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Department of Economics and Public Policy



Land Conversion and Its Impact on the Local Economy of Brgy. Maliwalo, Tarlac City

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That in all things. God may be glorified.



Abstract

The study assesses the effect of land conversion on the local economy of Barangay Maliwalo, Tarlac City from 2015 to 2024. The study seeks to determine how the effects of land conversion from agriculture to residential and commercial use affect the employment generation, income of households, and revenue of local government unit in Barangay Maliwalo. Employing a descriptive correlational research design, the study will utilize secondary data gathered from the City Planning and Development Office (CPDO) of Tarlac City and the Local Government Unit of Barangay Maliwalo. Using Land Use Theory, Endogenous Growth Theory, and Structural Change Theory, the study applies descriptive statistics, Pearson's Product-Moment Correlation, simple linear regression analysis, trend analysis, and Analysis of Variance (ANOVA) for data analysis. It is expected that land conversion increases during the study period and that it is accompanied by an increase in employment, household income, and revenue of local government unit. It is also expected that there exist very strong positive and statistically significant correlations between land conversion and employment generation, household income, and revenue of local government unit indicating that the increase in land conversion results to economic development of the community.



CHAPTER 1

Background of the Study

This chapter presents the Introduction, Background of the Study, Statement of the Problem, Objective of the Study, Significance of the Study, and Scope and Delimitations of the Study.

Introduction

There has been a notable change taking place in barangay Maliwalo in Tarlac City, which involves the gradual shift of agricultural land into built-up land. This pattern of transformation is common in many places around the world as urbanization and economic changes in such locations cause the conversion of agricultural land into residential and commercial spaces. Even though Tarlac City is characterized by agricultural production, there is still a continuous conversion of agricultural land in the city into built-up land, which is consistent with the trend of land use transition in developing countries.

Currently, the expansion of commercial and industrial spaces in Tarlac City involves the conversion of land resources from their use in agricultural activities into economic production. This land use change helps the city adjust to the new economic trends as land is increasingly made available for economic development purposes. The distribution of people also influences this process as urban barangays contain increasing number of people whereas rural and less dense barangays such as Maliwalo are very appealing to investors.

The process of land conversion is also influenced by demographic growth in such locations. There has been a dramatic increase in the population of barangay Maliwalo over recent years and the household formation and infrastructure development also contributes to land conversion process. On the other hand, the reclassification of land in the city shows

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how agricultural lands in different barangays are being converted into other uses. These indicators collectively raise central economic and policy concerns:

What are the characteristics of land conversion in Barangay Maliwalo? What are the trends in employment generation, household income, and local government revenue? And how does land conversion significantly affect employment and income generation in the barangay?

Addressing these questions is crucial in determining whether land conversion in Maliwalo stimulates inclusive local economic growth or merely replaces agricultural production without generating sustained economic benefits.

This study seeks to empirically evaluate these relationships by examining land conversion trends and their effects on employment, household income, and local government revenue, guided by theories on land use, structural transformation, and endogenous growth.

Statement of the Problem

Land conversion in Barangay Maliwalo has become increasingly visible due to the expansion of residential, commercial, and service-oriented developments. While these changes are often associated with economic progress, there is still limited empirical evidence on how land conversion actually affects local employment generation, household income, and local government revenue. This study seeks to determine whether land conversion contributes to meaningful economic growth in the barangay.

Specifically, this study aims to answer the following research questions:

1. What are the characteristics of land conversion in Barangay Maliwalo in terms of type, scale, location, and rate of change?

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2. What is the trend analysis of the following:

- Employment generation
- Household income
- Local government revenue

3. How does land conversion significantly affect employment and income generation in Barangay Maliwalo?

Objectives of the Study

The main goal of this study is to determine the impact of land conversion in Barangay Maliwalo on local economic performance in relation to employment generation, household income, and revenue from the local government. The specific goals of this research are to characterize land conversion in the area in relation to its type, extent, location, and rate of conversion over time. Another goal is to examine the changes in employment level, household income, and revenue in the barangay in relation to land conversion. By assessing the relationship between increased non-agricultural land use and the positive changes in employment and income, this study adds to the existing discourse on the link between land conversion and sustainable economic growth (Zhang & Wang, 2018;

Significance of the Study

The significance of this research lies in the fact that it provides empirical analysis of the influence of land conversion on the local economy of Barangay Maliwalo. The findings of this study will help the residents of the barangay, landowners and small-scale business people to take the right decisions regarding the land utilization, choice of their occupation and investments (Rahman & Nahiduzzaman, 2021). Besides, the findings of the research



will also be valuable to the developers as it will provide them with proof whether the process of land conversion results in tangible economic benefits for the host community (Sarkar & Das, 2024). The findings of the research can serve as a good base for formulating the policies of zoning and development programs which can ensure balanced growth of the barangay.

Scope of the Study

The scope of this research focuses on assessing the economic implications of land conversion in Barangay Maliwalo, Tarlac City. It examines how the shift of land from agricultural to non-agricultural purposes affects the economic condition of the barangay, particularly in relation to employment generation, household income, and local government revenue. The study concentrates on land-use changes within the last decade, covering the period from 2015 to 2024, using available secondary data to determine patterns and trends that reflect economic growth or structural economic adjustment. By analyzing these indicators over time, the study aims to determine whether land conversion contributes positively to the barangay's economic development or presents challenges that may affect long-term sustainability.

Although broader city-wide and regional development trends may influence the growth of Barangay Maliwalo, this research primarily centers only on the barangay and does not extend to neighboring areas or other municipalities. The study also does not examine environmental impacts, agricultural productivity loss, food security issues, ecological risks, or social displacement resulting from land conversion. Instead, it limits its analysis to the economic dimension of land conversion, recognizing that these excluded factors remain important but fall outside the defined boundaries of this research. Through this scope, the

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study establishes a focused framework for evaluating Maliwalo's ongoing transformation and its capacity to support inclusive local economic growth.

Limitations of the Study

Similar to other forms of research, there are several limitations to this research due to which the interpretations of results and their generalizations are affected. The main limitation is related to the lack of availability of secondary data in complete, precise and annual form at the barangay level as well as city level. Even though the researcher was able to gather official documents from the City Planning and Development Office, Barangay Maliwalo, and other government agencies, yet some of the data was lacking for annual years.

The following were the data affected:

- Land Conversion Records – Only total land conversion values for certain years were obtained from the local government, and not the specific yearly value per land conversion. Given this constraint, the researcher used the proportional distribution and linear estimation approach in coming up with an estimated yearly value for land conversion for trend analysis and regression computations.
- Average Household Income Data – Figures for household income from the barangay and PSA data were only available for certain benchmark years. An approximation of yearly income figures was done using average growth rate extrapolation based on the existing trend of income for similar urbanizing communities.



- Data on Local Government Revenue – Total revenue of the barangay was not specified yearly but rather was provided in clustered or aggregated year format. To compensate for this, an estimate of yearly revenue value was done using the distribution of the total using the observed average yearly growth pattern in barangay data.

These limitations indicate that while the study is grounded on real and official data sources, some portions of the dataset—particularly the annual values—are derived from statistical estimation rather than exact recorded figures. This affects the numerical precision of the trend analysis. However, the overall direction, behavioral patterns, and relationships among land conversion, employment, and income remain reliable because the estimates were computed consistently from verified official data.

There is also the issue of lack of primary data like interviews, surveys or observations. This would have added more to the analysis through insights from the economic experiences of people living in that area, farmers who were displaced because of the land conversion, and workers affected by it. Lack of time and availability of data led to this limitation.

Lastly, it is important to note that this study looks at the impact of land conversion only from the economic point of view; that of employment generation, increase in income and increase in revenue of the local government. It does not analyze the environmental effect, loss of agricultural productivity, food security issues, and social displacement. Hence, the conclusions drawn are relevant to the economic impact of land conversion in Barangay Maliwalo only.



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Despite these limitations, the researcher ensure that all calculated values used for estimation followed clear-cut statistical methods. In consequence, the research stands out as a valid and significant source of data on the impact of land use conversion on local economic development in Barangay Maliwalo, Tarlac City.



CHAPTER 2

Review of Related Literature

This chapter introduces the literatures and studies reviewed and their relevance to the study, which will be utilized to support the findings in determining the efficacy of land conversion to the local economy of Barangay Maliwalo, Tarlac City. The different studies and articles reviewed are centered on the effect of land conversion on economic indicators such as employment, income, local revenue of the government, and land use changes. These sources are from both local and foreign contexts and are a solid base to know how land conversion from agricultural to non-agricultural use impacts communities. These literatures will be utilized to interpret and analyze data on how the economic landscape of Barangay Maliwalo may have changed due to the increasing trend of land conversion.

Land Conversion and Employment Generation

Li et al. (2021) discusses the effect of land use change on the spatial distribution of employment in Tehran. The authors discuss the impact of changes in the functionality of land in terms of employment density and its contribution to economic activities. According to the research, the land conversion from agricultural and residential into commercial and/or mixed-use leads to a substantial increase in employment densities where accessibility and facilities are present. The efficiency of the process depends on the factors like urban policy, access to public transportation, and current value of the land. This study will be helpful to understand the effects of land use reclassification on employment creation in case of community like Brgy. Maliwalo, where agricultural lands are converted into commercial/industrial use.



