

The Impact of Marketing Channels on Farmers' Income: An Empirical Study of Kabul, Parwan and Kapisa Grape Farmers

Hashimi Sayed Jalil

Department of Agricultural Economics and Extension, Faculty of Agriculture, Bamyan University, Bamyan, Afghanistan
Corresponding author email: jalilhashimi802@gmail.com

ABSTRACT

Among the 150 grape growers in the three provinces of Kabul, Parwan and Kapisa in Afghanistan, the possibility of contract signing between farmers in Kabul and traders is lower, and that between farmers in Parwan and Kapisa and farmers' organizations is higher. 26.67% of farmers signed contracts with farmers' organizations, 45.33% of farmers signed contracts with traders, and 28.00% of farmers directly carried out market transactions without signing sales contracts. The average age of grape farmers is 30.9 years old, and the average planting period is 10.4 years. The results show that farm distance and Internet use have a significant negative impact on the non-adoption of contract sales, while Internet use and farm distance have a significant positive impact on the adoption of sales contracts with traders; farmers' planting years have a positive impact on the signing of sales contracts with traders; the increase of sales price reduces the feasibility of signing contracts with traders. Compared with the farmers who get loans from friends, family members and banks, the farmers who get loans from farmers' organizations are less likely to sign contracts with farmers' organizations. Compared with the contracts signed by farmers' organizations, the signing of marketing contracts with traders has a positive impact on Farmers' welfare. The selective amendments of all marketing contracts are significant, indicating that there is a selective bias in the unobserved factors.

Keywords: Marketing Channels, Farmers Income, BFG Model, Afghanistan

INTRODUCTION

Grapes are grown in most parts of the world. In Afghanistan, grapes are grown in nearly every part of the country, with commercial production in the provinces of Kabul, Parwan, Kapisa, Kandahar, Helmand, Jawzjan, Herat and Ghazni. The total area of grapevine cultivation in Afghanistan is estimated to be more than 62,000 hectares with a total annual production of more than 610,000 metric tons and average farm yields of 9,800 kg/hectare (ha) USAID, (2016).. Grapes account for 48 percent of the total fruit-growing area in Afghanistan (USAID, 2016). In most districts, grapes are not grown for commercial purposes but rather for family consumption (Bourguignon, 2007). Grapes are therefore commercial horticultural crops in Afghanistan due their large plantation area and high income value (CHAMP,2009).This paper explores the grape marketing challenges in Afghanistan. Furthermore, research has revealed that lack of adequate education, information asymmetry and also insufficient facilities of farmers, as well as the lack of marketing equipment (storage, transportation equipment, processing equipment, etc.) contributes greatly in the net income of farmers (Davis, 2015). However, the impact of these factors has not been fully investigate in Afghanistan. Particularly, this paper addresses the factors affecting marketing channels and net income for grape farmers in Afghanistan. The factors considered include storage and preservation, market structure, as well as information system which have been found to be some of the factors affect marketing contracts in literature.

RESEARCH AND METHODS

Research data: The data used in this research is household survey data that was conducted in three provinces of Afghanistan, Kabul, Kapisa and Parwan. The provinces were randomly chosen from 6 major grape growing provinces. The sample population consisted of all commercial grape farmers in these three provinces for representativeness purposes. A list of grape farmers from the agricultural department of Kabul, Kapisa and Parwan provinces was collected for reference during the survey. Data was collected in face to face interviews through the use of questionnaires. The questionnaire was tested in a pilot study of 40 farmers in Helmand. Data

was then entered in Microsoft Excel and exported to Statistical Package for Social Sciences (SPSS) for cleaning. All data analysis was done using STATA 12.

Research methods: Literature induction method. Through the literature review and policy text combing, first of all, we have a more profound understanding of the influencing factors of agricultural product marketing channel selection; secondly, we have a more comprehensive combing of the impact of agricultural product marketing channel on Farmers' economy.

Empirical research methods. The research employed the Bourguignon, Fournier, and Gurgand (BFG) methods for multivariate analysis of data. Maintaining the cultivation of grapes means that farmers get high net returns from their products (Bowersox, Closs, Helferich, 1986). When analyzing the determinants of net returns, it is important to control the bias caused by the choice of marketing contracts. In normal analysis, net determinants of net returns are analyzed through a linear regression model. When using the BFG methods, the determinants of the choice of marketing contracts are first analyzed using the multinomial logistic regression, the model is then incorporated in a linear logistic regression to control for the bias caused by the choice of marketing contracts.

DATA COLLECTION AND SAMPLING TECHNIQUES

Date collection: The survey was conducted in three provinces in Afghanistan, Kabul, Kapisa and Parwan. The provinces were selected randomly from 6 provinces that grow grapes for commercial purposes. The sample included all farmers cultivating grapes for commercial purposes in the three provinces, bring the total sample size of farmers to 164. Thus to say, the sample was drawn in two stages, a random sampling method for provinces and a sample of all commercial farmers in the second stage. The data from the agricultural departments from all three provinces was used for reference.

