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THE EFFECT OF ENTREPRENEURIAL ORIENTATION ON NATIVE CHICKEN FARM GROWTH WITH THE MEDIATING ROLE OF POULTRY PRODUCTION SYSTEMS

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Abstract: Growth among native chickens farming is eminent to accelerate the rate of poverty reduction and improve food security and nutrition by increasing the consumption of meat and eggs as a source of high-quality protein. Furthermore, entrepreneurial orientation (EO) has been widely used as a strategic approach for enhancing farm growth through various innovations. Therefore, this study aims to determine the effect of EO and poultry production systems on the growth of native chickens and to find out how the mediating role of poultry production systems on the effect of EO on the growth of native chicken farms. This study used a quantitative study focused on direct observation and structured interviews. A probability with a simple random sampling procedure was used for collecting the data from 196 native chicken farmers across Bone Regency, South Sulawesi Province, through a questionnaire. The data obtained were analyzed using path analysis. The results showed that EO and poultry production systems positively and significantly affected native chicken farm growth. However, the contribution of the effect of EO on the native chicken farm growth was lower (5.77%). After adopting the model's poultry production systems as a moderating variable, the effect's contribution increased to 16.57%. Based on the study findings, the study concluded that the adopted poultry production systems practices serve as a moderating variable that contributes mainly to the effect of EO on native chicken farm growth.

Keywords: entrepreneurial orientation, poultry production system, native chicken, farm growth, mediating variable

Abstrak: *Pertumbuhan usaha ayam buras menjadi unggulan untuk mempercepat laju pengentasan kemiskinan serta meningkatkan ketahanan pangan dan gizi dengan meningkatkan konsumsi daging dan telur sebagai sumber protein berkualitas tinggi. Selanjutnya, orientasi kewirausahaan (EO) telah banyak digunakan sebagai pendekatan strategis untuk meningkatkan pertumbuhan usahatani melalui berbagai inovasi. Oleh karena itu, penelitian ini bertujuan mengetahui bagaimana pengaruh EO dan sistem produksi unggas terhadap pertumbuhan usaha ayam buras, dan untuk mengetahui bagaimana peran mediasi sistem produksi unggas terhadap pengaruh EO terhadap pertumbuhan usaha ayam buras. Penelitian ini menggunakan jenis penelitian kuantitatif yang difokuskan pada penelitian observasi langsung dan wawancara terstruktur. Prosedur pengambilan sampel menggunakan probabilitas dengan cara acak sederhana untuk mengumpulkan data dari 196 peternak ayam buras di Kabupaten Bone, Provinsi Sulawesi Selatan, melalui kuesioner. Data yang diperoleh dianalisis menggunakan analisis jalur. Hasil penelitian menunjukkan bahwa EO dan sistem produksi unggas berpengaruh positif dan signifikan terhadap pertumbuhan usaha ayam buras. Namun kontribusi pengaruh EO terhadap pertumbuhan usaha ayam buras lebih rendah (5,77%). Setelah mengadopsi sistem produksi unggas sebagai variabel moderasi dalam model, kontribusi efek meningkat menjadi 16,57%. Berdasarkan temuan penelitian, penelitian menyimpulkan bahwa praktik sistem produksi unggas yang diadopsi berfungsi sebagai variabel moderating yang memberikan kontribusi besar terhadap pengaruh EO terhadap pertumbuhan usaha ayam buras.*

Kata kunci: *orientasi kewirausahaa, sistem produksi unggas, ayam buras, pertumbuhan usaha ternak, variable antara*

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INTRODUCTION

Native chicken in Indonesia provides over 200 million people with adequate protein for proper nutritional consumption and well-being. This condition motivates stakeholders to get involved in rearing this poultry, which is politically in line with the government's agenda to achieve food self-sufficiency, thereby regulating the importation of food (Hidayat & Asmarasari, 2015). Moreover, native chicken farms in Indonesia have great potential for growth due to the large population and genetic resources (Hidayat & Asmarasari, 2015). According to data from the Ministry of Agriculture, in 2019, Indonesia was the fourth-largest poultry population in Asia, with approximately 3,149,382 reared by 20,851,901 farmers (Directorate General of Livestock Services, 2020). In addition, this business also has good prospects for growth due to its market opportunities. The existing supply cannot fulfil market demand because it is expected to powerfully boost consumers' purchasing power and preferences for the freshness and distinctive taste of native chicken meat (Pramudyati, 2009). However, despite having great potential and prospects, most farmers cannot take advantage of these opportunities to grow their farms (Oziana et al. 2019). In this sense, native chicken farm growth must be able to achieve sufficient growth to improve the economy by creating wealth and jobs in rural areas as well as improve food security and nutrition for the community and, most importantly, to survive (Mcleod, 2003; Thieme et al. 2014)

