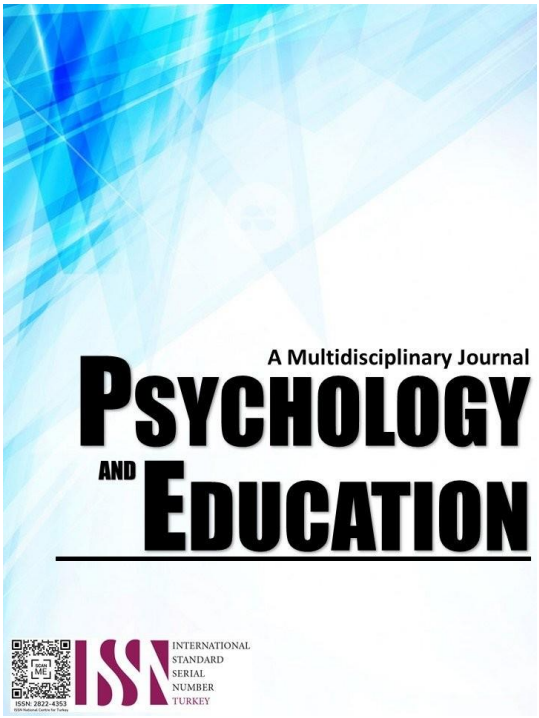
AGRO-INDUSTRIAL FARMING AND THE SOCIO-ECONOMIC DEVELOPMENT OF TBOLI SETTLERS: BASIS FOR INTEGRATION IN ECONOMICS SUBJECT



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Research Article

Agro-Industrial Farming and the Socio-Economic Development Of Tboli Settlers: Basis for Integration in Economics Subject

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Abstract

Agro farming, an advanced evolution of traditional agriculture, integrates plant cultivation, livestock rearing, and crop production. Agriculture is central to poverty alleviation, income equality, and food security, supporting over 2.2 billion people in Asia. Studies underscore the importance of understanding land use changes driven by socio-economic and cultural activities, as seen in Colombia's historical agricultural practices and the Philippines' agro-processing industry's economic contributions. However, infrastructure underinvestment remains a challenge, impeding productivity. In T'boli, South Cotabato, agriculture remains a primary economic driver, with corn, rice, and plantation crops dominating land use. The municipality's fertile lands and favorable climate support diverse agricultural activities, yet modern challenges, including infrastructure, education, and health, demand attention. Research on agro-industrial farming's socio-economic impacts in T'boli remains limited, especially regarding smallholder farmers and contract farming participation. Additionally, addressing localized curriculum needs, as mandated by DepEd Order No. 35, highlights the necessity of aligning education with cultural practices and community-specific challenges. The study underscores agro-industrial farming's potential to drive socio-economic development, address rural inequalities, and provide targeted solutions for localized community needs, fostering sustainable growth in T'boli and similar contexts.

Keywords: *agro-industrial farming, socio-economic development, tboli settlers*

Introduction

Agriculture is the backbone of many developing economies. Much of the population lives in that sector for livelihood and nourishment. Agriculture is still a key sector in the Philippines for local and national development. Yet, conventional agricultural operations are frequently hampered by restricted access to resources, obsolete technologies, and environmental constraints, necessitating progressive responses to increase productivity and sustainability.

Agro industrial farming is revealed as a transformative solution that combines agricultural production with industrial processes to generate the value of added products and thus stimulate rural economies. Agro-industrial farming means the systematic processing of raw agricultural materials into finished goods, improving the materials' value and utility. This is not only one of the ways to increase productivity but also an approach that opens up avenues for employment, promotes rural development, and helps in food security.

Agro-industrialization is a shift that in the Philippines speaks to national development goals such as a reduction in poverty, promoting inclusive growth, and the challenges brought about by climate change. A region with potential for agro-industrial development is Tboli Municipality in South Cotabato. Tboli is famous for its economic base from its rich cultural heritage and a diverse agricultural base that makes it an ideal place to explore the socioeconomic impacts of agro-industrial farming. Most of the municipality's agricultural sector is based on the cultivation of corn, rice, and bananas, which can be more advanced through agro-industrial processing. Furthermore, integrating traditional farming practices and modern industrial techniques can create a new source of economic opportunity while keeping the cultural identity of the Tboli people. Given its potential, Tboli's transition to agro-industrial farming may not be without challenges.