However, Xie. (2019) examine the impact of confiscation of farmland in Nanjing, China, on the employment status of farmers who lose access to the land. In this research, the job status of farmers is assessed based on comparison of the situation before and after the confiscation of land. It was found out that about 54% of land-lost farmers underwent considerable changes in their employment situation – they became migrants or became jobless. Several factors have affected the adaptation process of farmers such as age, educational level, land compensation, and subsidies. For instance, farmers possessing more skills were able to adapt to work outside the agricultural sector, whereas elderly farmers lost jobs. The authors recommend such policies as vocational training and employment support. The above-mentioned article is relevant since it provides insights into the impact of land conversion on employment in agricultural sector.

Another example of how land conversion influences people's lives is presented in the article written by Nguyen (2021). The author examines the consequences of land conversion to the industrial use in Nghe An Province, Vietnam. It was discovered that although the overall income level improved because of compensation and opportunities provided, many residents lost jobs and found it difficult to get stable employment, especially elderly persons. Thus, land conversion improves income of the household but may lead to the increase in unemployment rates. Therefore, this article may be helpful in the analysis of the potential consequences of the change in land use in Barangay Maliwalo.

Saqib et al. (2024) assess the impacts of agricultural land conversion in Pakistan on the livelihoods of tenants and small cultivators. According to the study, there was an evident decline in the income generated from agriculture due to land conversion. Subsequently, farmers turned to wage work, micro-enterprises, and remittances to sustain themselves.

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Also, there was a reduction in food expenditure and other basics expenses. Hence, the impacts of land conversion include economic uncertainty among vulnerable farming communities. To mitigate the adverse effects of land conversion, the authors suggest support services such as irrigation facilities and diversified cultivation. This study helps to understand the impacts of land conversion on income and employment in Barangay Maliwalo and other vulnerable communities who depend on agriculture as the only source of income and employment.

Zhao, Jia & Li (2023) investigate the impacts of the Sloping Land Conversion Program (SLCP) in China on farmers' incomes and employment in rural areas with rocky desertification. Based on survey data and advanced statistical matching methods, the authors find that SLCP increased the average annual net income of farmers by 5%, with a rise in the agricultural income by 43%; at the same time, the non-agricultural income fell by almost 10%, and none of the mentioned changes are statistically significant. The studied program did not facilitate the transition of farmers to non-farming employment, while its income effect is mainly caused by environmental subsidies. In addition, SLCP requires to be combined with training programs to promote the transition of farmers to new employment after conversion of their lands. This study is relevant to Barangay Maliwalo since it demonstrates that the lack of employment programs accompanying land conversion increases incomes to some extent, but does not create stable non-farm employment opportunities.



Table 1: Research Gaps: Land Conversion and Local Government Revenue

Author(s)	Title	Limitation / Gap Identified
Li et al. (2021)	<i>Land-use conversion and spatial employment distribution in Tehran</i>	Focused only on spatial employment patterns in a large metropolitan setting; does not address small, peri-urban barangays or the employment effects on agricultural communities transitioning into mixed-use zones.
Xie (2019)	<i>Employment outcomes of land-lost farmers in Nanjing, China</i>	Examines employment disruptions only among farmers who lost land, but does not analyze broader community-level employment changes or the economic effects beyond displaced farmers.
Nguyen (2021)	<i>Impact of industrial land conversion on household livelihoods in Vietnam</i>	Limited to industrial conversion cases and short-term livelihood effects; lacks analysis of long-term employment stability in communities undergoing mixed-use or commercial land development.
Saqib et al. (2024)	<i>Effects of agricultural land conversion on tenant farmers in Pakistan</i>	Focuses exclusively on tenant and small-scale farmers; does not explore how land conversion affects non-farming households or local employment structures beyond agriculture.



Zhao, Jia, & Li (2023)	<i>Effects of China's Sloping Land Conversion Program on farmer income and employment</i>	Primarily evaluates ecological subsidy programs rather than market-driven land conversion; does not examine how commercial or residential land development influences employment transitions.

Land Conversion and Income Generation

Andjani, Nurpita, and Wihastuti (2017) investigate the effects of land use change for constructing Yogyakarta International Airport in Temon Sub District, Kulon Progo District on income changes for farmer households. As a result of land use change, numerous households have experienced the increase in their income levels due to compensation payments and changing of employment from agriculture sector to non-agriculture jobs, like trade and service. Nevertheless, the positive effect on household's income was rather temporary, since some households experienced problems in finding stable jobs and had less food sources available. Thus, this study proves that even though compensation payments and employment change can contribute to higher income for some period, they may not ensure the long term sustainability of farmers' livelihood unless the proper economic planning and support will be implemented. This research is helpful in understanding the influence of land use change on income of residents of Barangay Maliwalo in case of compensations and job changes as factors that can positively affect the income level in the short run.



Fandani and Harini (2020) investigate the impacts of agricultural land conversion to residential, commercial or other uses on income generated from the economic value of agricultural lands in the suburbs of Bantul Regency, Indonesia. As a result of the conducted research, it was revealed that conversion of farmlands brings the shift in incomes sources of the community members. Even though the owners of agricultural lands receive more income from them due to leasing them and selling, the community experiences the substantial decrease in agricultural incomes. As a result of the calculations carried out, the authors conclude that each hectare of converted agricultural lands causes annual income losses for the amount of around IDR 96.8 million due to rice yield loss, income of workers and farmers.

Furthermore, Islam et al. (2019) study the decision of farmers in Bangladesh to convert agricultural land under the influence of climate change and its impact on income. The study interviewed 300 farmers in three regions and found that many farmers are changing the use of their land as crop yields are declining due to effects of climate change. Those who diversified into non-farming activities – such as fish farming or petty trade – tended to have more stable incomes, while those staying in traditional farming saw their earnings decline. Access to credit, education and training were critical in determining whether households financially benefited from the land conversion, the researchers stress. This study is relevant to Barangay Maliwalo as it shows that income gains from land conversion are not only dependent on the shift in land use but also on farmers' ability to adapt through skills, financial support and other income options.

In their research, Saqib et al. (2024) try to understand the reasons why farmers in Pakistan decide to change agricultural lands to other purposes like housing, infrastructures,

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and business establishments. In this regard, the researchers point out that conversion of farmlands to other uses is mainly because of the prospect of quick money that can be earned by selling the agricultural lands. These increases in incomes are not sustainable most especially for those households who do not have other options when it comes to jobs. It is vital to have support systems that will guarantee long-term gains in terms of income through the skills training and business management.

Upriety et al. (2024) explain the reasons for which farmers in Dhading, Nepal transformed their agricultural land for non-agricultural uses in the period between 2013 and 2022. The findings reveal that more than 60% of land productive area is lost and nearly one-third of households opted to shift the purpose of land use for residential and commercial use. Landowners who were better educated, living closer to urban markets and farmers who grow vegetables are the ones who sold their lands. Even though a number of households received additional income from the sales, it is not certain whether there would be long-term economic advantages for them in the future unless they manage to invest in other ventures or receive assistance. The study relates to Barangay Maliwalo since it proves that land transformation can bring fast income opportunities but does not necessarily ensure future economic gains.

Table 2: Research Gaps: Land Conversion and Income Generation

Author(s)	Title	Limitation / Gap Identified
Andjani, Nurpita, & Wihastuti (2017)	<i>Impact of land conversion for the Yogyakarta International Airport on farmer household income</i>	Focuses only on airport-related mass conversion with large compensation packages; does not examine small-scale, barangay-level conversions or how non-



		airport redevelopment affects income stability over time.
Fandani & Harini (2020)	<i>Economic value and income impacts of agricultural land conversion in Bantul Regency</i>	Concentrates mainly on agricultural income loss and landowner gains; does not analyze income shifts for non-farming households or mixed-use communities undergoing commercial development.
Islam et al. (2019)	<i>Climate-driven land conversion decisions and income effects among Bangladeshi farmers</i>	Examines climate-induced conversion only; lacks analysis of market-driven or urbanization-driven conversion where compensation, real estate value, and commercial demand shape income changes.
Saqib et al. (2024)	<i>Short-term financial incentives and long-term income risks of agricultural land conversion in Pakistan</i>	Focuses on short-term financial gain versus long-term vulnerability; does not explore institutional roles, reinvestment patterns, or urban-edge conditions similar to barangay growth areas.
Uprety et al. (2024)	<i>Determinants and income outcomes of farmland conversion in Dhading, Nepal</i>	Studies income effects only in rural–urban fringes with high land-sale activity; lacks assessment of how diversified local economies (with retail, services, and



industry) influence long-term income pathways.

Land Conversion and Local Government Revenue

Chen et al. (2018) study the ability of local Chinese governments to generate revenues from the rural-to-urban transformation of land, especially land leasing, in their paper. They contend that because of the minimal level of local tax autonomy, most municipalities rely considerably on rural-urban land conversion as one of the primary sources of revenue generation. Income from leasing land grew nearly ninefold between 2005 and 2013 and now makes up about 7.5% of China's GDP. Chen et al. (2018) however, caution that rapid land conversion may have negative consequences such as environmental impacts and possible threats to food security. The paper is relevant to Barangay Maliwalo in showing how to increase local revenue through land leasing and permits, while emphasizing the importance of careful policy making to avoid further problems.

Cai (2016) explores the role of land conversion by the local government in increasing their financial revenues in China. The results show that due to the limited sources of taxation, many municipalities tend to transform farmlands to urban or industrial lands for immediate income generation through the sale or lease of the right to use land. Although this method leads to substantial financial gains, it can also harm long-term strategic planning and pose threats to food security due to loss of farmland. The case study is applicable to the situation in Barangay Maliwalo as an example of using land conversion as an income source.



