

# Poverty Status Differentiation in Central Philippines: A Discriminant Analysis of Household Characteristics

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## ABSTRACT

One of the most intractable socioeconomic issues in Central Philippines is poverty, and a significant number of Filipino households are currently falling below the officially declared poverty line. Although several factors have already been identified as causally linked to poverty in existing studies, these works typically use descriptive analyses and regression techniques-methods capable of determining interrelationships but not of accurately identifying poor households. To bridge this gap, the current study utilized discriminant function analysis to develop a classification model which determines the discriminating attributes that can distinguish poor from non-poor households in Central Philippines. Based on data derived from the 2024 Family Income and Expenditure Survey (FIES), 1,875,723 total households were studied. The selected socioeconomic attributes

investigated include the age of household head, level of education achieved, number of household members, number of income earners and household food expenditure percentage. Analysis reveals that all variables selected are highly significant for classification: the percent household food expenditures ( $\beta= 0.555$ ) and the educational attainment of the household head ( $\beta= 0.449$ ) are the most potent ones. Classification of the household members resulted in 75.8% overall accuracy. The model classified correctly 76.5% of poor households and 74.9% of non-poor households. In essence, observable characteristics of households were able to predict their classification in terms of poverty, even in the absence of actual income data. These findings could aid the government and other policymakers in a more appropriate allocation of their limited resources for poverty reduction interventions and social protection programs.

**Keywords:** *poverty status, discriminant analysis, household characteristics, classification model, Central Philippines*

## INTRODUCTION

Poverty is one of the persistent socioeconomic challenges in the Philippines. Despite the country's periods of sustained economic progress and the improvement in some development indices, a substantial proportion of Filipino families are unable to satisfy their basic needs. The Philippine Statistics Authority (PSA) considers poverty as the poverty threshold, which is the lowest amount of income required to meet basic food and non-food needs. About 10.9 percent, equivalent to roughly 3.0 million of Filipino families were poor in 2023, suggesting that there are still millions of Filipino families living below the poverty line (Philippine Statistics Authority [PSA], 2024). Accordingly, it is essential to find out the particulars that distinguish poor families from those relatively better off in order to guide effective interventions.

Poverty is a multidimensional phenomenon that is influenced by various demographic, social, and economic characteristics. While household characteristics, like educational attainment, household size, employment status, and consumption characteristics, are heavily associated with economic outcomes (PSA, 2024; Philippine Institute for Development Studies [PIDS], 2025), most studies of these relationships only use

descriptive or regression analysis. Although these approaches are useful in explaining relationships between these variables and economic outcomes, they are not very useful in reliably classifying households as either poor or non-poor. Recent studies have used multivariate classification techniques to distinguish between the poor and non-poor, but these are mainly studies conducted in the United States or the United Kingdom. These types of study, however, are lacking in the Philippines. This study uses classification techniques to investigate which variables distinguish households below the poverty line from those at or above the poverty line.

This study aims to construct a classification model to differentiate the households below the poverty line from those at or above the poverty line in Central Philippines. The model is constructed by using discriminant function analysis on five variables: age, highest educational attainment of household head, family size, number of income earners in a household and the proportion of a family's income spent on food. The last three variables are well known in the literature as strong predictors of socioeconomic status; they are fundamental socio-demographic and economic characteristics of the families that have a crucial direct effect on their poverty status.

The choice of the above-mentioned variables was motivated by available considerations: they are present in a continuous fashion, they are known indicators of poverty or highly correlated to income levels, and they are present in the 2024 Family Expenditure and Income Survey (FIES).

The results of this study are expected to make a substantial contribution both in theory and in practice. In theory, this study will enhance knowledge on how selected socioeconomic variables differ in their capacity to explain poverty status (i.e., poor and non-poor) of Filipino households. In practice, the findings can help government agencies, local government units and development organizations in planning and designing proper poverty alleviation programs by targeting the characteristics that are most strongly related to poverty and thus improve welfare of Filipino households and lower incidences of poverty in the country. This will be realized in the results of better understanding of the differences between poor and non-poor households and more efficient utilization of public funds that are limited.

