Research Article:

INTERGENERATIONAL TRANSFER OF THE FARMING OCCUPATION IN MALE LINE OF DESCENT: EVIDENCE FROM GAJURI RURAL MUNICIPALITY, NEPAL

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ABSTRACT

Intergenerational occupational transfer is the change in occupations adopted by the successive generations within the members of the same family. This study examined the association of farming occupation between father and the son using Nepalese data from rural context. A structured questionnaire set was used to collect information from a total of 385 father-son pairs in *Gajuri* rural municipality of Bagmati province of Nepal. Information was collected from the father and the senior son of the family. The quantitative information was analyzed using binary logistic regression technique and the results were interpreted using regression coefficients and odds ratios. Findings from binary logistic regression suggested that in reference to the farming father, the sons of the non-farming fathers were more likely in shifting from agriculture occupation in order to catch the non-farm employments. Among the explanatory variables, son's own level of education and migration have instrumental role to quitting from farming occupation. Other factors such as level of education and social networks of father have contributed positively in occupational shift between the generations from farming into more diversified non-farm sectors. The finding of this study is salient in designing policies of labour market issues as well as developing strategies to retain youths in rural agriculture in Nepal.

Key words: Change, continuity, farming, father, son

INTRODUCTION

Intergenerational occupational change refers to the change in occupations that occur between two generations that is of father and son or family members of one generation and the next. It shows the change in occupation of a person or persons which is different than the parental generation (Chakravarty, 2013; Emran & Shilpi, 2011; Narayan et al., 2018). Occupations along with income, education, gender, race, environment, culture are some of the determinants for potential social mobility. Among these, occupation plays a vital role in determining social mobility (Chakravarty, 2013; Reddy, 2015). In the literature on social mobility, occupation is considered a good indicator of social status, incomes and living standards (Gidden, 2009; Goldthorpe & McKnight, 2006; Kunst & Roskam, 2010; Lambert & Bihagen, 2011; Reddy & Swaminathan, 2014; Weeden, 2002). Hence, intergenerational occupational change across different consecutive generations is one of the interesting fields of study.

In Nepal, one in every five people who has a job was employed in agriculture, the largest employer in Nepal (CBS, 2018). Trade industry has a share of 17.5 percent, followed by construction 13.8 percent. The informal sector has the biggest share of 62.2 percent of the total employment in agriculture. Among all employed people, 23.8 percent were engaged in service and sales occupations, but about 20 percent people are engaged in elementary occupations (CBS, 2018). The proportion of people dependent on agriculture has been declining over time

across the globe and at the national level. Although agriculture is the primary occupation of a majority of people, shifts in occupations by individuals living in farm households to non-farm activities has been much more visible in the last decade (Bhandari, 2006; Bhandari, 2013). For example, until the 1970s, over 94 percent of the economically active population was engaged in farming and related activities. This figure has been gradually declining and reduced to 65 percent up to 2011 census (CBS, 2012). National Population and Housing Census 2021 shows that population engaged in agriculture and allied activities has come down to 50.1 percent of the total economically active population (NSO, 2023). In contrast, involvement in professional/ technical/ managerial work has increased from 4 percent in 2011 to 6 percent in 2016 for women and from 8 percent in 2011 to 10 percent for men in 2016 (Ministry of Health, New ERA & IFC, 2017). These accounts imply that the population dependent on agriculture has been continuously declining over time in Nepal. In sum, the proportion of employed population in agriculture is declining and there is a consequent rise of population in the non-agriculture sectors (NSO, 2023; Suwal & Dahal, 2014).