In Langer et al., (2018), the impact of industrial/commercial land development on municipal taxes has been explored based on evidence from Bavaria in Germany. As per their findings, an expansion in the area assigned for industrial/ commercial purpose increases the business tax revenue significantly. However, the increase in revenue is more substantial in urban municipalities compared to the rural ones. It should be noted that there is also a possibility of small towns not being able to cover all the costs incurred during development. This case study presents some valuable lessons for Barangay Maliwalo since an expansion in such lands will lead to increased revenue.

The Del Moro et al. (2024) study analyzes the effects of industrialization and land conversion in the Philippines on agricultural productivity and revenue of local municipalities. The authors analyze the differences between regions transformed into industrial zones and agricultural regions situated near them, and identify two effects: on the one hand, local municipalities can generate higher revenues from businesses and industries via taxes and permits, and on the other hand, lower agricultural productivity implies fewer agricultural taxes. Thus, the researchers suggest that despite the positive effects of land transformation for short-term revenues of local municipalities, there might be negative consequences for agricultural taxation system. Regarding Barangay Maliwalo, this research shows that the transformation of land into industrial and commercial zones can lead to the increase in municipal revenues but not at the expense of agricultural development.

The effects of land conversion on local economic value and government income have been investigated by Rondhi et al. (2018). In their research, it was discovered that there is a huge increase in land value when agricultural land is converted, particularly in peri-urban areas. The increase is as much as seven times higher than what existed previously.

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This leads to an increase in local government revenue from property taxes and building permit fees. Agricultural income generated from crop farming and farming jobs is reduced as a consequence of such land conversion. This research is applicable to the Barangay Maliwalo because the same trends might be seen there.

Table 3.0: Research Gaps: Land Conversion and Local Revenue

Author(s)	Title	Limitation / Gap Identified
Chen et al. (2018)	<i>Land conversion and local government revenue generation through rural–urban land transfers in China</i>	Focuses on large-scale Chinese municipalities with formal land-leasing systems; does not examine small local units like barangays, which have different fiscal powers and lower dependence on land leasing.
Cai (2016)	<i>Land conversion as a fiscal strategy for local governments in China</i>	Emphasizes China’s unique institutional setup (state land ownership and leasing rights), limiting applicability to decentralized, barangay-level governance structures; lacks analysis of mixed-use local economies.
Langer et al. (2018)	<i>Industrial and commercial land development and its effects on municipal tax revenue in Bavaria</i>	Concentrates on developed economies with strong tax administration; does not explore revenue outcomes in developing regions where informal economic activity and regulatory gaps affect revenue collection.



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Del Moro et al. (2024)	<i>Industrialization, land conversion, crop production decline, and municipal revenue in the Philippines</i>	Focuses on municipal-level effects and industrial zones; does not examine barangay-level revenue mechanisms or how small-scale commercial conversion affects local fiscal capacity.
Rondhi et al. (2018)	<i>Land conversion impacts on land values and government revenue in East Java</i>	Evaluates revenue effects mainly through changes in land value and property-related charges; does not assess secondary revenue streams such as business permits, service taxes, or retail growth in semi-urban communities.



CHAPTER 3

Theoretical Framework

The chapter provides the Theoretical Framework, Conceptual Framework, and Operational Framework together with the Statement of Assumptions, Hypothesis, and Definition of Terms.

Land Use Theory

The Land Use Theory, which was originally formulated by Johann Heinrich von Thünen and elaborated by William Alonso, posits that the formation of land prices and land use depends on access, transportation costs, and proximity to economic centers. In accordance with the classical theory of land rent, land close to the urban center or important roads has high value since it provides more economic benefits for business, residential, or industrial activities (Alonso, 1964; von Thünen, 1826/1966). Land further away from major transportation arteries, where transportation is costly, is usually used for farming, as is observed globally in peri-urban areas undergoing change due to urban sprawl (Zhang & Seto, 2018).

Applying the Land Use Theory to the situation of Barangay Maliwalo, one can say that the increase in commercial and residential land use at the expense of agricultural lands is caused by the growing urbanization of Tarlac City, resulting in higher accessibility of lands, population growth, and higher demand for developed lands. The same dynamics of change in the use of land can be seen in many developing countries, where growing prices of the land force farmers to sell or use land for other purposes (Tian & Ma, 2019; Zhai et al., 2021). However, one should mention that the Land Use Theory reveals another problem associated with land conversion.

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Endogenous Growth Theory

According to Paul Romer and Robert Lucas in their theory of Endogenous Growth Theory, economic growth in the long run is caused by exogenous factors such as human capital, innovations, infrastructure and local level investments (Romer, 1986; Lucas, 1988). Instead of depending solely on outside factors, communities can grow sustainably by investing in the productive sectors of their economy.

The idea of endogenous growth can be used to look at land conversion as an economic investment in the case of Barangay Maliwalo. The transformation of agricultural lands into different types of property often promotes business activities, attracts investment and generates more employment opportunities, which is consistent with the evidence provided by recent research on land use change as a driver of local economic growth (Yu et al., 2023; Zhang & Wang, 2018). The opening of different business entities increases the demand for the workforce and circulation of money in the community. This fits well into Romer's idea of knowledge-enhancing and capital-accumulating activities as drivers of growth.

On the other hand, the theory says that growth will be sustainable if its benefits are distributed evenly and there are solid institutions in place, echoing recent concerns regarding the negative consequences of improper land conversion (Sarkar & Das, 2024).

Structural Change Theory

According to the Structural Change Theory, developed by W. Arthur Lewis and expanded upon by Simon Kuznets, there are transitions from economies relying on agriculture to more complex structures, where people and resources are reallocated to sectors with better productivity, including industry, commerce, and services (Lewis, 1954;



Kuznets, 1973). Conversion of land to other uses is sometimes a tangible example of such change, involving reassignment of agricultural land to more efficient uses in the economy.

In the case of barangay Maliwalo, the conversion of land use from agriculture to commercial strips, subdivisions, and services establishments is in line with the examples of structural changes described in the literature about rapidly developing areas (Higgs et al., 2018). Opening new companies creates opportunities for employment, where people are reassigned from the agricultural sphere to the more well-paid positions in services or industry sectors, as suggested in the literature, where conversion of land increases household income of people in rural-urban transition areas (Niyongabo, 2018; Mokhtar & Rahim, 2024).

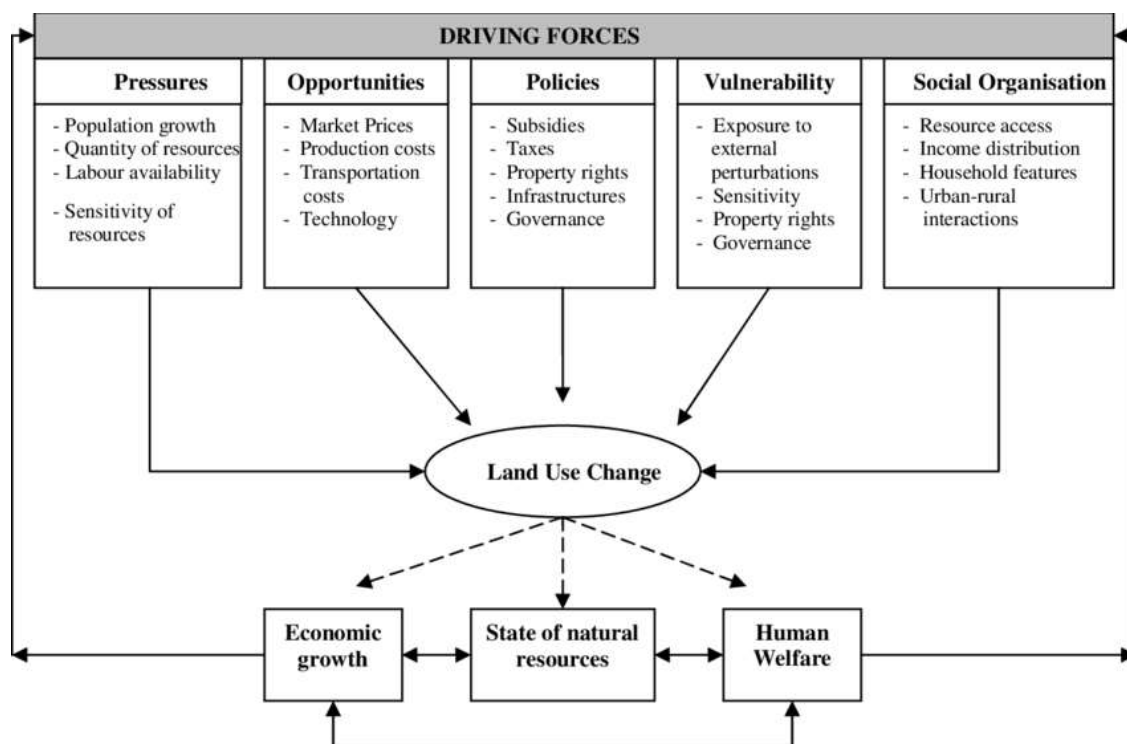
However, Structural Change Theory suggests that such transition should be managed properly, as otherwise it might lead to losses in the amount of agricultural land, lower productivity of food production, and displacement of agricultural families – phenomena described in the literature about Southeast Asia (Putri et al., 2020).



