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BEYOND INCOME POVERTY: EXPLORING DIGITAL DIVIDE AND FINANCIAL EXCLUSION AMONG B40 HOUSEHOLDS IN GUAR CHEMPEDAK, KEDAH

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ABSTRACT

This study examines multidimensional socioeconomic vulnerability among B40 households in Yan District, Kedah, with a specific focus on the Guar Chempedak state constituency, covering the mukim of Yan, Singkir, and Sala Besar. The study aims to analyse socioeconomic inequality and poverty dimensions associated with digital access, financial exclusion, and occupational disparities within a rural Malaysian context. Primary data were collected through face-to-face interviews with 402 household heads using stratified random sampling across five occupational groups. The study employed a quantitative descriptive design supported by a comparative analysis of household income levels and socioeconomic access indicators. The findings reveal that although Yan is classified among Malaysia's poorest districts, 89.8 percent of households own smartphones while only 9.5 percent have home internet access, indicating a substantial digital divide. Furthermore, 46.2 percent of households rely on informal credit sources, including family loans and pawnshops, reflecting financial exclusion despite adequate basic needs fulfilment, including high clothing sufficiency and low levels of food insecurity. Significant income stratification was also observed within the B40 group, with government employees earning nearly three times more than fishermen. The study concludes that poverty among rural B40 households extends beyond income deprivation to include digital and financial exclusion. This study contributes empirical evidence for strengthening multidimensional poverty measurement and informing targeted policy interventions that integrate digital access and financial inclusion into rural socioeconomic development strategies in Malaysia.

Keywords: Socioeconomic status, poverty, rural development, digital divide, financial inclusion.

INTRODUCTION

Poverty eradication has been a central national priority in Malaysia since its independence in 1957. This commitment was formally institutionalized through the New Economic Policy (NEP) introduced in 1970, which positioned poverty reduction as a core pillar of national development. As a result, Malaysia has recorded substantial progress in reducing poverty, with the national poverty incidence declining from 52.4 percent in 1970 to 2.8 percent in 2010, followed by further reductions to 0.6 percent in 2014 and 0.4 percent in 2016 (Department of Statistics Malaysia, 2017). Nevertheless, the revision of the national poverty measurement methodology in 2019 led to a recalibration of poverty rates and classifications, underscoring the evolving nature of poverty assessment. Despite notable national achievements, significant spatial inequalities persist across regions. According to the Department of Statistics Malaysia (2020), district-level poverty data indicate that Baling, Sik, and Yan were among the districts in Kedah with relatively high poverty and low household incomes in 2019.

These findings highlight persistent socioeconomic disparities within the state, particularly in rural areas where access to economic opportunities and essential services remains limited. Among these districts, Yan presents a particularly compelling case for investigation because, despite its strategic location and economic potential, many households continue to face socioeconomic challenges that may increase their vulnerability to the digital divide and financial exclusion. Although officially classified as a poor district, Yan was recognized as one of Malaysia's Top 10 Happiest Towns in 2019 (Ministry of Housing and Local Government, 2019). This apparent paradox suggests a complex interaction between objective economic deprivation and subjective wellbeing, calling into question the adequacy of income-based poverty metrics in capturing lived realities. These contradictions became more pronounced following the COVID-19 pandemic and the implementation of the Movement Control Order (MCO), which severely disrupted livelihoods nationwide. Rural communities were disproportionately affected due to their heavy reliance on informal employment and volatile income sources. Yan District, with the smallest built-up area in Kedah at 2,261.80 hectares, exemplifies these vulnerabilities. Its local economy is predominantly based on fishing, rice cultivation, rubber tapping, and small-scale trading, sectors that are highly exposed to economic shocks and mobility restrictions.

Although poverty is widely recognized as multidimensional, Malaysian empirical research remains predominantly income-based (Jamil & Che Mat, 2014; World Bank, 2025). Recent studies have acknowledged digital access (Keling et al., 2025) and financial inclusion (Li et al., 2021) as emerging wellbeing determinants. Nevertheless, what remains specifically missing is an integrated district-level framework that simultaneously incorporates income, digital connectivity, financial inclusion, and quality-of-life conditions. Previous studies are insufficient for three interrelated reasons. Spatially, they are confined to isolated localities (e.g., Kedah and Kelantan), precluding systematic rural mapping. Dimensionally, digital and financial indicators are treated separately from core welfare metrics rather than as interwoven components. Methodologically, their reliance on cross-sectional designs obscures temporal poverty dynamics. Most critically, because no existing model assesses how these four dimensions interact synergistically at the rural district level, their compensatory or reinforcing effects remain empirically unknown, limiting the evidence base for targeted local interventions.

Against this backdrop, the present study addresses three interrelated research gaps. First, it identifies a 'digital paradox' in rural poverty, characterized by high smartphone ownership (89.8%) alongside

extremely low household internet access (9.5%). This pattern reflects the condition of ‘superficial connectivity’, whereby digital devices exist without the infrastructure necessary for meaningful participation in the digital economy, thereby challenging the assumption that device ownership equates to digital inclusion. Second, the study extends multidimensional poverty frameworks by demonstrating that the apparent adequacy of basic needs - evidenced by the near absence of hunger (99.5%) and widespread clothing sufficiency (99.7%) - coexists with deep financial vulnerability. This vulnerability is reflected in high dependence on informal credit (46.2%) and minimal insurance coverage (9.1%), a condition conceptualized as ‘subsistence adequacy with systemic exclusion’. These findings challenge policy narratives that equate basic needs fulfilment with poverty exit. Third, the study reveals substantial income stratification within the B40 population, with government employees earning nearly three times as much as fishermen (RM2,959.83 compared to RM1,016.90). This evidence challenges the assumption of B40 homogeneity and underscores the need for occupation-sensitive policy design.

To address these gaps, this study pursues three specific research objectives: (1) to examine household income levels and distribution across occupational groups and geographic sub-districts; (2) to analyze occupational structures and educational attainment among household heads; and (3) to assess multidimensional quality-of-life indicators, including housing conditions, access to basic utilities, digital connectivity, and financial inclusion.

By empirically demonstrating that economic sustainability in rural communities depends on the simultaneous interaction of income security, digital infrastructure, and financial inclusion, this research contributes to regional development and poverty studies literature. It advances the argument that poverty alleviation frameworks in Malaysia require reconceptualization to incorporate digital and financial dimensions as core indicators of socioeconomic status in the contemporary context. A nuanced understanding of these localized dynamics is essential for designing targeted interventions that move beyond uniform poverty reduction programs. The district-level evidence presented in this study contributes to scholarly debates on regional inequality while offering actionable insights for policymakers seeking to address persistent poverty in Malaysia’s most disadvantaged rural districts.

