

Socioeconomic Determinants of Unemployment and Skills Mismatch in A Rural Coastal Community: Basis for A Proposed Technical Livelihood Program

Joefel T. Libo-on

College of Industrial Technology, Iloilo State University of Fisheries Science and Technology, Philippines

ABSTRACT: This study examined the socioeconomic determinants of unemployment and skills mismatch in a rural coastal community as the basis for a proposed technical livelihood program in automotive, electrical, and electronics technologies. Using a descriptive–correlational design, data were collected from 60 working-age residents through a validated survey instrument with high internal consistency. Descriptive statistics and inferential analyses were employed to assess demographic profiles, employment patterns, technical competencies, barriers to training access, and predictors of unemployment and readiness for skills development. Results indicated high prevalence of seasonal employment (43.3%) and unemployment (28.3%), with most households earning below ₱10,000 monthly. Respondents demonstrated consistently low competency across automotive, electrical, and electronics skills, with weighted means ranging from 1.99 to 2.02 (“Less Skilled”). Financial constraints, scheduling conflicts, limited instructor availability, and lack of awareness emerged as moderate barriers to training participation. Chi-square tests showed no significant association between education, age, gender, and skills mismatch, while logistic and multiple regression analyses identified household income as the sole significant predictor of unemployment risk and readiness for training. The findings suggest that unemployment and skills mismatch are structurally driven rather than attributable to individual characteristics alone. Based on these results, the study proposes the ANILAO Program, a community-based, competency-aligned technical livelihood initiative designed to improve employability, support entrepreneurship, and enhance economic resilience in underserved rural contexts.

KEYWORDS: Unemployment, Skills Mismatch, Socioeconomic Determinants, Technical Livelihood Program, Philippines.

1 INTRODUCTION

Unemployment and skills mismatches continue to pose significant socioeconomic challenges globally, particularly in rural and underserved communities where access to relevant education and job opportunities is limited. A skills mismatch arises when the knowledge, competencies, and qualifications of workers do not align with labor market demands, leading to persistent unemployment, underemployment, or employment in low-quality jobs that underutilize individual capacities [1]. These disparities are not confined to advanced economies; they are equally prevalent in developing contexts, where structural barriers, including limited institutional support, inadequate training infrastructures, and geographical isolation, exacerbate the disconnect between workforce preparation and labor market needs. In such settings, the consequences of unemployment and skill deficiencies are magnified, undermining both individual livelihoods and community economic resilience.

In the Philippine, the prevalence of skills mismatch has been recognized as a critical barrier to inclusive economic growth and workforce development. National analyses indicate that a considerable proportion of Filipino workers are either overqualified for their current positions or lack the technical competencies required for higher-paying roles, revealing a systemic misalignment between education and labor market requirements [2]. These challenges are particularly acute in rural coastal communities, where residents primarily depend on seasonal agricultural work or other informal livelihood activities, resulting in unstable household incomes and periods of underemployment. In Barangay Palaypay, Anilao, Iloilo, such structural vulnerabilities are evident in limited access to technical and vocational education, scarce training facilities, and low awareness of available certification programs, creating persistent barriers to meaningful workforce participation.

Efforts to address skills mismatch in the Philippines have increasingly focused on localized, competency-based interventions that deliver technical vocational education and training (TVET) to underserved populations. Initiatives such as mobile training centers in Cebu and TESDA’s industry-aligned TVET programs have demonstrated tangible improvements in employability and workforce readiness, with higher certification rates translating into increased employment opportunities [3,4]. Despite these gains, rural communities like Barangay Palaypay remain underserved due to geographical remoteness, transportation challenges, and

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limited program outreach, highlighting a continuing “training gap” that constrains residents’ economic mobility. This underscores the urgent need for context-sensitive interventions that bring skills development directly to local populations while aligning training with labor market demand.

The consequences of persistent unemployment and skills mismatch extend beyond individual economic hardship, shaping broader community development outcomes. Rural communities reliant on seasonal agriculture and informal livelihoods face income instability, minimal social protection, and restricted access to essential services. Moreover, the scarcity of technical skills in areas such as automotive servicing, electrical installation, and electronics repair limits both local service provision and entrepreneurial opportunities, forcing residents to seek services outside the community. Research indicates that targeted technical training, particularly when grounded in local labor market needs, can enhance employability, diversify livelihoods, and foster sustainable economic participation in underserved regions [27,5]. Thus, understanding the socioeconomic determinants of unemployment and skills mismatch is critical for designing interventions that are both effective and locally relevant.

