Size Of Holding And Levels Of Income In Agro Studies

DHENESH RAJ

Department of School of Architecture and Planning, Graphic Era Hill University, Dehradun, Uttarakhand, India 248002

ABSTRACT

Alterations in the use of farmland and their effect on rural growth are discussed in this paper. By analyzing the primary revenue streams, the roles of agricultural assets have been determined. The roles of agricultural holdings have shifted significantly as a consequence of Poland's economy's transition and integration with the EU. Production properties are now considered distinct from residential properties. While this was happening, two types of holdings emerged: (1) agricultural and commercial farms, and (2) subsistence farms, social holdings, and recreational holdings, indicating a polarization between these two types of ownership. Income diversification among assets has also grown.

KEYWORDS Holding, Income, Agriculture, Land.

INTRODUCTION

Small pieces of land are interspersed over India's agricultural terrain. Most of these little plots are held by poor or struggling farmers who have few resources at their disposal. In India, it is common to see farms of a few acres or less. About 67% of all cultivable land in India is held by marginal farmers, each of whom typically owns just 0.39 hectare 1 (GoI a). No matter how productive a farm is, if it's smaller than a hectare in size, it may not provide enough food and income to support a family. However, in India, most people own less than a hectare of land. When compared to the typical farm size in the United States, Canada, Brazil, Australia, etc., even a "large farm" in India is inadequate.

Implications of the study of crop production as a source of income are substantial. Farmers may be able to make better use of their few resources if they have more information about the relative profitability of growing various crops. As a result, this may help boost farmers' incomes and improve their quality of life. It is possible that policymakers might do a better job of improving farmers' economic situations if they had a better grasp of the variables that lead to variances in income levels among farm families. In light of this, the current article uses information gathered through a primary survey in Assam's plains to calculate the total and per-crop profits of an agricultural enterprise.

LITERATURE REVIEW

Abera Gemechu Doti (2017) Farmland, which is essential for farmers' survival and the primary agricultural resource, is increasingly acting as a bottleneck in the food production system. The city of Kombolcha in Oromia Regional State was the site of the research project in question. The particular aims of the research were to determine what elements influence landholding size and how different land sizes impact agricultural revenue. Using a two-stage random selection technique, we selected 5 of the 19 peasant organizations in the area and 110 sample respondents to help us achieve these goals. Using multiple linear regression and the Cobb-Douglass production function, we examined the factors that contribute to the diversity in farmland sizes and the effects that these differences have on farm income, respectively. Accordingly, it was determined that the important variables generating variance in the extent of land holding in the research region were the age of the household head, agro ecology, family size, and the availability of land in PA. According to the Cobb-Douglass production function's regression coefficients, differences in farm revenue may be attributed to variables like farm size, average land productivity, animals ownership, and non-farm income. Therefore, it is critical to rapidly develop strategies for boosting agricultural revenue by increasing the output of cash crops. Additionally, higher yielding crop types should be introduced to boost land productivity. And there has to be a plan in place to help smallholder farmers diversify their sources of income.

Varun Kumar Das (2017) The major objective of this study is to analyze the effects of variables such as farm size and variety on farmers' income. This study analyzes the 70th round of the NSS's Situation Assessment Survey to compare farmers' incomes using two distinct measures: revenue per hectare of farmland and income per capita. Estimating linear, log-linear, and panel data models sheds light on the interplaying factors of farm size, income, and diversification. There is a U-shaped correlation between farm size and farm/farmer income. Both on-farm and off-farm diversification were shown to have a negative correlation with farm/farmer income (in the form of an inverted U). That is to say, diversity helps increase profits up to a point, but too much of it might cause wasteful reallocation of resources and a decline in profits. This may be due to the opportunity cost of time spent participating in public works programs like MGNREGA, which the data reveal has a negative effect on farm / farmer income. Finally, the income-raising effects of education are not seen until after a certain threshold of education has been reached.