LITERATURE REVIEW

Conceptualizing Socioeconomic Status

Socioeconomic status (SES) is a multidimensional construct that reflects an individual's or household's position within societal hierarchies across economic, social, and educational dimensions (Oakes & Rossi, 2003). The multidimensional nature of SES has been extensively documented in the psychological literature (American Psychological Association, Task Force on Socioeconomic Status, 2007). From an economic perspective, SES encompasses occupational status, income levels, and asset ownership, including housing, land, vehicles, investments, and savings (Duncan, 1961). The social dimension includes access to healthcare facilities, insurance coverage, infrastructure quality (including internet connectivity), and social capital networks that provide informational and material support (Bourdieu, 1986). Educational attainment, measured through formal qualifications ranging from basic secondary education (SPM) to advanced degrees, represents the third critical SES component (Bradley & Corwyn, 2002; Ensminger & Fothergill, 2003).

Income as a Socioeconomic Indicator

Income represents a direct measure of economic welfare and serves as a primary SES indicator

(Bradley & Corwyn, 2002). In Malaysia, household income relative to the Poverty Line Income (PLI) functions as the standard measure for identifying absolute poverty. However, multidimensional poverty measurement frameworks have gained increasing prominence due to their capacity to identify specific poverty dimensions and enable data disaggregation by geographic location, gender, religion, and ethnicity (Jamil & Che Mat, 2014).

Higher incomes typically correlate with better access to healthcare services, quality education, and comfortable living standards. Duncan et al. (2012) demonstrate that income determines not only the capacity to meet basic needs but also influences access to social opportunities, education, and healthcare. Data from the Department of Statistics Malaysia (2020) indicate that the B40 group (bottom 40percent), with monthly household incomes below RM4,360, frequently faces economic challenges, including poverty and limited access to basic services. The World Bank (2020) reports that B40 households exhibit greater vulnerability to economic shocks, including price inflation and employment loss, with 60percent lacking sufficient savings to survive three months following income loss (Khazanah Research Institute, 2019).

Recent Perspectives on Income Inequality and Regional Development

Recent studies highlight persistent income inequality in Malaysia, particularly affecting rural communities. Looi et al. (2020) examined quality of life disparities among 18,607 rural residents, finding that B40 groups experienced significantly lower quality of life across all domains, with higher concentrations of elderly individuals, unemployed persons, and those without formal education. The COVID-19 pandemic exacerbated these vulnerabilities; Malaysia's absolute poverty rate rose to 8.4percent in 2020, and the Gini coefficient increased from 40.7 percent to 41.1 percent, reversing years of declining inequality trends (World Bank, 2022).

A 2025 World Bank report emphasized that opportunity inequality - where socioeconomic outcomes are heavily influenced by factors beyond individual control, such as parental wealth, education, and geography - accounts for as much as 65 percent of total income inequality in Malaysia. The report highlighted persistent regional inequalities, particularly affecting rural communities where access to healthcare, education, and employment remains significantly challenged (World Bank, 2025). The 12th Malaysia Plan (2021-2025) has prioritized strategies to address hardcore poverty and economic disparities through enhanced economic activities and infrastructure strengthening in less-developed regions (Ridzuan et al., 2025).

Occupation as a Socioeconomic Indicator

Occupation constitutes a critical determinant of socioeconomic status, providing not only income but also satisfaction and rewards (Conger et al., 2010). An individual's occupation reflects both educational attainment and earning capacity, thereby indicating broader socioeconomic positioning. Professional occupations such as physicians, engineers, or academics are typically associated with higher socioeconomic status compared to agricultural laborers or fishermen, reflecting differential educational requirements, skill levels, and income potential.

Education as a Socioeconomic Indicator

Educational attainment significantly influences socioeconomic status through direct effects on employment opportunities and income levels (Krieger et al., 1997; Mueller & Parcel, 1981).

Mahdzan et al. (2023) demonstrates that individuals lacking formal education face substantially elevated risks of labour market exclusion. Conversely, individuals possessing higher education and specialized skills enjoy enhanced prospects for socioeconomic advancement through both knowledge acquisition and competencies essential for competitive labour market participation.

The Digital Divide and Rural Development

The digital divide has emerged as a critical dimension of socioeconomic inequality in Malaysia. Internet penetration demonstrates stark urban-rural disparities, with 92 percent of urban households having internet access compared to only 68 percent of rural households (Malaysian Digital Economy Corporation, 2023). The MCMC Internet Survey 2020 revealed that 75.6 percent of internet users reside in urban areas, while rural areas account for only 24.4 percent, with even more severe gaps in regions like Sabah (52.8% broadband penetration) compared to Kuala Lumpur (115.7%) (Department of Statistics Malaysia, 2020). The Malaysian government has implemented initiatives, including the National Fiberisation and Connectivity Plan (NFCP, 2019-2023) and Jalanan Digital Negara (JENDELA), under the 12th Malaysia Plan to address these gaps (Telecom Review Asia, 2025). The government has also established 2,150 Telecentres nationwide, with studies showing positive outcomes including improved communication, increased educational opportunities, and empowered online entrepreneurship (Keling et al., 2025).

The digital divide creates disparities in economic outcomes by limiting access to digital skills that are increasingly rewarded in the labour market. Studies show that digital and complementary technical skills significantly increase wage returns due to higher productivity and improved job matching (Stephany & Teutloff, 2022). In Malaysia, official labour statistics also indicate rising wage levels alongside increasing digitalisation of the economy (Department of Statistics Malaysia, 2024; Malaysia Digital Economy Corporation (MDEC) 2023). The COVID-19 pandemic dramatically exposed digital infrastructure inadequacies when education transitioned online, with rural schools facing persistent challenges, including poor internet connectivity and limited device access (Ni et al., 2025; Jeng & Zaini, 2025). Recent studies emphasize that bridging this divide requires holistic approaches extending beyond infrastructure to encompass digital literacy programs, affordable device access, and locally relevant content (Vassilakopoulou & Hustad, 2023).

Financial Inclusion and Rural Development

Financial inclusion is defined as access to affordable, appropriate financial services, including savings, credit, insurance, and payment systems. It constitutes a fundamental enabler of poverty reduction. Recent research demonstrates microfinance's critical role in supporting rural micro-enterprise development. Li et al. (2021), examining 563 rural micro-enterprises, found that microfinance services exert a positive and substantial influence on rural enterprise growth, with digital finance integration amplifying effectiveness by enhancing connectivity and service quality. Despite microfinance potential, rural micro-enterprises face numerous obstacles, including limited awareness of financial products, geographical remoteness, insufficient collateral, and limited financial literacy (Bank Negara Malaysia, 2023). Many rural residents, particularly those in traditional occupations, lack stable employment meeting conventional bank lending criteria, driving reliance on informal credit sources with disadvantageous terms, including high interest rates and potential debt cycles.

