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Socio-economic factors affecting the role of women in family poultry production: A case study at Paghman district, Kabul province, Afghanistan

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ABSTRACT

Although several studies have been carried out globally on the factors influencing the marketable eggs of women chicken farmers (WCFs), the studies in Afghanistan remain scarce. Therefore, this study was carried out to ascertain the main socioeconomic factors affecting their level of weekly eggs sold to the market (WESM). For accomplishment of this study, secondary and primary data were utilized. For data collection, two field surveys were conducted in 2015 and 2016, and interviews were made with 120 WCFs using semi-structured questionnaires. Descriptive statistics and multiple linear regression techniques were applied to determine the relationship between dependent and independent variables. The sociodemographic results of the study revealed that 90% of the households were male-headed with no formal education (90.8%). Their flock size ranged from a maximum number of 50 to a minimum of 3 birds with an average number of 26. Their WESM varied from 5-280, with a mean of 117 eggs per week. The econometric results of the study illustrated that F-value for the model is 49.803 and significant at 1% significance level. R^2 Value of the model was equal to 0.820 and adjusted R^2 = 0.804. However, the relationship among WESM and the independent dummy variables of land access (r = 0.033), project membership (0.014), poultry experience (1-3 years) (0.022), and age (less than 30 years) (0.024) were positive and insignificant. On the contrary, model showed negative coefficient signs for the other insignificant variables family jobholders (r = - 0.011), married (r = - 0.042), and illiteracy (r = - 0.030). Regression analysis of the dataset ultimately revealed that 3 independent variables viz: flock size (r = 0.013), family size (r = -0.024), and feeding cost (r = 0.001) out of ten were significantly correlated with WESM at 1% level of confidence.

Key words: Kabul province, marketable eggs, Paghman district, socio-economic factors, women chicken farmer

INTRODUCTION

Family poultry production (FPP) is considered to be crucial for many rural households in the third world countries. It makes essential contribution to eradication of poverty, securing food and women empowerment in many countries. Indigenous breeds of chickens still contribute enormously to meat and egg production and consumption in developing countries. According to Pym (2006), family poultry makes up to 80% of poultry stocks in low-income countries. Similarly, the role of FPP as an integral sub-sector of livestock has been important in the

rural economy of Afghanistan. The importance of FPP to rural people is not hidden among scholars due to its high nutritional value (particularly in terms of animal protein), easy adaptation, little investment requirements, and rapid economic return. As FPP is important for the rural population across the country, Ministry of Agriculture, Irrigation and Livestock (MAIL) of Afghanistan, in parallel with global strategy for poverty alleviation, women empowerment, food security and improvement of rural livelihoods, has designed and implemented a number of gender sensitive small-scale poultry production projects.

Globally, several studies on rural-based poultry and women have already been carried out. For instance, Czech et al. (2005) attempted to study the case of Indian backyard poultry. Similarly, the case of Pakistan by Shafiq (2008), the case of Nigeria by Garba et al. (2013), Oladunni and Fatuase (2014), and Guary et al. (2015) were already been studied. However, in Afghanistan, a meager of researches attempted to study gender issues. For instance, Nessar (1999) concentrated on principles of raising small-scale practical-based poultry. His study, somehow, focused on feeding, breeding, disease and technical principles of poultry. Also, attention was given by FAO (2015) to highlight the participation of Afghan women in raising cattle, sheep and goat.

In spite of massive investments on family poultry, this small-scale business not only experiences remarkable fluctuations but, official figures show that the total number of indigenous chickens has significantly decreased by about 3 million from 2005 to 2013 (FAO, 2016). It is assumed that a number of socioeconomic factors affect the level of FPP. However, internationally several studies have been carried out to statistically identify the major socioeconomic factors affecting FPP, while studies with respect to Afghanistan remain scarce. Therefore, attention was given to ascertain the main socioeconomic factors affecting the level of WESM by WCFs in the study area.