Data was collected through face to face interviews with the aid of a structured questionnaire. The questionnaire consisted of both open and closed-ended questions and it captured information on farmer's demographics information, agricultural status and information on the marketing strategies, contracts and net returns. The questionnaire was then used in a pilot study to test for its effectiveness. The data collected through the pilot study was not included in the analysis. All collected data from the target population was then entered in excel and transferred to SPSS and STATA after data cleaning.

Sampling techniques: The data used in this research is household survey data that was conducted in three provinces of Afghanistan, Kabul, Kapisa and Parwan. The provinces were randomly chosen from 6 major grape growing provinces. The sample population consisted of all commercial grape farmers in these three provinces for representativeness purposes. A list of grape farmers from the agricultural department of Kabul, Kapisa and Parwan provinces was collected for reference during the survey. Data was collected in face to face interviews through the use of questionnaires. The questionnaire was tested in a pilot study of 40 farmers in Helmand. Data was then entered in Microsoft Excel and exported to Statistical Package for Social Sciences (SPSS) for cleaning. All data analysis was done using STATA.

RESULTS

Impacts of explanatory variables on marketing contracts: The first stage of BFG method involves fitting of an MNL model. In the first model, all explanatory variables were used to fit the MNL model. Some variables were then dropped because of very high insignificant rates with the response variable (channel). Using a likelihood ratio test, the reduced model was a significantly better fit model as compared to the full model with a P-value of 0.000 hence all the analysis was based on the reduced model. All analysis was done at a 95% significant level. As the coefficients of the MNL model can be hard to interpret, we use calculate marginal effects for easy interpretation. The results for the MNL model are in table below.

Table1 Determinants of marketing contracts (First stage BFG)

Variable	No contracts		Contract with traders		Contract with farmers organization	
	Marginal effects	Z-value	Marginal effects	Z-value	Marginal effects	Z-value
Years planted	0.008	0.254	0.015	1.75*	-0.023	- 3.69***
Sales volume	0.000	-0.710	0.000	1.020	0.000	-0.570
selling price	0.905	0.147	-0.613	- 3.04***	0.708	2.71***
Province	0.044	0.460	-0.276	-2.38**	0.233	2.85***
Loans	0.039	0.780	0.089	1.500	-0.128	- 3.04***
Distance	-0.005	-3.8***	0.004	3.02***	0.001	0.146
Internet	-0.261	- 2.87***	0.318	3.25***	-0.058	0.336
Participated training	-0.137	-1.510	-0.001	-0.010	0.138	2.16**
Planting area	0.008	0.250	-0.055	-1.390	0.046	1.87*
Farming vehicle	-0.038	-0.720	0.040	0.690	-0.001	0.963
Age	0.004	0.970	-0.003	-0.690	-0.001	0.844
Education	-0.018	-0.470	0.019	0.440	0.000	-0.020

*, **, *** represent significance at 0.1, 0.05 and 0.01 significant levels, respectively. The base group is farmers with no contracts.

Table1 indicates that farm distance and internet use have a significantly negative impact on selling with no contract. This typically means that farmers with an increased farm distance are less likely to sell without contracts. Likewise, farmers with access to internet are less likely to sell with no contracts. On the other hand, internet use and farm distance have a significant positive impact on marketing contracts with traders. This means that farmers with access to internet and long farm distances respectively, are more likely to choose marketing contracts with traders. However, both internet use and farm distance do not have any impact on contracts with farmer's organizations.

The number of years a farmer has been planting grapes has a positive impact on contracts with traders. While planting years contribute to the use of marketing contracts with traders, contracts with farmers' organizations are negatively affected by number of planting years. In addition, the negative marginal values of selling price and province indicate that an increase in selling price reduces the probability of farmers having contracts with traders while farmers from Kabul are less likely to have contracts with traders unlike farmers from Parwan and Kapisa. Selling price, province, participation in training and planting area have a positive significant impact on contracts with farmer's organizations. Every increase in selling price and planting area increases the probability of farmers having contracts with farmer's organizations. On top of that, farmers from Kabul have a higher probability of having contracts with farmer's organizations unlike farmers from Parwan and Kapisa. Farmers who undergo training also have a higher probability of having contracts with farmer's organizations as compared to farmers without training. On the other hand, the significant negative value access to loans indicate that farmer who take loans from farmer's organization are less likely to have contracts with farmer's organizations, as compared to the farmers with loans from friends, family and banks

Impacts of marketing contracts on net returns

Table 2 Impacts of Marketing contracts on net returns (Second stage BFG)

