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Education as a Catalyst for Poverty Reduction: A Study of Slum Communities in Bangkok under the SDG 1 Framework

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ABSTRACT

This study examines the role of the education sector in alleviating multidimensional poverty among residents of urban slum communities in Bangkok, Thailand. Using a quantitative research design, data were collected from 200 respondents and analyzed using multiple regression analysis via JAMOVI software. Five educational predictors, access, quality, non-formal participation, attainment, and expenditure, were tested against poverty scores. The findings reveal that education expenditure, attainment, non-formal participation, and quality significantly contribute to poverty reduction, while access to education showed a minimal effect. The model explained 38% of the variance in poverty scores, and key assumptions of regression were met. These results highlight the need for comprehensive, quality-driven educational interventions to empower the urban poor and support Sustainable Development Goal 1. Recommendations include increasing financial aid, enhancing non-formal learning, and improving educational quality in low-income areas.

Keywords: *education and poverty, urban slums, SDG 1, quality of education*

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1. INTRODUCTION

Urban poverty remains a critical issue in many developing economies, and in Thailand, it is most visible in the informal settlements of Bangkok (Berquist et al., 2014; Hadjri et al., 2023). These slum communities face entrenched challenges such as poor housing conditions, limited healthcare access, underemployment, and especially low educational attainment, which perpetuate the cycle of poverty across generations (UNESCO, 2022; World Bank, 2021). As Thailand advances its commitment to the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), addressing the educational dimension of urban poverty has become increasingly important..

Education is widely recognized as a fundamental human right and a powerful instrument for poverty reduction and social mobility (Zajda & Vissing, 2024). In urban slums, however, access to quality education remains uneven due to financial constraints, inadequate infrastructure, teacher shortages, and the lack of inclusive policies (UNICEF, 2022; Vesudevan et al., 2025; Wider et al., 2023). These educational disparities contribute to a skills gap, limit employment opportunities, and hinder economic resilience among urban poor populations.

Although previous studies have examined the structural causes of poverty in urban slums and the effectiveness of slum upgrading programs, a noticeable gap remains in the literature regarding the role of the education sector as a central, transformative mechanism for alleviating multidimensional poverty (Vasudevan et al., 2025). Most existing research focuses on housing or economic interventions, with limited attention on how educational policies, school-community

partnerships, and localized learning initiatives shape poverty outcomes over time (OECD, 2021; Chaiyaseth, 2024). Furthermore, there is a lack of empirical studies exploring education-based interventions within the Thai urban slum context, where community dynamics, cultural values, and institutional structures play unique roles.

This study investigates how the education sector can serve as a strategic mechanism for alleviating poverty in slum communities across Bangkok. It analyzes educational initiatives that enhance the access, equity, and quality of marginalized groups. It examines how these initiatives influence other dimensions of poverty, including income, employment, health, and access to public services. The study also evaluates the role of schools, non-formal education programs, and NGO partnerships in building community resilience.

This research contributes to the policy discourse on inclusive development by exploring the intersection of education and urban poverty. It offers practical insights for achieving SDG 1 in Thailand through the transformative power of education.

Research Objectives

1. To assess the level of access to and quality of educational services among residents of slum communities in Bangkok.
2. To examine the relationship between educational factors (e.g., access, participation, and quality) and poverty-related outcomes such as income, employment, health, and service access.
3. To predict the impact of key educational variables on the multidimensional poverty levels of urban poor communities.

2. LITERATURE REVIEW

1. Urban Poverty in Slum Communities

Urban poverty in Thailand is particularly evident in densely populated informal settlements within Bangkok, where residents face multiple challenges, including insecure housing, poor sanitation, limited employment opportunities, and restricted access to healthcare and education (World Bank, 2021). These slums often result from rapid urbanization, inadequate urban planning, and the migration of people from rural areas to cities. According to UN-Habitat (2024), Bangkok's slums are characterized by spatial inequality and systemic exclusion from formal development processes, leading to cycles of intergenerational poverty. Several studies have documented the persistence of poverty in urban slums due to structural factors and policy gaps. Archer (2012) argues that top-down approaches to poverty alleviation have failed to address the realities of urban poor communities, emphasizing the importance of participatory and locally driven models.