Sarah K. Lowder et,al (2016) The average farm size and distribution of farmland throughout the globe have been the subject of several studies, however these studies typically lack documentation, are out of date, or don't give global and comparative regional figures. The great majority of the world's 570 million farms are owned and operated by families, as this article shows using data from the Agricultural Census. More over 75% of the world's farmland is owned by families, and the majority of these farms are rather tiny account for approximately 12%. In most low- and lower-middle income countries for which data are available, farm sizes decreased between 1960 and 2000, but in some upper-middle income countries and in practically all high-income countries, farm sizes increased. Although the available data limits the precision of such forecasts, they are nonetheless helpful in guiding strategies for agricultural expansion. Only with ongoing efforts to improve the collection and dissemination of up-to-date, comprehensive, and more standardized agricultural census data, both at the

farm and national levels, can the number of farms, small farms, and family farms, as well as changes in farm size and farmland distribution, be accurately reflected.

Dr. Navdeep Aggarwal et.al (2014) Without basic financial literacy, integrating people into the mainstream financial system is not effective. Actually, financially illiterate persons are more prone to make several blunders on the financial front, notwithstanding financial inclusion. Governments throughout the globe are making concerted efforts to increase people' financial literacy as they recognize its importance as a fundamental skill in today's increasingly complicated financial landscape. This paper provides evidence on the current levels of financial literacy among farmers in the state of Punjab, which on the one hand helps feed the whole country but on the other hand has one of the highest debt levels among its farmers, in order to facilitate more effective financial education. The farmers were typically financially educated, with 37% having excellent financial literacy and 47% having average financial literacy. In addition, Farmers scored better on tests measuring knowledge of interest, compounding, and inflation but worse on tests measuring broader financial literacy. Farmers' financial literacy increased significantly along with their educational attainment, yearly income, and the size of their land holdings. Results from this research may inform policy decisions and be used as a yardstick in training programs that aim to improve farmers' financial literacy.

M L Roy et.al (2013) The socioeconomic status (SES) of a person or group is a composite indicator of their relative economic and social standing in relation to that of other members of society. It affects factors such as ease of access, livelihood structure, food and nutritional stability, and so on. It is often used as a predictor of a wide range of psychological and behavioral characteristics, including but not limited to: knowledge, attitude, perception, adoption, change-openness, aspirational level, risk-tolerance, economic motivation, and more. This research looked at the socioeconomic status of hill farmers to see whether there was a connection between that factor and their use of farming techniques shown to increase productivity and profitability while also enhancing the quality of their food supply and ensuring the sustainability of their way of life. During 2011 and 2012, researchers from the University of Michigan visited the villages of Bhagar Tola and Maniagar in the Dhauladevi block of the Almora district in Uttarakhand. There were sixty farmers picked at random. Ten factors were used to measure social status: demographics (age, education, employment, social involvement), economics (land ownership, herd size, farming experience, yearly revenue, and possessions), and politics (social engagement). Information was gathered through in-person interviews guided by a predetermined timetable. The results indicated that 58% of respondents were from the SC group, while the remaining 42% were from the unreserved category. The median respondent age was 42, and the median respondent education level was medium (63.33%). Only 25% of farmers worked solely in agriculture, while the rest also performed other jobs like as labor, shop keeping, driving, etc. The vast majority (78.34%) were judged to be somewhat involved in their communities. Most landowners had between 10 and 50 head of cattle (66.67% on average). On average, the respondents had been farmers for 19 years. 55% of the farmers in M.L. Roy et al 354 had a medium yearly income, and 60% of the farmers had a medium amount of material goods. Overall, the research found that 26.67

percent of farmers were from low socioeconomic backgrounds, 55.0 percent from medium backgrounds, and 18.3 percent from wealthy backgrounds.

The role of CAP in changes of the functions of agricultural holdings and rural areas

The European Union's efforts to reform the Common Agricultural Policy are predicated on the belief that a more environmentally responsible growth of the agricultural economy will lead to higher incomes and better living, working, and producing conditions for farmers and their families. There is an imbalance between agricultural activity and its impact on rural areas and the environment, an aging population, a high unemployment rate, a lack of access to basic services, social marginalization, few employment prospects, and a lack of economic opportunity." were not addressed by the previous actions.