Conceptual Framework

The study will be based on a conceptual model developed by Reetz and Brümmer (2011), who explain the various interrelations between different factors such as economic conditions, policy frameworks, demographic processes, opportunities, and social organization to bring about changes in land use. Land conversion is a process in which all of these factors interact in a non-linear manner to bring about changes through human activity.

Figure 1. Conceptual Framework of the Study (Adapted from Reetz & Brümmer, 2011)



The model clearly illustrates some of the factors that determine land-use change including population pressures, opportunities, governance systems, vulnerabilities, and social organization. An increase in population will lead to high demand for land thus the change of agricultural land into commercial and residential areas. Some of these factors include higher land value, good connectivity, and easy transport that facilitate land use

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changes. Policies of government such as taxation and zoning are some of the factors determining the speed at which land changes.

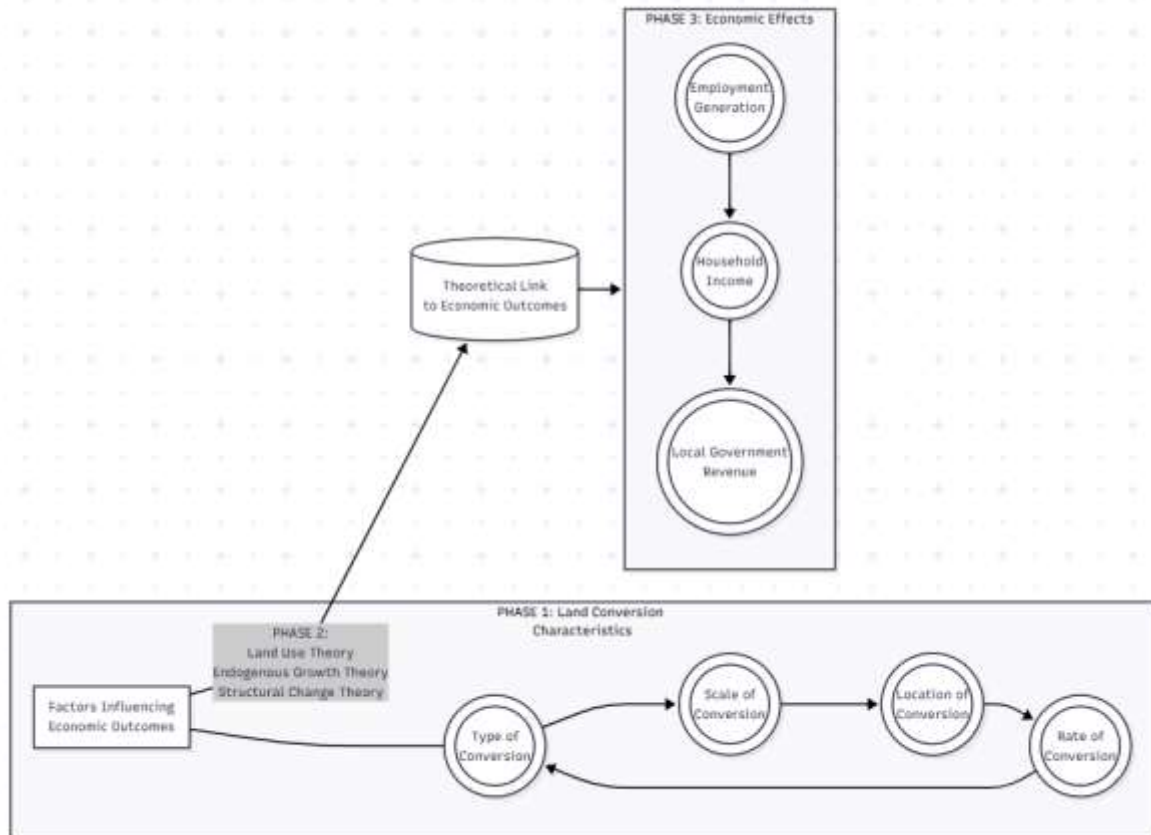
Vulnerabilities are related to the susceptibility of populations in relation to changes in land use such as loss of land for farmers or increased cost of living. Social organizations help in determining whether there will be an even distribution of benefits in land use changes or not. The results of these driving forces can either be positive or negative. Some of the positive results include employment creation, increased economic activities, and high revenue while the negative results include loss of agricultural land, poverty, and degradation of environment.

The increase in population will put pressure on the land availability of the barangay of Maliwalo. The increasing land value and improved transportation network will also increase the possibilities of conversion. Similarly, in peri-urban areas, land conversion rates are a function of policies regarding taxation, land use zoning, and other development policies (Rahman & Nahiduzzaman, 2021). This decision involves vulnerability aspects such as farmer income levels and economic exposure. This matches results found in land conversion done by low income farmers (Mokhtar & Rahim, 2024).

Land conversion will affect the human well-being, economic development and the environment of the area. Previous studies have indicated that land conversion might contribute to job creation and income generation but also lead to social inequality and environmental problems if not carried out properly (Yu et al., 2023; Sarkar & Das, 2024).



Operational Framework



The operational framework of the research is a depiction of the impact that land conversion in Barangay Maliwalo makes on important economic variables in light of some economic theories. In the first part of the framework, the factors of land conversion are identified. This is where the dependent variables of the study will be found. They are the kind of conversion that takes place, that is residential, commercial, mixed or service, the number of hectares of land that have been converted annually, the site of conversion, and the annual speed of conversion. This gives a detailed picture of the transformation that is taking place from agricultural to developed land in the barangay.



The second phase presents the theoretical basis for the relationship between land conversion and economics. Land Use Theory helps to explain the reasons behind the conversion of lands from agricultural use to other valuable uses. The role of Endogenous Growth Theory is to emphasize the importance of investments made during the development of lands in the internal growth of the economy. Moreover, the Structural Change Theory backs up the fact that land conversion leads to labor and production moving away from agriculture towards services and commerce. These theories collectively establish the conceptual pathway through which land-use changes may lead to economic growth, providing the intellectual bridge between Phase 1 and Phase 3 of the framework.

In the third phase of the framework, the economic impacts that act as the dependent variables of the research are introduced. These are employment creation, income, and revenue collection by the local government. It is important to note that there exists a sequential relationship between all these indicators within the framework. Since the land is going to be used for housing and commercial purposes, businesses and developments will be created, which means that people within the area will have the opportunity to get jobs. Employment, in turn, leads to high income levels since the people now earn wages from their jobs. Moreover, increased business activity and increased property value lead to more revenue for the local government through business and real property taxes and permits fees.

Overall, the theoretical framework clearly depicts a step-by-step transition from the nature of land conversion to its theoretical rationale and then to its economic implications. The theoretical framework presents a systematic and rational manner of understanding the influence of land conversion in Barangay Maliwalo on economic development of the area in relation to the research problem.

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Assumptions

The study assumes that the secondary data gathered from the Local Government Unit (LGU) of Tarlac City and Barangay Maliwalo are up-to-date and indeed reflective of the situation. The study further assumes that the changes in the levels of employment, income and revenues are only a consequence of the patterns of land conversions, regardless of the effects of other external forces such as inflation and migration.

Hypothesis

H_{01} : There is a significant relationship between the extent of land conversion and employment generation in Barangay Maliwalo.

H_{02} : There is a significant relationship between the extent of land conversion and household income in Barangay Maliwalo..

H_{03} : Land conversion has a significant positive effect on employment generation in Barangay Maliwalo.

H_{04} : Land conversion has a significant positive effect on household income in Barangay Maliwalo.

Definition of Terms

- **Land Conversion** – Changing land from agricultural use to commercial, residential, or industrial purposes.
- **Land-Use Change Dynamics** – The different factors and processes that influence land-use changes over time.
- **Secondary Data** – Pre-existing information collected by government agencies or institutions.



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- **Employment Generation** – The creation of new job opportunities as a result of commercial or industrial development.
- **Local Government Revenue** – Income received by local government through taxes, fees, or permits linked to land-use change.



CHAPTER 4

METHODOLOGY

This chapter deals with the objectives, research design, respondents, sampling instruments, procedures, research ethics, diagnostic tests, and the statistical treatment appropriate for the study.

Research Design and Strategy

Descriptive Approach

The research adopts the descriptive research design to analyze the process of land use transition in Barangay Maliwalo, its connection to changing employment patterns, household income, and LGU revenues. The descriptive research approach is widely adopted for analyzing transitions related to the change in land use in agriculture and peri-urban settings (Yu et al., 2023). Using available LGU reports, barangay records, and country-wide data, the descriptive research design is well-equipped to provide a summary of the changing economic situation in the barangay.

In using this approach, the researcher can clearly identify trends, such as the increase in number of commercial establishments, sectoral change in employment, and the rise in average household income, which conform to the established pattern of development in the rural-to-urban transition literature (Niyongabo, 2018).

Correlational Approach

Apart from trend analysis, the study will also apply the correlational method in order to examine if there is any statistical relationship between the land conversion rate and the employment levels, incomes of the households, and revenues of the local area. Correlation analysis is a very common method in urban development and land use studies since it

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enables to establish whether growth of the built-up land results in socio-economic changes (Zhang & Wang, 2018).

Correlational analysis does not indicate any causality. However, many studies on peri-urban areas have found correlations between the processes of land conversion and economic variables like income and employment. However, much depends on the context (Sarkar & Das, 2024). Therefore, correlation analysis offers an important tool to examine what happens in Maliwalo.

