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SUBJECT II
AGRICULTURAL REFORMS AND FARMERS' PROTESTS

Farmers' Awareness and Perceptions of the New Farm Laws 2020 in India: Empirical Evidence from a Household Survey

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ABSTRACT

In 2020, the Union government enacted three new farm laws to address the structural weaknesses inherent in the sale, marketing and stocking of agriculture produce in the regulated/wholesale markets. This has provoked serious discussion, criticism and even protest, especially in Punjab and Haryana to the extent that the Supreme Court put them on hold for some time. This paper assesses the farmers' awareness and perceptions about these laws based on a large survey of households carried out during 2020 across five eastern states – Bihar, Eastern Uttar Pradesh, Jharkhand, Odisha, and West Bengal. The probit and multinomial regression models are used to examine the socio-economic factors that influence the farmers' awareness and perceptions about usefulness of the ordinances. The findings reveal that about 50 per cent agricultural households in eastern India are aware about the new farm laws; they hardly possessed any knowledge about the contents therein. Several socio-economic factors among farm households correlate significantly with the awareness of the new farm laws and holding opinions about their usefulness. These include the size of landholding, level of education of the household head, awareness of government programmes, and visits to Kisan Melas. The findings of the study suggest that the governments (centre and state) should make efforts to demystify the ordinances to farmers, traders and other stakeholders and generate confidence among them about a competitive agri-marketing environment.

Keywords: New farm bills, Market governance, Structural reforms

JEL: C83, Q13, Q15, Q16

I

INTRODUCTION

In 2020, the Union Government promulgated three new farm bills; they were legislated into Acts by the Indian parliament in September of that year and then signed by the President of India. These three Acts are the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act 2020, the Farmers' (Empowerment and Protection) Agreement on Price Assurance and Farm Services for Agriculture Act 2020 and the Essential Commodities (Amendment) Act 2020. They are considered to be the most prominent structural reforms in Indian agriculture in the last few decades (Chand, 2020). The broad objective of these Acts is to address the structural weaknesses inherent in the sale, marketing, and stocking of agri-produce in the regulated/wholesale markets being governed under the aegis of the Agriculture Produce Committee Act

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(APMC) 1966[1] and the Essential Commodity Act 1955. Setting up of privately owned markets parallel to the existing APMC markets and initiating contract farming and other provisions in the ordinances are expected to enhance competition, investment, and innovation, and provide farmers with a wider array of choices to enable them to realise better prices for their produce.

Since agriculture is a subject on the state list of the Constitution of India, the states are expected to amend the rules, procedures, and codes of conduct for trade in consonance with the provisions laid down by the new national central laws. Their enactment, however, has provoked serious discussion, criticism and even protest, to the extent that, in January 2021, the Supreme Court had to intervene and constitute a three-member committee. The Committee was assigned the task to look into the implications of these laws for farmers' welfare, agricultural economy, and other crucial aspects. Meanwhile, the members of various farmers unions, as well as many APMC market (mandi) traders continued to protest and demanded that these laws be revoked.

Within the academia, various arguments have been put forth for and against these laws based on their ability to bring about competition, improve marketing and price efficiency, and increase farmers' level of income. Most of these arguments, however, are bereft of evidence and are based on ideological and imaginary justifications. Any supporting or opposing the new laws should be based on the empirical evidence rather than on the ideological perceptions and beliefs of the stakeholders. The enactment of these farm Acts is a serious and complex issue in need of careful understanding and analysis; furthermore, a sound understanding of these Acts among the ultimate stakeholders—that is, farming households—is a prerequisite to an unbiased analysis of their implications.

A primary data-based analysis on the level of awareness among farmers about the new farm laws is critical in understanding the ground realities. Such an analysis is key to assessing the need of the farmers and other stakeholders for education on the contents of the laws; it also can bring an understanding of the amendments that the agri-marketing system needs in order to improve its efficiency.

Against this backdrop, the paper evaluates farmers' degree of awareness and perceptions[2] of these farm laws. This is followed by an empirical analysis of the determinants of this awareness and of farmers' perceptions of the usefulness of the enacted laws. The eastern states of Bihar, Eastern Uttar Pradesh (UP), Jharkhand, West Bengal, and Odisha were deliberately chosen for a primary telephonic survey undertaken during 2020. The eastern states are characterised by a continuing vicious circle of low-input-low-output agriculture, cultivation of a large variety of crops, and a high incidence of rural poverty and food insecurity within their populations (Joshi and Kumar, 2016). The agri-trade is by and large informal, though government agencies facilitate procurement of paddy. The way in which agri-produce is marketed in India's eastern states contrasts sharply with how it is done in Punjab and Haryana, where wheat and paddy are the dominant crops. In these states, more than 60 per cent of the produce is procured by the Food Corporation of India at a pre-announced

minimum support price, facilitated and purchased through the traders or commission agents at the APMC mandis.

The paper is organised as follows. Section 2 describes the sample data and the methodological approach used in the study; it also explains the econometric models employed to assess the determinants of farmers' awareness and perceptions about the new farm laws. Section 3 discusses important characteristics of the "aware" and "non-aware" farmers; it goes on to explore the impact of various factors on their *level of awareness* about the new farm laws. The perception of farmers on the usefulness of the farm laws is analysed based on an empirical model and is presented in Section 4. Section 5 offers a conclusion and discusses policy implications.