Furthermore, identifying differences can also help poverty monitoring agencies to quickly and easily identify households that urgently need help, guide the government to formulate appropriate policies for boosting household income and purchasing power. Also, this paper gives statisticians and researchers a practical way to classify the families; applying discriminant analysis to variables of poverty condition, one can estimate or predict whether a family is a poor or non-poor family when there is no income data.

## Literature Review

Poverty is a pervasive social and economic problem affecting society as a whole, particularly in developing countries such as the Philippines. While poverty is generally modeled as an absence of income, it also involves various deprivations that threaten to rob individuals of the basic constituents of a life of dignity. As Nobel laureate economist Amartya Sen has pointed out, poverty is more than a state of low income; it is a "deprivation of basic capabilities," that is to say, it is a shortfall, not only in monetary matters, but in the capacity to perform basic human functions and to enjoy the benefits of presented opportunities. It also signifies "the inability of people to enjoy a minimum standard of living," hence the disparity between basic physiological needs and the actual capacity to fulfill them.

Poverty is considered to be a complex and multidimensional condition that can be defined by several aspects. There are numerous factors that have been associated to this economic condition. These factors are various from demographic to social, and to economic characteristics. These characteristics refer to educational level, size of the household, employment opportunities, and consumption patterns. In this paper, only food consumption is considered as an indicator of economic status since food is a fundamental household requirement. Therefore, family size is also considered as an important factor since it is expected that larger households face greater economic strain. On the one hand, a household with several working members has a higher probability of earning more income than a single earner household. On the other hand, the family size will also affect the capacity of a household to sustain itself. Family size is an important factor, considering that the addition of a working member is an opportunity to increase earnings. However, larger families imply more non-earning members that depend on

daily earnings to sustain their economic condition. Literature review has shown how there is a positive relationship among education, earning, and economic status, and this trend also applies to household size and consumption patterns. Food is essential for human survival. Since all households in society consume food, those households that have lower incomes will spend a substantial percentage of their income on food compared to rich households. (PSA, 2024; Philippine Institute for Development Studies [PIDS], 2025).

A number of local and foreign researchers have noted that poor households typically have low educational background, the family heads mainly belong to the primary sector and exhibit larger family sizes. However, these households maintain high dependency ratios since they have a large number of young children and often include non-working members.

In line with the observations above, the United Nations Development Program (UNDP) carried out a household survey in Armenia, to shed light on the relationships between poverty, education and work. The results show that better educated people are less likely to be poor, and specialized training has an even stronger positive effect on work participation and escape from poverty and the authors also warn that "education alone is not sufficient, its benefits are only available when the individual is able to work".

Studies in Malawi have found that poor households are much larger than non-poor households, and they have more children under 15 per working member. Poverty rates vary with the age of the household head. They are lowest when he or she is under 30, but increases as the head reaches their thirties, and stay at levels of about 60 to 65 percent thereafter.

With regard to concepts, measurements and categorization of poverty, Khe, Eriksson, Phuong, Höjer and Diwan (2003) carried out a study entitled "Faces of Poverty: Sensitivity and Specificity of Economic Classifications in Rural Vietnam", to assess measures of poverty in an epidemiological field laboratory. With particular reference to the Official Economic Classification, the study aimed to evaluate whether the economic classification assigned by the local authority reflected other measures of socioeconomic status. Five economic indicators (income, expenditure, household's assets, housing conditions and the local authority's estimation) were constructed. The results of this study do not indicate any of the indicators used to be superior to the others or to the Official Economic Classification made by the local authority. It also emerges from the results that no indicator, by itself, is informative of the values of the others, and that different indicators of poverty may classify different socioeconomic groups as poor.