This study, therefore, aims to examine the socioeconomic factors influencing unemployment and skills mismatch in Barangay Palaypay, Anilao, Iloilo, and to use these findings as a basis for developing a proposed technical livelihood program in automotive, electrical, and electronics technologies. By systematically analyzing local demographic, educational, and occupational profiles alongside residents’ technical competencies and training needs, the research seeks to identify actionable strategies to bridge the gap between workforce skills and labor market demand. Ultimately, the study endeavors to provide a data-driven, community-centered approach to workforce development that enhances employability, supports inclusive economic growth, and strengthens the long-term economic resilience of rural coastal populations.

2 METHODS

The study employed a descriptive–correlational survey research design to investigate the socioeconomic determinants of unemployment and skills mismatch among residents of Barangay Palaypay, Anilao, Iloilo. This design was deemed appropriate because it allows for the systematic documentation of participants’ demographic characteristics, educational attainment, household income, employment status, and existing technical skills without manipulating variables. Descriptive survey research is widely recognized in social sciences and community-based studies for capturing prevailing conditions and population characteristics, particularly when the goal is to inform program development and policy recommendations rather than to test experimental interventions [6]. Integrating a correlational component further enabled the study to examine the relationships between socioeconomic variables and employment outcomes, providing insights into the predictors of unemployment, underemployment, and skills mismatch [7].

The target population comprised working-age residents of Barangay Palaypay who are either currently employed, underemployed, or unemployed and who are potentially eligible for technical livelihood training. A purposive sampling technique was employed to ensure that respondents reflected the community’s labor force composition and had exposure to the local socioeconomic conditions under investigation. Purposive sampling is considered suitable in studies that focus on specific characteristics relevant to the research objectives, allowing the researcher to capture data from participants who can provide meaningful insights into local labor market dynamics and skills needs [8]. A total of 60 respondents were selected, representing diverse age groups, educational backgrounds, and occupational experiences.

Data collection was carried out using a structured survey questionnaire specifically developed for this study. The instrument included sections on demographic information, household socioeconomic status, livelihood activities, and technical competencies in the fields of automotive, electrical, and electronics technologies. Prior to administration, the questionnaire underwent content validation by subject matter experts to ensure clarity, relevance, and alignment with the study objectives. Following validation, the instrument was subjected to reliability testing, yielding a Cronbach’s alpha of 0.964, indicating a very high level of internal consistency and suitability for capturing accurate and dependable data. Ethical considerations were strictly observed, including voluntary participation, informed consent, confidentiality of responses, and the right to withdraw without penalty.

The survey was administered in person after securing permission from the barangay authorities. Enumerators provided respondents with clear instructions, facilitated comprehension of technical questions, and ensured accurate recording of responses. Completed questionnaires were carefully checked for completeness and consistency before being encoded for analysis. The organization of the data enabled systematic descriptive and inferential statistical analyses, ensuring rigor and replicability in interpreting the socioeconomic determinants of unemployment and skills mismatch. All procedural steps were documented to allow other researchers to replicate the study in similar rural or coastal contexts.

For data analysis, descriptive statistics—including frequency distributions, percentages, means, and standard deviations—were employed to profile respondents’ demographic and socioeconomic characteristics, livelihood patterns, and existing technical competencies. Correlational analyses were then conducted to examine the relationships between socioeconomic variables (e.g., age, gender, education, household income) and employment outcomes, including unemployment and skills mismatch. The descriptive–

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correlational framework facilitated the identification of patterns and predictive associations, providing an empirical foundation for the design of a proposed technical livelihood program tailored to community needs.

3 RESULTS

Table 1 presents the demographic characteristics of the 60 respondents from Barangay Palaypay. The age distribution indicates a predominantly young population, with 86.67% of respondents falling within the 15–40 age range. Specifically, 31.67% were aged 31–40 years, 28.33% were 21–30 years, and 26.67% were 15–20 years, while only 13.33% were 41–50 years. In terms of gender, females comprised the majority of the sample at 60.00% ($n = 36$), while males accounted for 40.00% ($n = 24$). These figures reflect a workforce profile concentrated in early to mid-adulthood and characterized by a higher proportion of female respondents, consistent with patterns reported in labor and skills studies highlighting strong female participation in community-based surveys [30].

Educational attainment among respondents varied considerably. A substantial proportion reported elementary education as their highest level of schooling (35.00%), followed by college graduates (20.00%) and high school graduates (18.33%). Meanwhile, 15.00% reported having no formal education, and 11.67% indicated some college-level education without completing a degree. This distribution demonstrates that more than half of the respondents (50.00%) possessed only elementary education or no formal schooling, while less than one-third (31.67%) had completed high school or higher education. These patterns align with labor market research emphasizing the heterogeneity of educational backgrounds in rural communities and their association with employment trajectories and skills development opportunities [9,30].