II

DATA AND METHODOLOGICAL APPROACH

This study has used observational data from the eastern India. The eastern states, comprising Bihar, Eastern Uttar Pradesh, Jharkhand, Odisha, and West Bengal, constitute approximately 39 per cent of India's total population, 33 per cent of its total cultivators, and 33 per cent of its gross cropped area (India, Ministry of Home Affairs 2011; India, Government of India, 2019). The analysis in this study is based on a unique telephonic survey of agricultural households conducted across these states by the International Food Policy Research Institute (IFPRI) and the Indian Council of Agriculture Research (ICAR) after the enactment of the 2020 farm laws. The study also took advantage of data collected from the same households in the course of another survey that was conducted by IFPRI during 2018-2019. In the earlier survey, information from 2,932 agricultural households across was collected through a stratified random sampling framework. The number of sample households in a state was proportionate to the rural population of the respective state, with Bihar having the highest rural population among the five surveyed states. In all, 10 districts were randomly selected from Bihar, four each from Jharkhand and Odisha, and eight each from Eastern Uttar Pradesh and West Bengal.

This was followed by a random selection of two blocks from each district, two villages from each block, and 30 households from each village, based on household listings. Due to unavailability of some household members at the time of the telephone interview, data could be collected from 1,523 agricultural households in this round. Of these, 492 households were from Bihar (32.30 per cent), 316 were from Eastern Uttar Pradesh (20.75 per cent), 175 were from Jharkhand (11.49 per cent), 197 were from Odisha (12.93 per cent), and 343 were from West Bengal (22.52 per cent). For the purpose information was solicited from farmers on the three new 2020 farm laws, with specific focus on their level of awareness and the key socio-economic factors that influenced their awareness.

1.1 *Empirical Framework*

1.1.1 *Determinants of Awareness of Farmers About the New Farm Laws*

Based on the cross-sectional data collected from the farm households in the course of the telephone surveys, we use a probit model to reveal the crucial factors that affected their awareness about the farm laws 2020. The probit model is a statistical probability model where the dependent variable is binary in nature (Liao, 1994). The probit estimate is based on the cumulative normal probability distribution. The dependent variable, Y_i, that is, awareness about the new farm laws, takes a value of 1 if farm households are "aware" and a value of 0 if they are "not aware". The outcomes of '*Y'* are mutually exclusive and exhaustive. The dependent variable, *Yi*, depends on *m* observable variables, X_m where $m = 1, \ldots\ldots M$ (Aldrich and Nelson, 1984). While the values of 0 and 1 were observed for the dependent variable in the probit model, there was a latent, unobserved, continuous variable, y^*.

$$Y_i^* = \sum_{m=1}^{M} \beta_m x_m + \varepsilon$$

$$\varepsilon \; is \; IN(0, \sigma^2).$$

The dummy variable, *Y*, was observed and was determined by Y^* as follows:

$$Y_i = \begin{cases} 1 \; if \; Y^* > 0 \\ 0 \; otherwise \end{cases}.$$

The point of interest relates to the probability that Y equals one. From the above equations, we find that:

$$Prob\,(Y_i = 1) = Prob(\sum_{m=1}^{M} \beta_m x_m + \varepsilon > 0)$$
$$= Prob(\varepsilon > -\sum_{m=1}^{M} \beta_m x_m)$$
$$= 1 - \Phi\,(-\sum_{m=1}^{M} \beta_m x_m),$$

where Φ represents the cumulative distribution function of ε (Liao 1994). The probit model estimates assume that the data was collected from a random sample of size *N* with a sample observation denoted by i, $i = 1, \ldots\ldots, N$. The observations of *Y* must therefore be statistically independent of each other to rule out any serial correlation. It was also assumed that the independent variables are random variables (Morgan *et al*. 2004).

The maximum likelihood estimation (MLE) technique was used to estimate the parameters. The MLE focused on choosing the parameter estimates that gave the highest probability or likelihood of obtaining the observed sample *Y*. The main principle of MLE was to choose an estimate of β, the set of *M* numbers that would maximize the likelihood of having observed *Y* (Aldrich and Nelson,1984).

The study also estimated the marginal effects of different variables for better interpretation of the factors associated with farmers' awareness. The marginal effects account for a partial change in the probability and are associated with continuous

explanatory variables x_m on the probability $Prob\ (Y_i = 1 \mid X)$, holding other variables constant. These can be derived as follows:

$$\frac{\partial y_i}{\partial x_{im}} = \emptyset(x'_m\beta)\beta_m,$$

where $\emptyset$ represents the probability density function of a standard normal variable. The marginal effects of dummy variables should not be estimated, as these are estimated for continuous explanatory variables. Discrete changes in the predicted probabilities constitute an alternative to the marginal effect when evaluating the effect of a dummy variable. This effect can be derived from the following:

$$\nabla = \emptyset(\bar{x}\beta, d = 1) - \emptyset(\bar{x}\beta, d = 0).$$

The marginal effects provide an explanation for how both continuous and dummy explanatory variables shift the probability of frequency of awareness about the laws.[3]