In India, a survey of microfinance program participants found that 84 percent significantly reduced their poverty. Gains were larger when a loan was used to increase the number of earners in the household, such as by women starting their own businesses, and when added sources of earning were outside those already existing, providing diversification to the household's sources of income.

The most related study to the present research is "Factors that Affect Poverty Areas in North Sumatra" by Nasution, Bangun, and Sitepu (2018) which investigated factors such as education and health, demography, structural and cultural conditions, population density, unemployment rate, GDP per capita, economic growth, and life expectancy. The study used discriminant analysis to find the factor which is most differentiating in terms of impoverishment. The study found that the most important differentiating factor is the unemployment rate.

### ***Measures of Poverty***

Since the concept of poverty can be subject to differing interpretations—and because of differing methods of estimating the size and impacts of poverty—there are many ways of measuring poverty. Since the incidence of poverty measured under a certain definition depends on the choice of at-risk-of-poverty threshold level, and because these choices differ across studies, estimates of the prevalence of poverty vary. Commonly used measures of poverty include some indicator of income or consumption, such as the poverty lines, but a wide range of indicators of material well-being or of other welfare-related quality-of-life problems have also been used, as well as composite indices that combine multiple measures of deprivation (Laes, 2010). In modern poverty studies, the concept of the poverty line is a key factor. The poverty line is the level of resources at which a person or household is classified as poor. In principle, poverty lines may be absolute or relative. An absolute poverty line, for instance,

is the minimum income or spending that is presumed necessary for any individual or household to meet the basic standards of consumption

Poverty is increasingly being measured with different concepts and methods. Trumm discusses how understanding the depth, scope and structural form of poverty is also a part of having a proper measurement. The article highlights how different concepts are derived and how these can be measured. The article concludes by showing how income, consumption and non-financial indicators can be linked in composite indices of poverty. The article also discusses the difficulties in measuring the prevalence of poverty. The deprivation of income, consumption, wealth or basis of deprivations (i.e. basis for other deprivations) are possible concepts to be measured. However, it can also be welfare specific, a measure of quality of life, human development, macro-scale conditions, personal satisfaction, needs or person's own assessment of living standards. Finally, the index can be a composite index of narrow poverty indicators, thus providing a multidimensional view on deprivation.

### ***Use of Discriminant Analysis to Differentiate Poverty Status***

Within the variety of analytical methods, discriminant analysis is useful in poverty research. The main goal of discriminant analysis is to differentiate between two or more groups that have been pre-defined, for example between poor and non-poor households, by identifying the variables that best separate the groups and creating a classification rule based on the group differences. First it finds the factors that most distinguish the groups, and subsequently a discriminant function is identified explaining how the difference between groups becomes significant.

Discriminant analysis is a distinctly valuable analytical technique because it is concerned with predicting group membership rather than explaining relationships, as are the more common techniques of poverty research including descriptive or regression methods. Using household characteristics to assign families to poor or non-poor groups and develop the functional model that can be used to inform the planning and implementation of social policy is the approach discriminant analysis takes to poverty measurement.

Discriminant analysis is similar to regression analysis in that both techniques consider the relationship between variables. However, as Santoso (2010) points out, the two techniques also differ in important regards. In case of regression analysis, the dependent variable is numerical in nature, and the predictors can be either numerical or categorical. But in discriminant analysis, the dependent variable is categorical, i.e. poor or non-poor, whereas the independent variables are numerical. This makes discriminant analysis particularly useful in studies where the goal is to classify households into different categories using measurable attributes. In contrast to other methods that can none more than describe relationships and/or trends, discriminant analysis has the unique ability to predict and classify. Consequently, discriminant analysis can be used to predict group membership using household characteristics ie their income, assets, demographic characteristics and So on. Apart from differentiating and classifying households, the ability to create a functioning model using discriminant analysis is a powerful tool in the hands of policy makers in the area of poverty eradication.

