Spatial Variation in Agricultural Land Prices Across Municipalities in Bukidnon

Joemar D. Javier *., Karen Debbie J. Cosrojas

Department of Agricultural Economics, College of Agriculture/ Central Mindanao University, Philippines

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ABSTRACT

This study examined the spatial variation in agricultural land prices across the 20 municipalities and 2 component cities of Bukidnon, Philippines. Using data from 220 farmers and landowners selected through stratified random sampling, the research documented prevailing land prices and identified geographic patterns influencing valuation. Results show that agricultural land prices vary widely, with farmer-reported values ranging from ₱100,000 to ₱6,000,000 per hectare, with a provincial mean of ₱1,088,326. Higher prices were observed in municipalities with strong commercial activity, better road access, irrigation, and proximity to markets, while remote areas reported lower valuations. Land transactions were rare, reflecting strong land retention behavior and the cultural importance of land as a livelihood asset. Secure tenure, particularly titled lands, was associated with higher perceived value. Overall, the findings highlight the role of physical, locational, and institutional factors in shaping farmland prices and provide insights for land valuation and local development planning.

Keywords: Agricultural land prices, Bukidnon, land valuation, spatial variation

INTRODUCTION

Agricultural land remains a central asset in rural economies, influencing production decisions, investment behavior, and long-term land use planning. Recent studies emphasize that farmland values increasingly reflect not only biophysical attributes but also broader economic, institutional, and spatial dynamics (e.g., Ma et al., 2020; Ayala & Choumert-Nkolo, 2022). As agricultural regions undergo commercialization, infrastructure expansion, and land-use transitions, understanding how land prices vary spatially becomes essential for evidence-based policymaking, land valuation, and rural development planning.

Spatial variation in agricultural land prices is shaped by multiple factors, including market access, road connectivity, irrigation, land tenure security, and institutional arrangements. Recent empirical work shows that proximity to markets and transport networks significantly increases farmland values, as demonstrated by Zhang et al**.** (2019) in China and Tian et al**.** (2021) in Southeast Asia. Similarly, Choumert-Nkolo et al**.** (2021) highlight that land values in developing countries are highly sensitive to institutional quality and land tenure arrangements. Climate-related risks have also emerged as determinants of land prices, with Wang et al. (2022) showing that climate variability and extreme weather events increasingly influence farmland valuation.

In the Philippines, recent studies underscore the importance of location-specific factors in shaping agricultural land prices. Briones & Israel (2020) found that land values are strongly associated with irrigation access, road quality, and market proximity. Garrido & Rola (2018) emphasize that institutional factors, such as land tenure security and land administration efficiency, continue to influence land market performance. More recent analyses by Rola et al**.** (2021) highlight the growing role of agribusiness expansion and land conversion pressures in shaping farmland values across Mindanao.

Bukidnon provides a compelling case for examining these spatial dynamics. As one of the Philippines' major agricultural provinces, it exhibits diverse agro-ecological zones, varying levels of commercialization, and uneven distribution of infrastructure and market linkages. Municipalities differ substantially in road access,

irrigation coverage, elevation, and proximity to trading centers, factors that contemporary literature identifies as key determinants of land price variation. Yet despite its economic importance, empirical studies documenting municipal-level differences in agricultural land prices in Bukidnon remain limited.

This study addresses this gap by examining the spatial variation in agricultural land prices across municipalities in Bukidnon, generating a detailed profile of prevailing land values and the geographic patterns that shape them. Anchored in updated global and Philippine literature, the analysis provides insights into how physical, economic, and institutional factors interact to influence farmland valuation. The findings aim to support improved land valuation practices, local government revenue generation, and evidence-based land use planning.

RESEARCH METHODS

Locale of the Study The study was conducted across all municipalities and component cities of Bukidnon, a landlocked province in Northern Mindanao known for its extensive agricultural production. The province covers approximately 10,498.59 square kilometers and hosts a population of 1,601,902 distributed across 20 municipalities and 2 component cities. This full-province coverage allowed the study to capture the diversity of agricultural systems, land tenure arrangements, and market conditions present in both lowland and upland areas. By including the entire province, the analysis ensured that the resulting land price profile reflected the true spatial variation in agricultural land values across Bukidnon's heterogeneous agricultural landscape.