1.1.2 *Determinants of Farmers' Perceptions About the New Farm Laws Based on a Multinomial Regression Model*

The second objective taken up in this study is to assess the determinants of farmers' perceptions of the new farm laws. We have taken six perception questions and categorised them into three broad categories: (1) do not have an opinion; (2) beneficial for the farmers; and (3) disadvantageous for the farmers (Appendix Table A1). Since, the dependent variable has more than two categories, a multinomial regression model was considered appropriate; further, this model does not assume normality, linearity, or homoscedasticity (Starkweather and Moske 2011). One important assumption in this model is that the dependent variable cannot be perfectly predicted by the independent variables for any cases. The multinomial regression model uses the maximum likelihood ratio (MLR) to determine the probability of the categorical response of the dependent variable.

III

EXTENT OF AWARENESS AMONG FARMING HOUSEHOLDS ABOUT THE FARM LAWS 2020

The extent of awareness about the new farm laws was not very encouraging across the eastern states. Even in the current information-intensive age, only half of the farmers in eastern India had heard about the new farm bills; this varied from 41 per cent in Jharkhand and Odisha to 59 per cent in Bihar (Table 1). We found that 54 per cent of the farmers in Eastern Uttar Pradesh and 44 per cent in West Bengal had awareness of the new farm laws. Further, the level of awareness exhibited a positive relationship to farm size. Notably, Scheduled Caste (SC) and Scheduled Tribe (ST) households with small landholdings are less aware than their counterparts belonging to Other Backward Classes (OBCs) and General caste households. Interestingly,

however, these relationships did not hold in all the states; SC/ST farmers in Jharkhand, for instance, were more aware of the new farm laws than were farmers from the OBC and General castes in that state (Table 1).

TABLE 1. AWARENESS OF NEW FARM BILLS/LAWS AMONG DIFFERENT CATEGORIES OF FARMERS

	Awareness of farmers about the farm bills/laws (per cent)						
		Type of farmer			Social group		
State	All	Marginal	Small	Medium and large	SC and ST	OBC	General
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bihar	59.2	53.3	60.9	81.7	46.8	52.8	79.7
Eastern UP	53.8	46.6	73.2	89.3	59.0	42.9	74.4
Jharkhand	41.1	35.0	63.2	35.3	45.1	40.4	33.3
Odisha	44.1	39.0	51.8	22.2	28.1	53.8	46.7
West Bengal	44.3	43.1	75.0	0.0	36.0	50.0	50.0
All	50.3	45.3	62.0	68.4	40.8	48.3	63.2

*Source***:** IFPRI–ICAR telephone survey in eastern India in 2020.

In general, it was found farmers to have low level of awareness of the new farm laws, and their knowledge of the contents of these bills was even more dismal. Even those households who were aware had only peripheral knowledge. About 86 per cent of the farmers who had heard about the new farm laws did not have any detailed knowledge or information about their content. As many as 99 per cent of the farmers in Jharkhand who had heard of them knew barely anything about their content, and the figures were equally dismal for Bihar (89 per cent), Eastern Uttar Pradesh (87 per cent), West Bengal (84 per cent), and Odisha (65 per cent) (Table 2). In consideration of this low level of awareness of the 2020 farm bills/laws among their real stakeholders, it seems almost impossible to have a rational discussion about the pros and cons of laws within the general population of farming families. The dismal level of awareness of the bills calls for a comprehensive and strategic action plan to sensitise farmers and to bring in changes that cater to their requirements and greater welfare.

TABLE 2. COMPONENTS OF THE 2020 FARM BILLS/LAWS OF WHICH FARMERS ARE AWARE

(1)	Bihar (2)	Eastern UP (3)	Jharkhand (4)	Odisha (5)	West Bengal (6)	Total (7)
Heard about these farm bills/laws but do not know about them in detail	89.0	86.5	98.6	65.4	83.6	85.8
Aware of the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act 2020	6.2	8.2	1.4	8.6	13.2	7.8
Aware of the Farmers' (Empowerment and Protection) Agreement on Price Assurance and Farm Services for Agriculture Act 2020	10.0	10.0	1.4	25.9	5.3	9.9
Aware of the Essential Commodities (Amendment) Act 2020	4.5	7.1	0.0	0.0	0.7	3.4

Source: IFPRI–ICAR telephone survey in eastern India in 2020.

IV

DETERMINANTS OF FARMERS' AWARENESS ABOUT THE FARM LAWS

Becoming aware of the regulations is the farmers' first step in accepting and implementing the farm bills/laws; awareness of something, however, may not necessarily translate into acceptance. Several socio-economic and demographic factors affect farmers' awareness, including age, education, social status, size of landholding, access to information, and affiliation with social and political networks. Table 3 presents a description of the demographic, socio-economic, and institutional characteristics of the farmers, along with a comparison between farmers who were aware and not aware of the new farm bills/laws. The farmers who were aware had larger landholdings than non-aware farmers; they were also relatively older, better educated, and had more family members available for farm work. There appeared to be a gender bias in the level of awareness, with a larger proportion of female-headed households in the non-aware group. There was a difference in schooling between the aware and non-aware farmers which was more distinct at higher levels of education; there also was a caste bias in being aware of these Acts. Institutional networks such as self-help groups, co-operatives, and producer organisations play an important role in the dissemination of information (see Glaeser *et al*., 2002; Putnam, 2001) and thus are instrumental in creating better awareness among the farmers. The data shows only a small proportion of farm households as being associated with such institutional or formal networks, but their representation is relatively higher among the aware farmers.

