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Rationalizing Economic Freedom for Enhancing Efficiency in the Agricultural Sector - An Empirical Evidence

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ABSTRACT

Background: Economic freedom enhances capabilities, incentives and returns on productive efforts providing financial assistance, technical knowledge and an effective legal system in agriculture. The study evaluates economic freedom to enhance farm-level efficiency and has identified and assessed four determinants of economic freedom that assumed a positive association with farm-level efficiency.

Methods: The principal component analysis is used to measure freedom indices through factor loadings or weights. A questionnaire is designed to assess qualitative responses quantitatively collected through a primary survey in the reference year 2020-21 from one of the agriculturally leading states of India.

Result: The study found a strong relationship between farm-size and freedom indices, although the extent of the determinants varies across farms. The weighted mean of economic freedom for medium farmers is higher than that of small, marginal and landless farmers, which reflects the average scores of all determinants of economic freedom. Therefore, the study has provided insight to the farming communities to become aware of their autonomy, choices and legal rights.

Key words: Agriculture, Economic freedom, Efficiency, Property rights, Reform.

INTRODUCTION

Economic freedom requires building up capabilities among economic agents for taking decisions in an efficient way for the growth and development of the economy. Economic freedom in agriculture refers to sets of multi-dimensional initiatives that include policy regimes, property rights reforms, supportive programs, technical updates and marketing reforms designed to increase productivity and efficiency. It is executed under the legal and democratic framework to facilitate the development of farms worldwide (Erdal, 2004). Both farmers and rural workers should know how this system works. In order to achieve growth, development and efficiency, farmers and rural workers must access the skills and capacities needed for efficient decision-making (Baum, 2016). As a result, economic freedom enables and strengthens the development process of the sector. Thus, it makes farming communities more efficient in using resources to achieve farm-level efficiency goals.

Indeed, economic freedom contributes in developing technical and allocative skills among farmers so that they could access new technologies and resource opportunities (Adkins *et al*., 2002). Moreover, freedom removes stuffy controls over the quantity and price of farm products to let farmers trade freely to maximize marketing efficiency and farm revenue (Gulati, 2013). Consequently, farmers will be motivated to make rational and cost-effective decisions to produce and process food for market consumption (Dev and Rao, 2010). In addition, efficient decisions will further improve farm incentives and capital assets' returns. Therefore, economic freedom will make farming a respectable business for the farming community.

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Therefore, economic freedom requires to resolve issues related to farm inefficiency, which are reviewed in the previous literature on economic freedom and agricultural efficiency by Gulati (2013) and Gulati, Ferroni and Zhou (2018). The present study identifies four determinants of economic freedom in agriculture (labour, financial, technical and business freedom) and their indicators assuming positively related to the efficiency of farms. The remainder of the paper organizes as follows: the next section describes the empirical strategy and analytical framework to assess freedom indices and the next to next section describes the results and discussion followed by conclusions at the end.

MATERIALS AND METHODS

Source of data and empirical strategy

A primary survey is conducted in the reference year 2020-21 using a stratified sampling to estimate freedom indices

using a scheduled questionnaire. The study has selected four different categories of farmers for the survey, these are: landless (0 acres), marginal (0 > 2.5 acres), small (2.5 > 5 acres) and medium (5 >10 acres). The sample for this study consists of 336 rural households from the villages of Haryana state of India. The study has covered zone-I/Northern zone of Haryana, which falls under the main agro-climatic zones of the state, including three districts, namely; Yamunanagar, Karnal and Ambala.

The principal component analysis is used to measured freedom indices following an orthogonal transformation procedure to convert a set of observed correlated indicators into an uncorrelated set of measurements (Wooldridge, 2015). It is a statistical technique for reducing the size of data sets by measuring the interrelationships among 25 specified indicators of economic freedom. The study has estimated the factor loadings (weights) for each determinant/ indicator of economic freedom using the first principal component. A set of questions get answered against each one of the identified indicators assessed on a four-point scale (never, very little, little and high) varied from 1 to 4 indicating 4 for high or total freedom, 3 for little or moderate, 2 for very little or low and 1 for never or negligible freedom, if no given 1. If yes, the intensity of the index is evaluated into the next three points on the assessment scale. The qualitative scores are then measured to arrive at a weighted index (Box 1).

