannon, 1997). Hence, trust can be categorized as a catalyst that helps to make an economy function more efficiently. Anderson and Narus (1990) defined trust as the belief that a business partner will perform actions that will result positive outcome for the firm and not take unexpected actions that may result of negative outcomes. Johnson and Grayson (1998) add competence, reliability and dependability to the trust. In short, although the marketing scholars and practitioners cannot define a single model of trust, it can be defined as willingness to rely on an exchange partner's attributes with confidence (Moorman et al. 1993; Yee and Yeung, 2002).

Some scholars have divided trust to various dimension. For example, Sako (1997) distinguished between three types of trust as contractual trust, competent trust and goodwill trust. Contractual trust stresses on shared moral norms of honesty and promise keeping. Competence trust requires a shared understanding of professional conduct and

technical and managerial standards. Goodwill trust can exist only when there is consensus on the principles of fairness. Other scholars, such as Nooteboom et al. (1997) and Das and Teng (2001) classified trust into competent and goodwill trust. They use Mayer et al. (1995) to explain competence referring to the expectation of the ability and expertise of the trustee to fulfill his/her promise, agreement and/or obligation. Geyskens and Steenkamp 1995 view trust encompasses two essential elements; honesty and benevolence. They define honesty trust as a belief that a partner stands by its word, fulfill promised role obligations and sincere. The goodwill trust means the expectations of other's moral obligations and responsibility in social relationships to demonstrate a special concern (dependability, responsibility and integrity) for other interests above their own (Barber, 1983; Ring and Van de Ven, 1992; Rempel et al., 1985).

Batt (2003) explained trust between growers and markets agents as an expectation of high returns when there is some uncertainty associated with the decision outcomes and when the outcome is considered important. Moreover, Batt (2003) also conceptualized trust as an expectation that acquire incomplete buyer information. such as partners' words. This rose a willingness of exchange partner to make oneself vulnerable to the actions of another party (Mayer et al., 1995). Trust can be identified through partners' honesty and goodwill. Hence, we conceptualize trust as honesty and goodwill. The multidimensional of trust is expected to be influenced by price satisfaction, dependence exploitation, reputation, flexibility, joint problem solving, communication, and exchange some partner's demographic attributes. In the three farmer groups, the level of trust is also expected to be different among the farmers groups. Farmers who are closer to partners tend to have a better understanding and be able to satisfy customer needs, and

facilitate the informal resolution of conflict (Batt and Rexha, 1999; Hakansson and Sharma, 1996).

Antecedents of trust

There are many factors which influence the building and maintenance of trust in the agri food industry. One of the most important determinants of trust is communication. Anderson and Narus (1990) defined communication as the formal as well as informal sharing of meaningful, timely and frequent information between firms. This definition stresses in the efficacy of information exchange rather than the quantity or amount, and the construct inherently taps past communications. In agribusiness studies, many scholars such as Batt and Rexha (1999); Matanda and Schroder (2004); and Schulze et al. (2006) investigated the relationship between communication and relationship quality as well as trust and observed that communication impacts positively on relationship quality.

Price transparency is also an important factor which may influence trust. Beukema and Zaag (1990) revealed that farmers are more likely to establish long-term relationships with seed suppliers to be able to reduce the uncertainty in the output market. Price transparency is needed by farmers to decrease the uncertainty. It can be achieved through communication quality and information sharing (Naude and Buttle, 2000; Lages et al., 2005).

Relative price satisfaction which compares price levels to a reference price may also influence the development and maintenance of trust between the potato farmers and the buyers (Schulze et al., 2006) and will be included in the model. Jaervelin (2001) found that when comparing the own price received with price paid by other

dairies/slaughterhouses, relative price was the construct comprising short and long-term satisfaction. Hence, farmers seek other buyers' price before they sell their products. When they always satisfy the best price offered by their buyers, farmers will rely on the buyers rather than seek another buyers' price.

We also include price quality ratio as an important determinant of trust in the model. Fornel et al. (1996) considered the perceived level of product quality relative to the price paid as perceived value received by customers. Fiegenbaum (1991) defined quality as the customer's actual experience with the product that consistently meets their specifications.