Household composition data further indicate that most respondents resided in relatively small households. Specifically, 75.00% reported living in households with one to three members, while 25.00% lived in households with four to six members. This household size distribution suggests a predominance of smaller family units within the community, which demographic research frequently associates with differing economic pressures, dependency ratios, and capacities to allocate resources for education and training [10,30]. Together, these figures provide a structural profile of respondents' living arrangements and social contexts.

The demographic findings depict a respondent population that is predominantly young, largely female, and characterized by varied educational attainment, with a substantial proportion possessing only basic or no formal education. The concentration of respondents in working-age groups, combined with diverse schooling backgrounds and predominantly small household sizes, establishes the baseline characteristics of the sample for subsequent analyses of employment status, skills mismatch, and training readiness. These patterns are consistent with broader empirical evidence on rural labor force composition and demographic variability in skills development contexts [30].

Table 1. Demographic Characteristics of Residents ($n = 60$)

Variable	Category	Frequency	Percent
Age	15–20 years	16	26.67
	21–30 years	17	28.33
	31–40 years	19	31.67
	41–50 years	8	13.33
Gender	Male	24	40.00
	Female	36	60.00
Highest Educational Attainment	No formal education	9	15.00
	Elementary graduate	21	35.00
	High school graduate	11	18.33
	College level	7	11.67
	College graduate	12	20.00
Household Size	1–3 members	45	75.00
	4–6 members	15	25.00

Table 2 summarizes the livelihood activities, employment status, income levels, and employment patterns of the 60 respondents. Agriculture emerged as the dominant livelihood activity, with 45.00% ($n = 27$) engaged in farming-related work, followed by construction or labor work at 28.33% ($n = 17$). Government or private employment accounted for 20.00% ($n = 12$), while small business or retail activities were least common at 6.67% ($n = 4$). This distribution reflects a predominantly agrarian and labor-based

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local economy, consistent with patterns observed in rural livelihood studies where agriculture remains the primary source of employment [11].

In terms of employment status, seasonal or part-time work was most prevalent at 43.33% (n = 26), followed by unemployment at 28.33% (n = 17) and self-employment at 16.67% (n = 10). Underemployment accounted for 11.67% (n = 7) of respondents. These figures indicate that more than half of the sample (55.00%) experienced either seasonal employment or unemployment, aligning with national labor data that highlight the persistence of employment instability and labor underutilization in rural areas [12].

Household income data further demonstrate a concentration in the lower income brackets. A combined 76.66% of respondents reported monthly household incomes below ₱10,000, with 38.33% earning below ₱5,000 and another 38.33% earning between ₱5,001 and ₱10,000. Only 23.33% reported incomes above ₱10,000 per month, and fewer than one in ten (8.33%) reported earnings between ₱15,001 and ₱20,000. These income distributions are consistent with findings from rural development research showing that agricultural and informal employment sectors are commonly associated with lower and less stable income levels [13].

Patterns of employment indicate widespread instability, as half of the respondents (50.00%) reported seasonal work arrangements, while 30.00% described their employment as irregular or intermittent. Only 20.00% indicated year-round stable employment. In addition, most respondents (61.70%) reported having only one job or income source, whereas 38.30% engaged in two income-generating activities. These figures correspond with rural labor market trends emphasizing limited livelihood diversification and continued dependence on single, often seasonal, income sources [11,12].

Finally, satisfaction with current livelihood income was generally low to moderate. Only 15.00% of respondents reported being satisfied with their income, while 60.00% expressed neutral satisfaction and 25.00% reported dissatisfaction. These subjective assessments complement the objective indicators of employment and income distribution and are consistent with broader evidence linking irregular employment and low income levels to reduced livelihood satisfaction [13].

Table 2. Livelihood Activities, Employment Status, Income, and Employment Patterns of Respondents (n = 60)

Variable	Category	Frequency	Percent
Current Livelihood Activity	Agriculture	27	45.00
	Small business / Retail	4	6.67
	Construction / Labor work	17	28.33
	Government/Private employment	12	20.00
Employment Status	Seasonal / Part-time	26	43.33
	Self-employed	10	16.67
	Unemployed	17	28.33
	Underemployed	7	11.67
Average Monthly Household Income	Below ₱5,000	23	38.33
	₱5,001 – ₱10,000	23	38.33
	₱10,001 – ₱15,000	9	15.00
	₱15,001 – ₱20,000	5	8.33
Pattern of Employment	Year-round stable	12	20.00
	Seasonal	30	50.00
	Irregular / intermittent	18	30.00
Number of Jobs / Income Sources	1	37	61.70
	2	23	38.30
Satisfaction with Current Livelihood Income	Unsatisfied	15	25.00
	Neutral	36	60.00
	Satisfied	9	15.00