MATERIALS AND METHODS

For accomplishment of this study, secondary and primary data were utilized. Secondary data were accumulated through reviewing both published and unpublished relevant literature. The main sources of secondary data were books, journals papers, research papers and articles, and national and international reports. For collection of primary data, two field surveys were conducted using qualitative and quantitative methods. A brief description of both surveys however is given below.

The reconnaissance survey based on a qualitative method was conducted during August to September 2015. Within the first field survey, aside from interviewing poultry producers, a number of marketing agents were also interviewed in order to obtain a general information of poultry production situation in the country. In addition, for conducting the first field survey (reconnaissance) two types of semi-structured questionnaires were developed. The first type was purposefully administered to a number of professors, researchers, and national and international agricultural development specialists, particularly those were concerned with the subjects of women in poultry. The main objectives were to, in one side, broaden our knowledge and to understand their perspectives with regard to gender relations in livestock and poultry, and on the other side to obtain local available information on poultry circumstances which were unavailable in public sphere. To sum up, during the first field survey, aside from semi-structured questionnaire technique, field observation and notes were other data collection techniques from the study area. The reconnaissance survey indeed paved the way and enabled us for conducting the second field survey.

The second field survey which makes the core of this study in terms of primary data, was carried out in Paghman district from April-May 2016. During this field survey, mainly a quantitative method of data collection was employed. Also, a multi-stage sampling technique was applied in order to select target farmers. Then, face to face interviews were made with 120 women poultry raisers using semi-structured questionnaires. Based on the reconnaissance (field) survey which was conducted in August to September 2015, Paghman district was purposefully selected to be the main site for this study. As the district was targeted by

Improved Backyard Poultry Production (IBPP) of Ministry of Agriculture, Irrigation and Livestock (MAIL), and agricultural and livestock activities form one of the main income generation sources of the people, it was a suitable area for primary data collection. In addition, as insecurity is a big concern in Afghanistan, a relative security status of the district, encouraged us for selecting it as our study site.

Ethical consideration and consent

The identity of the researcher and the purpose of the study were expressed to the stakeholders, local officials, and interviewees. Then, official permission was given for site entry and data acquisition. Based on the commitment we made, the data collected will be confidentially used only for this study, and will not be shared with the third parties.

Limitation

It is important to mention that the study area was unknown for the researcher, and as a norm it was tough to interview rural women for data acquisition. However, due to MAIL official permit, and coordination of the project personnel between the researcher and the villagers, it was possible to complete the interview survey.

Selection of the sample size

Daniel et al. (2009) suggested that the minimum appropriate sample size for conducting factor analysis studies include 3 to 20 times more than the number of variables and absolute ranges from 100 to over 1000. Similar studies were also undertaken by Arshad et al. (2013). The authors too herein followed the above concept and similar studies.

Selection of the villages and respondents

Based on the statement of project staff, 420 households in 34 villages were targeted by IBPP across Paghman district. The sample size was mainly planned based on the similar studies mentioned previously. As the total capacity of our sample size on a pre-planned basis was interviewing 120 WCFs consisted of equal numbers of IBPP and non-IBPP beneficiaries, therefore, we were supposed to choose only 12 villages. Among all, 12 villages were randomly selected, in order to reduce bias. The selected villages included Quli Baba Noor, Qalai Malik, Saia Bagh, Qalai Adih, Qalai Mirdad, Qalai Aghir khan, Esakhil, Qalai Saqi, Miakhil, Doda Mast, Tati, and Pushta Bala. Based on the project list from each 12 chosen villages, 10 women poultry keepers were selected using simple random sampling technique. Then, face to face interviews were made with the selected poultry keepers using semi-structured questionnaires.