Joint problem solving will also be included in the model. This construct is discussed in terms of collaboration. Yilmaz and Hunt (2001) defined collaboration regarding buyer-seller relationship as a departure from the anchor point of discreteness that underlies spot-market transactions towards a relational, bilateral exchange. A personal cooperatives determines the predisposition of an individual toward working in close collaboration with others in all life activities (Yilmaz and Hunt, 2001)

Other variables included in the model include partner reputation, dependency and flexibility in the relationship.

Morgan and Hunt (1994) stated partners' reputation is one of three additional constructs assumed to have influence in assessing the level of trust among supply chain partners. Kwon and Suh (2004) stipulated that a partner's reputation in the market has a strong positive impact on the trust-building process, whereas a partner's perceived conflict creates a strong negative impact on trust. Heide and John (1992) identified flexibility as a dimension of relationship management practices that influences

relationship outcomes. They viewed relationship flexibility as the willingness to move beyond the terms and conditions specified in contractual agreements as circumstances require. MacNeil (1980) argued that the requirement for flexibility in contracts arises as a result of the bounded rationality of manager's decision making, the limited availability of information and non-constant state of the environment.

The final antecedent as a determinant of trust is dependence. Pfeffer and Salancik (1978) stated that firms engaged in transactions because they require resources from other firms. Dependence increases when outcomes obtained from relationships are higher than or better then the outcomes available from alternative relationships and when fewer alternative sources of exchange are available to the firm. Dependence usually engenders power which when used indiscriminately will let partners feeling under rewarded, angry and resentful and may results of suspicion and mistrust in the relationship between the buyers and sellers (Ganesan, 1994; Gruen, 1995).

Demographic variables

In addition to the antecedents discussed above, we include some demographic variables in our trust model. Demographic variables included are farm size and actual price levels. Farm size is expected to have a positive influence on trust since large farms and hence producers of potatoes may be able to use their size to negotiate special conditions such as discounts which may not be available to smaller producers. Moreover, Key (2004) argued that small scale growers might be preferred by contractors as the bargaining strength of contractors is inversely related to the scale of the contracting growers. In this study, we use land size of potato farms as a measure of firm size. La Porta et al. (1997) provided

evidence that trust is positively related to the size of firms. We also include experience measured by the number of years in potato farming as a determinant of trust.

Finally, an actual price of potato received by the farmers is also expected to influence trust. Actual price in neo-classical market models is considered to be the key coordination mechanism of exchange relationships in perfect competition (Arndt, 1983; Hobbs, 1996). A commodity price should be important for the quality of business relationships which may be engendered by trust if the producers behave like neo classical economic man (Gyau and Spiller, 2010).

Methods

Sample

In order to compare the level of trust among the FFS, GPF and the Indofood farmers, data were collected from potato farmers from February to March 2009 in West Java province, the biggest potato producer in Indonesia. The data base was obtained from regional offices and the respondents were chosen randomly. The total number of respondents is 302 coming from 16 villages and 8 sub-districts.

The sample is divided into three groups; Farmers Field School (FFS), Indofood and General Population (GPF) group. The farmers interviewed were distributed as follows: 50 respondents from the FFS, 60 farmers from the Indofood group of farmers and the remaining 197 from the general population of farmers. This distribution enabled a fair representation of farmers in the various groups.

On each group of sample as shown in table 1, farm size represented average land by FFS, Indofood, GPF farmers is 1.22, 1.24 and 0.99 hectares respectively. Although

there is no company's requirement regarding minimum land that farmers must have, Indofood farmers have the largest land as they are forced by vendors to fulfill company's quota. The material demand by Indofood annually for potato chips achieved 18,000 ton (Saptana et al., 2006). As shown in table 1, another demographic variable, education showed by formal education and age, shows that the average age of FFS farmers is the lowest among the groups. This is due to the fact that young farmers are chosen because they are expected to be more adaptive to the project programs. However, they have an average of 16 years experience in potatoes farming which is the least among the groups. The potato price reveals that Indofood farmers accepted higher prices than other farmers. Indofood farmers produced a special potato variety that its seed was more expensive and treated their potatoes more intensive.