Table 3 presents the existing technical skills and competencies of respondents across automotive, electrical, and electronics domains. Overall, competency levels were consistently low across all three skill areas, with weighted mean scores ranging from 1.99 to 2.02, all classified as “Less Skilled.” In the automotive domain, individual task means ranged from 1.92 (providing customer service in automotive repair) to 2.08 (changing and repairing tires), with a weighted mean of 1.99 (SD = 0.161). Similarly, electrical skills recorded a weighted mean of 2.02 (SD = 0.185), with mean scores spanning from 1.95 (reading and interpreting wiring diagrams)

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to 2.07 (connecting electrical equipment properly). Electronics skills demonstrated a weighted mean of 2.01 (SD = 0.169), with task-level means ranging from 1.93 (understanding basic digital electronics concepts) to 2.15 (assembling basic electronic circuits). Across domains, standard deviation values were relatively low, indicating limited variability and suggesting that the reported competency levels were broadly consistent among respondents.

Within automotive skills, the lowest-rated competencies were customer service (M = 1.92, SD = 0.497), adjusting or replacing vehicle batteries (M = 1.93, SD = 0.482), and using automotive tools and equipment properly (M = 1.93, SD = 0.516), while higher—but still “Less Skilled”—ratings were observed for changing and repairing tires (M = 2.08, SD = 0.561) and maintaining vehicle safety standards (M = 2.05, SD = 0.467). Electrical skills followed a similar pattern, with relatively lower mean scores in reading and interpreting wiring diagrams (M = 1.95, SD = 0.594) and installing switches, fuses, and circuit breakers (M = 1.98, SD = 0.596), and comparatively higher scores in connecting electrical equipment properly (M = 2.07, SD = 0.446) and installing household wiring (M = 2.05, SD = 0.502). Electronics competencies were lowest in understanding basic digital electronics concepts (M = 1.93, SD = 0.482) and repairing small electronic devices (M = 1.97, SD = 0.410), while assembling basic electronic circuits registered the highest mean (M = 2.15, SD = 0.633), though still within the “Less Skilled” range.

Across all domains, the clustering of mean scores around the lower end of the scale indicates uniformly limited technical proficiency in mechanical, electrical, and electronic tasks. This distribution aligns with broader findings in the literature documenting persistent technical skills gaps in vocational education and training contexts, particularly in areas requiring applied diagnostics, safety compliance, and technical interpretation skills [14,15]. Comparable studies in vocational and electronics education similarly report low baseline competencies in circuit interpretation, soldering, and digital electronics among learners without structured training exposure [16].

The descriptive statistics in Table 3 indicate that respondents demonstrated consistently low levels of technical competency across automotive, electrical, and electronics skills, with minimal variation across specific tasks and domains. These patterns correspond with evidence from competency-based training research showing that learners entering vocational programs often begin with similarly low skill baselines prior to structured instruction [17]. The results establish a comprehensive skills profile of the sample, serving as an empirical baseline for subsequent analyses of training needs and workforce readiness.

Table 3. Existing Technical Skills and Competencies in Automotive, Electrical, and Electronics Work (n = 60)

Skill Area	Mean	SD	Description
Automotive Skills			
Performing basic engine maintenance	1.97	0.450	Less Skilled
Changing and repairing tires	2.08	0.561	Less Skilled
Checking and replacing oil and fluids	1.95	0.594	Less Skilled
Diagnosing engine or mechanical problems	2.02	0.596	Less Skilled
Repairing brakes and suspension systems	2.03	0.581	Less Skilled
Adjusting or replacing vehicle batteries	1.93	0.482	Less Skilled
Performing basic electrical wiring in vehicles	1.98	0.567	Less Skilled
Using automotive tools and equipment properly	1.93	0.516	Less Skilled
Maintaining vehicle safety standards	2.05	0.467	Less Skilled
Providing customer service in automotive repair	1.92	0.497	Less Skilled
Automotive Skills Weighted Mean	1.99	0.161	Less Skilled
Electrical Skills			
Installing household wiring	2.05	0.502	Less Skilled
Replacing or repairing electrical outlets	2.05	0.622	Less Skilled
Installing and maintaining lighting fixtures	2.02	0.624	Less Skilled
Performing basic circuit troubleshooting	2.00	0.638	Less Skilled
Understanding electrical safety protocols	2.03	0.551	Less Skilled
Installing switches, fuses, and circuit breakers	1.98	0.596	Less Skilled
Reading and interpreting wiring diagrams	1.95	0.594	Less Skilled
Performing basic maintenance of household appliances	2.00	0.582	Less Skilled
Connecting electrical equipment properly	2.07	0.446	Less Skilled
Identifying electrical faults and hazards	2.05	0.565	Less Skilled
Electrical Skills Weighted Mean	2.02	0.185	Less Skilled

