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Contract Farming and Leaseback Arrangement of Banana in Calinan District, Davao City: ARB's Contract Choice, Impact, and Gains

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ABSTRACT

The study assessed the contribution of contract farming of banana to the agrarian reform beneficiaries as an alternative to leaseback arrangement in Calinan District, Davao City. Specifically, the study aimed to characterize and compare the contractual schemes of contract growing and leaseback arrangement using the adapted growership model from the contract farming framework, identify the factors that influenced ARBs decision to engage in contract farming, and identify other potential gains that can be derived from growership other than economic gains. The analysis utilized primary data that were gathered through surveys and interviews among ARBs who were engaged in such contractual arrangements. Results showed that contract growing as governed by production and sales agreement is focused on banana production that involves the participation of growers (ARBs) who produced either individually or collectively through agricultural cooperative, while leaseback arrangement operates under land use agreement. The amount of land rent is P18,000 per ha per yearr with P500 annual increase. Using econometric approach, education and farm size were found to be significant

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factors that influenced ARBs decision to engage in contract growing with 70% probability of participation based on Logit regression. In terms of social gains such as self-fulfillment and confidence, there is no significant difference on this in both contractual arrangements. Moreover, the formation of cooperatives in both ventures is essential for it to become effective. The success of every contractual agreement largely depends on the collaboration of stakeholders. Having this, there should be an enhancement and strengthening of cooperatives that will organize ARBs through which collaborative farming can be obtained.

Keywords: *agrarian reform beneficiaries, contractual arrangements, agricultural cooperative, collaborative farming*

INTRODUCTION

Banana *(Musa L.)* is the leading fruit grown in the Philippines and is primarily cultivated for its fruit which is the main economic product. It is widely grown in the country, planted as a component of farming system or as a main crop in many large plantations for commercial and export purposes (Rivera, 2004). As an export winner, it is one of the major dollar earners of the Philippine fruit sector which manifest that the industry has a potential as driven by high market demand from well established markets (Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development, 2000).

In view of the benefits this industry can offer, it is important that the Philippines should make use of these opportunities. This can be achieved through the adoption of effective collaborative farming strategy such as contract farming or growership scheme. Mindanao, the country's food basket, shows an example on how contract growing can bridge the gap in the farm sector which is evident in many agribusiness industries such as banana. The various advantages of the banana industry as influenced by stiff competition, globalization and market liberalization drive multinational companies to venture into contractual agreements with many individual farmers, who in many cases are beneficiaries of the Comprehensive Agrarian Reform Law (CARL) of 1988. The said law which allowed parcel of lands to be distributed to tenants turned these farm workers into owners of the lands they till. Farmer beneficiaries signed up as growers of the company's venture and made them partners. Under contract farming, farmer agrees to the conditions set by the company in terms of production process and product specification provided that he will be extended with technical assistance, services, credit access, and an assured market for his produce. The farmer's counterparts on the other hand are basically his land, labor, and management which are still subject to the control mechanism of the company (Digal, 2007). In this sense, contract farming could be considered as a means to link farmers to growing markets for both fresh and processed goods as well as high-valued export commodities such as banana (Miyata, Minot & Hu, 2007).

Yet, despite the proliferation of this farming scheme, other farming arrangements are now being practiced such as leaseback arrangement that is allowed by the government itself. Under this scheme, farmers bind themselves to companies, giving the full right and control of the use of their lands to the investors for a certain price and for a definite period. Farmer owners are instead hired as workers on their very own farms, receiving the wage from companies and the land rent. This land rental activity is now becoming a trend in the banana industry which is seen by many as a reversal of the gains and purpose of the country's agrarian reform (Obanil and Manahan, 2007).

METHODOLOGY

A. Conceptual Framework

The contract farming framework was the basis for the analysis of agricultural contracts and arrangement of banana in Calinan District. Charles Eaton and Andrew Shepherd (2001) formulated the framework in order to explain and understand the nature and performance of various agricultural contract schemes. However, for the purpose of this study, the framework of Eaton and Shepherd was modified to include the leaseback arrangement under Davao, Philippines condition. Figure 1 shows the adapted framework which is applied in the study.