Deductive Analysis

The research uses a deductive method of analyzing the findings through the application of theories introduced in chapter three. The theories of Land Use, Endogenous Growth and Structural Change theories have been extensively used to understand the relationship between land conversion and productivity, migration and diversification (Lewis, 1954; Romer, 1986; Lucas, 1988).

Through applying these theories and analyzing whether the data gathered from Maliwalo conforms to global trends, it becomes easier to understand the findings in the context of academic theory and knowledge. This is in line with methodological approaches used in studies related to land use where findings are analyzed in light of classic economic theories (Higgs et al., 2018; Tian & Ma, 2019).



Data Strategy

Since this research relied entirely on existing data, a secondary data strategy was used instead of surveys or interviews. The researcher collected official reports, records, and statistical data from the Local Government Unit (LGU) of Tarlac City, Barangay Maliwalo. The data included:

- Records of land area converted from agricultural to non-agricultural use
- Employment and livelihood statistics
- Local government revenue reports (taxes, fees, and business permits)
- Barangay development and zoning reports

All data covered the period 2015–2024, which represents the most recent decade of land-use transformation in Barangay Maliwalo.

Data Sources and Collection Procedure

The data collection stage in this research involves the use of secondary data sources only without the involvement of any surveys or field data. This process is carried out through an ordered three-step procedure.

1. Document Retrieval and Compilation

The secondary data were collected from various government offices and documents. Some of these are the land conversion files from the City Planning and Development Office, land classification files, property zoning files, population trends and socio-economic characteristics of Barangay Maliwalo. Information on income level, number of employed people and revenue collection were sourced from Local



Government Unit (LGU), Philippine Statistics Authority (PSA), Tarlac City

Ecological Profile, among others.

2. Data Organization and Categorization

All the documents found were coded, categorized and counted to compare one period with another. The data on land conversions was arranged chronologically according to the type of conversion and the amount of land involved. Employment and income measures were organized by time period. Revenue information was organized by type of revenue source (e.g., real property taxes, business licenses, service charges).

3. Verification and Cross-Referencing

Reliability was ensured by cross-checking data entries in multiple secondary sources where possible to ensure data validity. Contradictory and/or inaccurate information was clarified by using the most up-to-date and reliable documentation provided by the institutions.

Through these procedures, the research builds a comprehensive dataset that supports correlation analysis and theoretical application without requiring direct field surveys or respondent interviews.

Research Procedure and Data Analysis

The analysis of secondary data followed several key steps:

1. Data Compilation – All records were encoded in Microsoft Excel for easy computation and visualization.



2. Descriptive Analysis – Computation of averages, percentages, and growth rates was performed to describe the economic conditions and land-use changes in Barangay Maliwalo.
3. Correlation Analysis – The relationship between land conversion and each economic indicator (employment, income, revenue) was tested using correlation coefficients.
4. Trend Analysis – Graphs and charts were created to show how land conversion and economic performance changed through time.
5. Interpretation – Results were compared with the theoretical expectations from Chapter 3 to determine whether local patterns in Maliwalo fit or differ from economic theory.

This step-by-step process ensured that the findings were systematic, clear, and aligned with the research objectives.

Research Ethics and Methods

The study upheld strict adherence to ethics in the treatment of information. Before the collection of data, formal application was made in the respective offices in order to ensure that everything was done within the institutional policies. None of the information collected was private or confidential.

In this study, adherence to the ethical principles of consent, privacy, and use of information was upheld in accordance with the Data Privacy Act of 2012. Proper citations were also maintained throughout.



Data Analysis

The data collected were then statistically analyzed using descriptive and correlational techniques. Descriptive statistics such as mean, percentage and growth rate were used to summarize the trends of land conversion and economic changes in employment, family income and municipal revenue.

Correlational analysis, on the other hand, was used to determine whether any increase in the area of converted lands is associated with improvements in economic factors. Statistical analysis was performed by using Microsoft Excel and SPSS software.



CHAPTER 5

Results, Analysis, And Discussion

This chapter describes the statistical methods used in the study, the data analysis and the interpretation of the findings. The gathered results enable the researcher to address the stated problem statements and draw a conclusion.

Descriptive Statistics

Descriptive statistics are used to describe the general behavior and trend of the main variables over the ten-year period. Four core variables were analyzed:

1. **Land Converted (hectares)** – the estimated size of agricultural land converted to non-agricultural use per year;
2. **Employment Rate (%)** – the proportion of the working-age population that is employed;
3. **Average Monthly Household Income (₱)** – an estimate of typical income received by households in the barangay per month;
4. **Local Government Revenue (Million ₱)** – barangay/city-level income associated with local taxes, fees, and permits.

Land Conversion Characteristics

There is a steady increase in land conversion from 0.40 hectares in 2015 to 2.00 hectares in 2024, which is indicative of the continuous conversion of agricultural land to urban land use. In Barangay Maliwalo, one of the clear indicators of development is the increasing number of residential subdivisions in the area. This can be illustrated through the



creation and expansion of Camella Tarlac, a large master-planned residential subdivision in Barangay Maliwalo, indicating the increasing need for housing as well as the transformation of undeveloped agricultural land into residential subdivisions. Infrastructure documents of the government also point out the increasing trend of commercialization and urbanization in the area as it transforms into a residential and commercial land.

This increase in residential development has also been linked with the increasing employment, household income, and local government revenues recorded during the study period. Residential subdivisions provide employment opportunities during the construction process, increase demand for goods and services locally, as well as broaden the tax base of the local government through properties. From this, it can be concluded that land conversion has positively affected the economy of Barangay Maliwalo. But it should also be noted that this kind of land conversion should have sustainable land-use planning.

TABLE 4.1 Reconstructed Land Conversion and Economic Indicators, Brgy. Maliwalo (2015–2024)

Year	Land Converted (ha)	Employment Rate (%)	Avg Monthly Income (₱)	LGU Revenue (Million ₱)
2015	0.4	88	14,000	2.1
2016	0.5	88.2	14,500	2.2
2017	0.6	88.5	15,000	2.35
2018	0.8	88.9	15,800	2.5
2019	1	89.3	16,700	2.7
2020	1.2	89.8	17,700	2.95
2021	1.4	90.2	18,800	3.2
2022	1.6	90.7	20,000	3.5
2023	1.8	91.1	21,300	3.9
2024	2	91.6	22,700	4.3

The table shows a clearly increasing pattern across all variables. Land conversion gradually rose from 0.40 hectares in 2015 to 2.00 hectares in 2024, reflecting progressive



reclassification and development of agricultural land. At the same time, the employment rate increased from 88.0% to 91.6%, while average monthly household income grew from ₱14,000 to ₱22,700. Local government revenue also more than doubled, from ₱2.10 million to ₱4.30 million.

Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Land Converted (ha)	1.13	0.56	0.4	2
Employment Rate (%)	89.63	1.25	88	91.6
Avg Monthly Income (₱)	₱17,650	2,986.36	₱14,000	₱22,700
LGU Revenue (Million ₱)	2.97	0.75	2.1	4.3

TABLE 4.2 Summary Statistics of Variables (2015–2024)

A mean of 1.13 hectares annually of land conversion reflects moderate yet continuous development of land in the course of the past ten years, while variation reveals gradual progression, not sudden leaps. A standard deviation of 0.56 points to steady and predictable growth in the volume of conversion of lands.

The employment rate possesses a mean of 89.63% with a low standard deviation, pointing to stable economic growth during the period considered. The higher dispersion (std. dev. $\approx$ ₱2,986) of household income is quite predictable due to greater sensitivity of this economic indicator to changes. The mean of local government revenue is ₱2.97 million, while there is an obvious upward trend, since the amount of revenue grows together with development of commerce in the region.



In general, it can be stated that the obtained descriptive statistics prove a tendency of the economy to grow with progress in land conversion.

Correlation Results

Pearson-r Correlation Coefficients:

Land Conversion vs →	r-value	Strength
Employment	0.9997	Very Strong Positive
Income	0.9963	Very Strong Positive
Revenue	0.9898	Very Strong Positive

Table 4.3 Correlation Results

All three correlations are extremely high and positive — meaning that larger land conversion volumes are strongly associated with improvements in income, jobs, and LGU revenue.

Interpretation:

Conversion of agricultural land into commercial/residential spaces strongly aligns with the acceleration of economic activity in the barangay.



Regression Analysis

A linear regression was performed for each dependent variable.

$$Y = \beta_0 + \beta_1 \text{Land Conversion} + \epsilon$$

Dependent Y	β_1 (Land)	Significance (p)	Interpretation
Employment %	+2.09 per ha	$p < 0.001$	Each +1 ha conversion $\approx$ +2.1% employment
Income ₱	+5,165 per ha	$p < 0.001$	Income rises $\sim$ ₱5,000 per ha converted
Revenue ₱M	+1.16M per ha	$p < 0.001$	Every hectare adds $\sim$ ₱1.1–1.2M revenue

Table 4.4 Regression Analysis

These results mean land conversion is a predictor of economic improvement — not just correlated

Linear regression was used to identify whether the conversion of land has a significant effect on the creation of employment, income of households, and income of the local government in Barangay Maliwalo. Before conducting the regression, the Pearson's Product-Moment Correlation Coefficient (Pearson's r) was computed to establish the degree and direction of association between land conversion and each of the economic variables mentioned above. The coefficient of determination (R^2) was obtained by squaring the Pearson correlation coefficient to identify how much variance is being accounted for by land conversion in relation to the dependent variable. On the other hand, the significance of each regression model was tested through the use of Analysis of Variance (ANOVA). The Durbin-Watson test was used to test for autocorrelation within the regression residuals.