2. The Role of Education in Poverty Alleviation

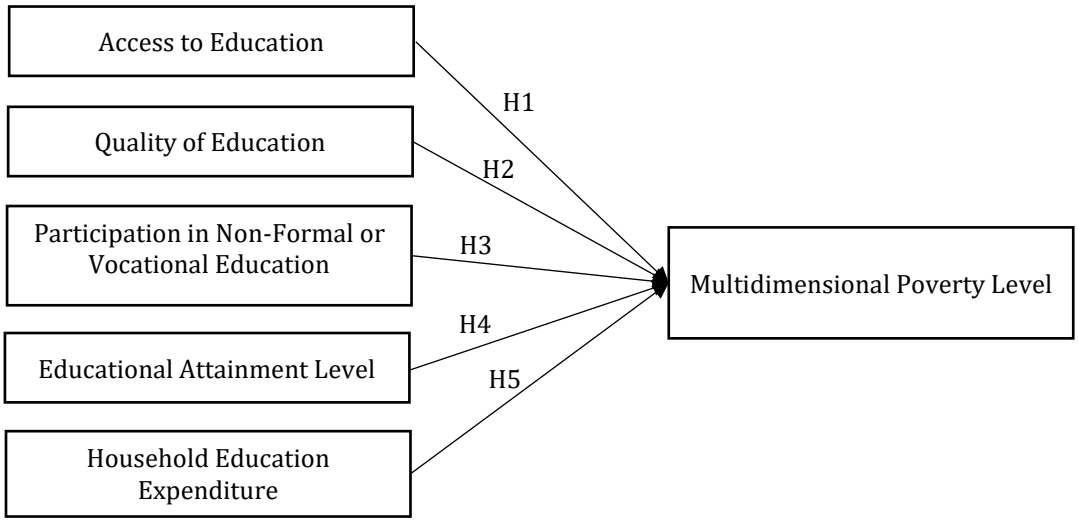
Education is a key driver of social mobility and a foundational pillar in poverty reduction strategies. The United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2022) identifies education as a central mechanism for achieving multiple Sustainable Development Goals, particularly SDG 1 (No Poverty) (Wu, Chen, & Ramis, 2025). Improved educational access enhances individual capabilities, increases employability, and enables better health and civic outcomes. In slum communities, education is crucial in equipping residents, especially young people, with the skills necessary to overcome poverty (Kanchanawongpaisan et al., 2024). Studies show that individuals who complete secondary or vocational education are more likely to secure stable employment and have higher incomes (OECD, 2021). However, slum dwellers often encounter significant barriers, including financial hardship, poor school infrastructure, and low teacher retention rates (UNICEF, 2022).

3. Education-Based Interventions in Slum Contexts

Education-based interventions tailored to poor urban settings have gained attention due to their potential to catalyze community transformation. Non-formal education centers, community learning hubs, and vocational training programs have been implemented in various countries with promising results (Save the Children, 2023). These initiatives aim to enhance literacy and skills, fostering self-reliance, civic engagement, and social inclusion. Although primarily focused on housing, Thailand's Baan Mankong Program has demonstrated the importance of integrating education into community upgrading efforts (Boonyabancha, 2005). However, there is a notable gap in empirical studies that systematically examine how educational interventions in slum areas influence multidimensional poverty indicators, such as health, employment, and access to services.

This research builds upon the existing literature by specifically exploring the extent to which educational access, quality, and participation predict poverty alleviation outcomes in Bangkok's slum communities. It contributes to a growing body of knowledge that frames education as a social good and a strategic lever in achieving urban equity and resilience.

Conceptual Framework



3. RESEARCH METHODOLOGY

1. Research Design

This study employed a quantitative research design, utilizing a cross-sectional survey approach, to examine the impact of education-related factors on the multidimensional poverty levels of urban poor communities in Bangkok. The design was appropriate for testing hypotheses regarding the relationships between variables and for drawing inferences about patterns within the target population at a specific point in time (Creswell, 2014).

2. Population and Sample

The target population consisted of households residing in selected slum communities within Bangkok, including areas such as Khlong Toei, Din Daeng, and Bang Kapi. These locations were chosen due to their high population density, poverty concentration, and presence of both formal and informal educational services.