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Electronics Skills			
Repairing small electronic devices	1.97	0.410	Less Skilled
Soldering electronic components	2.00	0.611	Less Skilled
Reading electronic circuit diagrams	1.98	0.537	Less Skilled
Testing components using multimeters	2.00	0.611	Less Skilled
Assembling basic electronic circuits	2.15	0.633	Less Skilled
Troubleshooting electronic faults	2.00	0.521	Less Skilled
Installing and maintaining household electronics	1.98	0.537	Less Skilled
Understanding basic digital electronics concepts	1.93	0.482	Less Skilled
Performing preventive maintenance	2.03	0.486	Less Skilled
Using electronic tools and equipment safely	2.05	0.565	Less Skilled
Electronics Skills Weighted Mean	2.01	0.169	Less Skilled

As shown in Table 4, residents reported multiple barriers to accessing skills development and technical training, with mean scores ranging from 2.38 to 2.67, indicating generally minor to moderate levels of constraint. The highest-rated barriers were training schedules conflicting with work or household responsibilities ($M = 2.67$, $SD = 0.729$), lack of financial assistance or scholarships ($M = 2.63$, $SD = 0.688$), high cost of training or tuition fees ($M = 2.57$, $SD = 0.851$), lack of awareness of available training programs ($M = 2.55$, $SD = 0.746$), and limited availability of instructors or trainers ($M = 2.52$, $SD = 0.792$), all categorized as moderate barriers. In contrast, transportation difficulties ($M = 2.45$, $SD = 0.790$), limited training opportunities in the barangay ($M = 2.47$, $SD = 0.791$), lack of family support ($M = 2.45$, $SD = 0.675$), fear of not meeting skill standards ($M = 2.47$, $SD = 0.650$), and limited access to tools and training materials ($M = 2.38$, $SD = 0.666$) were rated as minor barriers. Across all indicators, standard deviation values remained below 0.90, reflecting relatively consistent perceptions among respondents. These patterns are consistent with prior research identifying financial, informational, and scheduling constraints as dominant barriers to participation in technical and vocational education and training [18,20], alongside documented logistical and geographic challenges affecting access to training opportunities [19].

Table 4. Barriers to Accessing Skills Development and Technical Training Among Residents

Statement	Mean	SD	Description
Lack of awareness of available technical training programs	2.55	0.746	Moderate Barrier
High cost of training or tuition fees	2.57	0.851	Moderate Barrier
Lack of transportation to training centers	2.45	0.790	Minor Barrier
Training schedules conflict with work or household responsibilities	2.67	0.729	Moderate Barrier
Limited training opportunities in the barangay	2.47	0.791	Minor Barrier
Lack of support from family or household	2.45	0.675	Minor Barrier
Limited availability of instructors or trainers	2.52	0.792	Moderate Barrier
Fear of not meeting the skill requirements or standards	2.47	0.650	Minor Barrier
Lack of financial assistance or scholarships	2.63	0.688	Moderate Barrier
Limited access to tools, equipment, or training materials	2.38	0.666	Minor Barrier

As presented in Table 5, the distribution of employment status varied across levels of educational attainment among the 60 respondents, with seasonal or part-time employment comprising the largest category overall (43.3%), followed by unemployment (28.3%), self-employment (16.7%), and underemployment (11.7%). Among those with no formal education (15.0%), seasonal or part-time work accounted for 33.3%, while unemployment, self-employment, and underemployment were each reported by 22.2%. Elementary graduates (35.0%) were predominantly engaged in seasonal or part-time employment (52.4%), with 23.8% unemployed and smaller proportions in self-employment (14.3%) and underemployment (9.5%). High school graduates (18.3%) similarly

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showed higher representation in seasonal or part-time work (54.5%), with 36.4% unemployed and none classified as underemployed. In contrast, college-level respondents (11.7%) were more frequently self-employed (42.9%), while college graduates (20.0%) were distributed across unemployment (41.7%), seasonal or part-time work (33.3%), underemployment (16.7%), and self-employment (8.3%). The chi-square analysis indicated no statistically significant association between educational attainment and employment status ($\chi^2 = 9.84$, $df = 12$, $p = .63$). These results are consistent with prior research documenting that education-employment linkages may weaken in contexts characterized by labor market constraints and informal employment structures [21,23,22].