According to some preliminary research, the inadequate growth of native chicken farms is attributed to a lack of entrepreneurial orientation (EO). Moreover, Nwarieji et al. (2017) and Egbea et al. (2020) concluded that small-scale birds had an above-average orientation. Moreover, this entrepreneurial orientation is needed by farmers to increase the productivity and growth of poultry farmers. Nunoo (2015) also found that EO has increased the size of their poultry farms. DeepaBabu and Manalel (2016) argue that EO is a firm's ability to innovate, take risks, and proactively pursue market opportunities. Therefore, EO allows small businesses to discover new business opportunities, and the discovery of new opportunities enhances their business growth and performance.

Given that EO is essential for small poultry business growth, Nunoo (2015) stated that although there has been some work on poultry farmers' EO, none of these studies has extensively studied the effects of EO and the growth of poultry farms. The literature review also shows that there is still little knowledge about how EO can strengthen the growth and performance of small businesses in the agricultural sector (Condor, 2020). Besides EO's focal relationship with poultry farm growth, the literature is less clear about EO's drivers and more immediate outcomes that may mediate the EO-poultry farm growth relationship (Mappigau and Amar, 2019). Furthermore, the effect of EO on small business growth has been criticized by many scholars. The models are insufficient because the mediators or moderator variables have to be introduced in the model (Lumpkin and Dess, 2001).

Furthermore, Żur (2013) and Rauch et al. (2009) reported that numerous factors moderate the strength of the EO small business growth relationship, such as knowledge and skills. Knowledge and skills, on the one hand, and EO, on the other, are generally found to be positively related and strengthen each other's effect on firm performance, as a mediator, moderator or independent variables (Rezaei and Ortt, 2018). It implies that knowledge and skills mediate between EO and firm performance. However, little consideration has been given to the literature on this topic. Particularly to examine how the EO, knowledge, and small farm performance are combined. In addition, how knowledge interacts with EO influences small farm performance (Nieuwoudt et al. 2017; Mappigau and Amar**,** 2019**;** Condor, 2020).

Moreover, scholars stated two significant obstacles to native chicken farm growth. The first is the farmer's lack of knowledge, and the second is skills in terms of poultry production systems (Adetayo et al. 2013; Rahman et al. 2016). It clearly illustrates that increasing the farmers' knowledge and skills of the poultry production system is the appropriate solution to promote these growths. According to Okoli et al. (2005) and Mathiu et al. (2021), the possibility of increasing the size of their poultry farm is achieved by using an improved poultry production system. Nwarieji et al. (2017); Mappigau and Amar (2020) report that EO has helped poultry farmers gain knowledge and skills to adopt better management practices. It indicates that the poultry production system can strengthen the effect of EO on the growth of native chicken farms.

Based on the above-discussed literature and as far as we know, there is no study on the impact of EO on native chicken farm growth with the mediating and moderating role of poultry production systems. This study, therefore, seeks to fill this empirical and knowledge gap on this topic. The following questions will be answered: 1) What is the current level of EO practice among native chicken farms? 2) Does the EO affect native chicken farm growth? 3) Does poultry production systems practice affect native chicken farm growth? 4) Does poultry production practices moderate the relationship between EO and native chicken farm growth? Therefore, this study aims to determine the effect of EO and poultry production systems on the growth of native chickens and to find out how the mediating role of poultry production systems on the effect of EO on the growth of native chicken farms.

