



Research Article

Perceived Prospects of Small-Scale Commercial Broiler Farming and Their Determinants in Gazipur, Bangladesh: A Cross-Sectional Farmer Survey

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ARTICLE INFO	ABSTRACT
Article history Received: 07 August 2026 Accepted: 24 September 2026 Published: 30 September 2026 Keywords Biosecurity; extension services; farmers' perceptions; small-scale commercial broiler Correspondence Nargis Sultuna Lucky ✉: luckybau2024@gmail.com OPEN ACCESS	Small scale commercial broiler (SSCB) farming is playing a significant role in the generation of household income, employment and provide low-cost supply of animal protein in Bangladesh. In addition to biological productivity and profitability, small-scale commercial broiler farms rely on the confidence of farmers in their production, markets, environmental management and disease control to sustain their future. This study evaluated farmers' perceived prospects of small-scale commercial broiler farming and identified the farm and farmers' characteristics related to that. The study was based on cross sectional survey method and the study's population consisted of small-scale commercial broiler farmers of Kapasia and Sreepur upazillas. For perceived prospects items were used on a Likert scale for production, marketing, environment and health and disease. Descriptive statistics and multivariable linear regression were used. Results: Overall, farmers' perceived prospects were moderate with most farmers reporting a medium prospect level. Environmental prospects were perceived as the highest followed by marketing, production and health and diseases. The regression was statistically significant and accounted for a significant amount of variance in the scores of the prospects. The prospect score was positively correlated with the education, training, contact with extension, market access and knowledge of farming. The factors positively correlated with the prospect score were education, training, contact with extension, market access and knowledge of farming, the latter with a borderline significance. Neither experience nor size of the farm was considered significant by itself. Summary: Farmers viewed positive yet non-omnipresent opportunities. The link between confidence and human capital, biosecurity, extension and market access was stronger than the link with production scale. Policies should thus include integrated competency building, easily available veterinary extension resources on the ground biosecurity assistance, market information and collective marketing mechanisms.
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Introduction

The poultry industry plays a significant role in the food security, employment and rural livelihood of Bangladesh (Hennessey et al., 2021). According to the Bangladesh Livestock Statistics (DLS, 2025), there were 406.65 million poultry birds in Bangladesh in 2024-2025 and the livestock sector accounted for 1.81% of the GDP of the country and 16.54% of the agricultural GDP of the country during the same time period. As the demand for broiler production increases, the farming of broilers has become an attractive business because of its fast growth rate, short production period and relatively small land requirement (Akter et al., 2021; Haque et al., 2024). But there is a difference in the definition of small-scale commercial broiler farming based on farm

size, production goals, and resource allocation (Khalil et al., 2017).

Households with limited resources benefit from small-scale commercial broiler farming, as it offers vital income and livelihood opportunities (Sheheli et al., 2024). However, feed and chick cost fluctuations, disease and mortality, market volatility, and technical and managerial support are limiting its sustainability (Kawsar et al., 2013; Rabbani & Ahmad, 2021). The area of Gazipur has become an important area for the production of small-scale commercial broilers, there are already poultry markets and there are also activities of commercial production there. While some recent research has focused on profitability and its determinants in the case of small-scale commercial

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broiler production in Gazipur (Alam et al., 2025), there is little empirical evidence on the farmers' perceived prospects and its determinants.

Gazipur is an important small-scale broiler raising area which is very close to Dhaka. The previous studies conducted in Bangladesh have focused on profitability, production economics, antimicrobial use, biosecurity, and waste management, but no studies have examined the perception of the farmers on the future of smallholder broiler farming in all mentioned four aspects of intensity (Kawsar et al., 2013; Imam et al., 2021; Rahman et al., 2022; Ibrahim et al., 2023). The study thus determined, (1) the farmers' perceived prospects for production, marketing, environment and health and disease and (2) the personal, farm, technical, institutional and market factors related to the overall prospect score.