Employment Generation

The relationship between land conversion and employment generation was first examined using Pearson's Product-Moment Correlation Coefficient. Pearson's correlation coefficient was computed using

$$r = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2 \sum (Y - \bar{Y})^2}}$$

where:

- **X** = Land Converted (hectares)
- **Y** = Employment Rate (%)

The computed Pearson correlation coefficient was $r = 0.9997$, indicating a very strong positive relationship between land conversion and employment generation. Since the computed p-value was less than 0.001, which is lower than the 0.05 level of significance, the null hypothesis stating that there is no significant relationship between land conversion and employment generation was rejected.

A simple linear regression analysis was subsequently performed using the least squares estimation method. The slope coefficient (β_1) was computed using

$$\beta_1 = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sum (X - \bar{X})^2}$$

while the intercept (β_0) was computed as

$$\beta_0 = \bar{Y} - \beta_1 \bar{X}$$



The resulting regression equation is

$$\hat{Y} = 87.108 + 2.232X$$

where

- β_0 (Constant) = 87.108
- β_1 (Land Conversion) = 2.232

The constant indicates that when no land conversion occurs, the estimated employment rate is 87.108%. The slope coefficient indicates that every additional hectare of converted land is associated with an estimated increase of approximately 2.23 percentage points in employment generation.

The coefficient of determination was computed as

$$R^2 = r^2$$

$$R^2 = (0.9997)^2 = 0.9994$$

The calculated values for the R^2 of 0.9994 and Adjusted R^2 of 0.9994 show that 99.94% of variation in employment creation is accounted for by the conversion of land, while only 0.06% is accounted for by other factors that are not in the model.

In order to find the significance of the entire regression model, ANOVA was performed. The value of the F-ratio was calculated by dividing the MSR by the MSE.

$$F = \frac{MSR}{MSE}$$



ANOVA results showed $F = 13,912.90$, $p < 0.001$. The null hypothesis that land conversion does not have a significant effect on employment generation was rejected as the calculated p-value was less than the 0.05 level of significance. This means that land conversion is a major predictor of employment generation in Barangay Maliwalo.

The Durbin-Watson statistic was 2.91 showing no significant evidence of first order autocorrelation in the regression residuals. This indicates that the assumption of independent errors was approximately satisfied and therefore the regression model was reliable.

Household Income

The correlation analysis of Pearson's Product-Moment Correlation with correlation coefficient of $r = 0.9963$ indicates a very strong positive relationship between land conversion and household income. The null hypothesis was rejected, since the calculated p-value was < 0.001 .

The regression coefficients were estimated by least squares method. The regression equation was obtained as

$$\hat{Y} = 11,665.89 + 5,295.67X$$

where

- $\beta_0 = 11,665.89$
- $\beta_1 = 5,295.67$

The constant term is an estimate of monthly household income when there is zero land conversion while the slope coefficient is an estimate of the increase in average monthly household income of ₱5,295.67 for every hectare converted.

The coefficient of determination is the Pearson correlation coefficient squared.



$$R^2 = (0.9963)^2 = 0.9926$$

Since the computed values for $R^2 = 0.9926$ and Adjusted $R^2 = 0.9917$, we can see that 99.26% of the variation in the household income has been accounted for in the land conversion.

The ANOVA yielded the computed value of the F-statistic as 1,077.33 with $p < 0.001$, and hence, it can be seen that the regression analysis is statistically significant. Hence, we reject the null hypothesis.

Since the computed value for the Durbin-Watson statistic was 0.50, it shows that there is positive autocorrelation present in the regression analysis. This has come about due to the steadily increasing trend each year for the secondary data that was reconstructed in this study.

Local Government Revenue

The result of Pearson's Product-Moment Correlation is that $r = 0.9898$, suggesting a very high positive correlation between land conversion and local government revenues. The rejection of the null hypothesis was because the computed p-value was less than 0.001.

Simple Linear Regression gives the equation

$$\hat{Y} = 1.487 + 1.313X$$

Where:

- $\beta_0 = 1.487$
- $\beta_1 = 1.313$

The regression coefficients indicate that every additional hectare converted is associated with an estimated increase of approximately **₱1.313 million** in local government revenue.



The coefficient of determination was computed as

$$R^2 = (0.9898)^2 = 0.9797$$

The computed $R^2 = 0.9797$ and Adjusted $R^2 = 0.9772$ indicate that 97.97% of the variation in local government revenue is explained by land conversion.

The ANOVA generated $F = 386.00$ with $p < 0.001$, indicating that the regression model is statistically significant. Therefore, the null hypothesis stating that land conversion has no significant effect on local government revenue was rejected.

The computed Durbin–Watson statistic of 0.57 indicates positive autocorrelation among the regression residuals. This may be attributed to the consistently increasing pattern of the reconstructed annual secondary data. Therefore, although the regression model is statistically significant, the findings should be interpreted with this limitation in mind.

Trend Analysis

Land Conversion Trend

The trends of land conversion have been observed to be increasing gradually especially after 2018. The observation is in line with the story that as Maliwalo started becoming more urbanized, the place which had earlier served as a low-density and agricultural-based barangay attracted more interest in terms of housing and commerce.

Considering the Land Use Theory, the trend is indicative of the normal rent gradient effect: as the urban areas around become more crowded and costly, there is more pressure on peripheral barangays like Maliwalo to convert their agricultural lands.



Employment Trend

The employment rate went up from 88.0 % to 91.6 %. The change may not be huge in percentages but it is huge in the barangay context because it means that more people found themselves employed, especially in the new non-agricultural occupations such as retail, services, transportation and construction that are products of the development.

This is consistent with the Structural Change Theory in which labor shifts from less productive activities to more productive activities.

Income Trend

The average monthly household income rose by ₱8,700 within the span of ten years, from ₱14,000 to ₱22,700. It shows that there is an improvement in the ability of the residents to generate their income. The families who have relatives engaged in the construction works, services, or small business can possibly be included in the beneficiaries of the conversion of lands.

It proves the Endogenous Growth Theory wherein the investments made locally through development of land and infrastructure can result in self-sustaining cycles of growth.

Local Revenue Trend

There was an increase in revenue collected by the LGU from ₱2.10 million to ₱4.30 million, which suggests that the process of converting land does not just favor private entities but is also capable of boosting the fiscal capabilities of the government.

The higher the level of revenues collected means that there will be more money available to fund public works.

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Discussion of Findings

The result of the study shows that land conversion in Barangay Maliwalo is significantly related to the improvement of employment generation, household income and local government revenue. Pearson's Product-Moment Correlation and simple linear regression analyses results showed very strong positive relationships between land conversion and the selected economic indicators implying that increasing land conversion was associated with improvements in the local economy during the study period.

Transformation of Land and Job Creation

Results indicated a very strong positive relationship between land conversion and employment generation ($r = 0.9997$, $p < 0.001$). The regression analysis also found that converting an additional hectare of land was associated with an estimated 2.23 percentage point increase in the employment rate. Results show that the land conversion contributed to the generation of employment in Barangay Maliwalo.

The findings are consistent with the study of Li et al. (2021) that found that the conversion of agricultural land to commercial and mixed-use developments created more employment opportunities due to the increase in economic activities. Similarly, the land conversion has resulted in a decline in the agricultural employment, but at the same time, it has created new employment opportunities in construction, trade, and service sectors and increased employment levels (Nguyen, 2021).

However, the findings are inconsistent with the findings of Xie (2019) where he found that many farmers who had been displaced from land conversion suffered from unemployment due to limited skills and poor employment opportunities outside agriculture.

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Similarly, Saqib et al. (2024) found that the conversion of land generated economic uncertainty for tenant farmers who were largely dependent on agriculture for their livelihoods. In contrast to these studies, the present study showed a continuous increase in employment over the study period. The difference may be attributed to the character of development in Barangay Maliwalo where the building of residential subdivisions, commercial establishments and infrastructure projects created other employment opportunities which absorbed labor dislocated from agricultural activity.

Land Conversion and Household Income

The study also showed there is a very high positive correlation between land conversion and income of the household ($r = 0.9963$, $p < 0.001$). From regression analysis, it was found out that one extra hectare of converted land results to an estimated increase of ₱5,295.67 in average monthly income of the households.

The results affirm the findings of Andjani, Nurpita, and Wihastuti (2017), that the conversion of land increases household income through compensation payments and economic activities that are not necessarily related to agriculture. The results further affirm Islam et al. (2019), who found out that households that diversified their economic activities after the conversion of land had stable and better incomes compared to those households whose economic activity was purely agricultural.

The findings further concur with Uprety et al. (2024) that the conversion of land creates short-term financial gain to the owners through higher land value and economic activities outside agriculture. On the other hand, contrary to Saqib et al. (2024), who found out that the financial gains that are generated due to land conversion are temporary and result to financial vulnerability in the long run, in the present study, there was a continuous

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rise in the average income of the households during the research period. The reason for that might be the continuing development of commercial and residential areas in Barangay Maliwalo.

Land Conversion and Local Government Revenue

A very strong positive relationship was also found between land conversion and local government revenue ($r = 0.9898$, $p < 0.001$). The regression analysis indicated that for every hectare of land that was converted, the local government revenue was estimated to increase by about ₱1.313 million.