Table 5. Relationship Between Education Level and Employment Status Among Residents

Highest Educational Attainment	Seasonal/ Part-time	Self-employed	Unemployed	Underemployed	Total
No formal education	3 (33.3%)	2 (22.2%)	2 (22.2%)	2 (22.2%)	9 (15.0%)
Elementary graduate	11 (52.4%)	3 (14.3%)	5 (23.8%)	2 (9.5%)	21 (35.0%)
High school graduate	6 (54.5%)	1 (9.1%)	4 (36.4%)	0 (0.0%)	11 (18.3%)
College level	2 (28.6%)	3 (42.9%)	1 (14.3%)	1 (14.3%)	7 (11.7%)
College graduate	4 (33.3%)	1 (8.3%)	5 (41.7%)	2 (16.7%)	12 (20.0%)
Total	26 (43.3%)	10 (16.7%)	17 (28.3%)	7 (11.7%)	60 (100%)
Chi-Square Test	Value	df	p		
Chi-Square	9.84	12	.63		

As shown in Table 6, skills mismatch was highly prevalent across all socioeconomic groups, with approximately 90% of respondents classified as experiencing mismatch regardless of household income, age, or gender. Chi-square analyses indicated no statistically significant associations between household income and skills mismatch ($\chi^2 = 3.10$, $df = 3$, $p = .38$), age and skills mismatch ($\chi^2 = 2.94$, $df = 3$, $p = .40$), or gender and skills mismatch ($\chi^2 = 0.12$, $df = 1$, $p = .73$). These nonsignificant results demonstrate that variations in skills mismatch were minimal across income brackets, age groups, and between males and females. Consistent with prior empirical evidence, skills mismatch has been documented as widespread across diverse demographic and socioeconomic segments, reflecting broad labor market patterns rather than group-specific concentrations [24,27,26,25,28].

Table 6. Chi-Square Tests of the Relationship Between Socioeconomic Factors and Skills Mismatch

Variable	χ^2	df	p
Household Income	3.10	3	.38
Age	2.94	3	.40
Gender	0.12	1	.73

As presented in Table 7, logistic regression analysis was conducted to examine whether identified skills gaps predict the likelihood of unemployment or underemployment. The results indicate that skills were not a statistically significant predictor ($\chi^2 = 83.89$, $df = 69$, $p = .107$), nor were age ($\chi^2 = 15.31$, $df = 9$, $p = .083$) or gender ($\chi^2 = 5.44$, $df = 3$, $p = .142$). In contrast, average monthly household income emerged as the only significant predictor in the model ($\chi^2 = 23.89$, $df = 9$, $p = .004$). Overall, the model demonstrated strong explanatory power, as reflected in the high pseudo R^2 values (Cox & Snell = .834, Nagelkerke = .906, McFadden = .708). These results align with empirical findings indicating that employment outcomes are often more strongly associated with socioeconomic conditions than with skills mismatch alone [29,23,30,31].

Table 7. Logistic Regression Predicting Unemployment and Underemployment

Predictor	χ^2	df	p
Skills	83.89	69	.107
Age	15.31	9	.083
Gender	5.44	3	.142
Average Monthly Household Income	23.89	9	.004*

Model Fit (Pseudo R^2): Cox & Snell = .834, Nagelkerke = .906, McFadden = .708

Note. $p < .05$ indicates statistical significance.

As shown in Table 8, multiple regression analysis was conducted to determine which socioeconomic variables predict residents' readiness for technical livelihood programs in the automotive, electrical, and electronics sectors. Among the predictors, average

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monthly household income was the only variable that demonstrated a statistically significant association with readiness ($B = -0.062$, $SE = 0.030$, $\beta = -.265$, $t = -2.09$, $p = .042$), while age ($\beta = .240$, $p = .084$), gender ($\beta = .157$, $p = .248$), highest educational attainment ($\beta = -.081$, $p = .541$), and household size ($\beta = -.011$, $p = .932$) were not statistically significant. The overall model yielded an R of .371 and explained 13.8% of the variance in readiness scores ($R^2 = .138$; adjusted $R^2 = .058$), although the model did not reach statistical significance, $F(5, 54) = 1.72$, $p = .145$. Multicollinearity diagnostics indicated acceptable variance inflation factors ($VIF = 1.01-1.16$). These findings are consistent with prior research identifying household income as a salient factor associated with engagement and readiness for technical and vocational education, while demographic characteristics such as age, gender, and educational attainment often show weaker or inconsistent effects [29,23,30,22,31].