TABLE 3. SUMMARY STATISTICS OF THE SOCIOECONOMIC CHARACTERISTICS OF FARMING HOUSEHOLDS WHO ARE, AND ARE NOT, AWARE OF THE NEW 2020 FARM BILLS/LAWS

	New Farm Bill/Laws 2020			
	Aware households	Non-aware households	Differences	All
(1)	(2)	(3)	(4)	(5)
Age (years)	51.21	49.83	1.38*	50.52
	(12.23)	(11.92)		(12.09)
Male headed households	0.98	0.95	0.02*	0.96
	(0.16)	(0.21)		(0.19)
Number of years of education	7.04	5.69	1.36***	6.37
	(5.04)	(4.67)		(4.91)
Illiterate	0.23	0.30	-0.07**	0.27
	(0.42)	(0.46)		(0.44)
Primary School	0.30	0.35	-0.05*	0.33
	(0.46)	(0.48)		(0.47)
High School	0.21	0.18	0.04	0.20
	(0.41)	(0.38)		(0.4)
Intermediate	0.16	0.14	0.02	0.15
	(0.37)	(0.34)		(0.35)
Graduation and above	0.10	0.03	0.06***	0.07
	(0.30)	(0.18)		(0.25)
Scheduled Caste	0.17	0.25	-0.08***	0.21
	(0.37)	(0.43)		(0.41)

Contd.

TABLE 3. CONCLD.

	New Farm Bill/Laws 2020			
	Aware households	Non-aware households	Differences	All
(1)	(2)	(3)	(4)	(5)
Scheduled Tribe	0.05	0.08	-0.03*	0.07
	(0.23)	(0.27)		(0.25)
Other Backward Caste	0.43	0.47	-0.04	0.45
	(0.50)	(0.50)		(0.50)
General Caste	0.34	0.20	0.14***	0.27
	(0.48)	(0.40)		(0.45)
Marginal farmers	0.66	0.81	-0.15	0.74
	(0.47)	(0.39)		(0.44)
Small Farmers	0.22	0.13	0.08***	0.17
	(0.41)	(0.34)		(0.38)
Medium and large farmers	0.12	0.06	0.06***	0.09
	(0.33)	(0.23)		(0.29)
Operational land holding (Ha)	1.03	0.73	0.29***	0.88
	(1.19)	(0.86)		(1.05)
Functional KCC	0.22	0.18	0.04	0.20
	(0.42)	(0.39)		(0.40)
Heard about loan waiving	0.84	0.82	0.02	0.83
	(0.37)	(0.39)		(0.38)
Heard PMFBY	0.63	0.60	0.03	0.61
	(0.48)	(0.49)		(0.49)
Worked under MGNREGA	0.27	0.35	-0.08***	0.31
	(0.44)	(0.48)		(0.46)
Member of any political party	0.12	0.10	0.02	0.11
	(0.33)	(0.30)		(0.31)
Attended Krishi Mela	0.25	0.19	0.05*	0.22
	(0.43)	(0.39)		(0.41)
Number of observations	766	757		1523

Source: IFPRI–ICAR telephone survey in eastern India in 2020.

Note: HH = household head; PMFBY = Pradhan Mantri Fasal Bima Yojana; MGNREGA = Mahatma Gandhi National Rural Employment Guarantee Act; *, **, and *** indicate statistical significance at the $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels; robust standard errors are in parentheses.

Table 4 provides the estimated coefficients for the linear probability and probit models. Education, size of landholding, access to institutional credit, and awareness of other government announcements were positively associated with farmers' awareness about these farms bills/laws; caste was also found to have a significant influence on farmers' awareness. From the estimated coefficients given in Table 4, we further estimated the awareness probabilities for the average respondent, and then for the average respondent while controlling one or more variables. Comparing the probabilities with one or more variables adjusted a precise measure is provided of the direction and magnitude of change attributed to the controlled variable(s). Using these coefficients, the probability of being aware of the new farm laws was estimated to be 51 per cent for the average respondent. In Figure 1 and Figure 2, the probabilities of being aware are indicated on the vertical axis and the values for each controlled variable are shown on the horizontal axis.