Materials and Methods

Design, setting and respondents

A cross sectional survey of quantitative type was undertaken with active 240 small-scale commercial broiler (SSCB) farmers in the selected poultry producing areas of Kapasia and Sreepur upazilas of Gazipur District, Bangladesh. A small-scale commercial broiler farm was defined as a farm with less than 5,000 broilers per production batch, primarily for commercial purposes. This definition is similar to what has been done in earlier studies in small-scale commercial broiler rearing sector in Bangladesh. The farmers who were interviewed in the survey had a minimum of one production cycle and were actively involved in SSCB production. Similar studies have been conducted in Bangladesh for the small-scale broiler farms based on flock size and commercial production aspects. Local livestock-service networks and producer contacts were used to select the study areas and respondents. Due to the absence of a complete sampling frame and unknown probability of selection, the results should not be extrapolated to represent all small scale commercial broiler farmers in Gazipur District.

Instrument and measures

The data was collected with pre-tested structured interview schedule based on relevant literature, previous empirical studies and the objectives of the study. The questionnaire included socio-economic attributes, farm attributes, management and biosecurity measures, training, extension contacts, knowledge, market factors and perceived opportunities of small scale commercial broiler farming. Socio-economic and farm level variables were measured in their respective units such as years, household

members, number of birds / production cycle, BDT, training exposure and labour time. Multi-item constructs such as biosecurity, knowledge, extension contact and market-related involvement were assessed by composite scores derived from the set of pre-defined items. The responses were taken using a Likert scale ranging from 35 to 175 with higher scores representing more positive perception about prospects for SSCB farming; the 35 statements were clustered into 4 dimensions: production, marketing, environment and health/disease. The instrument underwent a pre-test and was then clarified and made relevant. The content validity was evaluated by the experts and the internal consistency of multi-item scales was evaluated using the Cronbach alpha.

Statistical Analysis

The farmers' socio-economic and farm characteristics were summarized using descriptive statistics such as frequencies, percentages, means, standard deviations and ranks and the perceived prospects of small-scale commercial broiler farming were described. Multiple linear regression analysis was performed to determine the factors associated with the perceived prospects. Perceived prospects score was the dependent variable and education, farming experience, training, social participation, biosecurity, innovativeness, extension contact, market access, knowledge, farm size were the independent variables. The performance of the model was evaluated using R, R², adjusted R², F-statistic and standard error, and the regression assumption was evaluated using Durbin-Watson and VIF. A p value <0.05 was deemed to be statistically significant.

Results and Discussion

Respondent and farm characteristics

As seen in Table 1, the SSCB farmers surveyed were mainly middle-aged as indicated by 61.3% with a mean age of 41.76 years while 86.2% were male farmers. The average level of education of most of the respondents was secondary (55.8%) and average farming experience was 8.12 years. The training exposure was fairly low, with 62.9 per cent only having received between one and five days of training and 58.8 per cent not having been given credit. The average number of birds per batch was 2,001–3,500 birds, while market access and knowledge was at medium level. From these findings it could be observed that the farming of small scale commercial broilers in Gazipur is mostly managed by moderately experienced farmers but yet the challenges are present in financial resources, advanced training and market availability. Similarly, Kawsar et al. (2013) found education, training, experience in farming, broiler farm size and extension related support affecting the

profitability and performance of small-scale broiler farming in Bangladesh.

Table 1. Selected characteristics of surveyed small-scale commercial broiler farmers (n = 240)

Characteristic	Category or statistic	n	%
Age	Mean 41.76 years (SD 8.57); range 22-65	240	-
Age group	Young (≤ 35 years)	53	22.1
	Middle-aged (36-55 years)	147	61.3
	Older (> 55 years)	40	16.7
Gender	Male	207	86.2
	Female	33	13.8
Education	Mean 8.40 years (SD 3.40); range 0-16	-	-
	Secondary (6-10 years)	134	55.8
	Higher secondary or more (11-16 years)	61	25.4
Farming experience	Mean 8.12 years (SD 4.95); range 1-19	-	-
	Mean 5.30 days (SD 3.84); range 0-20	-	-
Training exposure	1-5 days	151	62.9
	6-10 days	61	25.4
	> 10 days	26	10.8
	656-4,098 birds per batch	-	-
Farm size	$\leq 2,000$ birds	63	26.2
	2,001-3,500 birds	150	62.5
	$> 3,500$ birds	27	11.2
Credit received	Yes	99	41.2
	No	141	58.8
Market access	Low	47	19.58
	Medium	154	64.17
	High	39	16.25
Knowledge score	Medium (21-40)	182	75.8
	High (> 40)	54	22.5

Note. Percentages may differ slightly from 100 because of rounding. The supplied table reported an internally inconsistent farm-size mean; therefore, only the verified observed range and category distribution are reproduced.