Bank Negara Malaysia's Financial Inclusion Framework (2023-2026) emphasizes technology

utilization, accessible product provision, and targeted support for rural communities. Key initiatives include promoting electronic payment adoption, supporting microfinance institutions, developing small value insurance products, and creating holistic SME financing ecosystems (Bank Negara Malaysia, 2023). International evidence from Sub-Saharan Africa and Asia corroborates that microfinance and financial inclusion significantly reduce poverty by providing poor individuals with higher welfare payments, net income and access to formal financial services (Mohammed et al., 2017; Brune et al., 2011).

RESEARCH METHODOLOGY

Research Design

This study employed a cross-sectional quantitative research design grounded in a multidimensional poverty and quality of life framework. Primary data were collected through structured face to face household surveys to capture income conditions, occupational characteristics, digital access, financial inclusion and broader quality of life indicators at a single point in time. This design is appropriate for examining spatial and occupational disparities in rural poverty and aligns with the study's objective of identifying structural patterns underlying income insecurity, digital exclusion and financial vulnerability within a district-level context.

Study Area

The empirical investigation was conducted in Yan District, Kedah, a rural district identified as one of Malaysia's poorest despite exhibiting relatively high subjective wellbeing indicators. Data collection focused on three sub-districts (mukim) within the Guar Chempedak state constituency: Mukim Yan, Mukim Sala Besar, and Mukim Singkir. These locations were selected to capture geographic and socioeconomic heterogeneity within the district and to enable sub-district-level comparison consistent with the study's emphasis on spatial inequality.

Sampling Strategy

A stratified random sampling approach was adopted to ensure adequate representation across key occupational groups that dominate the rural economy and exhibit distinct income and vulnerability profiles. Five occupational strata were defined: (1) fishermen, (2) farmers, (3) government sector employees, (4) private sector employees, and (5) small traders or hawkers. Within each stratum, households were selected using simple random sampling. The targeted sample size was 400 household heads; however, a total of 402 valid responses were obtained, thereby exceeding the minimum requirement and enhancing statistical reliability. Stratification by occupation directly supports the study's objective of examining income stratification within the B40 group and assessing occupation-specific disparities.

Data Collection Procedures

Data collection was carried out through direct field visits and face-to-face interviews conducted by trained researchers to ensure accuracy and contextual validity, particularly given variations in literacy and digital access among respondents. A pilot study was undertaken between 14 and 25 March 2021 to test the reliability, clarity, and construct validity of the survey instrument. Revisions were made according to the main survey. The full data collection period extended from 7 April to 30 August 2021. This extended timeline was necessitated by restrictions associated with the COVID-19

Movement Control Order (MCO), during which strict health protocols were observed. Conducting in-person surveys during this period was essential to capture the lived socioeconomic impacts of the pandemic on rural households.

Variables and Measures

The survey instrument was structured to reflect the study's multidimensional analytical framework. Key variables included household income and income sources, occupational category, and educational attainment of household heads. Quality of life indicators encompassed housing conditions, access to basic utilities, food and clothing adequacy, digital access (including device ownership and household internet connectivity), and financial inclusion measures such as access to formal banking, insurance coverage, and reliance on informal credit. Collectively, these measures enabled empirical examination of the digital paradox and the coexistence of basic needs adequacy with financial exclusion, as articulated in the introduction.

Data Analysis

Data were analyzed using descriptive statistical techniques to establish income distributions, occupational patterns, and multidimensional quality-of-life conditions across households and sub-districts. Results are presented through frequencies, percentages, and graphical visualizations to facilitate comparative interpretation. This analytical approach is appropriate for identifying structural patterns and disparities within the study population and for generating evidence to inform targeted, occupation-sensitive, and place-based policy interventions. While inferential analysis was beyond the scope of this study, the descriptive findings provide a robust empirical foundation for re-evaluating conventional income-based poverty assessments and for informing future multidimensional poverty research.

Conceptual Framework

This study is guided by a multidimensional conceptual framework that positions rural poverty as an outcome of interacting economic, structural and access-related factors rather than income deprivation alone. At the core of the framework is household wellbeing, conceptualized through income security and multidimensional quality of life outcomes. These outcomes are shaped by three interrelated domains: (1) occupational and human capital characteristics, (2) digital access and (3) financial inclusion. Occupational category and educational attainment influence household income levels and income stability, thereby shaping exposure to economic vulnerability. Digital access, operationalized through device ownership and household internet connectivity, affects households' capacity to participate meaningfully in the digital economy and to access information, services and alternative income opportunities. Financial inclusion, reflected in access to formal banking, insurance coverage, and dependence on informal credit, mediates households' ability to manage risks and economic shocks. The framework further recognizes the moderating role of spatial context, particularly sub-district level characteristics, in shaping access to infrastructure and livelihood opportunities.

Validity and Reliability

Several measures were undertaken to ensure the validity and reliability of the study. Content validity was established through an extensive review of poverty, digital divide, and financial inclusion literature to ensure that survey items adequately captured the multidimensional constructs under

investigation. The questionnaire was further refined through consultation with subject-matter experts familiar with rural development and poverty research in Malaysia. Construct validity was addressed by operationalizing key concepts such as digital access, financial inclusion, and quality of life, using multiple indicators rather than single proxy measures. This approach reduces measurement error and enhances conceptual robustness. A pilot study conducted prior to the main survey assessed question clarity, response consistency, and field feasibility, leading to minor revisions that improved instrument reliability. Reliability was strengthened through standardized data collection procedures and the use of trained enumerators for face-to-face interviews. This approach minimized respondent misunderstanding and item non-response. The stratified sampling design further enhances internal consistency by ensuring balanced representation across occupational groups. Collectively, these measures provide confidence that the data accurately reflect the socioeconomic conditions of the study population and support the credibility of the study's findings.

FINDINGS

Demographic Profile of Household Heads

The demographic characteristics of the 402 household heads in the Guar Chempedak state constituency are presented in Table 1. The sample was predominantly male, accounting for 90.3 percent of respondents, while female household heads represented 9.7 percent. Most respondents were married (83.6%), whereas 9.2 percent were single parents and 7.2 percent were single. The respondents were predominantly Malay (96.5%), with smaller proportions of Chinese (2.0%), Indian (1.2%) and Iban (0.2%), reflecting the ethnic composition of the study area. The age distribution indicates an ageing population of household heads. The largest proportion was aged 51 to 60 years (31.6 percent), followed by those aged 41 to 50 years (23.6 percent) and above 60 years (18.4 percent). Respondents aged 30 to 40 years accounted for 16.9 percent, while only 9.5 percent were below 30 years. This demographic profile suggests that household leadership in the study area is concentrated among older adults, with relatively limited representation from younger age groups.