The new CAP-related support scheme is meant to encourage environmentally friendly and commercially viable farming practices. The India Commission has outlined three goals for rural development that the next strategy must achieve. Among them are:

- enhanced agriculture sector competitiveness thanks to reorganization help;

- better land management leads to a cleaner environment;

- a rise in rural living standards via measures including encouraging economic diversification and providing necessary policy backing.

Direct payments for agricultural lands, which are the primary mechanism through which the CAP is implemented in India, provide direct financial assistance for holdings:

- Totally EU-funded Single Area Payment Scheme (SAP) based on good-condition arable land;

- Hops cultivation and supplementary national direct payments (CNDP) for land used to grow certain crops (both EU and national budget financed).

Sugar payments have been split out for the first time thanks to ARiMR. Agriculturalists have had access to EU-funded subsidies for growing energy plants since 2007, and they have also been eligible for subsidies to grow feed crops on permanent pastures (so-called "animal pa") since 2010.

Both the types of direct payments available to farmers and the amounts of such payments have evolved throughout time. Currency fluctuations and a higher proportion of Polish payments relative to EU-15 payments both had a role. The rates in Poland added up to a total of 60% and looked like this: National Direct Payments Supplemental to Other Crops and Hops Localized Receipt of Funds: PLN 225.00/ha In 2009, Polish farmers received payments at 90% of the EU average. The 2016 payout system looked like this: Single Area Payment (SAP): PLN 506.98/ha; Complementary National Direct Payments, including: PLN 53.47/ton; extortion fees PLN 176/ha; PLN 166.82/tonne for a separate fruit and vegetable payment; and PLN

1691.80/ha for soft fruit interim payments; and PLN 356.47/ha for the area of plants intended for feeds, cultivated on permanent pastures.

The Cross Compliance criteria and conditions must be met for a complete calendar year before a farmer may receive direct payments, mountain area management payments, other less favored areas (LFA) payments, agri-environmental assistance, or funding for afforestation of agricultural land, according to ARiMR's website. Additional updated regulations have been in effect since 2010. These regulations prohibit the elimination of habitats for endangered species and, under some circumstances, permit the production of certain agricultural species for more than three years on the same property. They also mandate that farms preserve natural resources and have licenses for water usage and wastewater disposal. Trees designated as natural monuments and ditches up to two meters wide are only two examples of the distinctive topographical characteristics that must be preserved on the agricultural plot. Protected areas include places, and it is the responsibility of every farmer to guarantee that these places are not damaged because of their farming activities".

In order to fulfill the increased criteria that farmers seeking for payments need to meet and the extra environmental regulations in place since 2010, many holdings have transformed their production structure and developed new holding functions. The proliferation of farms with organic certifications and those catering to tourists is evidence of this trend.

The voivodeships of Maopolskie, Podkarpackie, and Warmisko-Mazurskie were found to have the most amenities and places to stay. The growth of tourism has been proposed as a viable solution to the economic hardships experienced by small farms and rural households as a result of the state's sale of its assets.

Economic condition of agricultural holdings

Farms are mostly used for producing food. Throughout the 1990s and into the current decade, a sustained polarization6 trend has been seen as a consequence of the capitalist restructuring of the system. Many farms struggle to break even and have resorted to subsistence farming because of the market collapse. Fewer than 10% of farms started producing enough to sell.

As reported by the 2012 National Agricultural Census, a total of 442,500 individual holdings produced items primarily for their own use. This was equivalent to 56.7% of all farms in existence. The properties in question ranged in size from 0 to 2 hectares. 941 thousand farms produced mostly marketable items, with the vast majority (359 thousand) producing agricultural products with a value of PLN 5-15,000 (38.2% of all farms). These parcels ranked in the "5-10 ha" range. As farmland expanded in size, the production function they served (measured by the market value of agricultural output) rose in significance.