In the underdeveloped world, the study on intergenerational occupational mobility is very few. Socio-economic analysis of intergenerational occupational mobility in developing countries, however, remains a relatively unexplored terrain (Emran & Shilpi, 2011). Some studies have been found in case of South Asian context like India, Bangladesh and China (East Asia). Intergenerational occupational changes along with income, wealth, education in between successive generations have been witnessed by several studies (Asadullah, 2006) in Bangladesh, (Azam & Bhatt, 2015; Chakravarty, 2013) in India, (Gong, Leigh & Meng, 2010) in China, (Emran & Shilpi, 2011) in Nepal and Vietnam. On this background, such kind of study solely focusing on the occupational changes in Nepal is so far scanty. This study investigates the change of farming occupation adopted by the father into farm-based occupations adopted by the son. It further examines the casual factors for such a shift in farming occupation across the consecutive generations in the rural context of Nepal.

MATERIALS AND METHODS

Gajuri Rural Municipality of Dhading district is the study area for the present study. This rural municipality lies along and uphill the Prithvi highway. Selection of this rural municipality is purposive but having good rationale for the proposed topic. The study site lies along the Prithvi highway uphill the Mugling Kathmandu segment of it. This area is one of the drastically changing places in the context of Nepal inserted in between two highly urbanized city centers Kathmandu and Narayangarh. The in route to the highway and the hinterlands are highly influenced by the effects of physical connectivity, communication, media, trade, commerce, education, migration, and whole gamut of modernization. The present study was carried out taking primary data needed to fulfill the objective of the study. A well-structured questionnaire schedule was used to collect quantitative information using face to face interview with the purposively selected father and son as the respondent during June to September 2018.

According to the information obtained from the Executive Officer of Gajuri Rural Municipality, there are 560 households in Ward No 4; 1071 households in Ward No 5 and 1090 households in Ward No 6 of it (Sapkota, 2018). In an assumption that each household has a potentially one respondent father-son pair, there are altogether 2721 father-son pairs which represent the maximum population size for the present study. The households which fulfill the criteria of having married eldest son and his father residing in Ward Nos 4, 5 and 6 of Gajuri Rural Municipality (former Pida VDC) are the population for this study. Married son in this study has been taken as a proxy of the occupation holding age of the son. There are several sons of a parent while the elder son or senior son in Nepalese context is supposed to shoulder the family

and household responsibilities; was taken as the respondent for this study. Hence, by using the formula for a sample size of proportions (Israel, 1992), sample size came out to be 385 father son pair.

RESULTS

The results of this study are based on two levels of analysis. The first level of analysis is univariate descriptive statistics like percent, mean and standard deviation of the study variables. The second level of analysis is based on multivariate analysis which includes binary logistic regression.

Results of Descriptive Statistics

Table 1 shows that 20 percent of the sons reported that they were engaged in farm-based occupations, while 80 percent of them reported their occupations as non-farm based. Specifically, among the non-farm-based sons, they were engaged in salaried job (27%), business and trade (18%) and wage labor (35%). These categories were combined to form a non-farm-based occupation of a son. On the other hand, nearly two-thirds (65%) of the fathers reported that they were engaged in farm-based occupation and remaining one third (35%) in non-farm (non-agriculture) based occupations. These results clearly show that there were a growing number of youths towards non-farm based occupations such as salary based jobs or business trade or wage labor works than in farm-based occupations. Among the fathers with non-farm sector occupations, 12 percent were in salary based jobs and business, and trades, while 23 percent were engaged in wage labour works.

Table 1. Descriptive statistics of measures used in the analysis (n=385)

Variables	Descriptive statistics			
	Percent/ Mean	Std. Dev.	Minimum	Maximum
Outcome measure				
Occupation of son				
Agriculture (Ref)	20.0	-	0	1
Salaried job	27.0	-	0	1
Business and trade	18.0	-	0	1
Wage labor	35.0	-	0	1
Farming status of son (combined)				
Agriculture (Ref)	20.0	-	0	1
Non-agriculture	80.0	-	0	1
Explanatory measure				
Occupation of father				
Agriculture (Ref)	65.0	-	0	1
Salaried job/business and trades	12.0	-	0	1
Wage labor	23.0	-	0	1
Controls				
Father's characteristics				
Level of education				
Illiterate (Ref)	54.0	-	0	1
Literate only	30.0	-	0	1
Educated	16.0	-	0	1
Monthly income				