Table 1

Demographic Characteristics of Household Heads (N=402)

Category	Detail	Number	Percentage (%)
Gender	Male	363	90.30
	Female	39	9.70
Marital Status	Married	336	83.58
	Single Parent	37	9.20
	Single	29	7.21
Ethnicity	Malay	388	96.52
	Chinese	8	1.99
	Indian	5	1.24
	Iban	1	0.25
Age	<30 years	38	9.5
	30-40 years	68	16.9
	41-50 years	95	23.6
	51-60 years	127	31.6
	>60 years	74	18.4

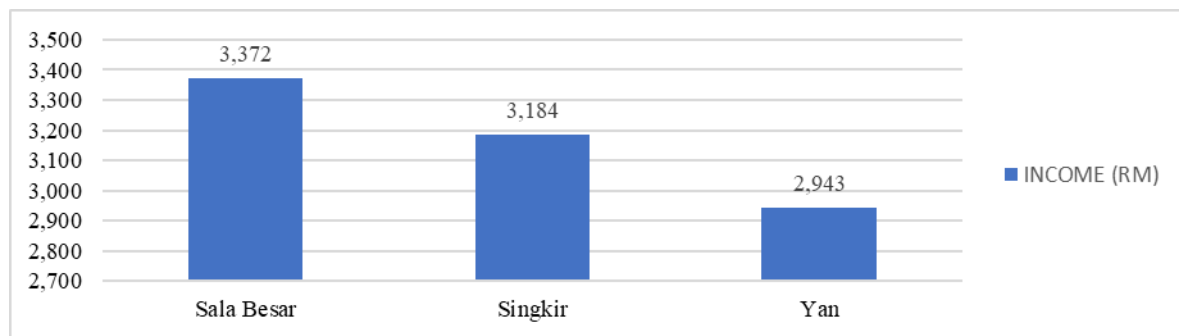
Household Income Distribution

The results indicate that households across all three mukim (sub-districts) are classified within the B40 income group (Figure 1). The average monthly household income was RM3,372 in Mukim Sala Besar, RM3,184 in Mukim Singkir and RM2,943 in Mukim Yan. These averages are substantially lower than both the national B40 income threshold (RM4,360) and the 2019 average monthly household income in Kedah (RM5,522).

A comparison with district-level statistics reported by the Department of Statistics Malaysia (2020) further highlights the extent of income disparity. In 2019, the average monthly gross household income was RM4,960 in Sik, RM4,397 in Yan, and RM4,313 in Baling. The lower income levels recorded in the present study suggest that households in the selected study areas experience greater economic disadvantage than the overall district averages, reinforcing the socioeconomic vulnerability of the communities surveyed.

Figure 1

Average Monthly Gross Household Income by sub-district



Occupational Distribution and Income Disparities

The occupational profile of household heads reveals seven main employment categories (Table 2). Fishing constituted the largest occupational group, accounting for 27.9 percent of household heads, followed by rice farming (20.4%) and small business activities (19.4%). Other occupational categories included employment in government and statutory bodies (14.4 %), private sector employment (10.7%), livestock farming (5.0%) and hawking or service-related activities (2.2%). The distribution indicates a strong dependence on traditional and informal economic activities, particularly fishing and agriculture, which together accounted for 48.3 percent of household heads. This occupational structure highlights the importance of primary sector livelihoods within the study area and provides an important context for understanding household income patterns and socioeconomic vulnerability.

Substantial differences in average monthly household income were observed across occupational categories. Household heads employed in government and statutory bodies recorded the highest average monthly income at RM2,959.83, followed by small business owners with an average income of RM2,360.00. In contrast, households dependent on traditional and informal sector activities reported considerably lower average incomes. These included livestock rearers (RM1,590.00), hawkers and service providers (RM1,687.90), private sector employees (RM1,679.62), rice farmers

(RM1,092.26), and fishermen (RM1,016.90).

Table 2

Household Head Occupation and Average Monthly Income (N=402)

Main Occupation	Number of HH (Percentage)	Average Monthly Income (RM)
Fisherman	112 (27.86)	1,016.90
Paddy Farmer	82 (20.40)	1,092.26
Livestock Rearer	20 (4.98)	1,590.00
Small Business Owner	78 (19.40)	2,360.00
Government/Statutory Body	58 (14.43)	2,959.83
Private Sector	43 (10.69)	1,679.62
Hawker/Service Provider	9 (2.24)	1,687.90

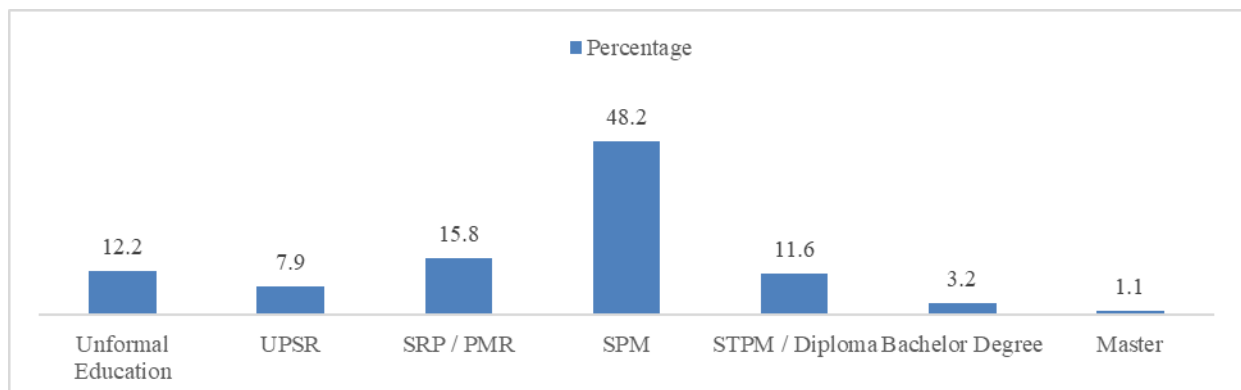
The findings indicate a clear income gradient across occupational groups, with households engaged in primary sector activities, particularly rice farming and fishing, experiencing the lowest average income levels compared with those employed in more stable wage-based occupations and business activities.

Educational Attainment Profile

The educational attainment profile of household heads reveals several important patterns (Figure 2). Nearly half of the respondents (48.2%) reported the Malaysian Certificate of Education (SPM) as their highest educational qualification. Only 15.9 percent had attained higher education qualifications, including diplomas, bachelor's degrees, or master's degrees. A notable proportion of household heads had limited formal education. Specifically, 12.2 percent had received no formal education, while 7.9 percent completed primary education up to Standard 6 (UPSR). Meanwhile, 15.8 percent attended school up to Form 3, achieving the Lower Secondary Assessment (PMR) or its equivalent qualification, the Lower Certificate of Education (SRP). Overall, the findings indicate that the educational profile of household heads is characterised by relatively low levels of formal educational attainment, with only a small proportion progressing to higher education levels.