Table 1 Descriptive statistics of demographic

Descriptive Statistics	Mean			Std. Deviation		
	FFS	Indofood	GPF	FFS	Indofood	GPF
Firm size (ha)	1.224	1.239	0.911	2.517	0.947	1.547
Experience in potato farming (years)	15.800	18.570	21.260	10.079	11.830	13.059
Age (years)	41	44	47	10.387	9.527	11.895
Actual price (rupiah)	3169.000	3462.500	3224.870	605.661	166.628	741.028

Statistical analyses

As the study objective is to compare the level of trust and its antecedents among the three farmer groups the independent variable is the farmer groups and the dependent variables are trust, its antecedents and the demographic variables. Multivariate analysis of variance (MANOVA) and post-hoc test were done in order to test the hypotheses that there is a significant difference in the level of trust, its antecedents and the demographic factors among the groups. Multivariate differences across groups were assessed using the Wilks' Lambda criterion (known as the U statistics). The test examines whether groups are

somehow different without being concerned with whether they differ on at least one linear combination of dependent variable. Finally, the variables identified are modeled in a linear regression model to know which dependent variables influence trust.

Results and discussion

Factor analysis

We measured the independent variables which are flexibility, price transparency, relative price, price quality ratio, communication, dependence, reputation, flexibility and joint problem solving on a five-point likert scale ranging from 1=strongly disagree to 5=strongly agree. The dimensionality of trust and the relational variables as checked using principal component analysis with varimax rotation. All items with Eigen values above one were extracted. In addition, we extracted items with factor loading above 0.5 and all those with cross loadings above 0.5 were deleted (see appendix 1).

A reliability test using Cronbach's Alpha was used to analyze the measurement scale used for all the variables. In this study, there were seven statements which measured trust. The results of the PCA indicate two dimensions of trust namely goodwill and honesty as shown in appendix 1. To test for the appropriateness of the PCA for the scales, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) was conducted for all the variables. All measurements are accepted as the KMO-MSA is in the accepted region of greater than 0.5 (Nunnally, 1978).

Tests of differences

Using multivariate analysis of variance (MANOVA), the study examined differences among the three farmer groups on the level of trust, its antecedents and some

demographic variables. Table 2 shows the MANOVA results. The MANOVA is an extension of ANOVA (univariate analysis of variance) which accommodate more than one dependent variable (Ndubisi and Jantan, 2003). The MANOVA was appropriate to be applied to control simultaneously the effects of trust, its determinants and the demographics variables such as firm size, experience and potato price.

Table 2 Multivariate test

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	0.989	2360.156[a]	11.000	294.000	0.000[b]
	Wilks' Lambda	0.011	2360.156[a]	11.000	294.000	0.000[b]
	Hotelling's Trace	88.305	2360.156[a]	11.000	294.000	0.000[b]
	Roy's Largest Root	88.305	2360.156[a]	11.000	294.000	0.000[b]

Note:
a. Exact statistic
b. Computed using alpha = .05
Design: Intercept + kategori_b

Table 2 gives four numbers of the p-values (sig.) for different multivariate tests, Pillai Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root. These results show that there is a significant ($p < .05$) effect of the independent variables on all of the dependent variables, considered as a category.

Table 3 provides a univariate test for the three categories on each of demographic variable and relational behaviours. The p-values show that the category which the farmers belong to have a significant effect on the results of price transparency (p=.000), relative price (p=.017), price quality ratio (p=.000), joint problem solving (p=.014), reputation (p=.041), flexibility (p=.008), dependence (p=.000), experience in potato farming (p=.015) and actual price (p=.025). This indicates that among FFS, GPF and Indofood differs significantly in terms of those variables.

Table 3 Multivariate analysis of variance (MANOVA) for demographic variables, trust and relational variables

No	Dependent Variable	F	Sig.	Noncent. Parameter	Observed Power[a]	Group mean		
						FFS	Indofood	GPF
1	Communication	0.815	0.444	1.630	0.189	0.121	0.075	-0.054
2	Price transparency	8.529	0.000	17.057	0.965	-0.123	0.466	-0.110
3	Relative price	4.101	0.017	0.026	8.203	0.725	-0.224	-0.034
4	Price quality ratio	14.806	0.000	0.089	29.612	0.999	0.053	0.169
5	Joint problem solving	4.295	0.014	8.590	0.746	3.600	3.850	3.500
6	Reputation	3.229	0.041	6.458	0.613	0.013	0.282	-0.089
7	Flexibility	4.882	0.008	9.764	0.801	0.036	0.340	-0.113
8	Dependence	28.419	0.000	56.839	1.000	-0.170	0.804	-0.202
9	Firm size (ha)	1.334	0.265	2.667	0.287	1.224	1.239	0.911
10	Experience in potato farming (years)	4.276	0.015	8.553	0.744	16	19	21
11	Age (years)	3.286	0.039	11.663	0.870	41	44	47
12	Actual price (rupiah)	3.722	0.025	7.445	0.680	3169.000	3462.500	3224.870

Note:
[a] Computed using alpha = .05

In the next analysis, the mean difference in demographic factors and the antecedents of trust in the three categories were computed in a post hoc analysis based on the Benferroni test of differences.