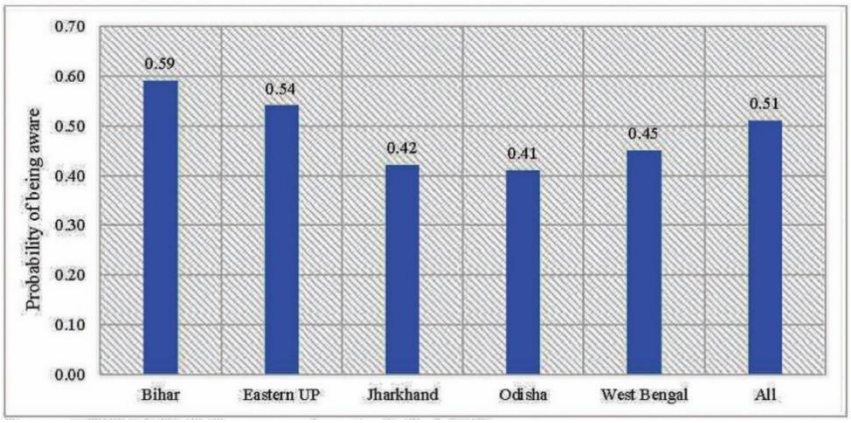
TABLE 4. DETERMINANTS OF FARMERS' AWARENESS OF THE FARM BILLS/LAWS 2020

	Dependent variable: Heard about new 2020 farm bills/laws (1=Yes)		
	OLS	Probit	
Variables	Coefficients	Coefficients	dy/dx
(1)	(2)	(3)	(4)
Age (years) (log)	-0.020	-0.072	-0.029
	(0.048)	(0.180)	(0.071)
Household size (number) (log)	0.013	0.055	0.022
	(0.028)	(0.109)	(0.043)
Household head education (years) (log)	0.110***	0.434***	0.172***
	(0.040)	(0.155)	(0.061)
Social Group: Base – Scheduled Caste and Scheduled Tribe			
Other Backward Caste (OBC)	0.052	0.208*	0.082*
	(0.033)	(0.126)	(0.050)
General	0.150***	0.535***	0.211***
	(0.038)	(0.144)	(0.055)
Land category: Base - Marginal farmers			
Small farmers	0.106***	0.426***	0.169***
	(0.032)	(0.124)	(0.048)
Medium and large farmers	0.152***	0.667***	0.258***
	(0.043)	(0.174)	(0.062)
Have functional Kisan Credit Card (1=Yes)	0.074**	0.307***	0.122***
	(0.030)	(0.117)	(0.046)
Heard about Loan waiving schemes (1=Yes)	0.056*	0.227*	0.089*
	(0.031)	(0.123)	(0.047)
Heard of Pradhan Mantri Fasal Bima Yojana (PMFBY) (1=Yes)	0.026	0.101	0.040
	(0.025)	(0.095)	(0.037)
Have a MGNREGA job card (1=Yes)	-0.007	-0.030	-0.012
	(0.029)	(0.110)	(0.043)
Member of any political party (1=Yes)	0.020	0.124	0.049
	(0.038)	(0.141)	(0.056)
Attended Krishi Mela (1=Yes)	0.012	0.046	0.018
	(0.029)	(0.108)	(0.043)
Constant	0.640**	3.639	
	(0.288)	(127.310)	
Village Fixed Effects	Yes	Yes	Yes
Log pseudo-likelihood		-667.24	
Correctly classified		45.617	
Observations	1,523	1,255	1,255
R-squared	0.400		

Source: Authors' estimates; *, **, and *** indicate statistical significance at the $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels; robust standard errors are in parentheses.

Figure 1 shows the awareness differences across states in India's eastern region, with Odisha showing the least awareness levels and Bihar the highest.

Figure 2 shows the associations between farmers' socioeconomic attributes and their awareness of the new farm laws. The probability of being aware increases with the size of the farm; it is 47 per cent for marginal farmers, 63 per cent for medium and large farmers, and 61 per cent for small farmers. Similarly, farmers belonging to relatively weaker castes have a lower probability of being aware of the new farm bills, with a 46 per cent probability that SC/ST farmers are aware and a 47 per cent



Source: IFPRI–ICAR telephone survey in eastern India in 2020.

Figure 1. Probability of Farmers in the Eastern States of India Being Aware of the New Farm Bills/Laws.

probability that OBC farmers are aware; meanwhile, farmers belonging to the General caste have a 61 per cent probability of being aware. The fourth graph in Figure 2 reveals the profound importance of education on farmers' level of awareness. Education shows a close linear relationship with awareness of the farm bills, with the probabilities increasing by almost 50 per cent between the lowest and the highest education levels.

V

PERCEPTION OF FARMERS ABOUT THE USEFULNESS OF THE FARM BILLS/LAWS 2020

The analysis above makes it apparent that only 50 per cent of the farmers in eastern India are aware of the new farm bills; this varies from 41 per cent in Jharkhand to 59 per cent in Bihar. Even the aware households, however, barely possess knowledge about the contents of the three new bills/laws 2020. This section delves into farmers' perceptions of the usefulness of these farm laws in terms of the establishment of new markets parallel to the existing mandis, private investment, contractual arrangements with processors and aggregators, price realisation, etc. and also analyses the factors that influence their opinions. It is believed that a more positive perception of the new laws by the farmers would lead to greater awareness and acceptance of them; which, in turn, will enhance the competitiveness of agri-markets and thus realisation of better prices for their produce.