Variables	Descriptive statistics			
	Percent/ Mean	Std. Dev.	Minimum	Maximum
No earning (Ref)	22.0	-	0	1
NRs. 1-5000	35.0	-	0	1
NRs. 5001-15000	22.0	-	0	1
NRs. 15001 and more	21.0	-	0	1
Social network				
No (Ref)	71.0	-	0	1
Yes	29.0	-	0	1
Number of sons of the father	2.8	1.43	1	9
Father-son age difference	28.0	7.34	14	60
Son's characteristics				
Level of education				
Illiterate or literate only (Ref)	29.0	-	0	1
School level	54.0	-	0	1
Plus two and above	17.0	-	0	1
Migration				
No (Ref)	43.0	-	0	1
Yes	57.0	-	0	1
Household characteristics				
Caste/ethnicity				
Brahmin/Chhetri/Newar (BCN) (Ref)	37.0	-	0	1
Janajatis	53.0	-	0	1
Dalits	10.0	-	0	1
Residential location				
Near to highway (Ref)	34.0	-	0	1
Places in between highway and remote locations	37.0	-	0	1
Remote locations	29.0	-	0	1
Land holding size				
0-10 ropani	40.0	-	0	1
11-20 ropani	37.0	-	0	1
21 ropani and above	23.0	-	0	1

Source: Field survey, 2018; Note: 1 ropani of land=0.0508 hectares; Ref=Reference category (in multivariate analysis)

The results in table 1 reveal that youths are shifting from their fathers' agriculture occupations in order to find jobs in other sectors outside farming. Gradual recession of farming activities is being evident, signifying a transition where an increasing proportion of the population is shifting out of agriculture to undertake various non-farm based employment opportunities. All other variables of the descriptive statistics are presented as mean, percent, maximum, minimum and standard deviation in Table 1.

Results of Multivariate Statistics

Binary logistic regression is employed as a causal measure for determining the occupation in terms of farming and non-farming status of a son which is the outcome measure of this study. Occupation of son is measured as agriculture and in order to examine the effect of different causal measures like agriculture; and salary based job/business trades and wage labour are put into non-agriculture type of occupations. Five different models are constructed to examine the effects of

the explanatory measure. The occupation of father is the main explanatory measure whose effect is examined separately and jointly with other control measures. Unlike the occupation of son, occupation of father is measured into three categories e. g., agriculture, salary based jobs/ business and trades and wage labour works. There are both partial model (model 1 through model 4) and full model (model 5). Model 1 is about the sole effect of the occupation of father on the occupation of son. Model 2 explains the effect of father's characteristics like education, social networks of father, level of income, number of son and father-son age differences in shaping son's occupation. Model 3 presents the causal effect on the occupation of son like level of education and migration of son. Model 4 depicts the effects of household characteristics which are applicable to both the father and son alike such as caste/ethnicity, residential location and landholding size. The full model is presented in model 5 which examines the simultaneous effects of all explanatory and control measures to sort out the net effect of the occupation of father in terms of farming and non-farming occupation of the son.

Table 2. Binary logistic regression results explaining the farm quitting tendency of son by father's occupation net of controls (n=385)