METHODS

A research design is a framework for data collection and analysis to answer the research questions. Based on this study's research questions, the study's design used a quantitative method. A quantitative method is an approach that emphasizes the testing of theories or concepts through the measurement of variables. It performs data analysis procedures with statistical tools to test the hypothesis. Under the quantitative study design, the descriptive survey method was adopted for the study

The target population in this study were native chicken farmers in the Bone Regency listed by the Animal Husbandry and Health Agency of South Sulawesi Province in 2020. Given a target population size (N) of 1.897 native chicken farmers and the significance level of confidence of 5%, the sample size for the study was determined using the Slovin formula. The minimum number of samples needed from the Slovin formula was 96.04, or 96 native chicken farmer respondents. Practically, the 96 native chicken farmer respondents were chosen by probability or simple random sampling. The simple random sampling method (lottery) was used to sample the native chicken farmers. It was done by obtaining the sampling frame (A list of all native chicken farmers) in the Bone regency. It ensured that every native chicken farmer in the Bone Regency had an equal chance of being part of the sample.

The data comes from a survey conducted by the researcher's team from May to July 2021, which involves a combination of direct observation and face-to-face interviews using a structured questionnaire. The items were based on the literature on EO, poultry production systems, and native chicken farms' growth. Meanwhile, three dimensions were adopted from Miller (1983) to measure the EO variable, which are innovativeness, proactiveness, and risk-taking. The respondents were queried about their farm propensity to be innovative in developing new and unique production processes, engaging in risk-taking, being willing to pursue risky opportunities, and being proactive, emphasizing persistence and creativity to overcome obstacles. Furthermore, to measure the poultry production system variable, the respondents were asked whether they adopted extensive, semi-intensive, or intensive practices based on seed treatment, cages, feed, and disease control.

Meanwhile, to measure the native chicken farm growth variable, the respondents were asked about the number of birds kept for two years. The three variables were evaluated using 5-point Likert scale items ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach's Alpha method was used to determine the internal consistency of the manifest indicators for each scale variable in the questionnaire. To know the validity and reliability of the instrument (questionnaire), Cronbach's alpha for all variable scales is in the range of 0.60-0.80, above the minimum accepted reliability of 0.70. Since the Pearson Product Moment Correlation was used to determine the extent to which these indicators represent variables, they were determined to measure the questionnaire. The indicators' correlation coefficient for the variable scale is in the range of 0.240-0.712 ($p<0.01$), which indicates that the validity of all indicators of each variable is sufficient.

The data obtained from the field were analyzed using descriptive statistics through percentages and frequencies and path analysis. Path analysis is a multivariate technique used to describe independent variables' direct and indirect effects on the dependent ones. The proposed model includes independent, intervening, and dependent variables. Therefore, it was tested using this method. Figure 1 shows the proposed conceptual model that consists of 2 independent variables, EO and poultry production systems, and a dependent one, namely native chicken farm growth

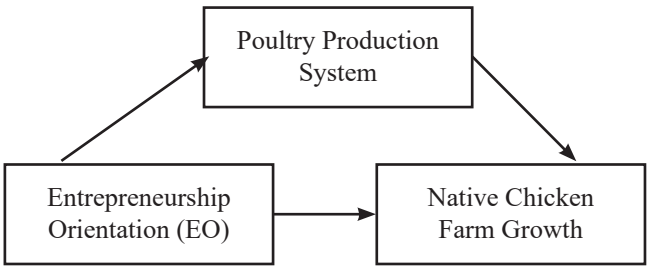

Figure 1. Research framework

Based on the framework in Figure 1, this research hypothesized that:

(1) EO has a positive and significant effect on native chicken farm growth
(2) Poultry production systems have a positive and significant effect on native chicken farm growth
(3) The poultry production system as a moderating variable can increase the effect of EO on native chicken farm growth

The proposed model includes independent, intervening, and dependent variables. Therefore, it was tested using this method, expressed by the following structural equation.

$$X_1 = PX_2X1X_1 + PX_3X_1X_1 + PX_1U_1U_1$$

where: X_1 (Native chicken farm growth); $PX_2X_1X_1$ (Path coefficient of entrepreneurial orientation); $PX_3X_1X_1$ (Path coefficient of poultry production systems); $PX_1U_1U_1$ (The path coefficient of the residue). With operational hypotheses stated as follows:

H0 PX_1X_i 0 against H1 $PX_1X_i > 0$; i = 2 and 3.