The response to six different opinions was collected from a cross-section of farmers who own various sizes of landholding and belong to a range of social groups. Table 5 reveals that the majority of farmers surveyed (73.5 per cent) had little to say about the new farm laws. Overall, 4.3 per cent felt that the laws would be "extremely beneficial" to farmers, while less than 20 per cent felt that they would be "beneficial; a further 2.7 per cent were "indifferent", and 5.5 per cent had negative responses on the

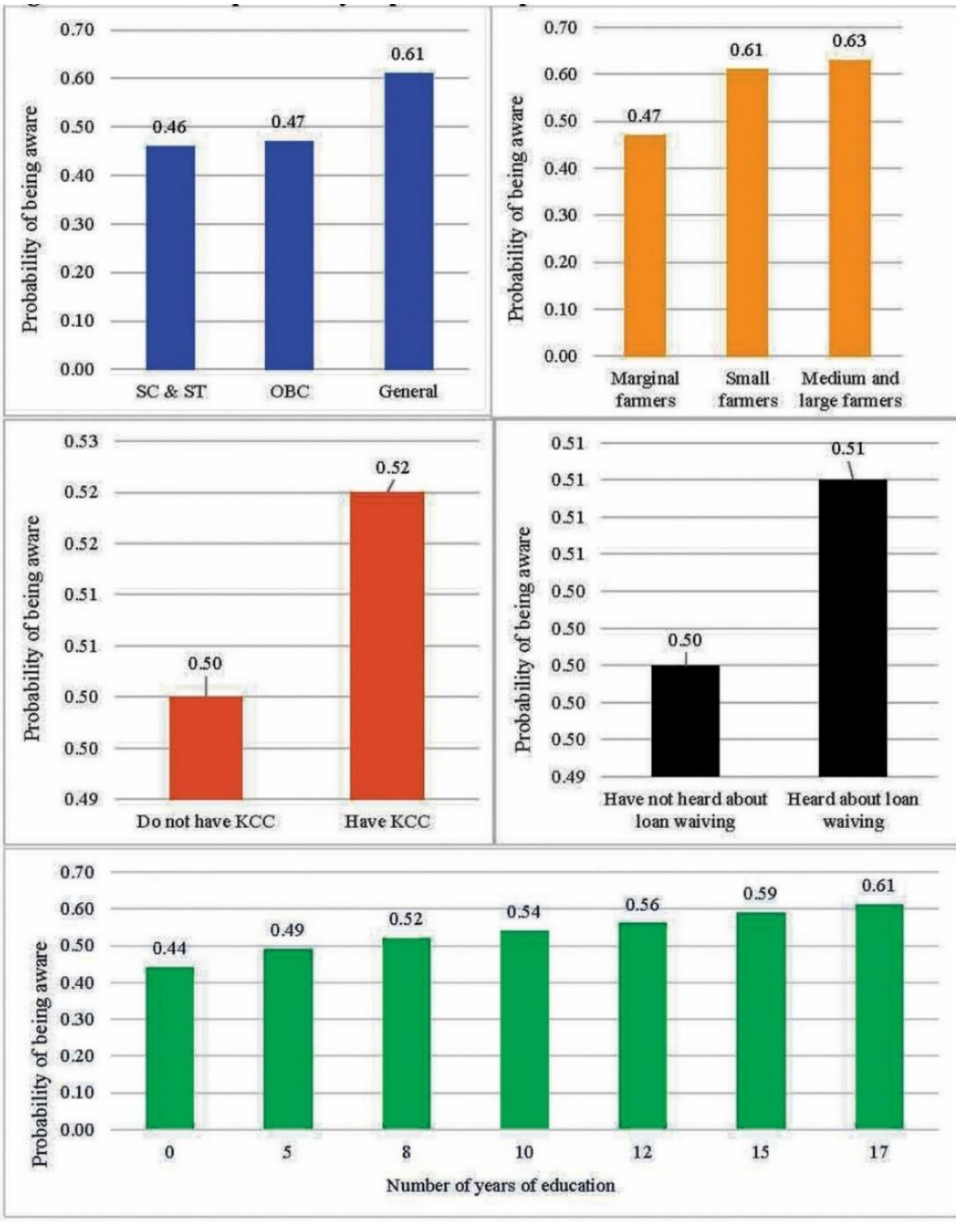


Figure 2. Awareness Probability as Per Various Parameters.

benefits of the laws. Among the three categories of farmers, more marginal and small farmers (78.1 and 66.1 per cent, respectively) showed indifference than did the medium and large farmers (61.3 per cent). The medium and large size land holders were found to be relatively positive about the benefits of the new farm laws. Across social groups,

the information furnished in Table 5 again indicates non-response on the subject by a majority (73.5 per cent), with a lower percentage in the General caste category (62.9 per cent). The SC, ST, and OBC categories of farmers minimally perceived the advantages or disadvantages of the new farm laws, perhaps due to their low marketed surplus of crops grown, sale within the village, and their extreme lack of ability to explore alternative marketing channels.

TABLE 5. FARMERS' PERCEPTION OF NEW FARM LAWS

Farmers' opinion	Marginal	Small	Medium and large	All	SC and ST	OBC	General caste
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No opinion	78.1	66.1	61.3	73.5	78.8	79.2	62.9
Extremely beneficial for farmers	3.0	6.1	8.6	4.3	2.4	2.4	8.0
Beneficial for farmers	12.6	21.2	22.6	15.7	11.8	12.0	22.7
Neither beneficial nor disadvantageous	2.0	3.6	5.4	2.7	1.8	3.9	1.9
Disadvantageous for farmers	3.7	1.8	6.5	3.7	5.3	2.4	4.2
Extremely disadvantageous for farmers	1.2	1.2	1.1	1.8	1.2	0.9	1.5

Source: IFPRI–ICAR telephone survey in eastern India in 2020.