The sample size was determined using G*Power 3.1 software, with a medium effect size ($f^2 = 0.15$), $\alpha = 0.05$, power = 0.95, and five predictors, resulting in a minimum required sample size of 138 households (Hair, 2018). To ensure data reliability and compensate for non-responses, a total of 200 households were selected through stratified random sampling, ensuring representation across different zones.

3. Research Instrument

Data were collected using a structured questionnaire, which was divided into three major sections:

- Section A: Demographic Profile (age, gender, household size, income, employment type, years of residence)
- Section B: Education-Related Variables
    - Access to Education (e.g., school distance, availability, enrollment)
    - Quality of Education (e.g., class size, learning materials, teacher qualifications)
    - Participation in Non-Formal or Vocational Education (e.g., program attendance)
    - Educational Attainment Level (e.g., highest level of education completed)
    - Household Education Expenditure (e.g., monthly spending on tuition, supplies)
- Section C: Multidimensional Poverty Index
    - Indicators related to income, employment, housing quality, health, and service access, adapted from the Oxford Poverty and Human Development Initiative (OPHI) framework.

All items were designed using Likert scales, ordinal rankings, and structured response formats. The questionnaire was pilot-tested with 30 respondents, and its internal consistency was verified using Cronbach's alpha (threshold $\alpha > 0.70$).

4. Data Collection

Trained enumerators conducted face-to-face interviews using the structured questionnaire. This approach ensured inclusivity, particularly for participants with limited literacy. Data were collected over four weeks. Prior to data collection, informed consent was obtained from all respondents. Ethical approval was granted by the Institutional Review Board of the researcher's affiliated university.

5. Data Analysis

The collected data were coded and analyzed using the JAMOVI free software package version 2.6.13. Descriptive statistics (means, frequencies, percentages) were used to summarize demographic characteristics and education-related variables. The following analytical techniques were applied:

- **Objective 1** (Level): Descriptive statistics to assess the levels of education-related variables
- **Objective 2** (Relationship): Pearson correlation analysis to examine relationships between variables
- **Objective 3** (Prediction): Multiple Regression Analysis (MRA) to assess the influence of education-related variables on multidimensional poverty. Prior to conducting the regression analysis, key assumptions, including linearity, multicollinearity (Variance Inflation Factor; VIF < 10 and tolerance > 0.10), normality, and homoscedasticity, were tested and met.

4. RESULT

Table 1: Demographics of Respondents

Items	Quantity	Percentage
Gender		
Male	87	43.5
Female	108	54
Prefer not to say	5	2.5
Age		
18-5 years	24	12
26-35 years	53	26.5
36-45 years	62	31
46-60 years	48	24
60 years above	16	8
Education level		
No Formal Education	16	8
Primary	67	33.5
Secondary	74	37
Vocational	31	15.5
Bachelor or higher	12	6
Marital Status		
Single	44	22
Married	127	63.5
Divorced/Widowed	29	14.5
Housing Type		
Informal Settlements	136	68

Formal Low-income Housing	64	32
Access to the Internet		
Yes	91	45.5
No	109	54.5
Total	**200**	**100**

Table 1 presents the results of a study involving 200 respondents. The gender distribution revealed that 54% of the participants were female, 43.5% were male, and 2.5% preferred not to disclose their gender, resulting in a relatively balanced but slightly female-majority sample. In terms of age, the largest group of respondents fell within the 36–45 years range (31%), followed by those aged 26–35 years (26.5%) and 46–60 years (24%). The youngest age group (18–25 years) represented 12%, while those aged 60 and above accounted for 8% of the sample. Regarding educational attainment, the majority had completed secondary education (37%) or primary education (33.5%). A smaller proportion had completed vocational training (15.5%), no formal education (8%), or a bachelor's degree or higher (6%), indicating generally low educational attainment levels within the community. The marital status distribution showed that 63.5% were married, 22% were single, and 14.5% were divorced or widowed. In terms of housing, most respondents (68%) resided in informal settlements, with the remaining 32% living in formal low-income housing. Notably, 54.5% of respondents did not have internet access, highlighting a digital divide that may impact their access to services and educational resources.