Agricultural properties were mostly organized the same during the period of transition and integration. The rate of growth was rather slow, but two patterns did emerge: structural polarization and land concentration among the largest holdings. Polarization emerged as a result of the rational decisions made by farmers, taking the form of either a "retreat" from

agriculture or an extension of the agricultural business. There has been a progressive shift in the priorities of family companies away from the community and toward the marketplace.

This is the organization of agricultural estates in early Polish-Indian integration:

- The first "pole" featured communal holdings, where only 9–10% of household income came from agricultural production;

- on the second pole, you'll find Polish farms that have an ESU size of 8 or above, indicating a high level of production scale and successful asset reproduction.

More over 1.6 million assets (68%) were economically poor, and 21.8% (520.9k) did not pay the parity fee. Only 4% (82,000) of assets had a balance between personal effort and profitability (defined as more than 16 ESU), whereas 6.8% (82 thousand) of holdings paid the parity charge but generated a poor return on equity. Properties totaling 96,600,000

The polarization of assets by area occurred more slowly than the polarization of holdings by socioeconomic status. A trend toward greater economic inequality has been seen, especially among rural households. Poor economic conditions for farmers, agricultural producers, and qualified managers of estates with strong production potential contribute to widespread rural poverty, are both indicative of this trend. In 2015, farmers with holdings of 20 hectares or more had a monthly average income that was $2.7 more per person than that of farmers with holdings of 1 to 4.99 hectares. Comparing the holdings of a single person to those of a group of six persons revealed similar findings.

The introduction of new revenue streams contributed to a polarization in the roles played by family holdings. Examples include the prevalence of part-time job and government assistance programs. Large farms that have been in the same family for many decades may contain vast acreage and extensive infrastructure. A growing percentage of rural households do not own a farm or ranch because a section of the rural population has abandoned agricultural pursuits. Because of this, "the number of rural non-peasant population steadily increased," as noted by author A. Sikorska. It became increasingly apparent that throughout the process of system transition, a big number of rural families without a holding emerged; a considerable section of this group subsequently became economically inactive and fled.

Changes in the number and size structure of individual farms

A total of 12.1% fewer farms were in operation in 2017 compared to 2012, with a reduction of 21.1% in the size of farms with agricultural land area of up to 1 ha and a drop of 7.6% in the size of farms with agricultural land area of 1 ha or more being the primary causes of this trend. There was a decrease in the total land area used for farming among both the group of parcels and the group of farms with agricultural land size more than 1 hectare (Table 1).

Table 1. Trends in India's agricultural population before and after the implementation of CAP

Area of agricultural land in ha	Number of farms					
	in absolute numbers			%	structure in %	
	2012	2017	difference 2017-2012	2017 2012	2012	2017
Total	2,928,578	2,575,113	-353,465	87.9	100.0	100.0
from 0 to 1 ha	976,852	771,050	-205,802	78.9	33.4	29.9
above 1 ha	1,951,726	1,804,063	-147,663	92.4	66.6	70.1
in ha	in absolute numbers			farms larger than 1 ha = 100		
1-2	516,836	422,533	-94,303	81.8	26.5	23.4
2-3	280,996	273,675	-7,321	97.4	14.4	15.2
3-5	348,466	340,303	-8,163	97.7	17.9	18.9
5-10	426,520	399,868	-26,652	93.8	21.9	22.2
10-15	182,505	166,435	-16,070	91.2	9.4	9.2
15-20	83,790	77,474	-6,316	92.5	4.3	4.3
20-30	64,080	65,189	1,109	101.7	3.3	3.6
30-50	31,432	37,126	5,694	118.1	1.6	2.1
50-100	11,977	15,615	3,638	130.4	0.6	0.9
100 and more	5,124	5,846	722	114.1	0.3	0.3

The number of farms (more than 1 hectare) fell in the group covering farms of 1 to 20 ha between 2012 and 2017, whereas the number of farms in the group covering farms of more than 20 ha climbed over the same time period.