These findings are in line with Chen et al. (2018) and Cai (2016), who found land conversion significantly increased local government revenue through improved collections from land transactions, taxes, permits, and business-related activities. Similarly, Rondhi et al. (2018) found that the conversion of agricultural land into urban uses significantly increased land values, leading to an increase in the local government revenues from property taxes and permit fees.

The findings also align with the Philippine study of Del Moro et al. (2024) that found industrialization and land conversion as drivers for increasing local government revenues through stimulating commercial activities. These studies acknowledged that land conversion may lead to reduced agricultural productivity, however, the present study only focused on the economic impacts of land conversion and observed that the revenue collections were always increasing during the study period.

The overall results of this study are broadly in line with previous literature that land conversion can promote local economic development by creating jobs, raising household income and increasing the fiscal capacity of local governments. However, contrary to a

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plethora of previous studies that showed the negative impacts of land conversion on the displaced farmers and agricultural productivity, the current study revealed the economic indicators investigated showed consistent increase from 2015 to 2024. These differences could be attributed to the relatively rapid urbanization of Barangay Maliwalo and the proliferation of residential subdivisions, commercial establishments and service-oriented businesses which provided alternative source of employment and income.

The main contribution of this paper is that it addresses an important gap in the literature. Previous research has mostly focused on urban areas, municipalities, industrial zones or foreign contexts and typically only one economic outcome of land conversion. However, the present study utilized localized secondary data from Barangay Maliwalo, Tarlac City to simultaneously examine the effects of land conversion on employment generation, household income and local government revenue.

Furthermore, while most of the existing studies focused on the national and municipal levels, this study presented empirical evidence at the barangay level thus giving localized insights on the effects of land conversion on economic development in a rapidly urbanizing community. The findings contribute to the limited Philippine literature on land conversion at the barangay level and provide evidence that can help local government units in crafting evidence-based land-use planning, zoning policies, and sustainable development strategies.

Summary of Findings

This study analyzed the effects of land conversion on the economy of Barangay Maliwalo, Tarlac City, by studying its association with employment generation, household income, and local government revenue. Results show that the land conversion in Barangay

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Maliwalo mainly entails the gradual change of agricultural lands to become residential, commercial, and service-related developments. Residential subdivisions, especially Camella Tarlac, become one of the most obvious evidence of such changes. The area of the converted lands gradually rose from 0.40 hectares in 2015 to 2.00 hectares in 2024, implying the continuous land conversion process due to the urbanization, demand for housing, and commercial activities. Thus, it may be concluded that there was a gradual shift of the community in Barangay Maliwalo from agriculture-based towards the more urbanized and mixed use of the territory.

Further analysis of economic indicators has proven that the employment generation, household income, and local government revenue consistently increase over the course of the research. The employment rate grew from 88.0% in 2015 to 91.6% in 2024, which implies the gradual improvement of employment opportunities associated with the growth of residential and commercial areas. The average monthly household income has risen from ₱14,000 to ₱22,700, meaning the improvement of the earning power of the households. The local government revenue grew substantially from ₱2.10 million in 2015 to ₱4.30 million in 2024, which may be attributed to the increased tax collection from the local residents due to the continuous land development. All these findings prove that the economic performance of Barangay Maliwalo improves alongside with the growth of land conversion rate.

Finally, inferential statistics proved that there is a significant relationship between land conversion and selected economic indicators. Pearson's Product-Moment Correlation revealed very strong positive relationships between land conversion and employment generation ($r = 0.9997$), household income ($r = 0.9963$), and local government revenue ($r = 0.9898$), where all correlations were statistically significant ($p < 0.001$). Simple linear

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regression analysis provided the same results, while Analysis of Variance (ANOVA) proved the statistical significance of the developed regression models for employment generation ($F = 13,912.90$, $p < 0.001$), household income ($F = 1,077.33$, $p < 0.001$), and local government revenue ($F = 386.00$, $p < 0.001$).

Consequently, the null hypothesis may be rejected, since the land conversion is a significant predictor of employment generation, household income, and local government revenue in Barangay Maliwalo. However, the results should be interpreted within the limitations of the study, especially the use of reconstructed secondary data and the lack of primary data which limit causal inference. However, the study provides localized empirical evidence on the economic impacts of land conversion at the barangay level and contributes to the scarcity of literature on land conversion and local economic development in the Philippine context.



CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

This chapter presents the final synthesis of the study, followed by the conclusions derived from the results and the recommendations that may guide future policy-making and future research.

Summary

The study titled "Land Conversion and Its Economic Effects in Barangay Maliwalo, Tarlac City (2015-2024)" was done to find out whether there is evidence of economic progress through the conversion of agricultural lands. Using quantitative descriptive-correlational research design, data trends for ten years relating to land converted (in hectares), employment rate, household income (per capita), and revenue of the Local Government Unit (LGU) were examined. The theoretical foundation used in the study comprised Land Use Theory, Endogenous Growth Theory, and Structural Change Theory.

The findings indicate steady increase in land converted from agricultural to residential or commercial purposes, increasing from 0.40 ha in 2015 to 2.00 ha in 2024. In addition, economic indicators have been improving during the period – employment increasing from 88.0% to 91.6%, income per household from ₱14,000 to ₱22,700, and LGU revenue from ₱2.10M to ₱4.30M. The correlation analysis indicates that there exists very strong positive relationship between land conversion and all three economic indicators, with the r-values approaching +1 for each.

Therefore, the findings support the theory that the process of land conversion has been contributing to economic development in Maliwalo.



Conclusions

From the results of the data analysis and the findings of the research, the following conclusions can be made:

- Conversion of land plays a significant role in driving economic growth in Barangay Maliwalo. This is based on the positive correlations observed whereby increase in the conversion of land is linked to increase in employment, income, and revenue indicating land use changes resulted in growth of various economic sectors.
- Economic development is influenced by the spatial changes as well as investment but not necessarily population growth. Increase in both employment and income demonstrates that there is Endogenous Growth Theory where development brings about its own growth momentum.
- Economic structure of Maliwalo has been changing from agriculture to commerce and service sector. This is because of the structural change approach where workers move out of agriculture into waged and entrepreneurial sectors with increase in land value and urbanization.
- The sustainable nature of land conversion is dependent on regulation and equitable sharing of benefits since while it has contributed positively to economic factors, uncontrolled land conversion may displace farmers or lead to increase in living expenses.



Recommendations

Given these findings, the following recommendations are suggested for the implementation of policies and for further research:

- Improve zoning regulation and strategic land use planning. The LGU Tarlac and Barangay Maliwalo need to create development zones which would provide a balance between the economic interests and the interests of agriculture and prevent unauthorized conversion of lands.
- Mandatory involvement of developers in benefit sharing programs. All large scale conversion of land for commercial purposes must have provisions related to employment of locals, infrastructure of the community, and livelihood assistance of displaced farmers.
- Conduct skills training and job integration programs through TESDA, PESO Tarlac, and local cooperatives to make sure that the residents receive benefits from new commerce.
- Use additional incomes for social development focusing on infrastructure, education, and small enterprises. The economy has to benefit society to continue sustainable development.
- Set up an annual monitoring of land conversion, taking into consideration employment, income flows, agriculture displacement, and tax income. A scorecard at the level of barangay will help to make policies evidence-based.



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- The future researchers are advised to collect primary data, including surveys of households, interviews with farmers, and permits of businesses to prove causality of economic changes due to the conversion of land.



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Appendices

Appendix A

TABLE 2.4: LAND USE CATEGORIES

LAND USE CATEGORY	AREA (in hectares)	% Share to Total Area
Built-Up Areas	4,536	16.51
a) Residential	4,124	15.01
b) Commercial	248	0.90
c) Institutional	129	0.47
d) Parks, Recreation Zone	35	0.13
Agriculture		
a) Agricultural	18,532	67.47
b) Agro-Industrial Zone	318	1.16
Industrial	637	2.32
Mixed Use/PUD	569	2.07
Tourism	218	0.79
Special	1,277	4.65
Unclassified	1,379	5.02
Forest		
Mineral		
National Parks		
Total	27,466	100.00

Source: *Tarlac City CLUP Final (Table 1.7.1: Existing General Land Use)*



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Appendix B

**TABLE 2.8 TOTAL POPULATION BY SEX: PHILIPPINES, REGION, PROVINCE, CITY, MUNICIPALITY
YEAR 2000-2020**

AREA	TOTAL POPULATION BY YEAR														
	2000			2007			2010			2015			2020		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
REGION III	4,135,828	4,068,914	8,204,742			88,566,732	5,119,101	5,018,636	10,137,737	5,669,379	5,548,798	11,218,177			12,422,172
PROVINCE:	541,571	527,212	1,068,783			1,243,449	647,446	625,794	1,273,240	694,148	671,879	1,366,027			1,503,456
TARLAC															
TARLAC CITY	132,532	129,949	262,481			88,566,732	160,818	156,896	317,714	173,434	169,059	342,493			385,398
Barangays:															
1. Aguso									6,110			6,893			7,718
2. Alvindia									1,393			1,573			1,926
3. Amucao									1,991			2,220			2,660
4. Armenia									4,280			4,985			5,608
5. Asturias									1,359			1,771			1,815
6. Atioc									1,644			2,232			2,560
7. Balanti									1,725			1,725			1,961
8. Balete									4,819			4,684			5,445
9. Balibago I									2,008			2,208			2,118
10. Balibago II									3,375			3,533			4,180
11. Balinganaway									5,821			5,962			6,769
12. Banaba									934			1,048			1,245
13. Bantog									1,926			2,192			2,410
14. Baras-Baras									3,317			4,338			5,173
15. Batang-Batang									1,477			1,666			2,258
16. Binauganan									4,159			4,498			5,791
17. Bora									1,471			1,708			2,083
18. Buenavista									1,224			1,249			1,517
19. Buhilit									1,511			1,771			2,109
20. Burot									5,185			6,105			7,682
21. Calingcuan									3,168			3,353			3,679
22. Capehan									1,736			1,834			2,239
23. Carangian									8,875			9,919			10,195
24. Care									4,202			4,465			5,126
25. Central									3,507			4,127			4,008
26. Culipat									1,401			1,898			2,764