In the framework, the external factors present in the environment are considered as driving forces toward the establishment and formation of agricultural ventures. Market condition as influenced by liberalization and globalization and the limited production resources affect involved actors and key players in the agricultural sector such as firms and farmers, thus engaging into a systematic way of production which would be beneficial to both parties. The nature and performance of such farming schemes are highly dependent on its general feature which includes the relationships and interactions of actors, the management system, and the kind of arrangement, all for the same goal of generating benefits and gains.

B. Theoretical Framework

1. Logistic Regression

The Logistic regression or Logit method is a useful regression approach on dependent variables that are dichotomous in nature (Garson, 2010). The dependent variable is in the form of dummy (1 or 0) where 1 represents for participation in contract farming and 0 for not engaging in contract farming, which in this case takes leaseback arrangement.

The Logistic regression equation is illustrated in the following form:

$$\boldsymbol{L_i = \ln[Pi/(1\text{-}Pi)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_k X_k + u\mathrm{i}}$$

where $\boldsymbol{L_i}$ is called the Logit which is linear not only in X but also in the parameters (Gujarati, 1999). It is equivalent to ln[Pi/(1-Pi)] and is the log odds of the dependent variable or the odd ratio in favor of contract farming. Pi is the probability of participation in contract farming, and 1-Pi is the probability for not participating. In the given equation, β_0 is the constant and the predictors are k independent (X) variables.

C. Empirical Framework

Using the Logistic Regression, a Logit Model was formulated in the study to determine the effects of explanatory variables to the farmer's decision on contract farming participation. Thus, the equation used in the study is:

$$\mathbf{PART}_i = \ln[(Pi/1\text{-}Pi)] = b_0 + \beta_1\mathbf{EDUC}_i - \beta_2\mathbf{FARM}_i + \beta_3\mathbf{EXP}_i + B_4\mathbf{LAB}_i + \beta_5\mathbf{DIST}_i + \beta_6\mathbf{TRAIN}_i\ u\mathrm{i}$$

where PART_i = farmer's decision to participate in contract farming (1, if farmer participates; 0, otherwise)

EDUC_i = farmer's educational level (years)

FARM_i = farmer's size of farm (hectares)

EXP_i = farmer's experience in farming (years)

LAB_i = farmer's available farm labor (number of workers)

DIST_i = distance from credit providers (kilometers)

TRAIN_i = farmer's training (1, if farmer received trainings; 0, otherwise)