## **METHODS**

This study is quantitative and descriptive-correlational in nature. It utilized documentary analysis of secondary data from the Family Income and Expenditure Survey (FIES) of 2024, which is a nationwide survey of households undertaken every three years by the PSA. It is the main source of data on family income and expenditure which include, among others, levels of consumption by item of expenditures as well as sources of income in cash and in kind. The results of FIES provide information on the levels of living and disparities in income of Filipino families, as well as their spending patterns ([psa.gov.ph](http://psa.gov.ph)).

In addition, the researcher also referred to the result of the Labor Force Survey (LFS) of 2023. Copies of the consolidated survey reports are available at the PSA ([psa.gov.ph](http://psa.gov.ph)) website and the National Statistical Coordination Board ([www.nscb.gov.ph](http://www.nscb.gov.ph)).

Statistical Analyses were performed using Microsoft Excel with MegaStat, add-in module (MicroSoft Corporation, 2002).

Specifically, relative frequency distribution was used for profiling using the five variables earlier mentioned. For the main purpose of the study, the statistical tool used in the analysis was Discriminant Analysis., which is a multivariate statistical technique very popularly used to identify variables that can differentiate groups from one another. These variables are called discriminating variables. This technique weighs and linearly combines the discriminating variables of the form:

$$D_i = d_{i1}Z_1 + d_{i2}Z_2 + d_{i3}Z_3 + \dots + d_{ip}Z_p$$

where  $D_i$  is the score on discriminant function  $i$ , the  $d$ 's are the weighting coefficients, and the  $Z$ 's are the standardized values of the discriminating variables.

After an initial computation, discriminant analysis was used for classification analysis to identify the likely group classification of a case when the only information known is the case's values in the discriminating variables. The success in discrimination is measured by observing the proportion of correct classification.

The classification equations are in the form:

$$C_i = C_{i1}V_1 + C_{i2}V_2 + \dots + C_{ip}V_p + C_{i0}$$

where  $C_i$  is the classification score for group  $i$ , the  $C_{ij}$ 's are the classification coefficients with  $C_{i0}$  being the constant and the  $V$ 's are the raw scores on the discriminating variables.

## RESULTS AND DISCUSSION

The results of the various analyses are presented in tables for easy comparison of the characteristics of the two groups: below poverty line and above poverty line. The frequency distribution tables for each of the five socioeconomic variables are presented first, followed by the mean values of variables, and the discriminant and classification analyses.

### Age of Household Head

Older household heads are found among households above the poverty line. As seen in Table 1, more than 50 percent of household heads in household below poverty line are aged 44 years and below, and only 9.3 percent are aged 65 years and above. In contrast to the households above poverty line, more than 50 percent of the heads are aged above 44 years. This suggests that in Central Philippines, life cycle income patterns apply, where earnings peak in middle age, unlike in countries with limited social security where older populations face high risk.”

Table 1. *Distribution of Households by Age of Household Head*

Age of Household Head	Total Households		Below Poverty Line		Above Poverty Line	
	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)
15–24	39,390	2.1	11,907	2.3	24,444	1.8
25–34	378,896	20.2	113,894	22.0	239,012	17.6
35–44	498,942	26.6	152,204	29.4	305,555	22.5
45–54	423,913	22.6	119,071	23.0	300,123	22.1
55–64	307,619	16.4	72,478	14.0	268,889	19.8
65 & above	226,963	12.1	48,146	9.3	220,000	16.2
Total	1,875,723	100.0	517,700	100.0	1,358,023	100.0

This finding seems to contradict the situation in the State of Malawi where an examination of the population pyramid suggested that as the population ages; there is a slide into poverty.

However, the older household heads under study maybe associated with higher income than younger heads because if they were wage/salary workers they would have been in the service for more years; and, hence, receiving higher salaries. If they were self-employed persons, they would already have a well-established business economic activity.