The 1-2 ha group had the largest decline (18.2%), while the 3-5 ha group saw the smallest (2.3%). The following size categories had the greatest absolute decline in the number of farms: 94.3 thousand fewer, 26.6 thousand less, and 16.1 thousand fewer for plots of 1-2 ha, 5-10 ha, and 10-15 ha, respectively.

The fastest expansion (30.4% more land) was seen in the 50-100 ha range. The 30–50-hectare range had the largest growth in farm numbers (5.9 thousand more).

Sources of income as an indicator of change in the function of farms

A rise in the number of farms whose "agricultural activity" accounted for more than half of total revenue between 2012 and 2017 was seen as evidence of a larger population of farms doing tasks related to food production. More and more farms are serving many purposes, as seen by the rise in the proportion of farms deriving more than half their revenue from farming and other forms of paid labor. A rise in the proportion of farms deriving more than half their revenue from sources other than agriculture (such as paid employment or tourism) indicates an expansion of the sector of farms for non-agricultural purposes.

Effects of Land Size Variation on Farmers' Income

A number of other important independent factors were combined with agricultural land size to determine its effect on smallholder farmers' income. Disparities in economic well-being among rural farm families in the same area result from variances in landholding size and land management practice, as well as from the overall lack of economic progress. Both natural and anthropogenic causes may contribute to variations in landholding size. Furthermore, prejudice

among farmers exists in many areas of society due to differences in landholding size, including social, political, and cultural spheres.

Land is a valuable resource for providing for one's family and oneself in rural areas. In this analysis, 'farm income' include earnings from both farming and non-farming activities. The researchers wanted to discover how much variance in farm income may be attributed to differences in farm land area when accounted for alongside other explanatory factors, therefore they used multiple regression (the Cobb-Douglas production function) to do so. Here, we take a look at how different parcel sizes affect farmers' earnings. Using the linearized CD production function, we examine the consequences of land size variation by determining the elements that affect the income of small holder farmers. The dependent variable here is agricultural income, and the independent variables are those that have been shown to have an effect on it. Livestock numbers, farmland area, productivity per hectare, farmer education, non-farm income, and family labor force availability are all separate factors to consider. We utilized the variance inflation factor (VIF) to confirm the association between explanatory variables before running the model to estimate the agricultural income equation. The VIF illustrates how multicollinearity inflates the variation of estimation. A definition of VIF is:

$$VIF = \frac{1}{1-R^2}$$ where R2 is the value of the multiple determination coefficient (Table 2). The given VIF result indicates that VIF values for continuous variables are negligible (less than 10). Therefore, multicollinearity is not a major issue with this data. All six explanatory variables were thus kept and included into the final model (Table 3).

The results of the CD function regression show that the F statistic ratio is significant at the 1% level of probability. This means that the previously proposed null hypothesis (that all coefficient values are equal to zero) cannot be accepted. Independent factors account for 89.3% of the total variation in agricultural income among the sample farmers, as shown by the modified R2 value.

The coefficients of the regression reveal the relative influence of each independent variable on the variance of the dependent variable; this is what is meant by the term "elasticity." There are a total of six factors included in the model, four were found to be statistically significant at higher-than-chance levels in explaining differences in farm revenue. Two explanatory variables, It was observed that the farmer's education and the availability of family labor had no meaningful effect on farm income. These include cultivated land area in hectares (ha), average land productivity in kilograms per hectare (Qt/ha), hectares of livestock in use (TLU), and non-farming income in roubles per year (Birr).

Table 2. Explanatory variables' continuous Variance Inflation Factors (VIFs)

Variables	R_i^2	Variance Inflation Factor (VIF)
Size of cultivated land (ha)	0.55	2.22
Average land productivity (Qt/ha)	0.84	6.24
Livestock owned (TLU)	0.80	5.07
Non-farm income (ETB)	0.50	2.04
Family labour force (man-days/ha)	0.09	1.09
Education of the farmer (grade)	0.04	1.04

Table 3. Regression coefficients and other statistics for CD production function.