RESULTS AND DISCUSSION

Socio-economic characteristics of WCFs: The socio-demographic analysis (as showed in Table 1) of the study revealed that a vast majority of 72.5% of the respondents lies between the age group of 31-50 years. According to NRVA (2011-12), Ike and Ugwumba (2011), and Jatto (2012) arguments, they are still considered to be in their most productive age range for poultry and farming production purposes. Also based on the argument of Adisa and Akinunmi (2012), one can say that majority of the WCFs in the study area are in a virile age bracket for active participation in overall poultry operations. As Jatto (2012) previously stated, another implication is that as superiority of the farmers is young, therefore they are still in a certain age group that are likely to adopt new technologies or innovations.

Results shown that most of (82.5%) the WCFs were married. This agrees with CSO (2013) report that a vast majority of women in Paghman district are married. Also it confirms the result of Jatto (2012) that married farmers with larger family sizes are feeling responsible and are likely to have some experiences of life. Women in general and married women in particular, aside from bearing child and houseworks, are strongly willing to take part in an economic activity to contribute to food security of their households.

The results also showed that nearly 13% of WCFs were widows whereas only around 4% were singles. This means that a number of WCFs experienced death of their husbands due to several decades of wars (1978-2001) in the country. Based

on the observation, they seemed to be highly interested in FPP to feed the family members and to generate income to purchase basic needs of life. Single women and girls who were within the age group of 30 or less than 30 years old, due to limited poultry experiences and small family sizes, were considered to be less likely to practice FPP. Majority (77.5%) of the WCFs' households were headed by male, while nearly a quarter of the families were headed by female. The implication is that, in a patriarchal society, male in major socioeconomic aspects dominates female.

Based on the study results, a vast majority (90.8%) of the respondents were with no formal education, while shares of the farmers with primary (6.7%) and secondary education (2.5%) were much less. However, perhaps the main reason behind the higher illiteracy rate (90%) of the interviewees can be age above 31years and being war generation who have suffered 3 decades of civil wars in the country. The willingness to raise poultry among the illiterate women was superbly strong as they due to lack of competency and skills seemed to be unable to benefit from full or part-time formal job opportunities. Education is considered to be fundamentally important for women empowerment and rural development. Meanwhile, schooling seems to be one of the crucial variables in achieving economic growth, agricultural development and human progress. Also according to FAO (2007) education is widely recognized as one of the key dimensions of the development. That is because Millennium Development Goal 2 (MDG) is directly associated with it.

The result also revealed that majority (64.1%) of the farmers had family size of 6-10 members. Rural households in the study area tend to have larger family sizes, as more than 90% of the farmers had a family size of greater than 6 people. The sociodemographic results further indicated that the family size of WCFs ranged from the minimum of 4 persons to a maximum of 17. The average household size of the respondents was 8.7. The data clearly illustrated that WCFs with larger family sizes, in order to contribute to fulfillment of nutritional requirements of their families, turn to FPP.

With respect to poultry experience of WCFs, the results revealed that nearly 46% of the farmers had poultry experience of 1-3 years. The implication is that, since IBBP was implemented from late 2013 in the study area, they might have started involving in FPP earlier. However, considering the poultry experience, WCFs were then distributed to nearly 18%, around 20%, and 16% with 1-6 years, 7-9 years, and 10 years and over respectively. Based on the results, majority (67%) of the WCFs had no access to agricultural land. The implication is that, as poultry activity can be practiced even in a limited space, poor rural households with no arable land often tend to engage in FPP. Perhaps the main reason that a vast majority of women are landless in the study area can be the topographic structure of the district. However, the results further indicated that 23% and 10% of the WCFs had access to one or less than one Jerib1, and 2-3 Jeribs of land respectively. Farmers with larger piece of land turn to alternative agricultural activities including cattle and sheep raising, rather than involvement in FPP only. The flock size of WCFs ranged from 50 to a minimum of 3 birds with an average number of 26. Their WESM varied from 5-280, with a mean number of 117 eggs per week. On an average the number of eggs laid by each layer chicken reached to nearly 4 eggs per week.