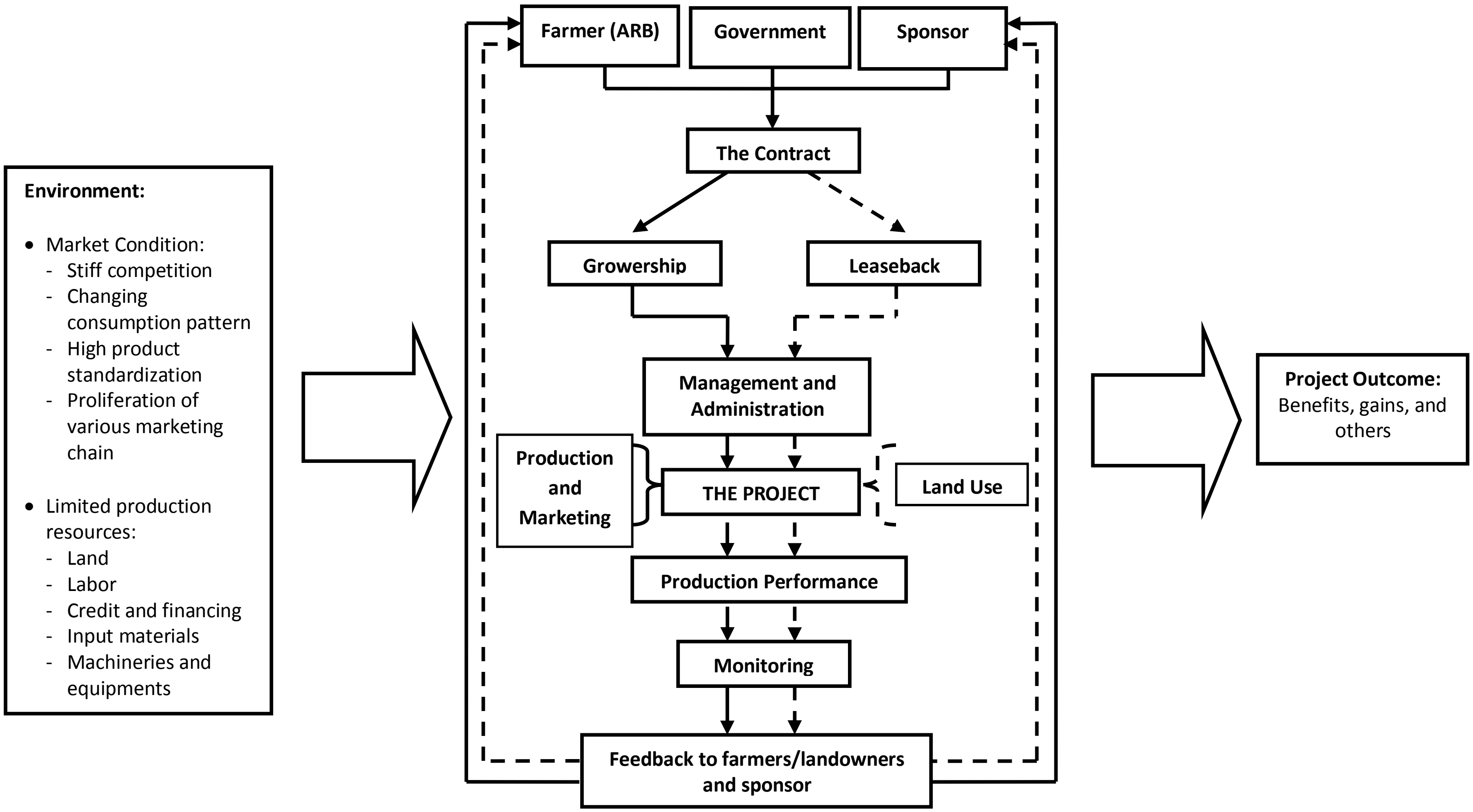

Figure 1. Framework for the Study of Contract Farming and Leaseback Arrangement as Modified from the Framework of Eaton & Shepherd (2001)

D. Statistical Tests

The econometric approach used in this study is the Logit regression. The analyses of the output from this method were based on the statistical tests that includes Fitness test (R^2), F-statistics, t statistics, and Multicollinearity test.

E. Research Location

The study was conducted within the vicinity of selected agrarian reform communities of Calinan District, Davao City which are devoted to contract farming and leaseback arrangement of banana. These communities are Bgry. Dacudao, Brgy. Subasta, and Brgy. Tamayong as identified by the Municipal Agrarian Reform Office Calinan.

F. Research Design

The study was an exploratory research that is supported by case study approach in order to come up with a thorough analysis on the said schemes. This was further supplemented by both qualitative and quantitative techniques.

G. Research Instrument

For the conduct of the study, survey questionnaires were used which captured the profile of respondents, nature of both contractual schemes, and perception on the contractual arrangements that are all necessary in the construction of the model, identification of factors affecting contract participation, and characterization of the growership model.

H. Sampling Procedure

The sampling method that is used in this study is purposive sampling. In determining the sample size, Slovin formula was used which is computed as,

$$\mathrm{n} = \frac{\mathrm{N}}{1 + (\mathrm{N} * \mathrm{E}^2)}$$

$$\mathrm{n} = \frac{223}{1 + (223 * 0.095^2)}$$

$$n = \mathbf{74.02 \text{ or } 75}$$

where: ***n*** – represents the sample size

N – represents the population size

E – represents the margin of error * desired

On one hand, the sample size in each selected agrarian reform community was obtained using the following equation:

$$n_i = n \text{ x } (N_i / N)$$

where;

$\boldsymbol{n_i}$ – represents the sample size per community

$\boldsymbol{N_i}$ – represents the actual population size per community

Table 1 presents the actual population per agrarian reform community and the computed sample size based on the above given equation.

Table 1. Sample Size per Agrarian Reform Community

Agrarian Reform Communities	**Actual Number of ARBs**	**Sample Size of ARBs (growership and leaseback)**
Tamayong	94	17
Subasta	77	26
Dacudao	52	32
Total	**223**	**75**

RESULTS AND DISCUSSION

A. Data Analysis

1. Contractual Agreement

The whole data gathering activity was done in three selected agrarian reform barangays in Calinan District namely, Brgy. Dacudao, Brgy. Subasta, and Brgy. Tamayong. Of the aforementioned communities, it was found out that each has different types of arrangement or scheme that are currently in practice. Such includes contract growing under collective farming (22.7%), individual farming system or IFS (42.7%), and leaseback arrangement (34.7%) as presented in Table 2.