The differences between the perception of Indofood farmers and GPF farmers in terms of price transparency, joint problem solving, reputation, flexibility, dependence, and actual price is reasonable since Indofood farmers are contracted to fulfill required potatoes by the company. The company only accepts Atlantic potato which they provided and have pre determined size.

In the next analysis, a post hoc analysis based on the Benferroni test of differences was applied to compute the mean difference in demographic factors and relationship quality factors in the three categories. The results of the test as shown as table 4 indicate that GPF category may act and behave in a more diverse manner compared to Indofood regarding price transparency, relative price, joint problem solving,

reputation, flexibility, dependence and actual price. On the other hand, GPF farmers have a different action and behavior compared to FFS farmers in terms of experience.

Table 4 Test of differences demographic variables and relational behaviors according to the category of potato farmer

Dependent Variable		Std. Error	T	Sig.
Communication	GPF-FFS	0.158	1.250	0.212
	GPF-Indofood	0.148	0.705	0.481
Price transparency	GPF-FFS	0.155	-0.083	0.934
	GPF-Indofood	0.144	4.012	0.000
Relative price	GPF-FFS	0.121	-0.822	0.412
	GPF-Indofood	0.113	1.716	0.087
Price quality ratio	GPF-FFS	0.158	-0.283	0.777
	GPF-Indofood	0.147	-1.573	0.117
Joint problem solving	GPF-FFS	0.129	0.793	0.429
	GPF-Indofood	0.120	2.926	0.004
Reputation	GPF-FFS	0.103	0.913	0.362
	GPF-Indofood	0.096	2.305	0.022
Flexibility	GPF-FFS	0.156	0.950	0.343
	GPF-Indofood	0.146	3.112	0.002
Dependence	GPF-FFS	0.146	0.321	0.748
	GPF-Indofood	0.136	7.225	0.000
Firm size (meter squares)	GPF-FFS	0.394	1.282	0.201
	GPF-Indofood	0.367	1.154	0.250
Experience (years)	GPF-FFS	1.962	-2.785	0.006
	GPF-Indofood	1.827	-1.476	0.141
Actual price (rupiah)	GPF-FFS	102.449	-0.545	0.586
	GPF-Indofood	95.397	2.491	0.013

Note:
Computed using alpha = .10

The different behavior between Indofood farmers and FFS and GPF farmers in terms of experience is reasonable since the FFS project recruited no experience and new potato farmers to be educated as pioneer farmers. On the other hand, between GPF and Indofood differs in manner of price transparency, relative price, joint problem solving, reputation, flexibility, dependence and actual price because as a contract partnership, Indofood has unique relationships compared to the general farmers. The trust model of

Indofood farmer has more complicated factors as it has a tight and more formal contract through seed loan.

Regression linear analysis

Regression analysis was conducted to determine how the various antecedents and the demographic variables may affect trust among the three groups. The result of the regression analyses is provided in table 5. It shows that there are differences in factors which influence trust among the three groups. Some variables below are determinant variables significantly influencing trust in various signs among the groups.

Communication is found to have a positive influence on GPF's trust to share common information, such as family matters, pesticide and fertilizer suppliers, and social and religious issues as the buyers are usually closed partners or farmers' neighbors. Most of farmers sell potatoes to traditional market (Natawidjaja et al., 2007) consisting traditional wholesalers. The traditional wholesalers are usually determined by the buying price without grading, but only estimating the AB grade proportion of the total potato volume sold. The result of our study corresponds to Han et al. (1993) viewing that trust is developed by constant and detailed exchange of information which reduces the uncertainty of performance. Our study is also supported by research of Osborn (2000) which describes how communication and information exchange influence the trust between wineries and grape growers. However, this variable does not impact on Indofood and GPF trust.