RESULTS

Entrepreneurial Orientation

One of the most widely used constructs to assess firm entrepreneurship is EO. A firm is considered entrepreneurial if it is innovative, proactive, and risk-taking. The level of entrepreneurial orientation of farmer respondents is shown in Table 1.

Based on Table 1, most of the farmer respondents (46.84%) had low innovation in terms of EO elements. Meanwhile, those in this group do not desire the best performance, with less emphasis on perseverance and creativity to overcome obstacles in developing their farms. Therefore, they are less likely to succeed in the future. The second-largest group is farmer respondents with high innovation (20.25%). They realize the importance of emphasizing perseverance and creativity to overcome obstacles in developing their business scale, and they tend to make progress and are successful in the future. According to the EO element related to risk, the majority (35.45%) take low risks. Farmer respondents in this group do not yet have the zeal to pursue risky opportunities. Therefore, they have fewer prospects in terms of successfully developing their farms in the future. The second-largest group is those with the ability to take a high risk (31.64%). Farmer respondents in this category do not like the status quo because they are willing to pursue risky opportunities, are open to innovation, and tend to develop their farms in the future successfully.

Table 1. Level entrepreneurial orientation from farmer respondent

Entrepreneurial Orientation Level	Entrepreneurial Orientation Element		
	Innovation	Risk	Proactive
Very low	25.32	18.99	32.91
Low	21.52	16.46	22.79
Moderate	24.05	32.91	24.05
High	16.45	20.25	13.92
Very high	12.66	11.39	6.33
Total	100	100	100

Meanwhile, based on the EO element in the form of proactive, most farmer respondents (55.7%) have low proactiveness. Therefore, this group does not emphasize perseverance and creativity to overcome obstacles in developing their farms. The last group is those with high proactiveness (20.25%). Farmer respondents in this category emphasize perseverance and creativity to overcome obstacles in boosting their businesses.

Poultry Production Systems

The farmer adopts three central alternative production systems. These include traditional, extensive backyard or household, semi-intensive, small to medium scale, market-oriented, commercial, intensive, large scale, and industrial poultry production. The poultry production systems are practised by farmer respondents, as shown in Table 2

Based on Table 2, most farmer respondents (50.63%) practised the semi-intensive system, and only 11.39 % per cent of them practised the intensive system. Several constraints are associated with intensive systems, such as lack of capital or access to financial institutions and no capital to buy feeds, supplements, or medicine. Furthermore, other obstacles are the difficulties involved in obtaining DOC and noncontinuous marketing.

Number of birds

The large number of native chickens farmers keep determines their income and profits. The more the number of native chickens that are kept, the higher the income level and business efficiency. The number of native chickens kept by farmer respondents is shown in Table 3

Table 3 showed that most farmer respondents (57.60%) kept under 50 heads, while a small percentage (10.50%) kept more than 51 birds. It is because many poultry causes the risk of death and its mortality and marketing

The Effect of Entrepreneurial Orientation and Poultry Production System on Native Chicken Farm Growth

The normality assumption analysis was carried out using Jarque-Bera Test, and the results obtained were normally distributed because it has a value of < 123.25 (χ^2 Critical). Testing the assumption of multivariate outliers was determined using the jark Mahalanobis criteria at the level <0.001, and the result is the distance between the minimum (1.682) and maximum (11.925) accounts. In other words, there is no relationship between variables categorized as multivariate outliers. The model fit analysis was carried out using the Overall Model Suitability Test (Chi-square = 4.282; CFI = 0.892; and RMSE = 0.085). Similarly, the research framework was declared to have fulfilled the fit-goodness criteria. R2 and F-ratio were the criteria in the goodness-of-fit test. The adjusted values were 0.571 and 113.726 (significant at the margin of error of 0.005), respectively. It was stated that the independent variable is a good match for the dependent one in the path model.