In existing literature, agro-industrial farming is indicated as a means for stimulating rural development. Studying the relationship between the economic mechanism and the stability and efficiency of the agro-industrial sector, Shalbayeva, Kulanova, and Abdikerimova (2020) offer some positive observations. Bila (2020) states that there is an urgency to adopt innovative agricultural strategies to meet global food demands with environmental sustainability. These findings emphasize the need for community-specific studies to capture site-specific challenges and opportunities, as in the case of Tboli Municipality.

This study aimed to fill the gap in the literature by assessing the role of agro-industrial farming in Tboli's socioeconomic development. Through economic benefits (income generation and employment creation) and social and environmental impacts, this study evaluated the practice of agro-industrial farming. It hopes to provide information on policies and development programs that support sustainable agro-industrial growth in Tboli and similar rural communities.

Research Questions

This study determined the relationship between agro-industrial farming and the socioeconomic development of T'boli municipality. The study answered the following questions:

1. What is the level of agro-industrial farming in T'boli municipality in terms:
    1.1. crop farming;

1.2. vegetable farming;
1.3. hog farming; and
1.4. poultry farming?

2. To what extent does agro-industrial farming influence the socioeconomic development of T'boli municipality in terms of:
   2.1. cost of living,
   2.2. standard of living;
   2.3. tourism;
   2.4. infrastructure; and
   2.5. health?
3. Is there a significant relationship between agro-industrial farming and the socio-economic development of T'boli settlers in T'boli Municipality?
4. What is the level of acceptability of the instructional material developed in this study for integration into the Economics subject?

Literature Review

The agro-industry is an accelerator that promotes every level of rural development (Giovannucci, 2001). It would also reduce the gap between the rural and urban sectors. Agro-industry guarantees food security. Its importance is enhancing poor people's access to food or purchasing power in the rural and urban sectors.

An OECD paper (2011) states that sectors linked with natural resource use provide employment opportunities and often serve as the basis of livelihoods in poorer communities, thereby reducing poverty. The ability of agro-industries to promote low-cost preservation, processing, marketing, and transportation of food will enable people experiencing poverty to have cheaper food. This is an accepted fact that increases the income of the rural poor. They should be sold to them at higher prices for the agricultural products. The seemingly obvious positive welfare impact of resource endowments would first appear clear.

A rich resource endowment can provide various sources of livelihood income for residents in the region and, thus, better welfare. Further, Oliveira et al. (2022) highlighted that this can also be realized through available technological alternatives and citizen behavioral changes. It is a basic assumption in the theory of production in Economics, where output is quantitatively specified as an increasing function of all types of resources that can be used as inputs in production, capital, human, and even cultural resources. According to Coxhead and Jayasuriya (2001), the Philippines' abundant natural resource endowments and their contribution to the economy's fertile lands make agriculture the largest single sector and employer in the economy, with more than half the population depending either directly or indirectly on income generated in agricultural production; and marine (17,460 km of coastline, 2 million km2 of oceanic waters, and 266,000 km2 of coastal waters) and freshwater ecosystems (384 major river systems and 54 lakes covering an area of 569,600 ha) generating fish supply and serving as major tourist and recreation sites.

Methodology

Research Design

This study adopted a descriptive correlational research design to establish the relationship between agro-industrial farming and the socioeconomic development of T'boli Municipality. Descriptive correlational research is a non-experimental design that seeks to identify and describe the relationship between two or more variables without manipulating them. It aims to observe, measure, and analyze the natural associations between these variables (Creswell, 2012).

Respondents

The respondents were coming from various sectors in T'boli Municipality, South Cotabato. These comprise the local settlers, businessmen, LGU officials, and tourism officers. The respondents were categorized into four groups: farmers, businessmen, local government officials, and tourism officers. Farmers were included because they directly engage in farming practices that involve agro-industrial activities; they provide knowledge firsthand about agricultural activities and their impacts. Businessmen were included for their involvement in local commerce and their role in the municipality's socioeconomic development.