On the factors that determine farmers' perceptions about the beneficial and non-beneficial aspects of the farm laws 2020, the results from the multinomial regression model are presented in Table 6. Among various factors that correlated significantly with a farmer's opinion about the new farm laws are education of head of household, awareness of government programmes, visits to Kisan Melas and size of landholdings. Under the three categories of opinion (no opinion; believe laws are beneficial; and believe laws are not beneficial), the estimated marginal effects were positive under the second, of these against the select independent variables, that is, farm size, age of household head, education of household head, General caste, possession of a Kisan Credit Card (KCC), and awareness of government programs and schemes.

VI

KEY FINDINGS AND IMPLICATIONS

The present study empirically analyses the level and depth of awareness of the farm laws 2020 among the farming households in the eastern India. We have used robust primary household-level IFPRI–ICAR data collected during 2018-2019 and in 2020, in order to analyse the various factors associated with farmers' awareness and perceptions of the new farm bills/laws. The perceptions of the farmers on the usefulness of the new farm laws are assessed in terms of their opinions on the establishment of private markets, mandi fees, contract farming, and price realisation. A probit model and a multinomial regression model are used to identify the factors associated with both farmers' awareness and their perceptions of the new farm laws.

TABLE 6. DETERMINANTS OF FARMERS' PERCEPTIONS ABOUT THE USEFULNESS OF THE FARM BILLS/LAWS 2020 BASED ON A MULTINOMIAL REGRESSION MODEL

	Perception about New Farm Bills/Laws				
	Coefficients		Marginal effects (dy/dx)		
	Believe they are beneficial	Believe they are not beneficial	No opinion	Believe they are beneficial	Believe they are not beneficial
(1)	(I2)	(3)	(4)	(5)	(6)
Age (years) (log)	0.670	-0.365	-0.044	0.060	-0.016
	(0.608)	(0.889)	(0.058)	(0.052)	(0.031)
Household size (number) (log)	-0.198	-0.344	0.027	-0.015	-0.011
	(0.333)	(0.628)	(0.034)	(0.029)	(0.022)
Household head education (years)	0.840	1.680**	-0.119**	0.065	0.055**
(log)	(0.516)	(0.818)	(0.049)	(0.044)	(0.027)
Social Group: Base – Scheduled Caste and Scheduled Tribe					
Other Backward Caste (OBC)	-0.405	0.249	0.026	-0.036	0.011
	(0.405)	(0.671)	(0.040)	(0.035)	(0.023)
General	0.267	0.471	-0.036	0.021	0.015
	(0.427)	(0.707)	(0.043)	(0.037)	(0.024)
Land category: Base - Marginal farmers					
Small farmers	0.984***	0.369	-0.092***	0.083***	0.008
	(0.337)	(0.582)	(0.033)	(0.028)	(0.020)
Medium and large farmers	1.164**	1.133	-0.129***	0.095**	0.034
	(0.452)	(0.741)	(0.043)	(0.038)	(0.025)
Have functional Kisan Credit	0.063	-0.231	0.002	0.006	-0.008
Card (1=Yes)	(0.333)	(0.536)	(0.033)	(0.029)	(0.019)
Heard about Loan waiving	0.374	0.063	-0.032	0.032	0.000
schemes (1=Yes)	(0.423)	(0.805)	(0.043)	(0.036)	(0.028)
Heard of Pradhan Mantri Fasal	0.127	-0.305	-0.001	0.012	-0.011
Bima Yojana (PMFBY) (1=Yes)	(0.327)	(0.554)	(0.032)	(0.028)	(0.019)
Have a MGNREGA job card	-0.615	-1.422**	0.093**	-0.047	-0.047**
(1=Yes)	(0.392)	(0.588)	(0.038)	(0.033)	(0.020)
Member of any political party	-0.022	1.685**	-0.049	-0.010	0.059**
(1=Yes)	(0.398)	(0.775)	(0.041)	(0.034)	(0.026)
Attended Krishi Mela (1=Yes)	0.386	-1.111*	0.002	0.038	-0.040**
	(0.317)	(0.598)	(0.032)	(0.027)	(0.020)
Constant	-22.982	-4.046			
	(3,764.602)	(4.690)			
Block Fixed Effects	Yes	Yes	Yes	Yes	Yes
		-284.426			
Observations	766	766	766	766	766

Source: Authors' estimates; Note: *, **, and *** indicate statistical significance at the $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels; robust standard errors are in parentheses.

Based on the descriptive and empirical evidence, the findings indicate that among the farming households across the eastern states, the level of awareness of the new farm laws is not encouraging. Even more discouraging is the finding that most of the farmers who have heard about these laws possess little specific knowledge of their content. Several socio-economic factors among farm households correlate significantly with the awareness of the new farm laws and holding opinions about their usefulness. These include the size of landholding, level of education of the household head, awareness of government programmes, and visits to Kisan Melas.