Overall and dimension-wise perceived prospects

Overall perceived prospect level

The majority of 64.59% (n = 155) of the 240 broiler farmers surveyed were in the medium perceived prospect category, 19.58% (n = 47) of which were in low perceived prospect and 15.83% (n = 38) were in high perceived prospect. This medium dominant distribution indicates that small-scale commercial broiler farming is generally considered to be a possibility; however, farmers' confidence is not high but low. This is in line

with the findings of Islam et al. (2010) that the independent small-scale broiler production is profitable in Bangladesh, but has several limitations including low of resource availability, technical knowledge and previous experience in farm. This low proportion of high-prospect farmers further reinforces Kamruzzaman et al. (2021) who reported that although the farmer sector is profitable, the general farmer confidence is dampened due to recurrent price fluctuation in the market of chicks, feed and live birds.

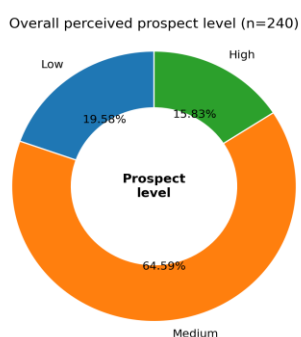


Fig. 1: Distribution of farmers by overall perceived prospect level.

Dimension-wise perceived prospects

Environment had the highest rank on the per-item basis (mean = 3.203, rank 1), then marketing (mean = 3.159, rank 2) and production (mean = 3.071, rank 3), and finally health and disease had the lowest rank (mean = 2.916, rank 4). The 0.287 difference between environment and health and disease suggests that farmers' confidence diminishes when attention moves from farm practices that they can control to those that

they cannot. The positive environment score is similar to Rahman et al. (2022) and Sobur et al. (2024) who found that farmers were positive about litter-based soil enrichment and waste reuse. The poor health score reflects similar findings reported by Rimi et al. (2017) and Faroque et al. (2023), who found that farmers lacked confidence in disease management as a result of poor biosecurity and veterinary-support.

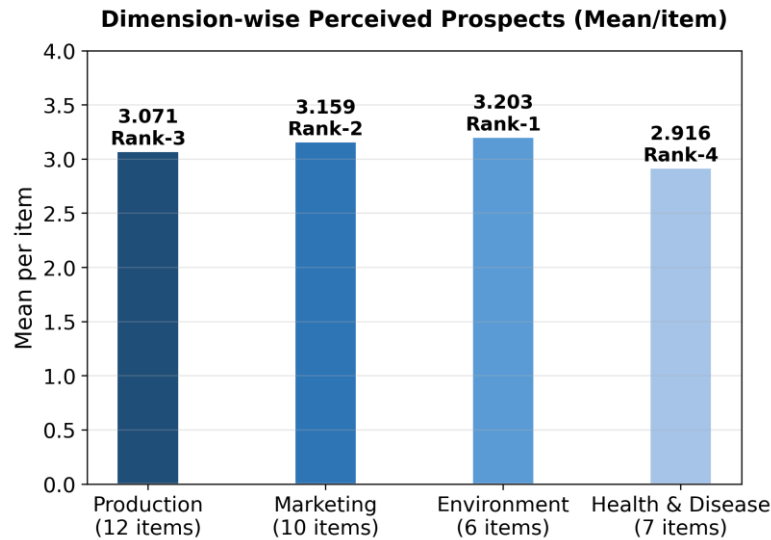


Fig. 2: Mean per-item scores across the four prospect dimensions; dashed line indicates the scale midpoint.