Table 2.Existing contractual agreement among three agrarian reform communities in Calinan District, Davao City.

Area	Percentage	Type of Contract Agreement
Brgy. Dacudao	22.7%	Contract Growing (collective farming)
Brgy. Subasta	34.7%	Leaseback Arrangement
Brgy. Tamayong	42.7%	Contract Growing (IFS)
Total	100%	

Growership under collective farming is a system in which land is owned collectively by all the cooperative members through a collective titling which is existent in Brgy. Dacudao. Individual farming system or IFS is the practice in Brgy. Tamayong. Furthermore, leaseback arrangement is the kind of contract arrangement that ARBs in Brgy. Subasta have.

B. The Growership Model

1. The Farmer (ARBs)

In contract farming, the grower agrees to bind himself to the sponsor in an agreement of cultivation of Cavendish bananas that includes the accomplishment of field operations, harvesting, packing, processing, and other related activities. However, in the case of leaseback arrangement, the farmer takes the position of the lessor who agrees to lease his landholdings to the company for the development and cultivation of bananas in a fixed land rent of P18,000 per ha per year with an additional increase of P500 per ha per year for every year thereafter.

2. The Sponsor

The sponsor is a banana producing multinational company who is engaged in commercial production and purchase of banana. In contract growing, the sponsor provides the growers with necessary inputs and information on cultural practices on banana and buys and accepts grower's export quality produce. In leaseback arrangement on the other hand, the sponsor lease a specific parcel of lands for the purpose of carrying out its business activities that entails Cavendish production and pays a yearly rental per hectare that is based on the agreed annual rental scheme.

3. The Government

The Department of Agrarian Reform (DAR) acts as the lead agency together with other eleven agencies, in the undertakings of the agrarian reform beneficiaries engaged in contract growing and leaseback. It provides extension works such as seminars and trainings that entails proper management of the venture especially among growers. In the case of leaseback, the said agency facilitated the formation of the venture. The Contract of Lease took effect concurrently upon the period when lands were awarded to the ARBs. The primary reason for such event is to allow the lessor to pay the land amortizations to Land Bank of the Philippines (LBP).

4. The Contract

The contract in contract growing venture is formally named as Growers Exclusive Production and Sales Agreement. It contains the name of the contracting individuals, the company and the farmer, and the provisions that must be strictly followed by both parties which some of the emphasis are on banana specifications, purchase price, and other production protocols. On the other hand, in leaseback arrangement the contract is termed as Contract of

Lease. An amount of P18,000 per hectare per year and an additional of P500 per hectare for every succeeding years is the value that the lessee is obliged to pay to the lessor that is subject to P10,247 annual deduction to be paid to LBP for land amortization. As part of the agreement, the lessor is guaranteed with employment opportunities wherein he is hired as worker of the company for regular position

5. Management and Administration

Contract farming and leaseback arrangement of banana in Brgy. Dacudao and Brgy. Tamayong are both managed by the same multi-national company. A management team is assigned in every area of operation for a well-organized project and better monitoring.

6. The Project

The arrangement made by the farmer and the sponsor comes in two forms: production and marketing, and land use. The former takes the growership program and the latter is land use. For the project to be successful, preconditions were attained. In both ventures, water source and supply of electricity as well as communication lines are found to be satisfactory. Also, transportation facilities are available and accessibility to the area is not a problem because of improved road structures.

7. Monitoring and performance

In contract growing, the sponsor is the one responsible for checking and supervision of all the operational processes. Part of such action is assigning technicians to every plantation whose task are to give technical advice to growers and inspect their farm practices whether these conforms to the company. The degree of monitoring performance activity is however limited to the company in the case of leaseback arrangement. The company, as part of its operations and responsibilities as the lessee, monitors the quality and quantity of produce. The farmer or lessor has no role at all in the said activities since the agreement is focused on land use.

8. Feedback to Farmer and Sponsors

Contract growing in Brgy. Dacudao is found to be successful and functional. There are no particular cases of conflicts between the growers and the sponsor along the conduct of the project because the growers manage the venture well considering that they are a cooperative and every transaction is made to be transparent among each party. However, a different scenario is present in Brgy. Tamayong . The current system had brought various conflicts between growers and the sponsor to some extent that others had terminated the contract even without formality. Many of the growers have shifted to Class B production and their harvest is sold to other local buyers. In fact, the sponsor had filed a case against the growers and the growers as well to the sponsor to which until now is not yet being resolved. In the case of leaseback, occurrence of conflicts is minimal in the course of the project's implementation. The farmers and the company have established a good relationship over the contract's period. This may have been because the farmers are organized in a manner that they have a well-established organization in the form of cooperative through which they can voice out immediately their concerns to the company in the process of negotiations and meetings.