Variables	Outcome: Farming and non-farming occupation of son				
	Model 1	Model 2	Model 3	Model 4	Model 5
Explanatory Measure					
Occupation of father					
Agriculture (Ref)	-	-	-	-	
Non-agriculture	1.178 (3.248)***	1.143 (3.136)***	1.361 (3.899)***	1.050 (2.858)***	1.196 (3.306)***
Controls					
Father's characteristics					
Level of Education					
Illiterate (Ref)	-	-		-	-
Literate only		0.198 (1.219)			0.232 (1.261)
Educated		0.133 (1.143)			-0.417 (0.659)
Monthly income					
No earning (Ref)	-	-			-
NRs. 1-5000		0.217 (1.242)			0.220 (1.246)
NRs. 5001-15000		0.190 (1.210)			0.185 (1.204)
NRs. 15001 and more		-0.106 (0.900)			-0.346 (0.707)
Social Network (Yes=1)		0.571 (1.770)*			0.604 (1.830)
Number of sons of the father		-0.018 (0.982)			0.013 (1.014)
Father-son age difference		-0.004 (0.996)			-0.006 (0.994)
Son's characteristics					
Level of Education					
Illiterate or literate only (Ref)		-	-		-
School level			0.502 (1.651)		0.540 (1.716)
Plus two and above			1.616 (5.033)***		2.086 (8.054)***
Migration (Yes=1)			0.931 (2.536)***		1.094 (2.987)***

Household characteristics					
Caste/ethnicity					
Brahmin/Chhetri/Newar (BCN) (Ref)				-	-
Janajatis				0.415 (1.515)	1.125 (3.079)***
Dalits				-0.191 (0.826)	0.220 (1.246)
Residential location					
Near to highway (Ref)				-	-
Places in between highway and remote locations				-0.543 (0.581)*	-0.641 (0.527)*
Remote locations				-0.136 (0.873)	-0.216 (0.805)
Land holding size					
0-10 ropani				-	-
11-20 ropani				-0.488 (0.614)	-0.435 (0.647)
21 ropani and above				-0.608 (0.545)*	-0.822 (0.439)**
Intercept	1.077	0.945	0.093	1.538	0.032
Model chi-square	15.471	20.806	44.032	26.222	68.071
Degrees of freedom	1	9	4	7	18
-2log likelihood ratio	367.050	361.715	338.489	356.299	314.450
Nagelkerke R square	0.063	0.084	0.172	0.105	0.257

Note: Figures in parenthesis as odds ratios. *** p<.001; ** p<.01; * p<.05
1 ropani of land = 0.0508 hectares; non-agriculture occupations include salaried job, business and trades and wage labour

Father's characteristics and intergenerational change of farming occupation

The effect of the occupation of father on the occupation of son is presented in model 1 of the Table 2 which shows the effect of occupation of father on taking non-farm occupation of son, in which agriculture is kept as the reference category. The tendency of sons for leaving agriculture; in which fathers are doing non-farm employments is three times (odds ratio 3.248) higher in comparison to those whose fathers are on farming. This result is statistically significant, and odds ratios are consistent in all subsequent models (model 2, 3, 4 and 5). It provides evidence that father's occupation is shaping the way whether son is likely to take a shift from farming occupations. The occupation of father solely explains 6 percent variability in the occupation of son (Nagelkerke R square 0.063), indicating that six percent variability in the occupation of son is explained by the occupation of father, in terms of farming and non-farming statuses.

Other characteristics of the father are put in model 2 of table 2. Father's characteristics are used as control measure which include level of education, social network, level of monthly income, number of son and father son age differences. Model 2 of table 2 presents the potentialities of a son to hold non-farming occupation of son when controlling for other parental characteristics. In case of level of education of father, in reference to the illiterate fathers, the sons of literate and educated fathers are more likely to find non-farm based employments. In case of monthly income of father, the sons of higher earning fathers, generally have higher odds of taking non-farm enterprises compared to the non-earning fathers. This finding is in conformity with the theoretical explanations that higher earning parent invest more on their offspring which increases the potentialities of the offspring to escape out from traditional farming. The causal effect of income of the father in shaping the occupation of son is not consistent in different income levels

as well as not statistically significant. On social networks of father, compared to the fathers not having social networks, those sons of fathers having social networks are 77 percent more likely to exit from agriculture (odds ratio 1.770). This is plausible that social network of father is a kind of ladder for the offspring to take advantage in the job market is highly applicable in case of Nepal. The number of sons of a father and father son age differences, as both are continuous variables, have similar results in terms of casual variables. More the number of sons of a father, the lesser the chances of moving into non farming occupation for the son. Also, in case of father son age differences, more the age differences, marginally lesser the odds of finding non-farming occupations by the sons. Both of these factors do not have statistically significant odds ratio revealing a meager role in shaping the farm quitting behavior of the son. Model 2 explains a total of 8 percent variability in the farm quitting behavior of a son based on the farming or non-farming status of the son (Nagelkerke R square 0.084).