Figure 2

Educational Attainment of Household Heads



Living Standards and Infrastructure Access

Multiple indicators were used to assess living standards and infrastructure access among households in the study area (Table 3). Housing characteristics showed that the majority of households (73.3%) lived in traditional village houses, followed by residential estates (19.9%), KEDA housing (6.2%) and public low-cost housing (PPR) (0.6%). In terms of media access, 56.7 percent of households utilised myTV services, while 17.9 percent subscribed to Astro and 14.9 percent used NJOI. However, a substantial digital divide was observed. Although 89.8 percent of households owned smartphones, only 9.5 percent had access to home internet services, indicating limited access to stable digital connectivity.

Access to basic utilities was relatively comprehensive. A total of 96.7 percent of households received water supply from SADA, while the remaining 3.3 percent relied on natural water sources. Electricity access was universal, with 100 percent of households receiving electricity supply from Tenaga Nasional Berhad (TNB). Analysis of housing tenure revealed that 60.5 percent of households owned houses located on their own land. Meanwhile, 15.4 percent lived in houses situated on parental land, 10.1 percent rented their homes, and 14.0 percent owned houses located on squatted or government land. Regarding housing size, 48.3 percent of households had three-bedroom houses, followed by 21.7 percent with one to two bedrooms, 18.9 percent with four bedrooms, and 11.1 percent with five to seven bedrooms.

Basic needs fulfilment was generally high among surveyed households. Almost all households (99.7%) reported having sufficient clothing. Food security was also relatively strong, with 71.7 percent reporting sufficient food supplies and 17.9 percent reporting very sufficient food provisions. Only 0.8 percent of households indicated insufficient food availability, while 99.5 percent reported that they had never experienced hunger.

Table 3

Living Standard Indicators (N=402)

Category	Response Option	Percentage (%)
Type of House	Traditional village house	73.3
	Residential estate	19.9
	KEDA housing	6.2
	Poor people's housing (PPR)	0.6
Home Internet	Available	9.5
	Not available	90.5
Water Supply	SADA water supply	96.7
	Hill/spring water	3.3
Smartphone Ownership	Own a smartphone	89.8
	Do not own a smartphone	10.2
Electricity	TNB (National Grid)	100
Residence Status	Own house and land	60.5
	Own house, parents' land	15.4
	Rented house	10.1

Category	Response Option	Percentage (%)
	Own house (squatting/government land)	14.0
Number of Bedrooms	1-2 rooms	21.7
	3 rooms	48.3
	4 rooms	18.9
	5-7 rooms	11.1
Clothing Adequacy	Sufficient	99.7
	Insufficient	0.3
Food Adequacy	Insufficient	0.8
	Moderately sufficient	9.6
	Sufficient	71.7
	Very sufficient	17.9
Hunger Experience	Never experienced hunger	99.5
	Experienced hunger	0.5

Financial Security and Savings Patterns

The analysis of household savings patterns revealed varying levels of participation across different financial institutions (Table 4). Conventional banks recorded the highest participation rate, with 52.8 percent of household heads maintaining bank savings, followed by Tabung Haji (Pilgrims' Fund) at 40.6 percent and Amanah Saham Bumiputera (ASB) at 34.3 percent. Participation in the Employee Provident Fund (KWSP/EPF) was reported among 35.5 percent of household heads. In contrast, only 9.1 percent of respondents had insurance coverage, while participation in cooperative savings remained relatively low at 5.8 percent.

Differences in financial participation were also evident across occupational categories. Private sector workers and retirees recorded the highest levels of bank savings participation, at 62.8 percent and 67.8 percent, respectively. In comparison, households engaged in traditional sector occupations demonstrated lower engagement with formal financial services. Insurance ownership among fishermen was limited to 2.0 percent, while none of the farmers reported having insurance coverage. Similarly, cooperative participation was 0.0 percent among fishermen and 4.3 percent among farmers.

Borrowing Patterns and Credit Sources

Analysis of household borrowing patterns (Table 5) reveals a strong dependence on informal credit sources among rural households. More than half of all loans (50.6%) were obtained through informal channels, including family members (28.2%), friends (8.9%), pawnshops (10.0%), and employers (3.5%). In comparison, formal sources of financing accounted for only 28.2 percent of total borrowing, comprising bank loans (17.9%), Amanah Ikhtiar Malaysia (AIM) (6.2%), cooperative financing (2.7%) and TEKUN loans (1.4%). The pattern of loan utilisation further indicates that borrowing among rural households was largely driven by consumption and immediate household needs rather than productive investment. Personal loans represented the largest proportion of borrowing (17.9%), followed by vehicle purchases (11.9%), business activities (11.7%), food expenses (10.8%), agricultural expenses (10.8%), children's education (10.6%), utility payments (7.6%), house rental (2.7%) and medical treatment (1.6%). These findings suggest that credit functions primarily as a financial coping mechanism to support daily household needs rather than as a tool for long-term economic advancement.

Table 4

Distribution of Savings Types by Occupational Category

Occupation / Savings Type	Government/Statutory Body (%) (n=59)	Private Sector (%) (n=43)	Fisherman (%) (n=102)	Farmer (%) (n=69)	Livestock Rearer (%) (n=20)	Hawker/ Street Vendor (%) (n=9)	Small Business (%) (n=78)	Unemployed/Retiree (%) (n=16)	Overall Average (%)
ASB	47.5 (28)	34.9 (15)	34.3 (35)	20.3 (14)	30 (6)	55.6 (5)	20.5 (16)	25.0 (4)	34.3
KWSP	35.6 (21)	44.2 (19)	23.5 (24)	23.2 (16)	30 (6)	44.4 (4)	30.8 (24)	62.5 (10)	35.5
Tabung Haji	54.2 (32)	39.5 (17)	29.4 (30)	44.9 (31)	50 (10)	33.3 (3)	35.9 (28)	37.5 (6)	40.6
Insurance	15.3 (9)	14.0 (6)	2.0 (2)	0.0 (0)	5 (1)	11.1 (1)	12.8 (10)	12.5 (2)	9.1
Cooperative	10.2 (6)	4.7 (2)	0.0 (0)	4.3 (3)	10 (2)	11.1 (1)	0.0 (0)	6.3 (1)	5.8
Bank	45.8 (27)	62.8 (27)	36.3 (37)	44.9 (31)	75 (15)	55.6 (5)	34.6 (27)	67.8 (11)	52.8

Notes:

1. Values in parentheses indicate the number of respondents.

2. Percentages are calculated based on the total number of respondents in each occupational category.

The reliance on informal borrowing appears to reflect structural barriers rather than household preference. Many rural households face difficulties accessing formal financial services due to requirements such as collateral ownership, stable income documentation, and favorable credit histories. These requirements may exclude households dependent on seasonal and unstable income sources, particularly those involved in agriculture and fisheries. Furthermore, geographical distance from financial institutions and lengthy formal loan approval procedures may limit access to timely financial assistance, particularly when households face urgent expenses such as medical costs or food requirements. As a result, informal lenders often become the preferred option because they provide faster access to funds, flexible repayment arrangements, and fewer documentation requirements.