Table 5 Regression model of trust on each category

Variables	Honesty Model						Goodwill Model					
	FFS		Indofood		GPF		FFS		Indofood		GPF	
	Standardized Coefficients		Standardized Coefficients		Standardized Coefficients		Standardized Coefficients		Standardized Coefficients		Standardized Coefficients	
	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
(Constant)		0.660		0.229		0.252		0.061		0.690		0.172
Communication	0.124	0.461	-0.090	0.543	-0.031	0.727	0.039	0.827	0.187	0.210	0.167*	0.030
Price transparency	0.634*	0.001	0.014	0.930	0.317*	0.001	0.089	0.632	0.144	0.364	0.100	0.236
Relative price	0.414*	0.006	0.130	0.283	0.078	0.291	-0.011	0.943	0.088	0.471	-0.099	0.119
Price quality ratio	0.069	0.668	0.190	0.149	0.103	0.231	0.123	0.472	-0.030	0.818	0.099	0.180
Joint problem solving	-0.059	0.727	-0.156	0.207	-0.156*	0.039	-0.136	0.446	0.044	0.720	0.150*	0.021
Reputation	-0.122	0.478	0.327*	0.010	0.134**	0.065	0.153	0.398	-0.098	0.429	0.002	0.969
Flexibility	-0.474*	0.019	-0.268*	0.038	-0.069	0.372	0.338	0.104	0.296*	0.024	0.211*	0.002
Dependence	0.064	0.636	0.369*	0.015	-0.051	0.477	0.249*	0.085	0.169	0.259	0.341*	0.000
Firm size (ha)	-0.261*	0.075	0.069	0.566	0.017	0.812	0.352*	0.024	-0.161	0.186	-0.041	0.493
Experience (years)	-0.054	0.660	0.001	0.992	-0.014	0.838	0.106	0.417	-0.019	0.875	-0.046	0.448
Actual price (rupiah)	-0.062	0.645	0.063	0.624	0.080	0.240	0.358*	0.015	0.130	0.315	0.124*	0.034
R-Square	0.492	0.345	0.409	0.274	0.202	0.155	0.437	0.274	0.401	0.263	0.413	0.379
Adjusted R Square	0.345		0.274		0.155		0.274		0.263		0.379	
Sig.	0.003		0.004		0.000		0.012		0.005		0.000	

Note:
*p = .05
**p = .10

Price transparency is found to have a positive impact on the level of FFS' and GPF' honesty trust. This means that they seem to have more trust in the buyers when they believe that they are paid a fair and reasonable price. This supports other studies in the agribusiness literature such as Batt (2003), Geyskens et al., (1999), Jaervelin (2001), and Gyau and Spiller (2007). Price satisfaction leads to lower conflicts and higher trust. Because of the project farmers, potato revenues that they sold to traders coming to the farm and group associations were given back to the FFS group as cash and or seed for members. Therefore, they felt satisfaction with the offered price. Indeed, for the GPF, they could find other buyers who offers higher price. Every GPF farmer could meet average 4-5 buyers in a season. Thus, price information is transferred properly, completely, correctly and frankly.

The results reveal that relative price gives a positive impact only honesty trust of FFS members. Even though the farmers do not sell potatoes directly to buyers, they rely on coordinators of FFS groups who take responsibility to seek the good prices for the farmers and hence, they keep their trust.

According to table 5, variable joint problem solving has a significantly positive contribution to just GPF' goodwill trust. It is reasonable since many potato farmers have special relationships to certain buyers who offer assistance and support such as seeds, fertilizers and pesticides. This result relates to Zaheer et al. (1998) study that exchange of personnel and shared decision making lead to improved performance and decreases transaction cost. Bahlmann and Spiller (2007) also highlight that management cooperation is relevant determinant of trust by farmers at Westfleisch. However, in terms

of honesty trust, the GPF seems not rely on what potato buyers say and promise although they offer problem solving together.