Local government officials were deemed appropriate because they understand the mechanism of policy implementation and governance issues, which essentially shape the economic and social environments. Tourism officers were included mainly because of the expertise they brought to knowledge of the domestic tourism sector likely to be influenced by agro-industrial farm development.

Instrument

To collect the data, a survey questionnaire was utilized. An expert panel designed, pre-tested, modified, and validated questionnaires. Moreover, a self-designed questionnaire was validated by an expert from the same field to establish its validity and reliability for research purposes.

The questionnaire was composed of three parts. Part I dealt with the respondents' socio-demographic profiles, and Part II determined

the level of agro-industrial farming in T'boli municipality in terms of crop, vegetable, hog, and poultry farming. Part III established the degree of impact of agro-industrial agriculture on the socio-economic development of T'boli, South Cotabato, in terms of cost of living, standard of living, infrastructure, tourism, and health.

Procedure

The researcher asked permission from the Dean of the Graduate School at Sultan Kudarat State University to start the study. The researcher then asked for approval from the Municipal Mayor since the study was to be conducted in T'boli, South Cotabato. After getting the necessary approvals, the researcher coordinated with the different barangay chairmen where the study was undertaken (Ang Karugasik, 2016).

The researcher identified the respondents from the municipalities within the province of South Cotabato. After confirming the study location, requests for approval were submitted to the offices of the municipal mayors and the respective barangay officials.

Once all the documents and approvals were in place, the researcher disseminated the questionnaires for the survey. Respondents were advised to answer the items honestly, and the researcher explained how to complete the questionnaires. Each questionnaire statement was presented to the respondents so that they understood the items and responded accordingly. The researcher addressed any questions or clarifications raised by the respondents.

A systematic approach was used when administering the questionnaires. Questionnaires were administered to the listed respondents in every municipality during their free time, and they were given enough time to answer the questions. Data gathering came after the questionnaires were given. After answering the questionnaires, the data was consolidated and then analyzed. Data interpretation was then used to conclude agro-industrial farming and its relation to the socioeconomic development in T'boli.

Data Analysis

The survey forms were closely scrutinized to ensure proper encoding of the data. Descriptive statistics, including the mean and standard deviation, were used to determine the level of agro-industrial farming and the extent of influence of agro-industrial farming on the socioeconomic development of T'boli municipality. Descriptive statistics summarize data in an organized manner by describing the relationship between variables in a sample or population (Yellapu, 2020). Pearson's correlation coefficient (Pearson r) was employed to assess the relationship between agro-industrial farming and socioeconomic development. Pearson Correlation is a statistical method that measures the similarity or correlation between two data objects by comparing their attributes and calculating a score ranging from -1 to +1. A high score indicates high similarity, while a score near zero indicates no correlation. This method is parametric and relies on the mean parameter of the objects, making it more valid for normally distributed data (Berman, 2016).

Results and Discussion

This chapter presents the results and discussion. It consists of three subsections: the level of Agro-Industrial Farming in T'boli municipality, the extent of its influence on the socio-economic development of T'boli, South Cotabato, and the significant relationship between agro-industrial farming and the socio-economic development of T'boli municipality.

Table 1. *Level of agro-industrial farming in T'boli municipality*

Level of Agro-industrial Farming	*Mean*	*SD*	*Description*
Vegetable Farming	3.76	.47	High
Hog Farming	3.76	.51	High
Poultry Farming	3.74	.50	High
Crop Farming	3.69	.51	High
Mean	3.74	.50	High

The results show that the mean level of agro-industrial farming in the municipality of T'boli is high, with a mean value of 3.74. This implies that all areas, including crop, vegetable, hog, and poultry farming, have high levels and that the overall level of agro-industrial farming in the municipality is high.