Analytical framework

Ten farmer, service and farm-level factors education, farming experience, training exposure, social participation, biosecurity score, innovativeness, extension contact, market access score, knowledge score, and farm size are linked to the total perceived prospect score, consisting of 35 items, further broken down into the production, marketing, and health and disease dimensions. This structure specifies the multivariable regression presented in Table 6 and Table

7, so that the individual contribution of each predictor can be estimated, while keeping other predictors in the model fixed at their respective levels. The determinant variables that have been combined are human-capital variables (education, training, knowledge) and institutional and market-access variables (extension contact, market access, biosecurity), similar to those used by Rahman et al. (2021) and Uddin et al. (2017), respectively, to explain farmers' perceptions in Bangladesh.

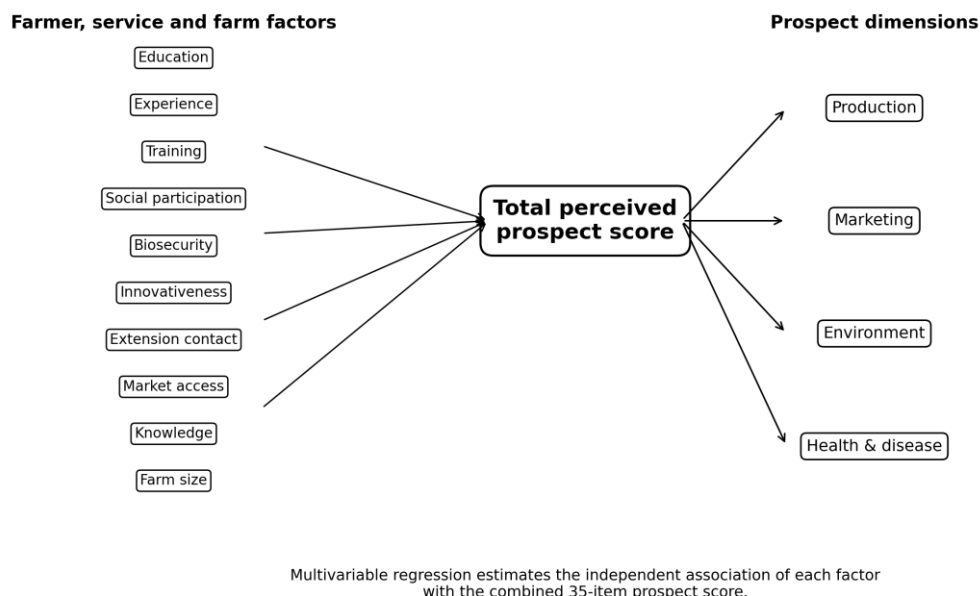


Fig. 3: Analytical framework linking farmer, service, market, and farm factors with the four perceived-prospect dimensions.

Prospect statements

Production prospect statements

Expansion opportunity (mean = 3.579, SD = 1.228, rank 1) was the highest of the 12 production statements followed by judicious drug/additive use (mean = 3.462, rank 2), sound farming practices (mean = 3.400, rank 3), cost-reduction strategies (mean = 3.337, rank 4), and higher output versus traditional poultry (mean = 3.233, rank 5). Ease of entry using existing resources was the

lowest ranking with a mean score of 2.600, and broiler meat's health benefits (mean = 2.683) and institutional support (mean = 2.767). In this, this strong confidence is similar to the experience-driven expansion willingness of Islam et al. (2010) whereas ease of entry is at a weak level is similar to the management competence as the strongest performance lever among Bangladeshi broiler farmers at the farm level of operation as reported by Kamruzzaman et al. (2021) and Ali and Hossain (2010), respectively.