### Highest Educational Attainment of Household Head

Household heads of those living below poverty line are truly characterized by lower level of education. This is shown in Table 2. Four out of every 10 household heads among those below poverty line have not graduated from elementary level of education and barely two percent are college graduates. Among the household heads of those above poverty line, 15.6 percent are college graduates and 13.1 percent have partial college education.

Table 2. *Distribution of Households by Highest Educational Attainment of Household Head*

Highest Educational Attainment	Total Households		Below Poverty Line		Above Poverty Line	
	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)
No grade completed	142,555	7.6	44,005	8.5	76,049	5.6
Elementary Undergraduate	545,835	29.1	181,195	35.0	278,395	20.5
Elementary Graduate	457,676	24.4	143,403	27.7	267,531	19.7
High School Undergraduate	187,572	10.0	59,018	11.4	118,148	8.7
High School Graduate	253,223	13.5	57,982	11.2	228,148	16.8
College Undergraduate	148,182	7.9	22,779	4.4	177,901	13.1
College Graduate	140,679	7.5	9,319	1.8	211,852	15.6
Total	1,875,723	100.0	517,700	100.0	1,358,023	100.0

In terms of years of schooling, heads of poor households have only an average of less than six years (equivalent to elementary undergraduate) as compared to nine years (equivalent to third year high school) for the non-poor households.

Lower education among household heads of poor households maybe an indication that they also came from poor families and, thus, were unable to complete their schooling. Children of poor parents are usually forced to quit school and work to augment the family income.

This conforms to the conclusion of the similar study conducted in Armenia. It goes without saying, therefore, that there is a need to promote education in order escape from the vicious cycle of poverty.

### Household Size

Household sizes of the poor and non-poor households also show significant differences. Majority of those living below poverty line have five to six family members and some 38 thousand (37.4 percent) have at least seven members. Three to four is the modal size among those above poverty line and slightly over 13 percent have members seven and over. The proportion of less than three members is much lower in poor households than in their non-poor counterparts (Table 3).

Table 3. *Distribution of Households by Household Size*

Household Size	Total Households		Below Poverty Line		Above Poverty Line	
	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)
1-2	170,691	9.1	26,403	5.1	200,987	14.8
3-4	510,197	27.2	116,483	22.5	461,728	34.0
5-6	626,491	33.4	181,195	35.0	422,345	31.1
7-8	371,393	19.8	125,283	24.2	184,691	13.6
9 & above	196,951	10.5	68,336	13.2	88,271	6.5
Total	1,875,723	100.0	517,700	100.0	1,358,023	100.0

While some poverty studies, including that of the State of Malawi in which the size of poor households is significantly larger than non-poor households, show that household size tends to grow as family income increases, data show inverse relationship with household size. It may be hypothesized that the poor households are

characterized by the presence of non-working mothers who are usually associated with more children and, hence, bigger households.

### Number of Income Earners

Distribution of the number of earners between poor and non-poor households does not show much difference as presented in Table 4. Majority in both groups have no more than one income earner in the household. It is interesting to note that among non-poor households, 7.9 percent have no earning members and there is slightly higher proportion of two earning members. For the non-poor households with no income earners, these could be households with regular remittances from a working member abroad or those totally dependent on property income, pensions, etc.

Table 4. *Distribution of Households by Number of Income Earners*

Number of Earners	Total Households		Below Poverty Line		Above Poverty Line	
	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)
None	97,538	5.2	17,084	3.3	107,284	7.9
1	896,596	47.8	268,686	51.9	567,654	41.8
2	585,226	31.2	150,651	29.1	465,802	34.3
3	180,069	9.6	48,664	9.4	134,444	9.9
4 & above	116,295	6.2	32,615	6.3	82,839	6.1
Total	1,875,723	100.0	517,700	100.0	1,358,023	100.0

Since most of the households, whether below or above the poverty line, are dependent on one or two earning members, the levels of their earnings greatly influence the total income of the family.