Social networks also contribute significantly to informal borrowing practices in rural communities. Loans obtained from family members and friends are often based on trust, kinship relationships, and established community ties, allowing households to access financial support without formal contracts or complex procedures. However, limited access to formal credit facilities may also increase households' vulnerability to illegal moneylenders, commonly known as Ah Long, who provide rapid financial assistance but impose excessive interest rates that can contribute to prolonged debt dependency.

The limited contribution of microfinance institutions further highlights existing gaps in rural financial inclusion. AIM and TEKUN collectively accounted for only 7.6 percent of total loan sources, suggesting that current microfinance initiatives remain insufficient in meeting the credit needs of vulnerable rural households. Strengthening financial inclusion, therefore, requires expanding accessible formal financial services, improving financial literacy, and developing financial products that better accommodate households with irregular incomes and limited collateral.

Table 5

Loan Sources and Borrowing Purposes

Loan Sources	Percentage (%)	Loan Purposes	Percentage (%)
Cooperative	2.7	Business	11.7
Amanah Ikhtiar Malaysia (AIM)	6.2	Medical treatment	1.6
Family	28.2	Personal loan	17.9
Bank	17.9	Agricultural expenses	10.8
TEKUN	1.4	Utilities	7.6
Pawnshop	10	Children's education	10.6
Employer	3.5	Food purchases	10.8
Friends	8.9	Vehicle purchase	11.9
		House rental	2.7
		Others (Credit card)	1.9

DISCUSSION

Income Poverty, B40 Stratification and Economic Resilience

The finding that all surveyed households fall within the B40 income classification, with average monthly household incomes ranging from RM2,943 to RM3,372, which are substantially lower than

both the B40 income threshold of RM4,360 and the Kedah state average of RM5,522, has important implications for economic resilience and long-term sustainability. This widespread incidence of income poverty reflects structural economic challenges rather than temporary economic shocks, underscoring the need for comprehensive, multidimensional policy interventions.

The considerable income disparities across occupational groups further demonstrate that the B40 population is far from homogeneous. Government employees reported an average monthly income of RM2,959.83, whereas fishermen reported an average monthly income of RM1,016.90. This substantial difference indicates that socioeconomic conditions vary considerably within the same income classification. These findings are consistent with the World Bank (2025), which reported that opportunity inequality accounts for up to 65 percent of total income inequality in Malaysia and is strongly influenced by factors such as parental socioeconomic background, educational attainment, and geographical location. The findings also support those of Looi et al. (2020), who identified disparities in quality of life among rural communities. The present study extends this evidence by demonstrating that significant socioeconomic differences exist even within the B40 group, suggesting that poverty reduction policies should be tailored to address the diverse needs and circumstances of different occupational groups rather than treating the B40 population as a single, uniform category.

From a sustainability perspective, the concentration of the lowest household incomes among traditional occupations, particularly fishermen with an average monthly income of RM1,016.90 and farmers with RM1,092.26, is a significant concern. These occupational groups are highly exposed to the adverse effects of climate change, including rising sea levels, unpredictable rainfall patterns, and extreme weather conditions, while having limited capacity to adapt due to constrained financial resources (Andriess et al., 2025). Their combination of climate vulnerability and economic insecurity weakens long-term community resilience and increases the risk of persistent poverty. These findings suggest that poverty alleviation policies should incorporate climate adaptation initiatives alongside socioeconomic support to promote sustainable livelihoods and strengthen the resilience of rural communities.

The income data further indicate limited economic diversification, with 48.3 percent of households relying on natural resource-based livelihoods, of which 27.9 percent engaged in fishing and 20.4 percent in farming. This heavy dependence on primary economic activities increases household vulnerability to environmental degradation, market fluctuations, and the depletion of natural resources. Such reliance also limits the capacity of rural communities to withstand economic and environmental shocks, thereby undermining long-term economic sustainability. Strengthening economic resilience, therefore, requires policies that promote economic diversification through skills development, support for alternative sources of livelihood, value addition to existing industries and the expansion of non-farm economic activities (Ridzuan et al., 2025).

Human Capital Constraints and Intergenerational Poverty Transmission

The educational profile of household heads highlights a significant constraint on economic mobility and sustainable development. Nearly half of the respondents (48.2 percent) had completed only the *Sijil Pelajaran Malaysia* (SPM), while 12.2 percent had received no formal education. This limited level of educational attainment represents a major barrier to improving socioeconomic conditions. As argued by Krieger et al. (1997), educational

disadvantage reflects embodied inequality, whereby limited education restricts not only current income-earning opportunities but also the transmission of socioeconomic advantages across generations.

Limited educational attainment also reduces the capacity of households to respond to changing economic conditions. Individuals with lower levels of education are less likely to access skilled employment, adopt new technologies in traditional sectors such as agriculture and fisheries, participate effectively in the digital economy, or understand and utilise formal financial services (Mueller & Parcel, 1981). Consequently, many households remain dependent on low-income occupations that are characterised by low productivity and greater exposure to environmental and economic risks.

The finding that only 15.9 percent of household heads possessed tertiary education further demonstrates the limited human capital available within the community. Low levels of educational attainment restrict entrepreneurial activity, weaken community participation in local development initiatives, and reduce households' ability to access and benefit from government assistance programmes (Bradley & Corwyn, 2002). This finding is consistent with Duncan et al. (2012), who showed that parental education has a lasting influence on children's socioeconomic outcomes through pathways such as household income, parenting practices, and access to educational opportunities. Without improvements in educational attainment, the cycle of poverty is likely to persist across generations.

The demographic profile of the respondents further reinforces these concerns. Half of the household heads were over the age of 50, while only 9.5 percent were below the age of 30. This ageing population raises important questions about the long-term sustainability of the local workforce. As older workers retire, younger generations may struggle to sustain local economic activities if they lack the educational qualifications, digital competencies, and technical skills required in an increasingly technology-driven economy (Ensminger & Fothergill, 2003).