Table 2. Production prospect statements (12 items)

No.	Statement	Mean	SD	Rank
1	Farmers can easily start small-scale commercial broiler farming using their existing resources and knowledge.	2.600	1.365	12
2	Production technique is very similar to traditional poultry farming.	3.221	1.346	6
3	Women in the household can actively participate as labor in small-scale commercial broiler farming.	2.833	1.293	8
4	The cost of production is comparatively cheaper.	2.825	1.400	9
5	Successful strategies have been adopted to reduce production costs.	3.337	1.331	4
6	Farmers receive support from local networks, cooperatives, or government schemes.	2.767	1.337	10
7	Broiler meat is healthy - high in protein, vitamins, and minerals, and low in fat.	2.683	1.378	11
8	Broiler meat production is higher than traditional poultry.	3.233	1.361	5
9	Opportunities exist for expanding or improving farm operations.	3.579	1.228	1
10	Using modern technology (e.g., automated feeders or digital monitoring) can increase productivity.	2.908	1.300	7
11	The judicious use of drugs and additives has been shown to increase profitability.	3.462	1.316	2

No.	Statement	Mean	SD	Rank
12	Following sound broiler farming practices helps produce safe and quality meat.	3.400	1.350	3

Marketing prospect statements

Specific practices with higher market prices scored the highest (mean = 3.500, SD = 1.372, rank 1), followed by the increasing demand for protein, export potential, demand for processed products, and contract farming (mean = 3.371, 3.317, 3.275, with SDs of 1.337, 1.272, and 1.392, respectively, and ranks of 2, 3, and 5). Niche/organic marketing and social-media selling ranked lowest (mean = 2.700, rank 10) along with

beef/mutton substitution potential (mean = 2.954). The high proportion of items related to demand and price over niche channels aligns with Kamruzzaman et al. (2021) who observed that the marketing of broiler meat is still conventional and has a high dependency on middlemen among the smallholder farmers and there is less premium or digital channel penetration in the marketing of broiler meat in Bangladesh.

Table 3. Marketing prospect statements (10 items)

No.	Statement	Mean	SD	Rank
1	There is a high market demand for broiler meat due to rising protein needs.	3.492	1.329	2
2	Producing organic or free-range broilers can attract niche markets.	2.700	1.310	10
3	Broiler meat can be a good alternative to beef or mutton.	2.954	1.373	8
4	Small-scale commercial broiler farming can create a new avenue for entrepreneurship in the poultry sector.	3.150	1.361	6
5	Broiler meat has export potential due to high usage in restaurants and resorts.	3.371	1.290	3
6	Contract farming ensures guaranteed markets and reduces income risks.	3.275	1.384	5
7	Partnerships or collaborations with other farmers or businesses can enhance profit.	2.858	1.371	9
8	Implementing sound broiler farming practices leads to higher market prices.	3.500	1.372	1
9	There is growing demand for processed products such as nuggets, sausages, and boneless meat.	3.317	1.402	4
10	Social media and online platforms help farmers sell directly to customers.	2.971	1.349	7

Environmental prospect statements

Litter-as-manure (mean = 3.425, SD = 1.336, rank 1), efficient water/feed management (mean = 3.358, rank 2), local environmental suitability (mean = 3.342, rank 3) and use of compost/biogas (mean = 3.163, rank 4) ranked highest among the six environmental statements. The training for biosecurity (mean = 3.138, rank 5) and valorisation of by-products such as processing feathers (mean = 2.792, rank 6) also ranked

among the top 6 responses. The results are similar to Rahman et al. (2022) who have identified litter-based soil amendment as a most valued environmental benefit for Bangladeshi poultry producers and Sobur et al. (2024) who reported the re-use of litter and compost, which was the lowest in peri-urban areas, likely due to poor infrastructure for processing the by-products among smallholders.

Table 4. Environmental prospect statements (6 items)

No	Statement	Mean	SD	Rank
1	The local environment is suitable for small-scale commercial broiler farming.	3.342	1.287	3
2	Broiler farming generates by-products such as feathers that can be processed into valuable items.	2.792	1.372	6
3	Using poultry litter as manure can improve soil fertility and reduce pollution.	3.425	1.336	1
4	Farm waste can be used for compost or biogas, creating fertilizer and energy.	3.163	1.406	4
5	Water and feed can be efficiently managed to reduce waste.	3.358	1.377	2

No	Statement	Mean	SD	Rank
6	Regular training enhances farmers' ability to implement effective biosecurity measures, reducing environmental and health risks.	3.138	1.342	5

(mean = 2.696) and government veterinary extension support (mean = 2.671). The low institutional scores are consistent with the findings of Rimi et al. (2017) and Rahman and Samad (2003) who found that there is little formal veterinary linkages between the smallholder poultry producers in Bangladesh, and the high mortality-decline ranking is supported by Faroque et al. (2023) who found measurable reductions in mortality following biosecurity-based interventions in small-scale Bangladeshi broiler farms.