Agro-industrial farming combines agriculture with industrial processes. According to Nwachukwu (2008), agro-industrialization has become essential for high productivity, value chain enhancement, and employment generation. It effectively bridges the gap between traditional farming and modern industries, thus enhancing economic growth and social development at the grassroots level, especially in the countryside.

Agro-industrial farming models integrate crop cultivation with industrial techniques to increase efficiency and sustainability in food production. This may spur agricultural output and capacity and promote various socio-economic activities in the region (Dufumier, 2013).

According to the report published by the Philippine Statistics Authority on November 28, 2022, South Cotabato had the highest percentage of total value production in agriculture and fisheries at constant 2018 prices, 43.4 percent.

The province had the largest contribution for livestock at 54.3 percent, poultry at 79.1 percent, and fisheries at 78.8 percent. Cotabato

shares the highest contribution in crops, with a percentage of 37.6 percent. The highest production value in agriculture and fisheries in the provinces of SOCCSKSARGEN was recorded in South Cotabato, which stood at P65.44 billion. Cotabato ranked second with PhP 38.18 billion, and Sultan Kudarat at PhP 21.54 billion. The least was that of Sarangani, at PhP 16.25 billion. However, although there is a huge production of the top crops, an alliance of local government units has strongly opposed further expansions in bananas and pineapples in T'boli of South Cotabato.

Table 2. *Results on the Extent of Influence of Agro-Industrial Business to the Socio-Economic Development of T'boli Municipality*

Level of Agro-industrial Farming	*Mean*	*SD*	*Description*
Standard of living	4.63	.58	Very High
Tourism	4.60	.61	Very High
Infrastructure	4.59	.61	Very High
Cost of living	4.57	.61	Very High
Mean	4.58	.61	Very High

Table 2 shows the impact of agro-industrial farming on the socio-economic development of T'boli municipality in terms of cost of living, standard of living, tourism, infrastructure, and health.

The results show that the influence of agro-industrial farming on socio-economic development regarding the standard of living has a mean of 4.63, the area of tourism has a mean of 4.60, infrastructure has a mean of 4.59, cost of living has a mean of 4.57, and health has a mean of 4.52.

These results indicate that agro-industrial farming strongly influences socio-economic development across all areas, including the cost of living, the standard of living, tourism, infrastructure, and health. Overall, the extent of the influence of agro-industrial farming on socio-economic development is very high, with a mean of 4.58. This implies that agro-industrial farming has a very high influence on the socio-economic development in T'boli municipality.

Table 3. *Significant Relationship between the Level of Agro-Industrial Farming and the Extent of Influence of Agro-Industrial Farming to the Socio-Economic Development of T'boli Municipality*

	Mean	*SD*	*Pearson's r*	*p-value*
Level of Agro-Industrial Farming	3.74	0.22	0.399	<.001
Extent of Influence of Agro-Industrial Farming to the Socio-Economic Development	4.58	0.39		

The level of agro-industrial farming in T'boli is reflected by a mean score of 3.74 with a standard deviation of 0.22. Scored as high, this reflects the municipality's established and pervasive agro-industrial farming activities. A relatively low standard deviation indicated that agro-industrial activities more or less uniformly exist across all areas or sectors within T'boli and may even be stable or uniformly developed.

The influence of agro-industrial farming on the socio-economic development of T'boli is very high, with a mean score of 4.58 and a standard deviation of 0.39. This high mean score shows that agro-industrial farming is critical in enhancing socio-economic life in T'boli, such as improving the cost of living, the standard of living, infrastructure, and health, as previously discussed. The slightly higher standard deviation compared to the farming level suggests that variability in how these benefits are experienced across different areas or groups within the municipality is much greater.

The value of Pearson's correlation coefficient, r, between the level of agro-industrial farming and the influence on socio-economic development is 0.399, with a p-value of less than 0.001. The positive correlation coefficient indicates a moderate relationship that is statistically significant between the variables, wherein the null hypothesis is rejected; hence, when the level of agro-industrial farming increases, the tendency for the degree of its influence on socio-economic development also tends to increase.