Son's characteristics and intergenerational change of farming occupation

The model 3 in Table 2 explains the causal effects of son's characteristics on the occupational structure in terms of farming and non-farming statuses. Education and migration of the son are put into binary logistic regression model to investigate the causal effect in determining the farm leaving tendency of the son. In reference to the ones who are illiterate or simply literate, those having high school level of education are 65 percent more likely to find non-farm employments (odds ratio 1.651). Furthermore, those having plus two and above level of education are having 5 times more likely of catching non-farm employments (odds ratio 5.033) which is statistically significant. Migration of the individual is equally instrumental in finding non-farm sector jobs. In reference to those not having migration experiences, those having migrated from the residential location are 2.5 times more likely to hold non-farm opportunities (odds ratio 2.536). This finding is statistically significant suggesting the importance of leaving parental home to catch up non-farm employments. This finding is in the direction of theoretical expectation that a son who can take courage of quitting parental home finds new networks, and potentialities to find jobs outside agriculture. It can be concluded that level of education and migration experiences of the son are powerful determinants in shaping the one's occupation in terms of farming and non-farming enterprises. The explanatory power (Nagelkerke R square 0.172) of the model 3 has increased than previous mode (model 2), suggesting the characteristics related to the son are more important than other characteristics in deciding whether son adopts non-farming occupations.

Household characteristics and intergenerational change of farming occupation

The household characteristics are related to the father and the son both as a member of common household unit, e. g. caste/ethnicity, residential location and landholding size in this study. On caste/ethnicity ground, Brahmin Chhetri and Newar (BCN) are put into one category which is the reference category in the regression model. The finding suggests that in reference to the BCN, Janajatis which include mostly of Magar, Tamang and Chepang in the study area are 51 percent more likely to move out of agriculture (odds ratio 1.515). On the other hand, Dalits are less likely to hold non-farming enterprises compared to BCN (odds ratio 0.826). However, in the full model (model 5), the odds ratio for both the Janajatis and Dalits are greater than unity suggesting that Janajatis are at least three times and Dalits are 24 percent more likely to hold non-farm based employments (odds ratio for Janajati 3.070 and for Dalits 1.246). On residential locations, since highway sides have several opportunities related to salary based job, businesses, trades and even wage labour works, such livelihood diversifying opportunities gradually decrease as we move uphill towards the rural remote locations. In line with this explanation, the finding of the present study suggests that as we move farther from the highway, the lesser the chances of people leaving the agriculture occupation. This result has been supported by the

gradual lowering of odds of places in between near to the highway and remote locations and remote locations. The more the landholding sizes, the lesser the chances for people to find their employments outside agriculture. This finding has been well supported by the gradual lowering of odds of those having successively higher acreage of landholding sizes. The household characteristics in aggregate explain 10 percent variability in the farm quitting tendency of son (Nagelkerke R square 0.105). This analysis provides a clear picture of transfer of the parental occupations by the sons into the more diversified non-farming sectors.

DISCUSSION

Studies at the global level have supported the findings of the present study that father's occupation are the keys in determining the occupation of the son (Carmichael, 2000; Chakravarty, 2013; Di Pietro & Urwin, 2003; Emran & Shilpi, 2011; Ermish & Franscesconi, 2002) in Nepalese context. The present study has empirically verified that in reference to farming fathers, the sons of non-farming fathers are more likely to catch the non-farm-based employments. This may be due to the fact that fathers who have already left farming provide incentives to the sons to come out of the farming activities by better utilizing their human, economic and other resources. Non-farm employments typically include salary-based job, business trade and non-farm wage labour works (Gautam & Anderson, 2016) which this study has adopted for the father-son occupational transition. The shift in occupation from farming to non-farming sector is because farm sector is not providing gainful employment to the farmer, and the income generated from agriculture sector is not enough to meet the needs of the household members (Bhandari, 2006; Bhandari, 2013). Hence, the shift of occupation from farming to non-farming sector is one of the recent trends growing in most of the rural societies.