Participants of the Study

Participants of the study consisted of agricultural landowners and farmers who owned or managed parcels planted to corn, rice, or sugarcane crops identified in the manuscript as being cultivated across all municipalities. These individuals were selected because they possessed firsthand knowledge of land transactions, valuation practices, and prevailing market prices. The manuscript specifies that respondents were required to have legal proof of ownership and at least three years of farming experience to ensure familiarity with local land conditions and pricing dynamics. This ensured that the land price data collected were credible, experience-based, and reflective of actual market behavior.

Sampling Design

A stratified random sampling design was used to ensure equal representation of land price data across Bukidnon's 22 local government units. Each. municipality and city served as a primary stratum, and 10 respondents were selected from each municipality or city, resulting in a total sample of 220 landowners and farmers. Because no complete list of agricultural landowners existed, referral lists from Municipal Agriculture Offices, barangay leaders, and DAR personnel were used to construct the sampling frame. From these lists, respondents were randomly selected to minimize sampling bias. This approach ensured that land price information was gathered uniformly across all geographic areas.

Method of Data Collection

Data collection involved a combination of coordinated field visits and in-person survey administration. The researcher first secured referral lists from local agricultural offices and barangay leaders, then identified eligible respondents based on ownership status, crop type, and recent involvement in land-related transactions. Surveys were administered at barangay halls, farms, or residences, depending on respondent availability. The preference was given to landowners who had participated in land transactions within the last five years to ensure familiarity with current market values. Before each interview, informed consent was obtained, and confidentiality was assured. This systematic and ethical approach ensured that the land price data were accurate, relevant, and grounded in recent market experiences.

Method of Data Analysis

To describe prevailing agricultural land prices per hectare, the study used descriptive statistical tools. Descriptive statistics, including frequency counts, means, standard deviations, and percentage

distributions, were used to report prevailing land values per hectare across the province. The analysis involved computing average land prices for each municipality and city, identifying price ranges, and examining spatial differences in valuation patterns. These descriptive outputs provided a clear and comprehensive picture of how agricultural land prices vary across Bukidnon's diverse geographic areas.

RESULTS AND DISCUSSION

Prevailing Agricultural Land Price in Bukidnon

The prevailing agricultural land price in Bukidnon shows a mean estimated value of ₱1,088,326 per hectare (Table 1), with a wide range from ₱100,000 to ₱6,000,000**,** indicating substantial variability in farmland valuation across the province. This variation reflects differences in land productivity, accessibility, irrigation, and proximity to commercial centers. The pattern is consistent with the Provincial Assessor's Office data (Table 2), which shows that municipalities with strong agricultural and commercial activity, such as Don Carlos (₱7.97B market value)**,** Quezon (₱6.85B), and Sumilao (₱6.60B**)**, also have the highest assessed values, confirming that land in these areas is more economically valuable. Conversely, municipalities with lower assessor-reported values, such as Malitbog and San Fernando, align with the lower end of farmer-reported prices. PSA (2023) notes that land values rise with improved infrastructure and market access, while Habito and Briones (2005) and FAO (2019) emphasize that agribusiness presence and the expansion of commercial crops significantly elevate land prices.

Land transactions remain rare, with 97% reporting no sale, mortgage, or rental, reflecting strong land retention behavior typical in agrarian communities where land is viewed as a long-term livelihood and inheritance asset (Holden & Ghebru, 2016). Most respondents hold original land titles (75%), while 25% possess CLOA/EP, and recent studies confirm that secure land tenure significantly increases land value and investment incentives (Lawry et al., 2017). Respondents identified road access (34%)**,** market proximity (22%)**,** irrigation (11%)**,** and soil quality (10%) as the main factors increasing land value, findings strongly supported by recent global evidence. Studies show that road access and market connectivity substantially raise land prices by reducing transaction and transport costs (Khandker, Koolwal, & Samad, 2018), while irrigation and soil fertility remain core determinants of agricultural land valuation (Ayamga, Yeboah, & Aidoo, 2021). The influence of commercialization and agribusiness expansion on land prices is also consistent with recent research showing that market integration increases land demand and elevates rural land values (Bellemare & Bloem, 2018).