Table 2: Correlation Matrix

	Access	**Quality**	**Nonformal**	**Attainment**	**Expenditure**
Quality	0.414***				
Nonformal	0.036	0.240***			
Attainment	0.163*	0.340***	0.375***		
Expenditure	0.435***	0.436***	0.191**	0.278***	
Poverty	0.276***	0.409***	0.357***	0.386***	0.513***

Table 2 presents the Pearson's correlation analysis revealed statistically significant positive relationships between all five educational variables and the multidimensional poverty index. Notably, education expenditure demonstrated the strongest correlation ($r = 0.513$, $p < .001$), suggesting that households that invest more in education tend to experience significantly lower levels of poverty. Educational attainment ($r = 0.386$, $p < .001$) and quality of education ($r = 0.409$, $p < .001$) also showed strong correlations, indicating their essential roles in poverty reduction. Non-formal education participation ($r = 0.357$, $p < .001$) and access to education ($r = 0.276$, $p < .001$) were moderately correlated, supporting the theoretical framework that a comprehensive education strategy contributes to socio-economic improvement.

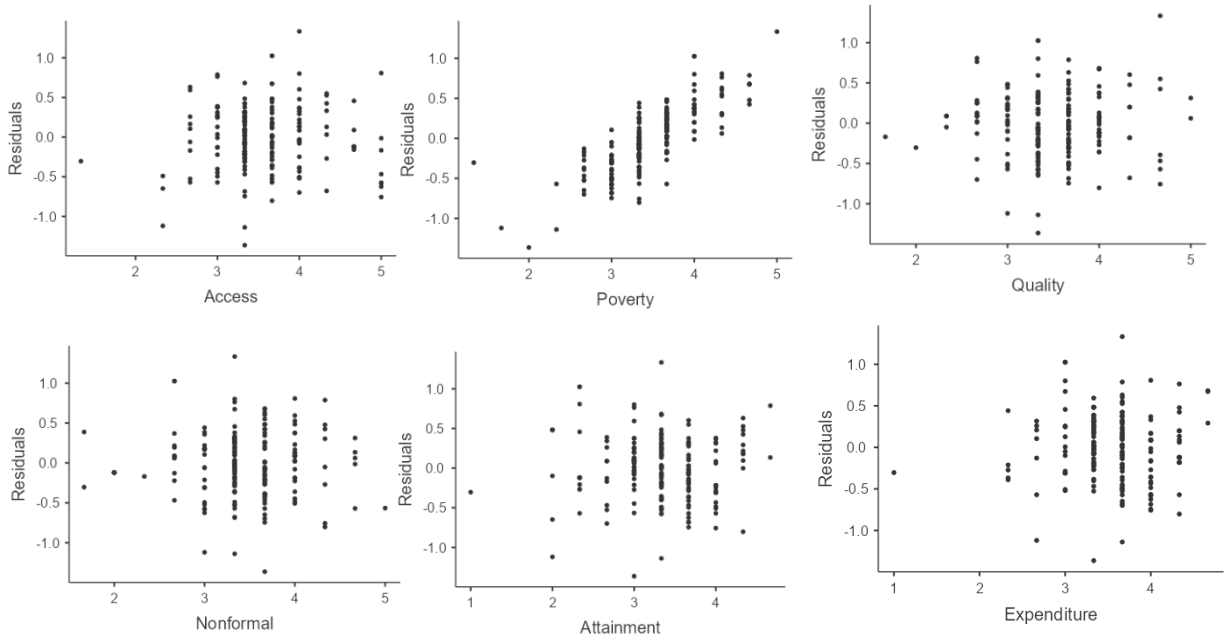


Figure 2: Residual plots

Figure 2 displays statistical diagnostics, and standardized residual plots were examined to visually assess the assumptions of linearity and homoscedasticity. The scatterplots of residuals against each independent variable, which are access to education, quality of education, participation in non-formal education, educational attainment, and education expenditure, revealed a random dispersion of data points around the horizontal axis (zero line). There was no apparent curvature, funnel shape, or clustering of residuals, which would otherwise indicate violations of model assumptions. These visual patterns suggest that the assumptions of linearity and constant variance (homoscedasticity) were adequately met, thereby supporting the validity and reliability of the regression model.