ECONOMETRIC RESULTS

Prior to the econometric analysis of data, attention was given to check a number of the potential assumptions with the multiple regression model. However, no serious multi-collinearity and auto correlation problems were found with the predicted independent variables. Breusch Pagan Godfrey test was applied to detect the problem of heteroscedasticity. Since α (p-value) was equal to 0.011 which is below the threshold of significance level of 0.05 it indicated that the model is heteroscedastic. Hence, to overcome the problem of heteroscedasticity in our data and to make it statistically robust, logarithmic transformation technique ($\log Yi=\alpha+\beta ixi+\epsilon i$) was applied for WESM.

Table 1. Socio-economic characteristics of the women poultry keepers, N=120

Sl. No.	Variables	Frequency	Per cent (%)	Cumulative percentage
1.	Age			
	Less than 30	19	15.8	15.8
	31-40	49	40.8	56.7
	41-50	38	31.7	88.3
	More than 51	14	11.7	100
2.	Marital status			
	Single	5	4.2	4.2
	Married	99	82.5	86.7
	Widow	16	13.3	100.0
3.	Family head			
	Male	93	77.5	77.5
	Female	27	22.5	100.0
4.	Education level			
	No formal education	109	90.8	90.8
	Primary education	8	6.7	97.5
	Secondary education	3	2.5	100.0
	Higher education	0	0	100.0
5.	Family size			
	1-5	11	9.2	9.2
	6-10	77	64.1	73.3
	11-15	28	23.4	96.7
	16 and over	4	3.4	100.0
6.	Family jobholders			
	1 job holder	16	13.3	13.3
	2 jobholders	92	76.7	90.0
	3 jobholders	10	8.3	98.3
	4 jobholders	2	1.7	100
7.	Poultry experience			
	1-3 years	55	45.8	45.8
	4-6 years	21	17.5	63.3
	7-9 year	24	20.0	83.3
	10 years and over	20	16.7	100
8.	Land access			
	Landless	80	66.6	67
	1 [1]Jerib or less	27	22.5	89.16
	2-3 Jeribs	12	10	100.0
	4 Jeribs and over	0	0	100.0

[1]Jerib is a traditional unit of land measurement in Afghanistan where [1]Jerib equals to 2000 m^2

The F-value for the model after correcting the heteroscedasticity was 49.803 and significant at 1% significance level. This indicated that the model fit is good. R^2 Value of the model was equal to 0.820, Adjusted R^2 = 0.804. This result indicated that about 80.4% of the variability in WESM by WCFs was attributed to the hypothesized variables.

Regression analysis of the dataset revealed that 3 independent variables viz: flock size (r = 0.013), family size (r = -0.024), and feeding cost (r = 0.001) out of ten were significantly correlated with WESM at 1% level of confidence. Regression findings of the study indicated that family size, as hypothesized, significantly but inversely is correlated with WESM. In other word, one unit increase in family size, keeping the other factors constant, decreases WESM by nearly 2.5%. It is logical that as the household size becomes larger, the chance for consumption of eggs to fulfill their protein requirements within the family increases, and therefore, WESM decreases. It makes sense that larger family size in the rural areas consumes a part of the produced eggs and consequently limits the chance for WCFs to supply surplus eggs to the market.

Table 2. OLS estimation of factors affecting the dependent variable weekly eggs sold to the market in the study area, after correction of heteroscedasticity

Variables	Coefficients	Standard error	t-value	Sig.
Constant	1.633	0.104	15.678	0.000**
Family size	-0.024	0.006	-3.751	0.000**
Family jobholders	-0.011	0.032	-0.356	0.722
Flock size	0.013	0.002	5.576	0.000**
Feeding cost	0.001	0.000	4.938	0.000**
Land access	0.033	0.031	1.037	0.302
Pro. membership	0.014	0.030	0.470	0.639
Age	0.024	0.031	0.765	0.446
Married	-0.042	0.048	-0.878	0.382
Education	-0.030	0.038	-0.798	0.427
Poultry Exp	0.022	0.052	0.430	0.668