As earlier mentioned, the study conducted in India to assess the effectiveness of the micro-finance programs revealed that poverty among the clients has been considerably reduced. This is the result of the utilization their loans to increase the number of income earners in the household, including the wife.

### Proportion of Income Spent on Food

Households living below poverty line spend most of their income on food, a basic necessity to survive while those above poverty line spend lesser percentage. As shown in Table 5, 75 percent of the poor families spend at least 50 percent of their income on food while only 33 percent of the non-poor families do the same. Majority of the non-poor families spend less than 50 percent of their income on food, allowing them sufficient amount for other non-food expenses such as education, shelter, clothing, recreation and others.

Table 5. *Distribution of Households by Percentage of Income Spent on Food*

Percentage of Income Spent on Food	Total Households		Below Poverty Line		Above Poverty Line	
	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)	Frequency	Relative Frequency (%)
Less than 10%	31,887	1.7	11,907	2.3	10,864	0.8
10–29	170,691	9.1	17,084	3.3	236,296	17.4
30–49	585,226	31.2	97,845	18.9	665,431	49.0
50–69	735,283	39.2	244,872	47.3	372,098	27.4
70–89	301,991	16.1	123,730	23.9	66,543	4.9
90 & above	50,645	2.7	22,261	4.3	6,790	0.5
Total	1,875,723	100.0	517,700.0	100.0	1,358,023	100.0

The above finding corroborates the Engel's Law which states that the lower a family's income, the greater is the proportion of it spent on food, and as incomes increase, the proportion of income spent on food falls.

### Discriminant Function and Classification Analysis

Table 6 provides the mean values for the five variables for further comparison. As can be gleaned from the table, age and years of schooling of the household heads are directly related with poverty status, that is, as age and level of education increase, family income also increases. On the other hand, the family size and the percentage of income spent on food are inversely related with poverty status. The mean number of earners for each group is almost the same.

*Table 6. Mean Values of Selected Socioeconomic Variables*

Variable	Below Poverty Line	Above Poverty Line
Age of the household head	44.7	48.4
Highest educational attainment (years)	6.0	9.0
Household size	5.9	4.8
Number of income earners	1.6	1.7
Proportion of income spent on food (%)	59.6	43.5

A discriminant analysis was performed on two groups households – below poverty line and above poverty line - and result is depicted in Table 7. As shown in the table, all the five variables used are statistically significant at five percent level with the proportion of income spent on food yielding the highest absolute coefficient. In this table, negative coefficients mean higher spending or higher chance of being poor, while the positive coefficients mean higher chance of being non-poor.

The discriminant analysis contrasts the households below poverty line (group centroid of -0.484) against the households above poverty line (group centroid of 0.668).

The canonical correlation, a measure of association between the discriminant function and groups, is 0.568. Its square may also be interpreted as the proportion of variance in the discriminant function explained by the groups.

The eigenvalue computed is 0.477, and it is a special measure computed in the process of deriving the discriminant function. When summed, it is a measure of the total variance existing in the discriminating variables. A single eigenvalue expressed as a percentage of the total sum of eigenvalues gives an easy reference to the relative importance of the associated function.

The Wilk's Lambda, which is an inverse measure of the discriminating power in the original variables that have not been removed by the discriminant function is equal to 0.677 and corresponds to a chi-square of 6621.281 with a probability of 0.008. Therefore, the discriminant function is statistically significant.

*Table 7. Discriminant Function, Group Centroids, and Other Statistics*

Standardized Discriminant Function Coefficients	
Proportion of income spent on food	-0.555
Highest educational attainment of the household head	0.449
Household size	-0.475
Age of the household head	0.222
Number of income earners	0.150
Group Centroids	
Below poverty line	-0.484
Above poverty line	0.668
Other Statistics	
Eigenvalue	0.477
Relative percentage (%)	100.0
Canonical correlation	0.568
Wilk's Lambda	0.677
Chi-square	6621.281
Degrees of freedom	6
p-value	0.008

Using the discriminant variables in the classification analysis to predict the classification of all households resulted in 75.8 percent correctly classified cases. This means that the five discriminating variables are good predictors (Table 8).