Health and disease prospect statements

Declining mortality (mean = 3.254, SD = 1.353, rank 1) was the health and disease statement with the highest mean score followed by disease-prevention training (mean = 3.154, rank 2), outbreak preventability through management (mean = 2.950, rank 3) and veterinarian-guided antibiotic use (mean = 2.875, rank 4). The lowest scores were for public-private veterinary partnerships

Table 5. Health and disease prospect statements (7 items)

No	Statement	Mean	SD	Rank
1	Farmers receive adequate training on disease identification and prevention.	3.154	1.356	2
2	Antibiotic use is based on a veterinarian's prescription.	2.875	1.291	4
3	Disease outbreaks on farms are preventable through good management practices.	2.950	1.392	3
4	Reducing antibiotic use can improve food safety and export potential.	2.812	1.355	5
5	Mortality rates due to disease have decreased in recent years.	3.254	1.353	1
6	Public-private partnerships can enhance veterinary access.	2.696	1.308	6
7	Government veterinary extension services effectively support disease prevention in small farms.	2.671	1.334	7

Highest ranking statement per dimension

The highest dimension value, or ceiling value, was for production (mean = 3.579), followed by marketing (mean = 3.500), environment (mean = 3.425), and health and disease, with the lowest ceiling (mean = 3.254). Given the difference of 0.325 between the top production and top health-and-disease items, even the most positive health-related belief of farmers is less

than the most positive production belief, which further confirms the pattern already seen in Figure 2 and Table 5. This ceiling effect is aligned with the findings of Faroque et al. (2023) and Rimi et al. (2017) who both pointed out that health and biosecurity results in small-scale systems in Bangladesh are less controllable than production and market outcomes.

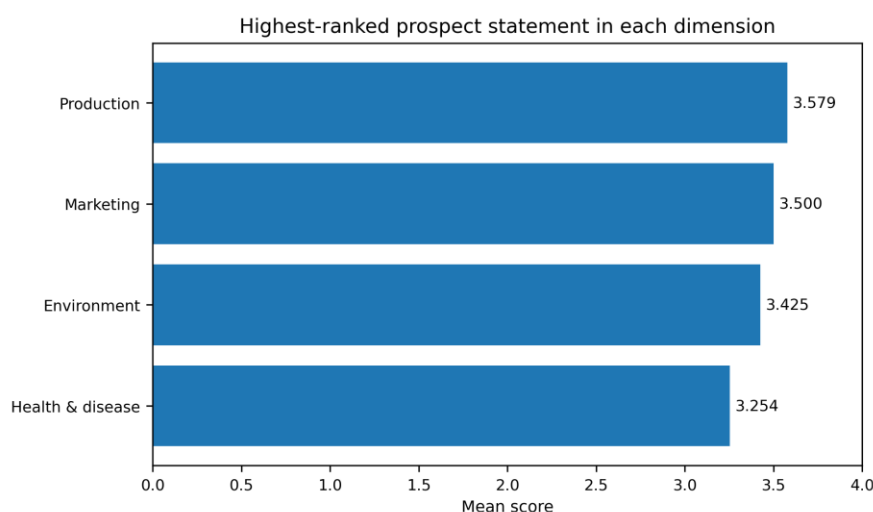


Fig. 4: Highest-ranked prospect statement within each dimension.

The range means of each item on each dimension of the prospect

The spread between highest- and lowest-rated items was widest for production (2.600–3.579, range 0.979) and marketing (2.700–3.500, range 0.800), narrower for environment (2.792–3.425, range 0.633), and narrowest for health and disease (2.671–3.254, range 0.583). Broad ranges denote higher levels of agreement among

farmers in this dimension, with production aspects being more diverse and a more moderate level for health and disease. This is similar to Islam et al. (2010) who found significant variation in production confidence associated with farm resource endowments and the closer grouping of health scores is similar to the generally low level of confidence in disease control reported by Rimi et al. (2017).