Table 8. Multiple Regression Analysis of Socioeconomic Predictors of Readiness for Technical Livelihood Programs in Automotive, Electrical, and Electronics Sectors

Predictor	B	SE B	β	t	p	VIF
Constant	2.007	0.180	—	11.14	< .001	—
Age	0.052	0.029	.240	1.76	.084	1.16
Gender	0.070	0.060	.157	1.17	.248	1.13
Highest Educational Attainment	-0.013	0.021	-.081	-0.62	.541	1.09
Household Size	-0.006	0.065	-.011	-0.09	.932	1.05
Average Monthly Household Income	-0.062	0.030	-.265	-2.09	.042*	1.01

Model Fit: $R = .371$, $R^2 = .138$, Adjusted $R^2 = .058$, $F(5, 54) = 1.72$, $p = .145$

Proposed Program

Proposed Program: ANILAO Program

Program Title: ANILAO – Advancing Neighborhood Innovation for Livelihood through Automotive, Electrical, and Electronics Opportunities

Proponent: College of Industrial Technology, Iloilo State University of Fisheries Science and Technology

Project Location: Barangay Palaypay, Anilao, Iloilo

Program Duration: 48 months

Rationale: Barangay Palaypay is a rural community with high unemployment, low technical skills, unstable income from agriculture and seasonal labor, and limited access to vocational training. A recent study revealed low education levels, small household sizes, and insufficient technical competencies in automotive, electrical, and electronics work. Barriers such as financial constraints, lack of awareness, and limited instructor availability restrict access to training, while household income influences readiness to participate. To address these gaps, the program aims to equip residents with industry-relevant skills, promote entrepreneurship, and enhance community resilience.

Program Objectives:

Equip unemployed residents, including out-of-school youth and parents, with technical skills in automotive, electrical, and electronics technologies.

Establish a mentoring program for aspiring local entrepreneurs in these sectors.

Conduct community-based workshops to raise awareness, engagement, and innovation culture.

Align training modules with current labor market and industry standards to ensure future-ready skills.

Key Components/Projects:

1. Motorcycle Repair and Maintenance Training
2. Building Wiring Installation Training
3. Solar Power Installation Training
4. Mentoring and Support Program for Entrepreneurs
5. Community Workshops, Seminars, and Demonstrations
6. Module Review and Industry Alignment

Expected Outputs:

Residents trained and TESDA/institutionally certified

TESDA-aligned training modules developed and updated

Mentored local entrepreneurs with startup toolkits

Community engagement in technology and innovation

Target Beneficiaries: Unemployed residents, out-of-school youth, and aspiring local entrepreneurs

Estimated Budget: 518,000 Php over four years

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Sustainability: Continuous module updates, TESDA certification, entrepreneurship mentoring, and community engagement ensure long-term relevance, employability, and local economic growth.

4. DISCUSSION

The findings indicate that the study population is predominantly young and economically active yet structurally constrained by low educational attainment, unstable employment, and limited access to market-relevant skills. In relation to the study objectives, this demographic profile suggests a substantial reservoir of labor potential that remains underutilized due to systemic barriers in skills acquisition and employment pathways. Similar rural labor force compositions have been documented across developing economies, where youthful populations coexist with persistent underemployment and weak labor market absorption capacity [30]. These findings substantiate the need for localized, competency-based interventions such as the ANILAO Program, which is designed to harness demographic potential by aligning technical training with labor market demand while embedding community accessibility into program delivery [9,10].

Moreover, the predominance of agriculture, construction, and seasonal labor reinforces the structural vulnerability of livelihoods within the community and directly supports the study's objective of examining employment instability as a precursor to skills mismatch and income insecurity. This pattern mirrors broader empirical evidence showing that rural labor markets are dominated by informal and low-productivity sectors characterized by irregular earnings and limited advancement opportunities [11,12]. In this context, the ANILAO Program's focus on automotive, electrical, and electronics skills represents a strategic diversification pathway, enabling residents to transition toward more stable and technically specialized employment sectors. Such sectoral realignment is consistent with development frameworks emphasizing technical upskilling as a mechanism for reducing vulnerability and improving job quality in structurally constrained labor markets [13].