These findings suggest that strengthening human capital should become a central component of rural development policy. Improving educational outcomes requires more than expanding access to formal education. Policy interventions should also focus on vocational and technical training, lifelong learning opportunities, and adult education programmes that respond to local labour market needs. At the same time, financial barriers to education and skills development should be addressed through measures such as conditional cash transfers, subsidised training programmes, and recognition of prior learning to encourage greater participation among adults (Mahdzan et al., 2023). Such integrated approaches would strengthen workforce capacity, improve economic resilience, and support sustainable socioeconomic development in rural communities.

The Digital Paradox: Superficial Connectivity and Economic Exclusion

The findings reveal a striking contrast between the high rate of smartphone ownership (89.8%) and

the very low level of home internet access (9.5%). This disparity illustrates a digital paradox: widespread ownership of digital devices creates the appearance of connectivity while masking persistent digital exclusion. The results challenge the assumption that smartphone ownership alone reflects meaningful digital inclusion and highlight important barriers to economic participation in Malaysia's increasingly digital economy.

Digital exclusion in this community extends beyond physical access to technology. As explained by Vassilakopoulou and Hustad (2023), digital inclusion comprises several interconnected dimensions, including access to digital infrastructure, the skills and knowledge required to use technology, and the ability to apply digital tools to generate meaningful social and economic benefits. Although most households own smartphones, the limited availability of home internet significantly restricts their ability to participate in the digital economy. Reliable internet access is essential for activities such as online business, digital marketing, remote employment, online education and skills development, and the use of digital financial services. Without stable internet connectivity, rural households face considerable barriers to accessing these economic opportunities (Keling et al., 2025).

The economic consequences of this digital divide are substantial. Evidence from the Malaysia Digital Economy Corporation (MDEC, 2023) indicates that workers with advanced digital skills earn considerably higher incomes than those with limited digital competencies. Given that the average monthly household income in the study area ranges from RM2,943 to RM3,372, limited digital access reduces opportunities to improve income, secure better employment, and participate in higher value economic activities. Over time, these constraints may widen income disparities between rural and urban communities and reinforce existing socioeconomic inequalities.

The challenges associated with digital exclusion became particularly evident during the COVID-19 pandemic. Ni et al. (2025) and Jeng and Zaini (2025) reported that rural schools faced persistent difficulties in implementing online learning due to poor internet connectivity and limited access to digital devices. As a result, many rural students faced a significant educational disadvantage compared with their urban counterparts. Similar challenges affected economic activities, as many rural microenterprises were unable to shift to online marketing, electronic commerce, and digital payment systems, thereby intensifying income losses during the pandemic (Li et al., 2021).

Digital exclusion is also closely linked to financial exclusion. An increasing number of financial services, including mobile banking, digital payment systems, and financial technology applications, depend on reliable internet connectivity. The very low level of home internet access observed in this study, therefore, limits households' ability to access formal financial services and encourages continued reliance on informal sources of finance. This interaction between digital exclusion and financial exclusion creates an additional obstacle to economic mobility and sustainable development. Addressing these challenges requires a comprehensive approach that combines improvements in digital infrastructure with initiatives that strengthen digital capabilities.

Expanding broadband coverage to rural areas remains essential, but infrastructure development alone is unlikely to eliminate digital exclusion. Complementary measures should include community digital centres that provide free internet access and digital literacy programmes, affordable internet packages for B40 households, digital applications that support local economic activities, and entrepreneurship training that enables rural communities to participate more effectively in online markets (Keling et al., 2025; Telecom Review Asia, 2025). Although the JENDELA initiative under the Twelfth Malaysia Plan represents an important step towards improving national digital

infrastructure, its implementation should continue to prioritise equitable access and ensure that rural communities can fully benefit from Malaysia's digital transformation.

Financial Exclusion and Vulnerability: Subsistence Adequacy with Systemic Marginalization

The findings indicate that although most households can meet their basic needs, significant financial exclusion persists. Almost all respondents reported never experiencing hunger (99.5 %), while 99.7 percent indicated that their clothing needs were adequately met. However, only 9.1 percent of households had insurance coverage, and 46.2 percent relied on informal sources of credit. This pattern reflects what may be described as subsistence adequacy with systemic exclusion, in which households can meet their immediate basic needs but continue to experience financial insecurity and limited access to formal financial services. These findings challenge conventional poverty measures that equate the fulfilment of basic needs with economic wellbeing, demonstrating that meeting daily consumption requirements does not necessarily lead to long-term financial security or sustainable socioeconomic development.

The extremely low level of insurance coverage further highlights the financial vulnerability of rural households. Overall, only 9.1 percent of respondents owned insurance, with coverage falling to 2.0 percent among fishermen and none among farmers. Without adequate financial protection, households remain highly exposed to unexpected events such as illness, natural disasters, and income disruptions, all of which can rapidly erode household assets and increase indebtedness. This situation reflects what the Khazanah Research Institute (2019) describes as income insecurity, whereby households frequently move between poverty and near poverty because they lack sufficient financial resources to absorb economic shocks. The national finding that 60 percent of B40 households do not have enough savings to survive for three months following income loss is consistent with the situation observed in Guar Chempedak, where widespread dependence on informal credit suggests a chronic inability to accumulate financial reserves.

The findings also reveal a heavy reliance on informal credit, particularly loans from family members (28.2%) and pawnshops (18.0%), rather than formal financial institutions. For many households, especially those employed in informal or unstable occupations, access to conventional bank financing remains limited due to irregular incomes and the inability to meet lending requirements. As a result, households often rely on informal borrowing to meet daily living expenses. Such dependence increases the risk of persistent debt and limits opportunities to invest in productive assets, business development, or education, thereby constraining long term economic mobility (Li et al., 2021).

Financial exclusion is particularly evident among households engaged in traditional occupations. Farmers recorded no insurance ownership, while only 2.0 percent of fishermen possessed insurance coverage. These findings suggest that workers in the primary sector face multiple barriers to financial inclusion, including limited financial literacy, insufficient collateral, unstable income, and restricted access to financial institutions because of their rural location. Consequently, the groups that are most vulnerable to economic and environmental risks are also those with the least access to financial products that could improve their resilience. This unequal access to financial services further widens existing socioeconomic disparities.

The analysis of borrowing purposes provides additional evidence of financial vulnerability. Most loans were obtained to finance consumption rather than productive investment. Personal expenses

accounted for 17.9 percent of borrowing, followed by food purchases at 10.8 percent and utility payments at 7.6 percent. These borrowing patterns indicate that many households rely on credit to meet basic living expenses rather than to expand income-generating activities. In such circumstances, borrowing becomes a mechanism for short-term survival instead of a means of improving household economic conditions, thereby limiting the developmental role of credit (Mohammed et al., 2017; Brune et al., 2011).