Reputation has effect significantly to Indofood's and GPF's honesty trust. Reputation influences honesty trust positively on Indofood and GPF. Based on interview, generally potato growers stated that they choose buyers who are well known and credible to pay for potatoes in cash. Indofood uses vendors as representatives and connectors to farmers regarding choosing contract farmers and collecting potatoes. It works with one vendor in a regent who is close to the farmers and is usually a public figure. Moreover, Indofood is the only one processing company conducting contract farming with potato farmers. These results support a study by Ganesan (1994) and Anderson and Weitz (1989) who observed that partners' reputation leads to buyers' trust. General farmers still choose buyers who have high reputation as their main buyers. A high reputation of buyers in farmers' perception is a good attitude such as providing cash payments, financial assistance and support and keeping promises to pay potatoes on time.

Flexibility refers to the willingness to move beyond the terms and conditions specified in contractual agreements as circumstances require. This variable results the positive impacts on goodwill trust of Indofood and GPF, but influences negatively on Indofood's and GPF's honesty trust. When the FFS was asked the contractual agreements, the farmers stated that they are not flexible to determine how to sell potatoes as their potato harvest must be given to the FFS groups. Coordinator of the groups usually took over the responsibility of potato marketing. The Indofood farmers also have no flexibility to determine the terms and conditions specified in contractual agreements. The Indofood farmers seem not rely on the company in terms of keeping promise and

telling the truth because they had a bad experience for example promise to buy all Atlantic potatoes planted farmers which did not materialise. This is the reason why flexibility has negative impact of honesty trust on FFS and Indofood group.

Besides, flexibility has a positive impact on goodwill trust for Indofood and GPF farmers. The reason is the contract farmers feel comfortable to accept some assistance and support from Indofood, such as Atlantic seed. They also perceive that Indofood as a big company is concerned about their welfare. These parallel to the result of flexibility that they feel Indofood offer, such as price change annually. Moreover, for GPF farmers who have most of buyers providing financial assistance and supports, more rely on these buyers as they frequently help the farmers to fulfill basic needs of life, such as providing friendly debt.

Dependence in relationship quality factors influences negatively to trust (Ganesan, 1994; Gruen, 1995). However, the results shown by table 5 reveal that the variable impacts positively to trust of the three groups. Especially, Indofood farmers perceive that the more dependence, the more honesty trust they are, as well as FFS and GPF regarding goodwill trust. Indofood farmers had a debt for an exclusive seed, Atlantic which was provided by Indofood company and imported from abroad. The debt usually was paid through sales of Atlantic potato to Indofood. In potato farming, seed expenditure contributes the highest portion of production costs, average 72 percent of total production cost for granola potato (Natawidjaja et al., 2007). As a result, Indofood seems to control the contract farmers. The farmers who produced Atlantic potatoes can only sell potatoes to Indofood as they would not get a high price for potato based on the contract. Moreover, the company is the only one which demanded Atlantic in West Java

to produce potato chips nationally. Contracts might allow farmers to improve their productivity by improving access to better quality input, by enhancing the flow of information about timing, or by providing growers with input with improved genetic feed/seed (Key and McBride, 2008). For GPF group, most of the farmers have debt for getting expensive seed, chemical and fertilizer to the buyers. Studies of Batt and Rexha (1999) and Tagarino, Cungihan and Paday-os (1998) reveal that most farmers experience major financial limitations and that majority of them are unable to borrow from financial institutions. Most of potato farmers depend upon their seed supplier to not only finance the cost of the seed, but also the cost of complementary inputs (chemicals and fertilizers). Furthermore, most small farmers are dependent on the sources of exchange relationships which are potato buyers.

From table 5, farm size has a different result in terms of its impact on goodwill and honesty trust only by FFS group. Firm size by the FFS has a positive impact on goodwill trust, but negative on honesty trust. This means that the more potato land owned by FFS farmers, the more trustful (goodwill) they are; However, they are less trustful in terms of honesty of the buyer. As a farmer involved in the project, the FFS farmer managed land area provided in the project. When they are asked their expectations of the other's moral obligations and responsibility such as the buyers' willingness to offer assistance and support, concerning their welfare and giving advice on business operations, the answers support goodwill trust which are referred to the project as the buyer. It was difficult to find the 'real' buyers since potatoes harvested in project were sold to buyers who were not known by members of some FFS groups and might not be sold by other groups. However, in terms of farmers' expectations to belief that the buyers

stand by their words, promises and sincere, buyer-seller relationships might be interpreted as relationship between the project and the FFS farmers. As a result, the farmers confirmed negatively to buyers' promises, sincere and honesty because the project was only for short time.