Education is an avenue to come out of the traditional farming as well as an important instrument for livelihood diversification of people. Parental education in this context has two potential routes out of farming activities of their offspring. First, higher educated parents generally have higher income which may positively affect educational attainment of their children by relaxing the family budget constraint as pointed out by human capital theory (Becker & Tomes, 1979; Solon, 2004). Second, education may increase the productivity of parent in child enhancing activities which in turn may help to gain higher educational attainment for their children (Azam & Bhatt, 2012; Black & Devereux, 2011). This enhanced human capital ultimately helps finding jobs outside agriculture by the sons.

Contrary to our theoretical expectations, the number of sons of a particular father and the age differences of father with the son are not statistically significant variables in intergenerational occupational transition in Nepalese rural context. This fact has been well evidenced based on the findings of this research based on the non-significant odds ratio values. There is strong evidence of son's level of education and migration experiences in positively contributing for finding his own ways out of traditional farming. This finding is being corroborated by other studies in the global context (Vaid & Heath, 2010). Corollary to this finding, as the society modernizes, merit-based criteria such as educational qualifications become more dominant compared to ascriptive criteria like gender or caste in determining access to advantaged positions. Migration serves as one of the main engines of social mobility. Emigrants with few resources are quickly able to rise through the social ranks and take advantages of the opportunities available in the destination places (Olivetti & Paserman, 2015). Hence, level of education and migration of son have positive contribution in exiting the farm based employments.

Though the effect of caste/ethnicity variable on farm quitting tendency of the son is not statistically significant, the regression coefficient and odds ratios produce some interesting results. The statistical significance of the odds ratio in the full model is in favour of Janajatis confirming their shifts from agriculture. This may be due to that Janajatis and Dalits command fewer resources than BCN, in terms of acreage of land and have limited education; they have developed certain skills like driving, masonry, carpentry and others to find jobs outside agriculture. Gautam and Andersen (2016) have pointed out the role of caste/ ethnicities linking them with resources endowment, education, and social networks. This finding is supported by the study in Humla district of Nepal that Janajatis and Dalits are having lower economic and financial wealth have meager chances of entering high return sectors like trades and salaried jobs (Gautam & Anderson, 2016).

The role of physical infrastructures in terms of distance of residents from the highway is evidenced by lower chances of escaping from agriculture as we move farther away from the highway side. This finding highlights the importance of market centers in creating more livelihood diversifying opportunities for the rural youths (Bhandari, 2006; Bhandari, 2013). Landholding size is a common resource for all the family members which is inherited to the family descent and also indicate family wealth in the rural context of Nepal (Bhandari, 2004). In case of size of land holding, the larger the size of holding, the more they are bound to limit their occupation in farming related activities compared to their smallholder counterparts. This may be due the fact that, the large holding would provide more assured income to the household so that the holders do not need to seek alternative sources of income (Bhandari, 2006; Bhandari, 2013).

CONCLUSION

In conclusion, the findings of this research revealed that there is an intergenerational shift from farming into the more diversified non-farming sectors of the occupation of the son. This study has investigated the casual measures for such a shift in occupation across the successive generation. Among the parental characteristics, the occupation of father is foremost important in determining the farm exit behavior of the son. Among other variables under investigation, the level of education and social networks of father, the level of education and migration experiences of son matter the most in terms of determining the farming and non-farming statuses of sons compared to their fathers. The finding of this study is salient in designing policies of labour market issues as well as developing strategies to retain youths in rural agriculture in Nepal.

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