Table 1. The prevailing agricultural land price per hectare and transactional information of agricultural landowners, Bukidnon Province, 2026

VARIABLES	F (N=220)	%	MEAN	SD	MIN.	MAX.
Estimated market value of agricultural land			1,088,326	796,537.1	100,000	6,000,000
Source of valuation						
Self-estimate	167	68				
Appraisal	23	9				
Recent sale	25	10				
LGU value	31	13				
Land transaction						
Yes	6	3				
No	214	97				
Land title documents						
Original title	165	75				
CLOA or EP	55	25				
Planned land transaction						
Yes	5	2				
No	169	77				
Undecided	46	21				
Factors increasing land value						
Soil quality	62	10				
Irrigation	68	11				
Road access	203	34				
Market proximity	132	22				
Title security	77	13				
Terrain/slope	54	9				
Government support	3	1				

Table 2. Assessed agricultural land value in

Municipality	Market Value	Assessed Value
1. Baungon	4,356,294,112	436,945,553
2. Cabanglasan	1,315,767,205.40	126,313,368.91
3. Damulog	1,239,583,385.88	123,909,942
4. Dangcagan	3,270,130,033.97	348,850,890
5. Don Carlos	7,966,287,556.23	961,500,559
6. Impasug-ong	5,096,150,246	508,647,790
7. Kadingilan	4,428,823,000	442,782,590
8. Kalilangan	4,588,484,149.35	457,750,800
9. Kibawe	2,737,552,242.50	276,258,084
10. Kitaotao	3,040,966,957.25	303,998,405
11. Lantapan	5,115,543,615.33	543,556,960
12. Libona	6,022,844,699.07	596,891,034
13. Malitbog	2,030,172,639.45	208,116,470
14. Manolo Fortich	5,431,029,686.99	547,030,044.42
15. Maramag	5,747,622,377.67	718,617,077
16. Pangantucan	6,136,666,046.30	613,401,540
17. Quezon	6,845,230,892.18	683,228,850
18. San Fernando	2,611,392,361.88	258,797,980
19. Sumilao	6,604,712,027	660,267,500
20. Talakag	4,710,674,778.50	472,716,595

Source: Bukidnon Provincial Assessor's Office

Bukidnon Province, 2026

CONCLUSION

Agricultural land prices in Bukidnon vary widely across municipalities, with a provincial mean of ₱1.09 million per hectare and values ranging from ₱100,000 to ₱6,000,000. This variation is driven primarily by differences in road access, market proximity, irrigation, soil quality, and local commercial activity. Most landowners retain their land and report secure tenure, reinforcing stable but uneven land valuation patterns across the province. Overall, the study shows that spatial and institutional factors strongly shape farmland values in Bukidnon.

RECOMMENDATION

Local governments should regularly update agricultural land valuation schedules to reflect actual market conditions, especially in rapidly developing municipalities where commercial activity and infrastructure expansion are driving higher land prices. Investments in rural infrastructure—particularly farm-to-market roads, irrigation systems, and post-harvest facilities—should be prioritized in low-value and remote municipalities to reduce spatial disparities in land valuation. Strengthening land tenure security through improved titling services and support for CLOA holders is recommended, as secure ownership was shown to increase perceived land value and investment incentives. LGUs and national agencies should also improve documentation and transparency of land transactions to support more accurate market-based valuation. Finally, future research may incorporate GIS-based spatial analysis or time-series land price monitoring to better understand how infrastructure, commercialization, and land-use changes influence farmland values over time.

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