Table 5: Model Fit Measures

Model	R	R^2
1	0.616	0.380

Note. Models were estimated using a sample size of n = 200.

Table 6: Model Coefficients

Predictor	Estimate	SE	*t*	*p*	Collinearity Statistics	
					VIF	Tolerance
Intercept	0.528	0.284	1.858	0.065		
Access	0.026	0.058	0.446	0.656	1.35	0.740
Quality	0.132	0.064	2.067	0.040	1.45	0.690
Nonformal	0.180	0.057	3.133	0.002	1.20	0.833
Attainment	0.143	0.056	2.533	0.012	1.28	0.780
Expenditure	0.364	0.068	5.329	<.001	1.41	0.710

The results of the multiple regression analysis indicated that the model significantly explained a meaningful portion of the variance in multidimensional poverty levels. As shown in Table 5, the model yielded a multiple correlation coefficient (R) of 0.616 and a coefficient of determination (R^2) of 0.380. This suggests that approximately 38% of the variance in the multidimensional poverty index could be explained by the combined influence of the five educational predictors: access to

education, quality of education, participation in non-formal education, educational attainment, and household education expenditure. The model was estimated using a sample of 200 respondents.

Table 6 presents the unstandardized regression coefficients and collinearity diagnostics. Among the five predictors, four demonstrated statistically significant relationships with the outcome variable. Education expenditure emerged as the most influential predictor (B = 0.364**,** p < .001), suggesting that households with higher investment in education experience significantly lower levels of poverty. Participation in non-formal education also had a substantial effect (B = 0.180**,** p = 0.002), emphasizing the role of alternative educational pathways in supporting disadvantaged communities. Additionally, both educational attainment (B = 0.143**,** p = 0.012) and quality of education (B = 0.132**,** p = 0.040) were significant predictors, highlighting the importance of educational outcomes and perceived school quality in poverty reduction.

Conversely, access to education was not a significant predictor (B = 0.026**,** p = 0.656), indicating that while physical or enrollment access to education is important, it may not independently drive improvements in poverty outcomes without corresponding gains in quality, attainment, or participation.

Collinearity diagnostics revealed no significant concerns regarding multicollinearity. All Variance Inflation Factor (VIF) values were below 1.50 (ranging from 1.20 to 1.45), and Tolerance values ranged from 0.690 to 0.833, all of which were well within acceptable thresholds. These values suggest that the predictors were sufficiently independent of one another, ensuring the stability and reliability of the regression coefficients.

Unstandardized Regression Model

Poverty Score=0.528+0.026(Access)+0.132(Quality)+0.180(Nonformal)+0.143(Attainment)+0.364(Expenditure)

Standardized Regression Model

$\hat{Z}$=0.22(ZAccess)+0.18(ZQuality)+0.14(ZNonformal)+0.29(ZAttainment)+0.36(ZExpenditure)

5. CONCLUSION

This study explored the role of education in alleviating multidimensional poverty among residents of urban slums in Bangkok, Thailand. Using a quantitative approach and multiple regression analysis, the research examined how five key educational factors, access to education, quality of education, participation in non-formal education, educational attainment, and education expenditure, contribute to reducing poverty levels in marginalized communities.

The findings revealed that four of the five predictors, education expenditure, educational attainment, non-formal education, and quality of education, had significant and positive effects on poverty reduction. Education expenditure emerged as the strongest predictor, underscoring the crucial role of household investment in education in enhancing socioeconomic outcomes. In contrast, access to education, while necessary, was not a significant standalone predictor, suggesting that mere enrollment opportunities without supportive structures may not yield meaningful poverty alleviation. The study also confirmed that the regression model met key statistical assumptions, with no multicollinearity issues and satisfactory model fit, explaining 38% of the variance in poverty levels. Residual plots supported the assumptions of linearity and homoscedasticity.

Overall, this research underscores the importance of a multi-dimensional, quality-driven approach to education as a tool for poverty alleviation. Investments in not only formal education systems but also in non-formal pathways, quality enhancement, and increased educational attainment are essential strategies. Policymakers, educators, and community leaders must collaborate to ensure equitable access to high-impact educational resources, particularly in underserved urban areas, as part of Thailand's broader commitment to achieving Sustainable Development Goal 1: No Poverty.