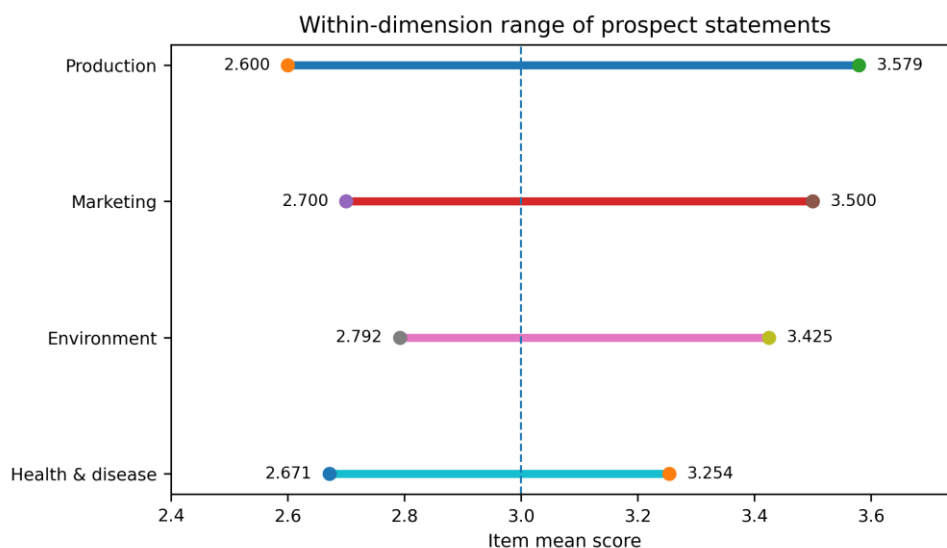


Fig. 5: Minimum-to-maximum range of item means within each prospect dimension; dashed line indicates the scale midpoint.

Factors associated with perceived prospects

The ten predictors accounted for a significant amount of the variance ($R = 0.685$, $R^2 = 0.470$, adjusted $R^2 = 0.447$), indicating the regression accounted for about 47.0% of the total variance, and the adjusted value ruling out the possibility that this value is simply an artefact of the number of predictors and sample size ($n = 240$). The model was of great effect $F(10, 229) = 20.290$, $p < .001$, the Durbin–Watson statistic (1.990) suggested that there was no significant residual autocorrelation, and the standard error of estimate (24.466) indicated the extent of residual dispersion. The explanatory power is also greater than similar Bangladeshi perception-determinant models, which generally have R^2 values ranging from 0.30 to 0.37, indicating that the predictors chosen are comprehensive.

Six of the ten predictors were statistically significant: extension contact ($B = 0.387$, $t = 9.210$, $p < .001$), biosecurity score ($B = 2.645$, $t = 6.582$, $p < .001$), education ($B = 3.618$, $t = 5.725$, $p < .001$), market access score ($B = 2.760$, $t = 5.201$, $p < .001$), training exposure ($B = 1.894$, $t = 3.636$, $p < .001$), and knowledge score ($B = 0.176$, $p = .005$); innovativeness was marginal ($p = .050$). Farm size, farming experience and social participation were not significant. There were no multicollinearity found in VIFs (1.014–1.843). These findings are corroborated by those of Rahman et al. (2021) and Uddin et al. (2017) on education/training/extension and Faroque et al. (2023) and Kamruzzaman et al. (2021) on biosecurity/market access.