Table 2. Poultry production system practice from farmer respondents

Orientation	Frequency	%
Extensive	36	37.98
Semi-Intensive	49	50.63
Intensive	11	11.39
Total	96	100

Table 3. Number of birds from farmer respondents

Number of Birds	Frequency	%
1-20 birds	61	57.60
21-50 birds	25	24.00
> 51 birds	11	10.56
Total	96	100

Hypotheses 1 and 2 proving test are shown in Table 4. All path coefficients are significant both simultaneously and individually. Therefore, a decision was made to reject H_0 and accept H_1, meaning neither the structural equation nor the path diagram has changed. Following the rejection of H_0, hypothesis 1, which depicts X_2 and X_3 affect X_1, is accepted.

Based on the results of the statistical tests and path diagrams (Table 4), the impact of causal variables is described as follows:

(1) The F-count value is 54.952. While the critical value of the value F-table at alpha (0.05) is 3.117. Thus F-count> F-table, so it is clear that EO and poultry production systems together affected native chicken farm growth

(2) EO had a positive and significant effect on native chicken farm growth with a path coefficient of a positive value of 0.563 and a significance level of t-count > t-table. This EO variable was dependent on the native chicken farm growth. Those with high EO can increase the number of birds on their native chicken farm. The results follow those of Nwarieji et al. (2017), that small-scale poultry farmers need to possess entrepreneurial skills to increase their number of birds. Oluwale et al. (2016) reported that EO is required to improve a farmer's entrepreneurial ability to increase their farm's growth. Ghasura et al. (2014) reported that entrepreneurship correlates both positively and significantly with poultry farm business growth

(3) The poultry production system had a positive and significant effect on native chicken farm growth with a path coefficient of a positive value of 0.563 and a significance level of t-count > t-table. It means that its progress depends on the farmers' poultry production systems practices. However, assuming they can practice semi-intensive and intensive production systems appropriately, it increases feed efficiency, shortens the maintenance period, and reduces mortality rates, which contributes to this business's growth. These results follow the opinion of Hidayat and Asmarasari (2015) concerning the main obstacles encountered during the development of native chicken farms: poor growth rates, high risk of death, poor egg production, changes in traditional management practices, and better approaches to increase business growth.

(4) Besides being affected by EO and poultry production systems, native chicken farm growth is also affected by other factors which not identified in the model, such as household income (Mutombo et al. 2015), seasonal marketing (Balamurugan et al. 2019), farmers' knowledge of commercial poultry farming (Raju et al. 2007), farm size, farm age, and competition orientation (Patel et al. 2013), social capital and government support policies (Zaato et al. 2020)

An analysis was conducted to determine the causal variable with the most dominant effect between X2 and X3, which increases X1. The analysis was carried out on the contribution of the impact (total effect). The results are shown in Table 5. The variable X3 contributed to the total effect, which was relatively larger (31.75%) than X2 (16.57%). Although EO and poultry production systems have a similar impact on native chicken farm growth, the total contribution of the poultry production system is more significant than EO.

Table 4. Results of path analysis the effect of cause variables X2 and X3 on variables due to X1

Parameter Structure	Coefficient	Effect (%)	t.count	t table	Decision
X2 against X1	0.240	5.774	1.977*	1.665	H0 rejected
X3 against X1	0.563	31.751	4.636*	1.665	H0 rejected
			F.count	F.table	
R2 X1 (X2, X3)	0.591	59.119	54.952*	3.117	H0 rejected
Residu path	0.639	40.881			

Description: *: Significant to $\alpha = 0.05$

Table 5. Contribution effects moderating variable on the effect of eo and native chicken farm growth

Direct and Indirect Effects on X_1		Amount of Contribution (%)
Direct X_2	$PX_1X_2.PX_1X_2$	5.77
X_2 through X_3	$PX_1X_2\ rX_2X_3\ PX_1X_3$	10.80
The total effect of X_2 on X_1		16.57
Direct X_3	$PX_1X_3.PX_1X_3$	31.75
The total effect of X_3 on X_1		31.75

The Effect of Entrepreneurship Orientation on Native Chicken Farm Growth Through Poultry Production Systems

Hypothesis 3, the effect of moderating variables of poultry production systems on the effect of EO on native chicken farm growth, is evident in the path models shown in Figure 2. Figure 2 shows that the EO was the antecedent of the poultry production system. Therefore, it was concerned as the moderating variable, as shown in Table 5.