These results support the extant literature that, overall, farmers have accepted the nuanced workings of the existing APMC-run agri-markets and that they feel little can be done to improve their bargaining power, and thus realise better prices from sale through the traders/commission agents. The findings of this paper have important implications for policy makers and may be applicable pan-India. The three farm laws - Farmers*'* Produce Trade and Commerce (Promotion and Facilitation) Act 2020, Farmers*'* (Empowerment and Protection) Agreement on Price Assurance and Farm Services for Agriculture Act 2020 and the Essential Commodities (Amendment) Act 2020 aim to create one common market for agri-produce across the country, free farmers from stringent restrictions on selling their produce, enable them to enter into contracts with the processors and aggregators for better prices, lower risks, and higher income. This requires, as a prerequisite, that the Centre and the state should work in unison to create a competitive environment that encourages marketing efficiency and augments farmers' incomes. States should be given autonomy to amend the rules and regulations prescribed in the new farm laws as per their suitability in the respective areas, devise action plans and procedures on the proposed newer marketing platforms, such as private mandis and contract farming and create necessary infrastructure. Traders in the APMC markets should be sensitised to the usefulness of a competitive environment wherein they can explore opportunities for forming FPOs or for becoming aggregators or suppliers of bulk produce to processors or initiating online trading/E-market platforms. Finally, states need to be proactive in generating awareness among the farmers about the benefits of new laws, system of payment in the alternate markets, rules and practices under contract farming, and the mechanisms available for addressing their grievances. A greater awareness would help demystify the provisions of the new farm laws and thus reduce the probability of irrational opposition and protest. A greater awareness and confidence among farmers and other stakeholders may also help generate meaningful and constructive discussion and pinpoint corrections (if needed) before actual implementation.

NOTES

1) Over the period, the wholesale/regulated markets (popularly called *mandis*) have become less competitive and efficient in terms of high market and commission charges, improper discovery of commodity prices, low margins for farmers, and high margins for wholesalers/traders in the marketing chain. A few states have reduced market fees and some others—Punjab, Karnataka, and Maharashtra—have brought amendments as per the Model APMC Acts 2003 and 2017 to encourage contract farming and direct farm-to-kitchen models. Clear-cut rules on these matters have been missing, however, and the monopoly of state-run mandis continues with hardly any improvement in farmers' incomes (Acharya, 2017).

2) Simply put, perceptions of the farm bills/acts may be based on, say, intuition, opinion, hearsay, and ideas or awareness reflects the knowledge and understanding that something is happening or existing.

3) The econometric software Stata 16.0 was used to calculate the marginal effects for each variable while keeping other variables constant at their sample mean value.

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APPENDIX

TABLE A1. PERCEPTIONS OF FARMERS ABOUT THE 2020 FARM BILLS

	Opinion of farmers	Opinion of farmers aggregated for analysis	
(1)	(2)	(3)	(4)
1)	No opinion	No opinion	(i)
2)	Extremely beneficial for farmers	Beneficial for farmers	(ii)
3)	Beneficial for farmers		
4)	Neither beneficial nor disadvantageous	Non-beneficial for farmers	(iii)
5)	Disadvantageous for farmers		
6)	Extremely disadvantageous for farmers		

Source: IFPRI–ICAR telephone survey in eastern India in 2020.

TABLE A2. AWARENESS PROBABILITY OF FARMERS ABOUT THE 2020 FARM BILLS, BY VARIABLES

Number of years of education	Across years of education					
	Bihar	Eastern UP	Jharkhand	Odisha	West Bengal	All
(1)	(2)	(3)	(4)	(5)	(6)	(7)
0	0.53	0.48	0.35	0.33	0.37	0.44
5	0.58	0.53	0.40	0.38	0.43	0.49
8	0.61	0.56	0.43	0.41	0.46	0.52
10	0.63	0.58	0.45	0.43	0.48	0.54
12	0.65	0.60	0.47	0.45	0.50	0.56
15	0.68	0.63	0.51	0.48	0.53	0.59
17	0.70	0.65	0.53	0.50	0.55	0.61
			Across social groups			
SC and ST	0.56	0.50	0.40	0.39	0.37	0.46
OBC	0.56	0.51	0.40	0.39	0.38	0.47
General caste	0.70	0.65	0.54	0.53	0.52	0.61
			Across farmers groups			
Marginal farmers	0.54	0.51	0.36	0.36	0.43	0.47
Small farmers	0.68	0.65	0.51	0.50	0.58	0.61
Medium and large farmers	0.70	0.67	0.53	0.52	0.60	0.63
			Across KCC holders			
Does not have KCC	0.59	0.53	0.41	0.40	0.44	0.50
Has KCC	0.61	0.56	0.43	0.43	0.46	0.52
			Heard about loan-waiving scheme			
Has not heard about loan waiving	0.59	0.53	0.41	0.41	0.44	0.50
Has heard about loan waiving	0.60	0.54	0.42	0.42	0.45	0.51
All	0.59	0.54	0.42	0.41	0.45	0.51

Source: IFPRI–ICAR telephone survey in eastern India in 2020.

Note: SC = Scheduled Caste; ST = Scheduled Tribe; OBC = Other Backward Class; KCC = Kisan Credit Card; UP = Uttar Pradesh.