RESULTS AND DISCUSSION

Labour freedom for farm allocative efficiency

Labour freedom is a central part of the opportunity specified in agriculture through institutional reform, wage contracts and rural development policy. These opportunities are legally designed under the rules of law for the betterment of the farm labourers and rural and migrant workers who engaged in farming and non-farming activities in the rural labour market. Allocative efficiency improves by redistributing the land ownership rights among the small, marginal and landless labourers as small size farms are found more efficient. Therefore, institutional reform resolves land inequalities and farm size disparities that are existed in the farming sector. Likewise, tenancy reform expands the bargaining capacity, tenure security and production rights by offering rental contracts and land possession to the tenant (Banerjee *et al*., 2002). Thus, labour freedom enhances allocative efficiency.

Next, labour wage contracts for crucial farm works save time and costs in searching for and hiring labourers (Eswaran and Kotwal, 1985). Moreover, the inclusion of minimum wage laws surges labour freedom by paying wages as per work capacity and skills for improving labour efficiency and wage payments (Benjamin and Brandt, 2002). At the same time, a rural development policy promotes employment-

Labour freedom: Whether have the farmers had ever acquired land from institutional reform? Have tenants ever lease in/out land legally registered from land rental contracts? Have farmworkers had received wages by the wage laws/work capacity? Is there any benefit to labour from the labour market reform in wage rate and working conditions? Have respondents had any experience with off-farm work in wage and employment rate? Can in-migration/ out-migration for wages and employment be seen within the rural region?

Financial freedom: Whether have the farmers reduced their costs of cultivation using input subsidies? Have the farmers ever replaced subsidized input with non-subsidized input? To what extent have the farmers benefited from the minimum support price policy? Have farmers had ever benefited from selling food grains at the regulated market? Have they had ever recovered losses gained by cash subsidies? Have they ever obtained short-term funds from the credit policy?

Technical freedom: Do farmers ever use new techniques and develop new processes to increase agricultural production? Are the farmers ever able their community by getting technical knowledge from research and training institutes? Do farmers use their innovative techniques and wisdom in farming? Do they have the freedom and selection to take care of the local and regional biodiversity during farming? Have they accessed and implemented farm variety and crop diseases from print media? Do they have accessed well-timed information from electronic media and implemented to extend income opportunities?

Business freedom: Whether have e-NAM trades offered a far better price and reduced the commissions of selling? Have transportation and cold storage increased the profit margin of selling farm products offline? Has market access increased the sale of merchandise by decreasing the commissions from sales? Have liberal policies enhanced the competitiveness of farm products. Have protection policies promoted to achieve food security and self-sufficiency goals. Do internal control measures effective in securing food for the long run.

Box 1: Measurable questions of Economic freedom.
Source: Authors' analysis for the primary survey

oriented investment in technology, agro-based industries, cooperative farming and infrastructure to increase off-farm job opportunities. These provisions are beneficial for residing as well as migrant labourers. The policy can fascinate migrant workers by providing opportunities to settle for a long time near the rural region (Renkow, 2003). Thus, a favourable rural development plan offers off-farm jobs at higher wage rates.

The results of the labour freedom index are represented in Table 1, which reveals that a large proportion (68 per cent) of medium farmers have moderated scores when compared to small (55 per cent), marginal (52 per cent) and landless (42 per cent).

Financial freedom for farm profit efficiency

Financial freedoms are input-output subsidies provided to the farmers to increase profit margin in the production activity. Input subsidies increase financial freedoms by reducing the explicit costs through supplying agricultural intermediate inputs at a reasonable price in the market, such as; seeds, fertilizers, electricity, pesticides, *etc*. (Gulati, 2013). Subsidized inputs replace the substituted resources available in the market at a higher price for enhancing financial freedom (Nasrin *et al*., 2018). Agricultural product price stability increases financial freedom options and opportunities through securing minimum support price against any extreme fall in the market price of farm products (Gilbert and Morgan, 2010). Besides, government purchases food grains from the farmers and acquires essential food grains under the procurement policy. Cash transfers are the government's support to recover the losses during a bad harvest (Demeke *et al*., 2012) and credit policy provides low-interest availability of institutional credit for the farm-work.