Independent Variables	Coefficients	Std. Error	t-ratio	Sig.
Constant	6.714***	0.334	20.08	0.000
Size of farm land (ha)	0.190***	0.016	11.70	0.000
Average productivity (Qt/ha)	0.320**	0.171	1.87	0.018
Total livestock (TLU)	0.530***	0.108	4.9	0.001
Non-farm income (Birr)	−0.020*	0.011	−1.82	0.102
Availability of family labour force	0.040	0.513	0.78	0.31
Education of the farmer (Grade)	0.060	0.15	0.4	0.635
R^2	0.95			
Adjusted R^2	0.893			
F-ratio	96.5			

CONCLUSION

More than half of the revenue of the voivodeships of Podlaskie, Kujawsko-Pomorskie, Wielkopolskie, Warmisko-Mazurskie, Mazowieckie, Pomorskie, and witokrzyskie comes from agriculture. It dropped from 43.5 percent to 30.8 percent, these are the percentages of farms whose primary source of revenue is agriculture. The fate of rural communities often hinges on the way in which the role of farms shifts. According to the regression analysis, the sum of farm and non-farm incomes has a statistically significant and negative association. Therefore, with the present level of technology and agricultural circumstances, One may claim that as farmers' agricultural income increases, their other income decreases. The size of farmland was decreasing. No unharvested farmland remains.

REFERENCE

1. Roy, M & Chandra, Nirmal & Kharbikar, Hukumraj & Joshi, Pratibha & Jethi, Renu. (2013). Socio-economic Status of Hill Farmers: An Exploration from Almora District in Uttarakhand.

2. Varun Kumar Das "Drivers of farmers' income: The role of farm size and diversification" Indira Gandhi Institute of Development Research, Mumbai September 2017

3. Sarah K. Lowder et.al "The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide" Volume 87, November 2016, Pages 16-29

4. Doti, A. (2017) Causes and Effects of Land Size Variation on Smallholder's Farm-Income: The Case of Kombolcha District of East Hararghe, Oromia, Ethiopia. Open Access Library Journal, 4, 1-17. doi: 10.4236/oalib.1103312.

5. Dr. Navdeep Aggarwal et.al "Financial Literacy among Farmers: Empirical Evidence from Punjab" Pacific Business Review International Volume 6, Issue 7, January 2014

6. Sidhu, K., V. Kumar and T. Singh (2009): 'Diversification through Vegetable Cultivation', Journal of Life Science, Vol. 1 (2), pp. 107-113).

7. Singha, K. and G. Patikar (2010): Rural development in North East India, Concept Publishing Company, New Delhi.

8. Soni, R. N. (2007): Leading Issues in Agricultural Economics, Vishal Publishing Co., Jalandhar, India. Vaidyanathan, A. (2010): Agricultural Growth in India: Role of Technology, Incentives and Institutions, Oxford University Press, New Delhi.

9. Yadu, C. R. and Satheesha B (2016): 'Agrarian Question in India: Indications from NSSO's 70th Round', Economic and Political Weekly, Vol. LI, No. 18, pp. 20-23.

10. Karunakaran, N. (2015): Crop Diversification for Sustainable Agriculture, Pointer Publishers, Jaipur, India.

11. Lingareddy, T. (2015): 'Pulses: Need for Production Expansion', Economic and PoliticalWeekly, Vol. L, No. 35, pp. 133-136.

12. Mandal, R. and M.P. Bezbaruah (2013): 'Diversification of Cropping Pattern: Its Determinants and Role in Flood Affected Agriculture of Assam Plains', Indian Journal of Agricultural Economics, Vol. 68, No. 2, pp. 169-181.

13. Panda, B. (1997): 'Changing Facets of Agriculture in Arunachal Pradesh', in Behera, M. C. and N. C. Roy (eds.), Trends in Agrarian Structure in the Hills of North-East India, Commonwealth Publishers, New Delhi, pp. 131-139.

14. Raane, A. A. and A. C. Deorukhkar (2012): Economics of Agriculture, Atlantic Publishers and Distributors, Pvt., Ltd., New Delhi.

15. Salam, M. A. (2006): Agricultural Transformation in North-East India, Mittal Publications, New Delhi.