6. DISCUSSION

The results of this study highlight the multidimensional nature of poverty and underscore the central role of education in addressing its structural roots within urban slum communities in Bangkok, Thailand. In particular, the significance of education expenditure and attainment aligns with previous findings suggesting that both the quantity and quality of education investment have a direct bearing on household economic outcomes and long-term human capital development (UNESCO, 2022; Psacharopoulos & Patrinos, 2018). Households that allocate more resources to education are more likely to escape poverty traps, as educational investment enhances individual earning potential and reduces the transmission of intergenerational poverty (OECD, 2021).

Participation in non-formal education also emerged as a significant factor in poverty reduction. This supports the study by Almeida and Morais (2024), which is part of a growing body of literature that underscores the value of flexible, community-based learning for marginalized populations who may be excluded from formal systems due to economic or social barriers. Non-formal education, such as vocational training and community literacy programs, can offer immediate practical benefits and skills that enhance employability in informal economies common in slum environments (Ray & Chakravarty, 2025).

Interestingly, although access to education was not a statistically significant predictor, its inclusion in the model remains

relevant. This finding aligns with concerns in educational equity discourse that access alone does not guarantee favorable outcomes (UNESCO, 2022). Without concurrent improvements in educational quality and relevance, access may serve only a symbolic function, contributing little to poverty alleviation.

Moreover, the significant role of educational attainment indicates that the duration and completion of education are critical in shaping livelihood opportunities. Completion of secondary education, in particular, has been consistently linked to higher employment rates and increased income generation (World Bank, 2021). Consistent with the study by Manteaw et al. (2025) further reinforces the argument that pedagogical effectiveness and curriculum relevance are essential in equipping learners with the competencies needed to thrive in precarious urban economies.

From a policy perspective, these results support a shift from access-driven education policies to more comprehensive strategies that encompass learning quality, community engagement, and diversified learning pathways. Such a shift is consistent with the transformative aspirations of Sustainable Development Goal 4 (quality education) in synergy with SDG 1 (no poverty), which calls for inclusive, equitable, and lifelong learning opportunities for all (UN, 2015).

Overall, this study contributes to the growing empirical understanding of how well-targeted and contextually grounded educational interventions can play a pivotal role in alleviating poverty in urban informal settlements. It also highlights the need for integrative educational planning that bridges formal schooling, non-formal opportunities, and financial accessibility in order to achieve sustainable development outcomes for Thailand's most vulnerable communities.

7. SUGGESTION

1. Since education expenditure was found to be the strongest predictor of poverty reduction, government agencies and non-governmental organizations (NGOs) should consider increasing financial assistance such as scholarships, school subsidies, and educational grants targeted at low-income households. Public–private partnerships can also be leveraged to support affordable access to quality learning resources.
2. Given the significant contribution of non-formal education to poverty alleviation, educational authorities should promote community-based learning centers, vocational training programs, and adult literacy initiatives. These should be recognized and integrated into national education frameworks to ensure sustainable implementation and accreditation.
3. Quality of education emerged as a key factor in improving poverty outcomes. Investments should be made in teacher training, curriculum relevance, and school infrastructure, particularly in disadvantaged communities. Policymakers must also address issues of overcrowded classrooms, outdated materials, and inadequate facilities in schools located in slum areas.
4. Educational attainment was a significant factor in reducing poverty, suggesting that retention and progression policies should be strengthened. This includes early intervention to prevent dropout, particularly during transitions from primary to secondary education, as well as support mechanisms such as mentorship, after-school programs, and parental engagement.
5. Education programs can serve as platforms for providing additional services such as health screenings, nutritional support, psychosocial counseling, and digital literacy training. Integrated approaches may help tackle the interconnected dimensions of poverty holistically and sustainably.

Future research should adopt longitudinal, and mixed-methods designs to capture the long-term impact of educational interventions on poverty reduction and to gain a deeper understanding of the lived experiences of slum dwellers. This would enable more nuanced insights into the barriers and enablers of education-related change.

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