Table 8. *Classification Results of the Discriminant Function*

Actual Classification	Predicted Classification	
	Below Poverty (%)	Above Poverty (%)
Below Poverty	76.5	23.5
Above Poverty	25.1	74.9
Percentage of cases correctly classified: 75.8%		

## CONCLUSION

Using the recently established poverty lines to initially identify the poor households from the non-poor households and applying discriminant analysis, five significant discriminating variables were established. These are (1) age of the household head, (2) highest educational attainment of the household head, (3) household size, (4) number of income earners in the household, and (5) proportion of income spent on food. This means a household even without knowing its income can be predicted whether poor or non-poor using its values on the discriminating variables. The five variables are found to be good predictors.

Although the results of the study indicate that poverty status of a certain household may be predicted, the variables used, while significant, may present some challenges in practical application. Accurate. Among the four variables, it is the determination of the proportion of income spent on food of every household that remains challenging. However, the other four variables are easily observable and measurable, making the model useful for assessment. More variables have to be tried and data have to be gathered in order to establish the best set of discriminating variables to replace income as a basis for identifying the poor. As widely recognized, obtaining accurate income data is notoriously difficult in household surveys.

Based on the findings of this study, the following recommendations are proposed for policy intervention, program implementation, and future research:

### ***For Government Agencies and Policymakers***

- **Prioritize Education:** Given that educational attainment is one of the strongest markers of poor households, the government should strengthen and improve regular services that facilitate free and quality education for children of large and low-income families, including provision of school supplies, subsidized transportation and feeding programs in order to reduce dropout levels and break the cycle of intergenerational poverty.
- **Target Larger Households:** Household size is strongly related to poverty incidence. Poverty alleviation programs such as conditional cash transfers or livelihood assistance need to be specifically tailored for households with five or more members who experience the highest economic strain and the highest dependency ratios.
- **Support Income Diversification:** Expanding the number of village earners could be less important than ensuring that their work arrangements provide stable and diversified incomes. Efforts to improve income security by improving incomes could include livelihood-enhancement programs and quality skills training to improve opportunities to produce high-value goods and services that are in demand.

### ***For Poverty Monitoring and Social Welfare Agencies***

- **Adopt the Classification Model:** The discriminant model developed in this study can serve as a practical tool for rapid poverty assessment. Agencies such as the Department of Social Welfare and Development (DSWD) and local government units can use easily observable characteristics, age, education, household size, and estimated food expenditure to identify vulnerable households and prioritize beneficiaries for social assistance, especially when detailed income data is difficult or costly to collect.

- Refine Targeting Mechanisms: As the most powerful indicator of poverty status, the proportion of income spent on food can be used by monitoring systems as a primary screening criterion to identify families suffering from severe economic hardship based on their food consumption patterns.

#### ***For Future Research***

- Expand the Set of Variables: Although classification accuracy of 75.8% is achieved using the five variables employed in this study, the collected characteristics which include type of occupation, ownership of assets (land, house, consumer durables), availability of basic services (water, electricity, health) and geographic location should have been added in future research to boost the predictive ability and accuracy of the model.
- Enhance Measurement of Consumption: Because measuring the precise share of income devoted to food can be difficult to do operationally, researchers can consider using simplified indicators of food security or standardized consumption scores that are simpler to measure but which still have high discriminating power.
- Apply the Model in Other Regions: The study was based on the Central Philippines. Therefore, similar studies should be carried out in other geographic provinces to confirm the acceptability of the model and to check if the characteristics identified also hold in other provinces or if the poverty profiling needs to be localized.

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