Based on the size of the farms, Table 2 depicts a progressive and robust relationship between the weighted mean score on financial freedom and category based various farm-size. As farm sizes increase, the weighted mean score rises and mean value of the financial freedom indicators rises too.

Technical freedom to strengthen technical efficiency

Technical freedom provides the drift of technical information among the farming community for enhancing farm-level technical efficiency. It offers agricultural research and extension services in the form of embodied and disembodied technical change. The embodied technical change includes new techniques, new methods and investments in new inputs, plants and scarce technical resources (Tripathi, 2012). Whereas, disembodied technique change upgrades the old cropping method. Moreover, technical freedom promotes inventions implementing intellectual property rights in agriculture. It puts check on the profitable use of innovative schemes, inventions and creative ideas of the farmers (Asker and Stoeckel, 1999). Next, agricultural biodiversity requires to produce good quality food and sustainability through preserving farm resources.

Likewise, technical information comprises income-generating opportunities for the farmers using mass media in agriculture. Print media diffuses agricultural statements to understand the farm variety, crop diseases and techniques through newspapers, booklets, magazines and newsletters to resolve farm technical issues (Saleh *et al*., 2018). Whereas, electronic media gives well-timed farm information on radio and television and sends messages and alerts on mobile phones (Hussain, 2015). In this way, information, communication and technology (ICT) have the potential to avail scarce services and updates regarding new technology,

Table 1: Labour freedom index.

Labour	Landless		Marginal		Small		Medium		Overall	
freedom intensity	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
$2 \geq f_L > 2$ (Very low)	0	0	9	10.71	3	3.57	1	1.19	19	5.66
$2 \geq f_L > 2.5$ (Low)	49	58.4	31	36.9	25	29.76	13	15.48	100	29.76
$2.5 \geq f_L > 3$ (Moderate)	35	41.6	44	52.38	46	54.76	57	67.86	202	60.12
$3 \geq f_L > 3.99$ (High)	0	0	0	0	10	11.9	13	15.48	15	4.46
Total sample	84	100	84	100	84	100	84	100	336	100

Source: Authors' estimate from primary survey.

Table 2: Financial freedom index.

Financial	Landless		Marginal		Small		Medium		Overall	
freedom intensity	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
$1 \geq f_f > 2$ (Very low)	32	38.56	7	8.33	4	4.76	1	1.91	37	11.05
$2 \geq f_f > 2.5$ (Low)	34	40.96	35	41.67	26	30.95	9	10.71	110	32.84
$2.50 \geq f_f > 3$ (Moderate)	16	19.28	36	42.86	44	52.38	39	46.43	132	39.1
$3 \geq f_f > 3.99$ (High)	1	1.2	6	7.14	10	11.9	35	41.67	57	17.2
Total sample	84	100	84	100	84	100	84	100	336	100

Source: Authors' estimate from primary survey.

weather forecast and market fluctuations, *etc*. (Parmar *et al*., 2018). Thus, ICT speeds up the process of technology transfer at a lower cost during the risky and uncertain conditions of agriculture.

This Table 3 describes the intensity of the technical freedom index by farm-size, which indicates that large proportion of medium farmers receive higher scores of technical freedom, which is higher than small and marginal farms by 21.43 and 3.57 per cent, respectively.

Enhancing the agricultural efficiency through business freedom

Business freedom resolves trade and transactions related issues of the farm produce through changing marketing, market access policy, liberal trade and protection policies. Marketing policy boosts agribusiness by upgrading the quality, size, grade, brand and packages of the product for accomplishing an open market sale of the product (Nidhi *et al*., 2017). Market access expands agribusiness by investing in cold storage and transportation for connecting the product to nearby 'mandis' or market yards. It facilitates shifting from one state to another for better price options. Market access improves through joining contract farming suggesting the farmers to cultivate after confirming the product rate, input support and technical assistance (Chand, 2016). The trading contracts assure the cultivators against the market price fall, crop diseases and climate change, therefore, encouraging them to produce earnest crops. Trading contracts connect farmers with the cooperative farming, companies, firms, processing units and customers like cafeterias, mills, *etc*.