Table 3. Summary of the Growership Model in Contract Growing and Leaseback Arrangement

<table>
<tr><th rowspan="2">Growership Model</th><th colspan="2">Contract Growing</th><th rowspan="2">Leaseback Arrangement</th></tr>
<tr><th>Individual Farming System</th><th>Collective Farming</th></tr>
<tr><td rowspan="2">Farmer (ARBs)</td><td colspan="2">▪ technically called GROWER
▪ binds himself to an agreement of quality banana production
▪ capable of producing full scale export quality banana
▪ sell exclusively his produce to the sponsor</td><td rowspan="2">▪ technically called LESSOR
▪ agrees to lease his landholdings to the company for banana production
▪ no participation on the operation, decision making, and production of banana</td></tr>
<tr><td>▪ responsibilities are assumed solely by the farmer/ARB</td><td>▪ responsibilities are assumed by the cooperative</td></tr>
<tr><td>Sponsor</td><td colspan="2">▪ multinational company
▪ engaged into commercial production of banana
▪ provide assistance to the growers (inputs, credit, technology, etc.)
▪ buy and accept the delivered produce of growers that conforms to its set standards and quality specifications</td><td>▪ technically called LESSEE
▪ pays yearly rental per hectare
▪ obliged to pay land amortization to LBP deductible to the land rental
▪ handles production and marketing</td></tr>
<tr><td>Government</td><td colspan="2">▪ lead agency is DAR together with other eleven (11) agencies involved
▪ provide extension works (e.g. seminars on proper management of the venture)</td><td>▪ facilitated the formation of leaseback
▪ monitors performance of the lessors and attend to their concerns</td></tr>
<tr><td>Contract</td><td colspan="2">▪ Growers Exclusive Production and Sales Agreement</td><td>▪ Contract of Lease</td></tr>
<tr><td>Management and Administration</td><td colspan="3">▪ both ventures are managed by one company
▪ management team is assigned to every area of operation
▪ facilities (packing house, warehouse, offices, etc.) are built to each area</td></tr>
<tr><td rowspan="2">Project</td><td>Growership</td><td>Growership under cooperative</td><td>Land Use</td></tr>
<tr><td colspan="3">▪ satisfactory water source, electricity, and communication lines
▪ accessible roads, transportation facilities, and barangay institutions</td></tr>
<tr><td>Monitoring Performance</td><td colspan="2">▪ technicians are assigned in every area</td><td>▪ company employs its own workers especially in farm operations</td></tr>
<tr><td>Feedback to Farmers and Sponsor</td><td>▪ not that successful and effective
▪ occurrence of various conflicts between farmer and sponsor
▪ cases of contract breach</td><td>▪ successful management of the venture because of the well-established cooperative</td><td>▪ harmonious relationship of the lessor and lessee
▪ ARBs are well organized through a cooperative
▪ contract provisions were strictly followed and implemented</td></tr>
</table>

C. Regression Analysis (Logit) of farmer's contract participation

The econometrics approach in the study is the estimation of the log odds ratio in favor of contract farming participation using Logit method as supplementary analysis to the contract growing and leaseback arrangement of banana in Calinan District. Table 4 shows the result of Logit regression.

Table 4. Regression result (Logit) of the ARBs Probability of Contract Farming Participation

Convergence achieved after 7 iterations

Model 1: Logit, using observations 1-58

Dependent variable: PART

Independent variables	coefficient	Std. error	Z-stat	p-value
(constant)	-3.46378	2.76399	-1.253	0.2101
EDUC	-0.344495	0.142660	-2.415	0.0157 **
FARM	5.80336	2.44532	2.373	0.0176 **
EXP	-0.0327414	0.0524871	-0.6238	0.5328
TRAIN	0.560659	1.14287	0.4906	0.6237

McFadden R^2	0.373399
Number of 'correctly predicted' cases	46 (79.3%)
Likelihood ratio test	0.0000

		Predicted 0	Predicted 1
Actual	0	20	6
	1	6	26

Note: 0.05 significance level**

It is significant to note that there are only four (4) out of six (6) regressors used in the Logit regression, EDUC, FARM, EXP, and TRAIN. This is because the Gretl software could perfectly predict the model at 0 iteration and would not give any regression output. To remedy such problem, the variables LAB and DIST were dropped for a reason that these two could have caused perfect prediction in the model.