Potato price received by the FFS and GPF has a positive influence on goodwill trust. Although average potato price of FFS is smaller, Rp 3,169 per kilogram for grade ABC, compared to Indofood and general potato farmers (GPF) group, Rp 3,455 and Rp 3,386, the impact of price on trust is significant, the coefficient value is 0.327. The variable influences trust since in the FFS projects, FFS farmers only spent labour to the potato farming. Potato seeds were provided by the project and pesticide and fertilizer practice were not allowed to be adopted. At the end of project, the farmers obtained yield and knowledge. The project benefits make the farmers' trust increase.

Conclusion and implications

The results of this study have successfully indicated that the most significant factors, relational forms and demographics factors, for building trust differed among the three groups of farmers; Farmers Field School (FFS), Indofood and a general population (GPF) group. The FFS group perceives price satisfaction, price transparency and relative price, as determinants of trust, the Indofood group feels that reputation and flexibility influence trust, and the GPF group believes that price transparency and joint problem solving influence trust. Some demographic variables such as firm size and actual price determine trust of the FFS group and the GPF group. Identification of the determinant factors of trust in each group is needed since every group has unique characteristics and behaviors.

Identification of the antecedents of trust will enhance further understanding of the farmers' motivation in relationships. Moreover, for the buyers part, knowledge of the important role of relational norms with the farmers can be used to evaluate which farmers can be committed and loyal to them to enter into long-term relationships. Trust will assist both parties to improve their performances because there would be a reduced fear of opportunistic behavior by either party.

For two of the farmers groups, uncertainty on price influences farmers maintaining relationships. For example, the FFS group considers relative price in exchanges and the GPF considers price transparency when they make decisions on relationships. Furthermore, the actual price of fresh food products can determine the perceptions of the FFS and GPF group on trust. Thus, the actual price and the farmers' perceptions on the price satisfaction are significant factors influencing the farmers' trust, as well as the presence of relational norms. In the context of fresh agriculture products, there will always be some uncertainty as to what prices the growers will receive, since prices are largely determined by supply and demand (Batt, 2003). Buyers can attempt to reduce the price uncertainty and in that way generate trust which builds long-term relationships with the growers by making relationship-specific investments, such as requirements of particular quality, quantity, and kinds of varieties, and providing financial assistance in advance.

Only the Indofood farmers group feels that reputation is an important factor determining trust. Producers develop trust in the relationships by evaluations of the partners' performance, their reputation (Morgan and Hunt, 1994). This is a way to reduce uncertainty in marketing. In this study, reputation is based on perceptions of the farmers

that their partners are honest, giving cash payment and financial assistance and paying for potatoes timely.

In this study, it is shown that flexibility is a dimension of relationship quality influencing relationship outcomes both positively and negatively in the Indofood group. When the contract farmers have made buyer-seller relationships under conditions specified in contractual agreements, they expect flexibility in the relationships. In the context of potato farmers in Indonesia, farmers who engage in a relationship-specific investment, particularly seeds, have put trust in the relationships. In the agreements, they expect the partners' goodwill. Nevertheless, when they are faced by only promises and words, they perceive them not to be a reliable basis for trust as the telling is not yet proved. Limited availability of information in relationships and uncertainty of the business environment are the reasons why flexibility can appears in contracts (MacNeil, 1980). However, the contract farmers can get certainty in marketing, output price and supply of the input supplies such as seeds.

Understandably, since the three farmer groups perceive that they are at the same positions to achieve collective goals and feel their partners do not exploit them in terms of relationship-specific investments, there is a positive relationship between dependence and trust. The dependence of the farmers on the buyers is due to they have possible limitations in providing some resources of production. They are more trustful on buyers who offer resource dependence, such as seeds, fertilizer, pesticide and other financial assistance for basic needs in the form of loans that the farmers must return as money. On the other hand, the farmers' limitations can be fulfilled by partners/firms who need to maintain a channel relationship in order to achieve desired goals. Firms engage in

transactions because they require resources from other firms (Pfeffer and Salancik, 1978). When a channel member controls resources that the other channel member wants or needs, various power relations emerge that enable the party controlling the resource to exert some influence or power (Andaleeb, 1996). In the context of agribusiness, the dependency between the farmers and the patronages is legalized in a concept of contract farming. Contract farming can be viewed as an alternative to the governance structure capturing power and price. In contract farming, farmers obtain benefits from improvement of the access to markets, credit and inputs, better use of technology, skill transfer, guaranteed and price certainty (Glover and Kusterer, 1990; Key and Runsten, 1999).