Table 6. Multivariable model summary and ANOVA

Statistic	Value
R	0.685
R ²	0.470
Adjusted R ²	0.447
Std. error of estimate	24.466
Durbin-Watson	1.990

Statistic	Value
F (10,229)	20.290
Model p	<.001

Table 7. Regression coefficients for total perceived prospect score

Predictor	Beta	SE	t	p	Tolerance	VIF
Constant	-1.983	10.996	-0.180	.857		
Education (years)	3.618	0.632	5.725	<.001	0.543	1.843
Farming experience (years)	0.237	0.322	0.735	.463	0.986	1.014
Training exposure (days)	1.894	0.521	3.636	<.001	0.628	1.593
Social participation	-0.387	0.518	-0.748	.455	0.748	1.336
Biosecurity score	2.645	0.402	6.582	<.001	0.685	1.459
Innovativeness score	0.375	0.22`0	1.705	.050	0.667	1.500
Extension contact	0.387	0.042	9.210	<.001	0.792	1.220
Market access score	2.760	0.531	5.201	<.001	0.697	1.434
Knowledge score	0.176	0.062	2.840	.005	0.385	1.200
Farm size (birds/batch)	0.004	0.005	0.792	.429	0.928	1.078

Note: Unstandardized coefficients are presented. The standardized beta for extension contact in the source was internally inconsistent and is therefore not reproduced.

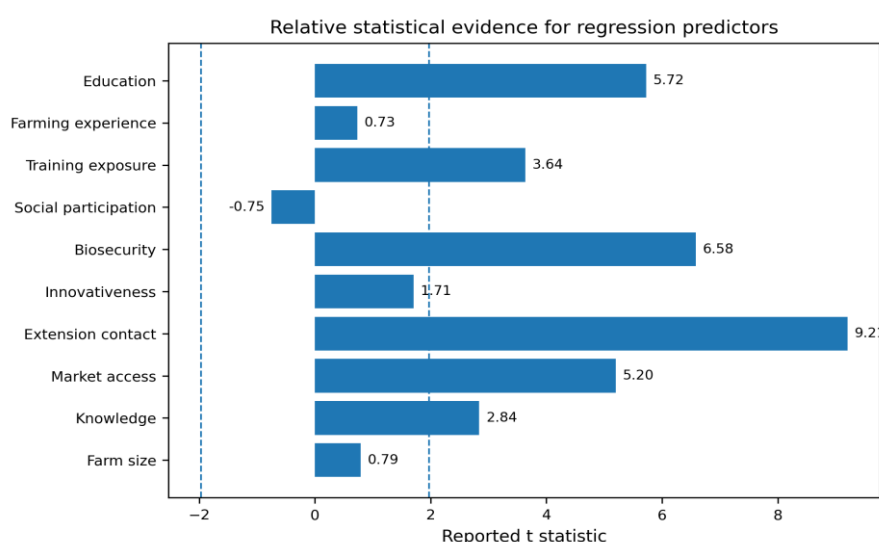


Fig. 6: Reported t statistics for the ten regression predictors. Dashed lines mark the approximate two-sided 5% threshold; the source discrepancy for innovativeness should be verified.

Conclusion

This study offers some insights into farmers' perceptions of the potential of small-scale commercial broiler farming in Gazipur, Bangladesh. The results indicate moderate levels of optimism, as the majority of the farmers identified opportunities for enhancing farm operations, market access and sustainable resource utilization. Results indicated that education, training exposure, biosecurity practices, extension contact,

market access and knowledge were significant in affecting perceived prospects as revealed by regression analysis, thus underscoring the need for institutional and technical support. But challenges on the veterinary service, antimicrobial management, financial access, and market uncertainty are still key factors in sustaining a viable business. A number of measures, such as upgrading farmer training, extension services, biosecurity, and market linkages, could boost the viability and sustainability of small-scale commercial

broiler farming in Bangladesh. Regular training, improved veterinary extension services and better biosecurity support should be provided to small-scale broiler farmers to enhance farm sustainability and reduce disease risks.

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Author's Contributions

This work was carried out in collaboration among all authors. Author Nargis Sultana Lucky wrote and prepared the original draft of the manuscript, performed the methodology and investigated the study. Dr. Shonia Sheheli, reviewed and edited the manuscript. Author Dr. Md. Golam Farouque reviewed and edited the manuscript. Author Suraia Akhter and Mosammat Johra Khatun wrote, reviewed and edited the manuscript. All authors read and approved the final manuscript.

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