** Significant at 1% level of significance; F= 49.803, R^2=0.820, Adj R= 0.804, N=120

Flock size, as predicted, had a positive and significant relationship with WESM. The results predicted that one additional unit in flock size, keeping the other factors fixed, increases WESM nearly by 1.5%. The implication is that the larger the flock size, as the more the level of production and increased WESM. This result therefore, is supported by Kawsar et al. (2013) that the flock size has a significant correlation with poultry production. The findings disagree with Adisa and Akinkunmi (2012) that flock size has no significant relationship with the participation of women in poultry activities. It makes sense that as the flock size enlarges, WCFs find the chance to supply additional quantity of eggs to the market to get more income. In other words, it is suggested (by this study) that income generation can be a good incentive to encourage rural women to be involved in FPP activities.

Result of the study then indicated that the continuous variable of feeding cost has a positive and statistically significant correlation with WESM. It implies that a unit increase in feeding cost, keeping the other factors constant, would contribute to an increase of WESM by 0.1%.

Though, the coefficient 0.001 seems to be a small value, but since it refers to the total number of WESM, it becomes a greater number. The result corroborates with the work of Akter et al. (2015). However, the relationship among WESM and the independent dummy variables of land access (r = 0.033), project membership (0.014), poultry experience (1-3 years) (0.022), and age (less than 30 years) (0.024) were positive and insignificant. On the contrary, model showed negative coefficient signs for the other insignificant variables family jobholders (r = - 0.011), married (r = - 0.042), and illiteracy (r = - 0.030).

Also the survey results disclosed the main constraints that WCFS were struggling with. Their challenges included burden of unpaid houseworks, plurality of children, lack of educational and technical knowledge, poor infrastructures, unavailability of credit and formal loans, weak market competitiveness and unfamiliarity with cooperatives or poultry unions. Also chicken mortality, chicken eggs eating, diseases outbreaks, unavailability of veterinary clinics, high cost and low quality of poultry feeding, summer and winter poultry care, and after all poor farm management skills were a number of limiting factors for WCFs in the study area.

CONCLUSION

FPP is known to be crucial for strengthening rural economy and gender equality in Afghanistan. It was found that even though the productivity level of FPP is low, it plays an essential role in food security, income generation, and women empowerment in the study site. This small-scale business is mainly owned and run by married and poor rural women particularly who are landless, illiterate, and with larger family sizes. In addition, FPP is considered to be a culturally acceptable practice for women segment in the study area. Accessibility and willingness to participate in poultry practice among female farmers were strong, and the opportunities such as family support and high demand in market were available. Since majority of WCFs were in their most active economic age period, requisite encouragements by practitioners through family poultry channel can accelerate livelihood and the socioeconomic empowerment of women in the study site and rural areas in Afghanistan.

RECOMMENDATION

Based on the results, the following main recommendations are drawn up towards strengthening FPP and women empowerment in the study area:

1. Considering the econometric results, the variable flock size, family size, and feeding cost were significantly correlated with WESM. Therefore, government supportive policies in the areas of poultry input and output, and provision of credit services are strongly recommended. However those policies must empower women to in one side increase their market competitiveness, and on the other side to maintain the cost and quality of poultry input and outputs in the free market as well.

2. Since the variable family size was significant but inversely correlated with WESM, government supports in the areas of credit and extension services, provision of day old chicks (DOCs), medication, and other poultry inputs at a lower price, can help farmers to in one hand increase their accessibility to food security through expanding their production level, and on the other hand to enlarge their amount of WESM and poultry income generation.

3. Most importantly since a vast majority of WCFs were illiterate or with lower level of formal education, it is strongly recommended to provide educational services to improve FPP and women empowerment in the study area.

4. As social stigma and barriers were critical challenges that socioeconomically exclude and marginalize women from a commercial based poultry activity, therefore, policy makers, should initiate ways to bring these enterprising women to the mainstream to contribute significantly to the Animal Husbandry sector.

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