The estimated coefficients of each variable are interpreted as the log odds ratio in favor of contract farming or the probability that the ARB will participate more likely into contract farming than not to participate. Based on the Logit regression output presented in Table 4 considering all things constant, a unit increase in the years of farmer's education decreases the log odds by 0.344495. Such kind of result is also observed in the variable EXP in which the estimated coefficient is negative. As the farmer's years of experience in any agriculture related business or activity increases in one unit, the log odds ratio decreases by 0.0327414. Variables FARM and TRAIN on the other hand are positively related to contract participation having positive coefficients. A unit increase in farm size increases the log odds in favor of contract growing by 5.80336. Similarly, as the farmer receives trainings, his likelihood to contract participation also increases as manifested in the log odds ratio of 0.560659.

Among all these variables, the ones that are found to have a major influence to farmer's contract participation are variables EDUC and FARM. These are significant at 0.05 level with p-values 0.0157 and 0.0176, respectively. Furthermore, at 79.3% prediction rate, 46 out of 58 observations are correctly predicted by the model. Given p-value of 0.0000 is less than 0.05 as computed in the Likelihood ratio test, **the model is valid.** However, it has a very low r-squared of 0.373399 that is given in the result of the McFadden R^2 which means that only 37% of the variability of the dependent variable is explained by the independent variable. Yet, this obtained value of goodness of fit should not be overplayed since the regressand is dichotomous in nature (Gujarati, 1999). Checking for collinearity, the variables in the model are not correlated.

Because the estimated coefficients are just the log odds ratio and not the probability itself, the given formula is used to compute for the probability of the ARBs in Calinan District to participate in contract growing:

$$\boldsymbol{P_i = \frac{1}{1 + e^{-(Z_i)}}}$$

The median of each independent variables together with the estimated coefficients are used in computing for the value of $\boldsymbol{e}^{-(\boldsymbol{Z}_i)}$ except for the variable FARM which is continuous, the mean is used instead. Hence, the actual probability of participating into contract growing is computed as,

$$P_i = \frac{\mathbf{1}}{\mathbf{1} + \boldsymbol{e}^{-(-3.46378-0.344495*10+5.80336*1.29569-0.327414*10+0.560659*1)}}$$

$$P_i = \mathbf{0.699279} \text{ or } \mathbf{0.70}$$

Based on the above computation, the probability that the ARBs in Calinan District will participate into contract growing is 70%. This implies 30% probability of choosing leaseback arrangement.

D. Social Gains

The impact of the venture is measured not just on economic gains but as well as other gains. In capturing this, respondent's perception as to how they feel about the endowment of the venture to their whole being and welfare as a whole. Figure 2 presents the summary of farmer's perception of these gains in contract growing.

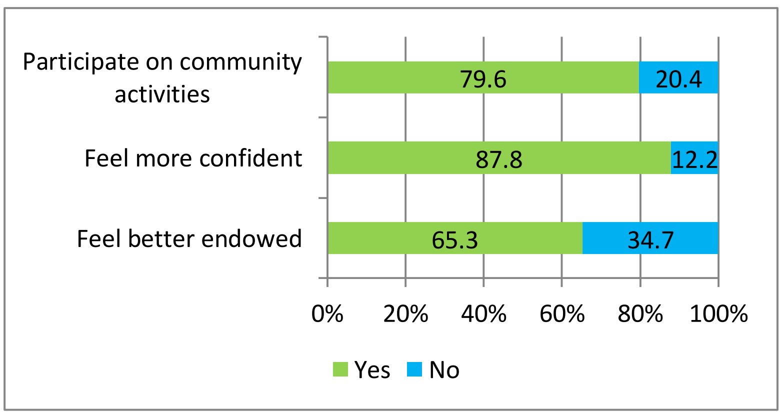

Figure 2. ARB's Perception on Social Gains in Contract Growing

Based on the above figure, majority of the respondents (65.3%) feel that they are more fulfilled and satisfied after engaging into contract growing because of the various benefits and opportunities that they have received from it (e.g., both economic and social gains). Also, they feel more confident as players in community affairs and have become active members as well in their respective cooperatives.