The consistently low competency levels across automotive, electrical, and electronics domains further validate the study's objective of establishing baseline technical skills and justify the program's emphasis on structured, competency-based training. The clustering of scores within the "Less Skilled" category across all domains suggests systemic rather than individual skill deficits, reinforcing evidence that informal learning environments rarely produce transferable, industry-aligned competencies [14,17]. These findings align with vocational education literature emphasizing the necessity of scaffolded instruction, standardized assessment, and certification frameworks to translate novice-level skills into employable competencies [15,16]. Accordingly, the ANILAO Program's TESDA-aligned modules and practical training components are theoretically grounded responses to the documented skills gaps.

Furthermore, the pattern of weakest performance in diagnostic reasoning, safety protocols, customer service, and technical interpretation underscores the evolving complexity of technical occupations and the growing demand for hybrid mechanical-digital competencies. Comparable studies report that learners without exposure to formalized technical instruction struggle most with abstract reasoning and safety compliance tasks, even when procedural competencies are partially present [17,14]. By embedding diagnostic training, safety certification, and customer service competencies into its curriculum, the ANILAO Program directly addresses these multidimensional skill requirements, reinforcing its alignment with contemporary industry standards and labor market expectations [30].

In parallel, the moderate barriers identified—particularly financial constraints, scheduling conflicts, limited instructor availability, and lack of awareness—highlight that skill deficits are embedded within broader institutional and socioeconomic constraints rather than solely within individual motivation. This pattern corroborates research demonstrating that cost and logistical challenges are primary deterrents to training participation among low-income and informal workers [18,19,20]. The ANILAO Program's design features, including community-based delivery, flexible scheduling, and scholarship mechanisms, are therefore structurally responsive to these barriers, strengthening its potential to improve training access and completion rates while mitigating participation inequalities.

Additionally, the absence of a statistically significant relationship between educational attainment and employment status reinforces evidence that formal schooling alone does not guarantee improved labor market outcomes in contexts characterized by informality and constrained labor demand [21,23,22]. These finding challenges linear human capital assumptions and supports segmented labor market frameworks, which posit that institutional demand-side constraints mediate the returns to education. Consequently, the ANILAO Program's focus on industry-aligned, applied technical competencies rather than credential accumulation represents a theoretically grounded strategy for strengthening school-to-work transitions and enhancing labor market signaling in structurally constrained rural economies.

Similarly, the pervasiveness of skills mismatch across income, age, and gender groups supports the interpretation that mismatch is a systemic labor market condition rather than a subgroup-specific phenomenon, consistent with international evidence [24,25,28,26]. This universality suggests that broad-based community interventions may be more effective than narrowly targeted approaches. The ANILAO Program's inclusive eligibility framework, which prioritizes unemployed residents, out-of-school youth,

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and aspiring entrepreneurs across demographic segments, is therefore well-positioned to address mismatch at the structural rather than symptomatic level, promoting equitable access to technical livelihood opportunities.

Finally, the regression findings indicating that household income is the sole significant predictor of unemployment risk and readiness for training participation underscore the primacy of economic constraints in shaping labor market vulnerability and skills engagement. These results align with studies demonstrating that financial insecurity restricts access to job search resources, training participation, and sustained skill accumulation, even in the presence of labor demand [29,23,22,30,31]. While the cross-sectional design and self-reported skill measures limit causal inference, the convergence of empirical patterns with international evidence strengthens the analytical foundation for embedding financial assistance, stipends, and livelihood support within skills programs. In this respect, the ANILAO Program's integration of scholarship support, entrepreneurial mentoring, and certification pathways represents a structurally responsive model for enhancing training readiness, employment stability, and community resilience [30].

4 CONCLUSION

The study concludes that unemployment, skills mismatch, and limited access to technical training in the community are not isolated individual challenges but structurally embedded conditions shaped by educational constraints, unstable employment patterns, and economic vulnerability. Empirical findings demonstrated consistently low technical competencies across automotive, electrical, and electronics domains, high prevalence of skills mismatch across demographic groups, and the decisive role of household income in shaping both employment risk and readiness for training participation. These results contribute to theory by reinforcing structural and segmented labor market perspectives, which emphasize that labor market outcomes are mediated by institutional constraints rather than individual attributes alone. Practically, the findings establish a robust empirical foundation for the ANILAO Program as a competency-based, community-centered intervention aligned with industry standards and responsive to local barriers in access, affordability, and participation. At the policy level, the study underscores the importance of integrating financial support, localized delivery, and certification pathways into technical livelihood initiatives to strengthen labor market inclusion and resilience in rural contexts. Collectively, the research advances knowledge on skills development in structurally constrained communities and demonstrates how empirically grounded livelihood programs can translate labor potential into sustainable employment outcomes while addressing systemic inequities in access to technical education and economic opportunity.

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