Table 5 shows that the contribution of the direct effect of EO on the native chicken farm growth was 5.77%. However, after adopting the model's poultry production system as a moderating variable, it increased to 16.57% (direct and indirect path). Therefore, the adopted practices are a moderating variable contributing mainly to the relationship between EO and native chicken farm growth. However, the moderating variable's total impact showed that the production system's contributory impact in linking EO and native chicken farm growth tends to be larger (10.80%) than the EO's effect on native chicken farm growth (5.77%). It suggested that the production systems impactive mediated the relationship between EO and native chicken farm growth. Therefore, it is essential for the farmers to achieve their native chicken farm growth. It can be explained by the fact that EO has helped poultry farmers acquire skills in poultry production techniques, which can positively affect the size of their poultry farms (Nunoo, 2015). According to Mappigau and Amar (2020), technology poultry production and entrepreneurial knowledge play an essential role in developing these farms. Hidayat and Asmarasari (2015) stated that although the application of semi-intensive and intensive rearing systems increases the growth of native chicken farms, most farmers focus more on non-commercial purposes and are not fully business-oriented. Accordingly, those who are fully business-oriented increase their EO in order to be able to discover and adopt impactive poultry production systems to grow their business scale. According to Hagan et al. (2013) and Oziana et al. (2019), the traditional extensive system of rearing poultry is associated with diseases (Newcastle), predation, reduction in flock sizes and theft. Conversely, Pratitis et al. (2018) and Haunshi and Rajkumar (2020) stated that a semi and intensive poultry production system has an enormous impact on native chicken business growth because it has a brief rearing period, reduces mortality rate, and higher R/C ratio.

Managerial Implications

This study's findings enable farmers to understand better how to enhance their EO needed to adopt a poultry production system to grow their native chicken farms. This study also has implications for policymakers and other parties in promoting native chicken farms to see the need to support native chicken business growth, which would reduce unemployment, fulfil infrastructure and create meaningful economic development in rural areas. In addition, this study makes several contributions to the fields of entrepreneurial orientation and native chicken farm growth through a comprehensive empirically testing of the connections

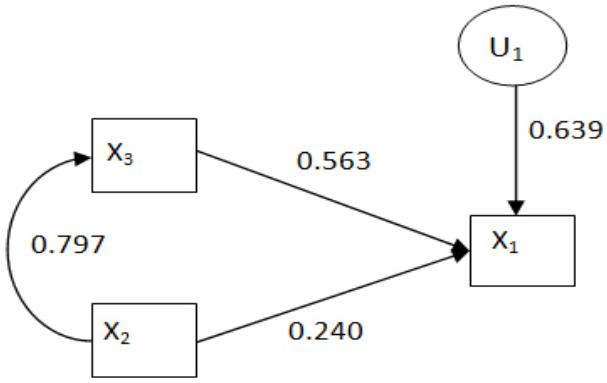

Figure 2. Path diagram of independent variables X_2 and X_3 with the dependent variable X_1

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the description analysis, most of the native chicken farmer respondents had a low level of entrepreneurial orientation, practised the semi-intensive system, and kept under 50 heads of birds. Based on the path analysis, entrepreneurial orientation (EO) and poultry production systems positively and significantly affected native chicken farm growth. However, the contribution of the direct effect of EO on the native chicken farm growth was lower (5.77%). After adopting the model's poultry production system as a moderating variable, the effect's contribution increased to 16.57%. (direct and indirect effect). Therefore, the adopted poultry production system practices serve as a moderating factor that contributes mainly to the effect of EO on native chicken farm growth.

Recommendations

This study is not without limitations. First, this study's effect on native chicken farm growth is relatively low. It is possible because it uses an EO dimension of being innovative, proactive, and taking risks. Some researchers have proposed two contributing variables: competitive aggressiveness and autonomy. Future research is needed for the complex problems of the EO dimension. Second, the moderating factor in this study only uses one factor, namely, the poultry production system. In comparison, researchers suggest adding two more variables, such as native chicken farm resources, native chicken farm size, and native chicken farm age. Future research is needed to include more moderating factors into consideration. Third, the study area where primary data was obtained was limited to Bone Regency. In contrast, it could be more representative if more study areas in Indonesia and developing countries were included.

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