Moreover, farmers in leaseback arrangement have also the same perception of the gains that they have acquired (Figure 3). 80.8% have the feeling of fulfillment in such a manner that leaseback had provided them jobs and were able to pay the land amortization They also perceive that they feel more confident as members in their community because of the "ARB" title that has a positive connotation. They engaged as well in community activities which the leaseback venture enabled them to participate in such activities.

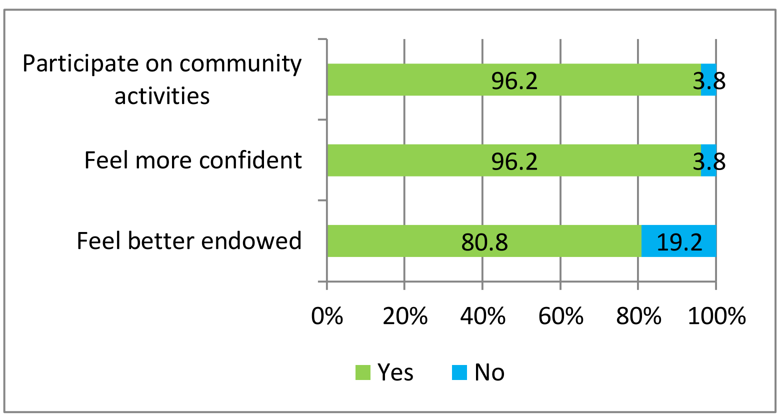

Figure 3. ARB's Perception on Social Gains in Leaseback Arrangement

Comparing the two contract schemes, there is no considerable difference as to the social gains of farmers specifically on the feeling of better endowed or fulfilled and more confident (Table 5). This could have been because each has made contributions in various ways to the

ARBs. Also, both schemes are assessed to be working well and effective to some extent though there are exceptions to this in some area due to many factors.

However, in terms of participation on community activities, there can be observed difference over groups. This could have been because of the fact that ARBs have limited participation in the case of leaseback which is opposite in contract growing where there are activities and programs given for growers as partners of the sponsor in their venture.

Table 5. Differences on Social Gains in Contract Growing and Leaseback Arrangement

Social Gains	Two-tailed P-value*
Feel better endowed	0.144
Feel more confident	0.173
Participate on community activities	0.03

Note: 0.05 alpha*

CONCLUSION

Contract farming links the farmers to remunerative market and provides incentives such as credit, market assurance, risk reductions, and technical knowledge. However, not all contract farming ventures are always effective and successful as evident in the case of growership program in Bgry. Tamayong where the scenario is opposite to what it should be as assumed in various literatures. Also, leaseback arrangement is not in all cases detrimental to ARBs. While it is true that the practice of leaseback arrangement gives employment to the farmer and assures the payment of the land amortization, this scheme contradicts the very purpose of the Comprehensive Agrarian Reform Program (CARP). Basically, CARL, as a flagship program of various past administrations, is deemed to emancipate the farmers by giving land ownership and land to be tilled and developed, where the farmer will be the owner, tiller, and manager of his own farm.

The success of every contractual agreement depends largely on the collaboration of stakeholders who are basically the farmer, the sponsor, and the government as well. Thus, it is recommended that there should be firm provisions of the contract for both ARBs and the sponsors to follow in order to minimize and avoid future conflicts. Enhancement and strengthening of groups or farmers association such as federation and cooperative that will organize and facilitate the ARBs in the course of their contract engagement is further suggested. This would lead to genuine participation of the farmers in the preparation and drafting of the growership contract. It is the role of various government agencies (with the Department of Agrarian Reform (DAR) as the lead agent to facilitate collaborative undertakings involving capability building programs, both technical and conceptual, consultation and mediation. Sponsors must also observe strict adherence with the provisions of the contract. Amendments in the contract must only be executed only after consultation and approval by both parties. Thus, the focus of the contract must not only be on sustainable farming practices and marketing but also on maintaining harmonious and sound relationship with parties. It is further suggested that the 11 government agencies entrusted to implement CARL must be more active in doing their mandate. Strict monitoring must be established to ensure the provision of needed support system. It is only through collective actions that collaborative farming and CARP implementation can be successfully achieved.

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