No contracts		Contract with traders		Contract with farmers organization		
Variable	Coefficient	Z-value	coefficient	Z-value	coefficient	Z-value
Years planted	-397.921	-0.110	-0.135	-0.250	-2731.290	-2.090
Sales volume	1.978	1.710	0.999	1327.96***	8.277	10.56***
Selling price	-138042.500	-0.270	-219.380	-0.940	138721.100	0.340
Province	-38662.150	-1.090	-1.225	-0.140	19460.290	0.830
Loans	2421.519	0.130	13.068	3.15***	-5447.200	-0.590
Distance	265.522	1.450	0.623	1.660	-263.047	-0.560
Internet	22279.500	0.970	42.166	1.9*	5689.325	0.170
Participation	21013.610	1.050	7.860	1.000	35033.670	2*
Planting area	-559.304	-0.060	4.678	2.19**	-17112.900	-3.87***
Farming vehicle	3929.915	0.69*	4.982	0.890	-6764.240	-0.810
Education	7398.876	1.870	2.853	0.86**	16860.500	2.86***
Age	-659.711	-1.250	-0.504	-2.19*	971.283	1.280
_m1	23899.370	0.630	-104.362	-1.78*	166337.400	1.450
_m2	28801.980	0.390	-91.870	-2.500	140147.600	0.960
_m3	153988.400	2.12**	-19.514	-0.330	95157.100	1.85*
_cons	125075.600	0.610	43.422	0.480	-37630.500	-0.460

The net returns equation is estimated by an OLS model. The OLS model automatically incorporates selection bias correction terms derived from the MNL model. In this case, the three marketing contracts have three selectivity correction terms. Table 2 shows the impact of marketing contracts on net returns. It can be noted from table 2 that the selectivity correction terms are denoted by m1, m2 and m3. These terms control for selectivity effects caused by unobserved confounding factors. The results presented in table 2 show that the selectivity terms are significant in the choice of contracts with farmer's organization, contracts with traders and no contracts. The selectivity coefficient of contracts with farmer's organization as compared to contracts with traders is positive, meaning that the expected revenue for a farmer with a contract with farmer's organization will increase if they switched from contracts with farmer's organizations to contracts with traders. Likewise, the significant negative coefficient for no contract relative to contract with farmer's organization indicate that the expected revenue for a farmer with no contract will decrease if a farmer switched from no contract to having a contract with farmer's organization. The results for the OLS indicate that farming vehicle has a positive significant impact on the revenue of farmers with contracts with farmer's organizations. In addition, sales volume, internet use, planting area, loans and education have a positive impact on the revenue of farmers with no contracts. However, age has a negative impact on the revenue of farmers with no contracts. Furthermore, sales volume, training participation and education have a positive impact on the revenue of farmers with contracts with traders while planting area has a negative impact.

CONCLUSION

The analytical results of the first stage of BFG revealed that Farm distance and internet use had a significantly negative impact on selling with no contract. However, internet use and farm distance had a significant positive impact on marketing contracts with traders. The number of years a farmer has been planting grapes had a positive impact on contracts with traders. While planting years contribute to the use of marketing contracts with traders, contracts with farmers' organizations are negatively affected by number of planting years. In addition, an increase in selling price reduces the probability of farmers having contracts with traders while farmers from Kabul were less likely to have contracts with traders unlike farmers from Parwan and Kapisa.

Selling price, province, participation in training and planting area had a positive significant impact on contracts with farmer's organizations. On top of that, farmers from Kabul have a higher probability of having contracts with farmer's organizations unlike farmers from Parwan and Kapisa. Farmers who undergo training also had a higher probability of having contracts with farmer's organizations as compared to farmers without

training. On the other hand, farmers who take loans from farmer's organization are less likely to have contracts with farmers' organizations, as compared to the farmers with loans from friends, family and banks. The analysis also revealed that marketing contracts with traders have a positive impact on returns as compared to contracts with farmers' organizations and having no contracts (on spot selling). Overall, the results suggested that having contracts with traders would improve the overall returns of farmers.

REFERENCES

- Bourguignon F., Fournier M., Gurgand M. (2007). Selection Bias Corrections Based On The Multinomial Logit Model: Monte Carlo Comparisons. *Journal of Economic Surveys*, Wiley Blackwell, vol. 21(1): 174-205
- Bowersox D. J, Closs D. J., Helferich O. K., (1986). *Logistical management: a systems integration of physical distribution, manufacturing support, and materials procurement*, 3. ed, New York, Macmillan
- Brady P. L., Thomsen M., Morris J. R. (2010): *Marketing Options for Grapes and Grape Products*. Arkansas Agricultural Experiment Station. Available at <http://arkansasagnews.uark.edu/1353.htm>
- CHAMP (2009). *Best practices for grape production and marketing in Afghanistan. The CHAMP farm to market guide*. Available at www.CHAMP.af
- Davis. M, (2015). *An Assessment of Mango Farmers' Choice of Marketing Channels in Makueni, Kenya*. University of Nairobi, Kenya
- USAID (2016): *MARKET BRIEF: GRAPES an overview of export growth*. Ministry of Agriculture, Irrigation and Livestock, Afghanistan.