These findings highlight the importance of strengthening financial inclusion among rural B40 households through policies that address the specific barriers faced by workers in traditional sectors. Although Bank Negara Malaysia's Financial Inclusion Framework 2023–2026 emphasizes the expansion of accessible financial services through technology and inclusive financial products, greater attention should be given to the needs of geographically remote and low-income communities. Priority should be placed on expanding mobile banking services with simplified account opening procedures, introducing affordable microinsurance products that protect households against health emergencies and agricultural losses, strengthening community based savings programs, improving financial literacy through trusted local institutions, and enhancing the role of cooperative financial organizations in connecting informal savings practices with the formal financial system (Bank Negara Malaysia, 2023; Li et al., 2021).

Sustainability Implications: Beyond Income Poverty to Multidimensional Wellbeing

The findings of this study demonstrate that income poverty, limited educational attainment, digital exclusion, and financial marginalisation are closely interconnected and cannot be addressed effectively through a single dimension of poverty alleviation. From a sustainability perspective, development strategies that focus solely on increasing household income are unlikely to produce lasting improvements if other structural disadvantages remain unresolved. Sustainable rural development, therefore, requires a multidimensional approach that addresses the economic, social, and institutional factors shaping household wellbeing.

Sustainable development is commonly understood as comprising three interconnected dimensions: economic, social, and environmental sustainability. Within this framework, poverty eradication remains a fundamental objective across all three dimensions (Jamil & Che Mat, 2014). The findings from Guar Chempedak suggest that increasing household income alone is insufficient to achieve sustainable poverty reduction. Although most households reported that their basic needs were met, many continued to experience financial insecurity, limited digital access, and low levels of human capital. These conditions indicate that households remain vulnerable to economic shocks despite meeting their immediate consumption needs, placing them at continued risk of falling back into poverty.

The demographic profile of the study area further raises concerns about long-term sustainability. Half of the household heads were over the age of 50, while younger generations generally possessed limited educational qualifications. This situation may restrict intergenerational socioeconomic mobility and increase the likelihood that future generations will remain in low-income occupations. Without sustained investment in education, technical skills, and alternative employment opportunities, existing patterns of poverty are likely to persist across generations (World Bank, 2025).

Environmental sustainability presents another important challenge. Almost half of the households

(48.3%) depended on fishing and farming as their primary sources of livelihood. These occupations are particularly vulnerable to the effects of climate change, including rising sea levels, unpredictable rainfall patterns, and more frequent extreme weather events, all of which threaten agricultural productivity and fishing activities (Andriesse et al., 2025). Without effective climate adaptation strategies and greater economic diversification, environmental changes may further reduce household incomes and weaken the effectiveness of existing poverty reduction initiatives.

The findings also demonstrate the importance of adopting integrated and place-based approaches to rural development rather than relying on sector-specific or income-focused interventions. Sustainable poverty reduction in communities such as Guar Chempedak requires coordinated action across multiple areas, including improving household income through productivity enhancement and diversified livelihood opportunities, strengthening education and skills development, expanding digital infrastructure together with digital literacy programmes, increasing access to formal financial services, and supporting climate adaptation initiatives that enhance the resilience of traditional economic activities.

The Twelfth Malaysia Plan provides an important policy framework by prioritising the eradication of hardcore poverty through economic development and infrastructure improvement in less developed regions (Ridzuan et al., 2025). However, the findings of this study suggest that infrastructure development alone is insufficient. Greater emphasis should also be placed on strengthening human capital, improving institutional support, and ensuring that vulnerable households are able to access and benefit from available development programmes. Furthermore, the substantial variation observed within the B40 group indicates that uniform policy interventions may not adequately address the diverse needs of different socioeconomic and occupational groups. More targeted and differentiated approaches are therefore required.

Overall, the findings demonstrate that sustainable poverty reduction requires a broader understanding of poverty that extends beyond household income. Poverty should also be viewed in terms of educational opportunities, financial inclusion, digital access, and environmental resilience, all of which influence the capacity of households to achieve sustainable livelihoods. This perspective is consistent with the arguments of Wilkinson and Pickett (2009) and the World Bank (2025), who emphasise that reducing inequality and expanding equitable opportunities require addressing the structural factors that limit socioeconomic advancement. The evidence from Guar Chempedak provides empirical support for this multidimensional perspective and highlights key areas that require policy attention to promote sustainable development in rural Malaysian communities.

CONCLUSIONS

This study examined the socioeconomic conditions of 402 household heads in Guar Chempedak, Yan District, and revealed that poverty in the study area is multidimensional rather than solely income-based. Three major forms of deprivation were identified. First, the findings revealed substantial income disparities within the B40 group, indicating that households within the same income category differ in socioeconomic vulnerability. Second, the study identified a digital paradox characterized by high smartphone ownership but very limited home internet access, highlighting persistent barriers to meaningful digital inclusion. Third, although most households met their basic needs, many remained financially excluded, as reflected in low insurance ownership and a heavy reliance on informal sources of credit. Together, these findings demonstrate that income poverty is closely associated with limitations in digital access, financial inclusion, and human capital, all of which reinforce

socioeconomic disadvantage.

The findings have important implications for poverty alleviation policies in rural Malaysia. Current income-based targeting approaches are insufficient because they fail to capture the multiple dimensions of deprivation experienced by vulnerable households. The evidence suggests that poverty measurement should extend beyond household income to include indicators of digital access, financial inclusion, educational attainment, and economic resilience. In addition, policy interventions should recognize the diversity that exists within the B40 population by adopting more targeted strategies that reflect differences in occupation, geographical location, and demographic characteristics. The contrasting situation of Yan District, which is recognized as one of Malaysia's Top 10 Happiest Towns despite being classified among the country's poorest districts, further illustrates that household wellbeing cannot be adequately understood through income measures alone.

Future research should extend this work by conducting longitudinal studies to examine changes in household socioeconomic conditions over time, comparative studies across rural districts, and evaluations of programs that promote digital inclusion, financial inclusion, and sustainable rural development. Such research would provide stronger evidence for designing more effective and inclusive poverty reduction strategies.

In conclusion, this study demonstrates that achieving sustainable poverty reduction in rural Malaysia requires a broader understanding of poverty as a multidimensional condition rather than simply a lack of income. Addressing poverty effectively will require integrated policies that simultaneously strengthen household income, improve educational opportunities, expand digital connectivity, increase financial inclusion, and enhance community resilience. Such an approach will contribute to more inclusive, equitable, and sustainable socioeconomic development for rural communities in Malaysia.

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DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES

During the preparation of this work, the author used ChatGPT for paraphrasing and some data interpretation. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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