Liberal trade policy raises the competency level of the farm products to enhance the flow of agricultural products across the nations (Kamara, 2004). Likewise, a protection policy is required to achieve food self-sufficiency and security through implementing region-specific policy changes in the tariff and non-tariff barriers (Sharma, 2016). Thus, these mechanisms of business freedom are essential for increasing farm-level efficiency.

Table 4 illustrates the farm-wise intensity of the business freedom index. A positive association between size-based farm categories and the business freedom index observe during the survey. A large proportion of medium farmers (52.4; 8.33) find themselves in a moderated business freedom index.

Economic freedom index

Table 5 depicts the positive relationship between farm-size and the economic freedom index. It observes that 80 per

Table 3: Technical freedom index.

Technical	Landless		Marginal		Small		Medium		Overall	
Freedom intensity	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
$1 \geq f_r$ v > 2 (Very low)	33	39.29	14	16.67	4	4.76	2	2.38	30	8.93
$2 \geq f_r > 2.5$ (Low)	39	46.43	43	51.19	28	33.33	16	19.05	104	30.95
$2.5 \geq f_r > 3$ (Moderate)	12	14.29	24	28.57	34	40.48	31	36.9	122	36.31
$3 \geq f_r > 3.99$ (High)	0	0	3	3.57	18	21.43	35	41.67	80	23.81
Total sample	84	100	84	100	84	100	84	100	336	100

Source: Authors' estimates from primary survey.

Table 4: Business freedom index.

Business	Landless		Marginal		Small		Medium		Overall	
freedom intensity	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
$1 \geq f_r > 2$ (Very low)	42	50	20	23.81	6	7.14	2	2.38	43	12.8
$2 \geq f_r > 2.5$ (Low)	35	41.7	47	55.95	35	41.6	31	36.9	146	43.45
$2.5 \geq f_r > 3$ (Moderate)	7	8.33	15	17.86	41	48.8	44	52.4	120	35.71
$3 \geq f_r > 3.99$ (High)	0	0	2	2.38	2	2.38	7	8.33	27	8.04
Total Sample	84	100	84	100	84	100	84	100	84	100

Source: Authors' estimate from primary survey.

Table 5: Economic freedom index.

Economic	Landless		Marginal		Small		Medium		Overall	
freedom intensity	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
$1 \geq f_r > 2$ (Very low)	11	13.1	6	7.14	2	2.38	1	1.19	10	2.98
$2 \geq f_r > 2.5$ (Low)	70	83.3	49	58.3	28	33.3	8	9.52	150	44.64
$2.5 \geq f_r > 3$ (Moderate)	3	3.57	28	33.3	51	60.71	67	79.76	147	43.75
$3 \geq f_r > 3.99$ (High)	0	0	1	1.19	3	3.57	8	9.52	29	8.63
Weighted mean	2.18(0.16)		2.38(0.25)		2.58(0.26)		2.77(0.21)		2.54(0.31)	
Total sample	84	100	84	100	84	100	84	100	336	100

Source: Authors' estimate from the primary survey, the standard deviation in parentheses.

cent of medium farms have a moderated score, which increases to (more than 60 per cent) for small (nearly 35 per cent) for marginal and again increased to (around 4 per cent) for landless.

Thus, the results are generic and expected. The weighted mean of the economic freedom index for medium farmers is highest (2.77), which is greater than small (2.58), marginal (2.38) and landless (2.18). Hence, the estimates reflect the average scores of economic freedom.

CONCLUSION

The study has discussed the importance of economic freedom, choices and capabilities for making decisions for developing the agricultural sector. Labour freedom enhances the provisions of private property rights and lands rental contracts to benefit farm labourers, tenants and hired labourers of the farming sector. Financial freedom provides support and subsidies as direct monetary reliefs to reduce the costs of production. The freedom to share technical knowledge among the farming communities is required to increase income opportunities by using updated technologies and cultivation know-how. In the fourth dimension, the paper has discussed business freedom to resolve domestic and global market access issues related to farm products. There is a strong relationship between farms and freedom indices. Therefore, the study has provided insight to the farming communities to become aware of their autonomy, choices and legal rights, as well as reforms for boosting efficiency and productivity.

Conflict of interest: None.

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