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27. Cut-Cut I									410			400			456
28. Dalayap									3,094			3,401			3,912
29. Dela Paz									2,724			2,856			3,410
30. Dolores									2,615			3,248			3,972
31. Laoang									2,728			3,053			3,277
32. Liglasan									2,816			2,596			2,376
33. Lourdes									2,365			2,649			2,888
34. Mabini									827			628			851
35. Maligaya									3,626			3,615			4,152
36. Maliwalo									10,629			11,891			16,106

Appendix C

**TABLE 2.9: HOUSEHOLD POPULATION 15 YEARS OLD AND OVER BY EMPLOYMENT STATUS
YEAR 2014 to 2020**

Year Tarlac Province	Total Population 15 Years Old and Over (Thousands)	Labor Force Participation Rate	Employment Rate (in %)	Unemployment Rate (in %)	Underemployment Rate (in %)	Visible Underemployment Rate
2020	-	-	-	-	-	-
2019	-	-	-	-	-	-
2018	7,889	59.9	94.2	5.8	11.4	-
2017	7,752	58.7	93.4	6.6	11.5	-
2016	7,555	62.1	93.4	6.6	16.1	-
2015	7,282	61.5	92.2	7.8	13.5	-
2014	7,164	62.6	91.9	8.1	14.3	-

Source: Philippine Statistics Authority, Tarlac City, 2015 Census of Population

“That In All Things God May Be Glorified”



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Appendix D

TABLE 2.12: TOTAL POPULATION, HOUSEHOLDS AND AVERAGE HOUSEHOLD SIZE, BY BARANGAY, YEAR 2018 TO YEAR 2020

Barangay	Population			Number of Households			Average household size		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
1. Aguso	-	-	7,718	-	-	7,714	-	-	1,724
2. Alvindia Segundo	-	-	1,926	-	-	1,926	-	-	457
3. Amucao	-	-	2,660	-	-	2,660	-	-	598
4. Armenia	-	-	5,608	-	-	5,560	-	-	1,282
5. Asturias	-	-	1,815	-	-	1,815	-	-	448
6. Atloc	-	-	2,560	-	-	2,560	-	-	563
7. Balanti	-	-	1,961	-	-	1,961	-	-	481
8. Balete	-	-	5,445	-	-	5,445	-	-	1,275
9. Balibago I	-	-	2,118	-	-	2,118	-	-	485
10. Balibago II	-	-	4,180	-	-	4,081	-	-	902
11. Balingcanaway	-	-	6,769	-	-	6,769	-	-	1,503
12. Banaba	-	-	1,245	-	-	1,245	-	-	280
13. Bantog	-	-	2,410	-	-	2,410	-	-	525
14. Baras-baras	-	-	5,173	-	-	4,678	-	-	1,098

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15. Batang-batang	-	-	2,258	-	-	2,258	-	-	498
16. Binauganan	-	-	5,791	-	-	5,788	-	-	1,444
17. Bora	-	-	2,083	-	-	2,083	-	-	478
18. Buenavista	-	-	1,517	-	-	1,517	-	-	372
19. Buhilit (Bubulit)	-	-	2,109	-	-	2,109	-	-	490
20. Burot	-	-	7,682	-	-	7,682	-	-	1,827
21. Calingcuan	-	-	3,679	-	-	3,679	-	-	757
22. Capehan	-	-	2,239	-	-	2,239	-	-	566
23. Carangian	-	-	10,195	-	-	10,188	-	-	2,416
24. Central	-	-	4,008	-	-	4,008	-	-	941
25. Culipat	-	-	2,764	-	-	2,743	-	-	613
26. Cut-cut I	-	-	456	-	-	456	-	-	141
27. Cut-cut II	-	-	8,250	-	-	8,250	-	-	2,029
28. Dalayap	-	-	3,912	-	-	3,912	-	-	939
29. Dela Paz	-	-	3,410	-	-	3,410	-	-	792
30. Dolores	-	-	3,972	-	-	3,105	-	-	741
31. Laoang	-	-	3,277	-	-	3,262	-	-	778
32. Ligtasan	-	-	2,376	-	-	2,376	-	-	643
33. Lourdes	-	-	2,888	-	-	2,888	-	-	631
34. Mabini	-	-	851	-	-	851	-	-	183
35. Maligaya	-	-	4,152	-	-	4,152	-	-	1,064
36. Maliwalo	-	-	16,106	-	-	16,099	-	-	3,661



Appendix E

Author(s)	Title	Limitation / Gap Identified
Li et al. (2021)	<i>Land-use conversion and spatial employment distribution in Tehran</i>	Focused only on spatial employment patterns in a large metropolitan setting; does not address small, peri-urban barangays or the employment effects on agricultural communities transitioning into mixed-use zones.
Xie (2019)	<i>Employment outcomes of land-lost farmers in Nanjing, China</i>	Examines employment disruptions only among farmers who lost land, but does not analyze broader community-level employment changes or the economic effects beyond displaced farmers.
Nguyen (2021)	<i>Impact of industrial land conversion on household livelihoods in Vietnam</i>	Limited to industrial conversion cases and short-term livelihood effects; lacks analysis of long-term employment stability in communities undergoing mixed-use or commercial land development.
Saqib et al. (2024)	<i>Effects of agricultural land conversion on tenant farmers in Pakistan</i>	Focuses exclusively on tenant and small-scale farmers; does not explore how land conversion affects non-farming households or local employment structures beyond agriculture.



Zhao, Jia, & Li (2023)	<i>Effects of China's Sloping Land Conversion Program on farmer income and employment</i>	Primarily evaluates ecological subsidy programs rather than market-driven land conversion; does not examine how commercial or residential land development influences employment transitions.

Appendix F

Author(s)	Title	Limitation / Gap Identified
Andjani, Nurpita, & Wihastuti (2017)	<i>Impact of land conversion for the Yogyakarta International Airport on farmer household income</i>	Focuses only on airport-related mass conversion with large compensation packages; does not examine small-scale, barangay-level conversions or how non-airport redevelopment affects income stability over time.
Fandani & Harini (2020)	<i>Economic value and income impacts of agricultural land conversion in Bantul Regency</i>	Concentrates mainly on agricultural income loss and landowner gains; does not analyze income shifts for non-farming households or mixed-use communities undergoing commercial development.
Islam et al. (2019)	<i>Climate-driven land conversion decisions and</i>	Examines climate-induced conversion only; lacks analysis of market-driven or



	<i>income effects among Bangladeshi farmers</i>	urbanization-driven conversion where compensation, real estate value, and commercial demand shape income changes.
Saqib et al. (2024)	<i>Short-term financial incentives and long-term income risks of agricultural land conversion in Pakistan</i>	Focuses on short-term financial gain versus long-term vulnerability; does not explore institutional roles, reinvestment patterns, or urban-edge conditions similar to barangay growth areas.
Uprety et al. (2024)	<i>Determinants and income outcomes of farmland conversion in Dhading, Nepal</i>	Studies income effects only in rural–urban fringes with high land-sale activity; lacks assessment of how diversified local economies (with retail, services, and industry) influence long-term income pathways.

Appendix G

Author(s)	Title	Limitation / Gap Identified
Chen et al. (2018)	<i>Land conversion and local government revenue generation through rural–urban land transfers in China</i>	Focuses on large-scale Chinese municipalities with formal land-leasing systems; does not examine small local units like barangays, which have different fiscal powers and



		lower dependence on land leasing.
Cai (2016)	<i>Land conversion as a fiscal strategy for local governments in China</i>	Emphasizes China's unique institutional setup (state land ownership and leasing rights), limiting applicability to decentralized, barangay-level governance structures; lacks analysis of mixed-use local economies.
Langer et al. (2018)	<i>Industrial and commercial land development and its effects on municipal tax revenue in Bavaria</i>	Concentrates on developed economies with strong tax administration; does not explore revenue outcomes in developing regions where informal economic activity and regulatory gaps affect revenue collection.
Del Moro et al. (2024)	<i>Industrialization, land conversion, crop production decline, and municipal revenue in the Philippines</i>	Focuses on municipal-level effects and industrial zones; does not examine barangay-level revenue mechanisms or how small-scale commercial conversion affects local fiscal capacity.
Rondhi et al. (2018)	<i>Land conversion impacts on land values and government revenue in East Java</i>	Evaluates revenue effects mainly through changes in land value and property-related charges; does not assess secondary revenue streams such as business permits, service taxes, or retail growth in semi-urban communities.



Appendix H

$$Y = \beta_0 + \beta_1 \text{Land Conversion} + \epsilon$$

Appendix I





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