This p-value of less than 0.001 means that the correlation between the level of agro-industrial farming and its impact on socio-economic development is statistically significant at the 0.1% level. This very low p-value is so strong that the possibility of the observed relationship with random chance is ruled out, and it truly indicates a real and meaningful association between the two variables.

The moderate correlation, r = 0.399, shows that the level of agro-industrial farming is an important factor in influencing socio-economic development, but probably not the only one. Other factors like government policies, market access, education, and infrastructure could also be very important in determining the socio-economic development of T'boli. Nonetheless, the level of agro-industrial farming remains a significant and critical contributor to the municipality's development.

The statistical significance of the findings affords an important basis for recommending policies and initiatives that will make agro-industrial farming one of the driving engines of socio-economic growth in the region.

An OECD paper (2011) states that sectors linked with natural resource use provide employment opportunities and often serve as the basis of livelihoods in poorer communities, thereby reducing poverty. The ability of agro-industries to promote low-cost preservation, processing, marketing, and transportation of food will enable people experiencing poverty to have cheaper food. This is an accepted

fact that increases the income of the rural poor. They should be sold to them at higher prices for the agricultural products. The seemingly obvious positive welfare impact of resource endowments would first appear clear.

Table 4. *Level of Acceptability of Developed Instructional Material*

	Criteria	*Mean Rating*	*Descriptive Rating*
1	Clarity of Presentation	4.75	Excellent
2	Adequacy of Content	4.80	Excellent
3	Application of Appropriate Learning Strategies	4.70	Excellent
4	Compatibility with the Lessons	4.85	Excellent
5	Readability	4.60	Excellent
6	Structure and Graphic Design	4.90	Excellent
	Overall Rating	4.78	Excellent

Content adequacy rated at 4.80 means that the material was comprehensive and addressed the core topics appropriately without any gaps in the necessary information. The appropriate application of learning strategies, rated at a mean of 4.70, shows that the methods used to present the material were effective and suited to promote understanding and engagement. The relevance to the lessons, scoring 4.85, reflects the good match between the content and the learning objectives and how it was integrated into the broader curriculum, thus remaining highly relevant for the reader.

Readability scored a slightly lower mean rating of 4.60, yet remains in the "Excellent" category, indicating that generally, the material was very easy to read; however, there could be some minor places where there could be improvement in accessibility. The mean rating in the structure and graphic design category was 4.90. This indicates that the presentation is well organized, with visuals such as charts and graphs complementing clarity and beauty. The total rating of 4.78 indeed indicates that the developed instructional material has met all the respondents' expectations and was thoroughly professional, engaging, and impactful.

The agro-industry is an accelerator that promotes every level of rural development (Giovannucci, 2001). It would also reduce the gap between the rural and urban sectors. Agro-industry guarantees food security. Its importance is enhancing poor people's access to food or purchasing power in the rural and urban sectors.

Agro-industrial ventures in T'boli were excellent in all activities. Crop production, vegetable cultivation, pig raising, and poultry raising appear to be more developed. Profits, great market demand, and modernized farming all make them thrive.

Agro-industrial farming positively affects T'boli's socio-economic development to a very high extent by improving living standards, stabilizing the cost of living, and boosting tourism through infrastructure and environmental improvements. It has also improved access to health care, public health, and food security, which contribute to the municipality's overall economic growth.

There was a statistically significant association between agro-industrial farming and socio-economic development in T'boli; that is, higher levels of farming activity go along with improved living standards, infrastructure, and health.

The developed instructional material met the respondents' expectations and their high professionalism, engagement, and impact.

Conclusion

Implementing intervention programs may enhance the level of agro-industrial farming, particularly in the area of crop production within the municipality. Health outcomes may also be improved through agro-industrial farming by introducing more programs that focus on health and well-being. To highlight its importance to local economies and development, agro-industrial farming concepts can be integrated into academic studies. Creating hands-on study materials and case studies can help bridge the gap between theoretical knowledge and practical agricultural practices in T'boli. Educational content may also include sustainable and modern farming techniques to promote environmentally responsible farming practices. Additionally, local farmers can be encouraged to participate in educational initiatives, where they can share their experiences and best farming practices.

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