Correspondingly, as most of the farmers have special relationships with the buyers providing resources dependence, they accept joint problem solving for conflict resolution and on joint planning as vehicle for achieving mutual understanding. There is such personal cooperativeness between buyers and sellers, that is relative and close neighborhood relationships. For the general potato farmers, the collaboration in personal cooperatives is often the best solution since there is no formal agreement like the contract and project farmers.

This study also shows that demographic variables such as farm size can be as a variable influencing trust positively since large farms may be able to use their land to negotiate in terms of fulfilling demands of the buyers. It seems that the more farmers owners on land, the more their confidence to make relationships widely. For the FFS, availability of the farm size provided by project funder makes them confident to produce

and sell their potatoes. Contrary, contractors usually prefer engaging to small scale growers as the weakness of bargaining strength (Key, 2004).

This study is useful for firms (processors), supermarket, other potato suppliers as main buyers in potato industry and government since it reveals some factors determining relationship quality between farmers and traditional and modern channel of buyers, such as price transparency, relative price, flexibility, and firm size. The relational forms will enable farmers to become more committed and loyal to the buyers. Basically, by establishing long term relationships both parties receives sustainable agriculture supplies (Boniface et al., 2010) and at the same time reduces transaction costs (Williamson, 1979).

Like much other research, this study has some limitations. A buyer-seller relationship is a dynamic phenomenon that changes over time. The data used in this study is a cross section which captures the farmers' perceptions at a given point in time. As a consequence, other research is recommended to take into consideration the time various dimensions of inter-firm relationships. Moreover, the relationship performance was measured only from farmers' perceptions. To identify whether there is a gap of the perceptions between farmers and buyers, future research is suggested to measure the relationship performance dimensions from buyers' perspectives.

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Appendix 1 Principal component analysis of trust and relational variables

No	Factors and items	Factor loading
1	Trust	
	Honesty (Cronbach's alpha 0.697, KMO-MSA 0.650)	
	Even when the buyer gives us a rather unlikely explanation, we are confident that it is telling the truth	0.783
	The buyer usually keeps the promises	0.804
	We can count on the buyer to be sincere	0.636
	Goodwill (Cronbach's alpha 0.799 , KMO-MSA 0.787)	
	Though circumstances change, we believe that the buyer will be ready and willing to offer us assistance and support	0.824
	When making important decisions, the buyer is concerned about our welfare	0.817
	When we share our problems with the buyer, we know that he will respond with understanding	0.782
	Whenever the buyer gives us advice on our business operations, we know that he is sharing his best judgments	0.688
2	Flexibility (Cronbach's alpha 0.529, KMO-MSA 0.571)	
	My buyer is flexible in their contract and arrangement to fit with the current scenario	0.824
	My buyer can adjust the contract condition to fit with my present requirement	0.697
	When I have problem, my buyer will make sure the problem does not jeopardize our business relationship	0.555
3	Price transparency (Cronbach's alpha 0.690, KMO-MSA 0.604)	
	Price changes are communicated to me properly and timely	0.735
	The price information provided by the buyers is complete, correct and frank	0.752
	I know what I pay and what I get	0.550
4	Relative price	
	Terms and condition of my buyer/processor are better than those of other buyers/processors	1.000
5	Price quality ratio (Cronbach's alpha 0.710, KMO-MSA 0.500)	
	I am satisfied with the potato price and grading system	0.576
	I get a good price-quality ratio	0.648
6	Communication (Cronbach's alpha 0.852, KMO-MSA 0.809)	
	The buyers provide me with information in time	0.865
	the buyers provide me with all the relevant market information	0.849
	We share a common information frequently with the buyer	0.813
	Information sharing on important issues has become a critical element to maintain this partnership	0.760
7	Dependence (Cronbach's alpha 0.588, KMO-MSA 0.606)	
	The buyers have all the power in my potato production	0.793
	I have no other alternative buyer	0.736
	My buyers control all the production information	0.673
8	Reputation	
	The buyers have a high reputation	1.000
9	Joint problem solving	
	When I have problem with my buyers, I meet them to get problem solving together	1.000