



Reassessing the Poverty Measurement in Jamaica: A Critical Examination of the Jamaica Survey of Living Conditions 2022 and the Case for a Multidimensional Alternative Framework

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Abstract

This study critically examines the conceptualisation and measurement of poverty in Jamaica through the lens of the Jamaica Survey of Living Conditions (JSLC) 2022 framework, interrogating whether the prevailing consumption-based approach adequately captures the lived realities of deprivation in a contemporary Caribbean society (Planning Institute of Jamaica [PIOJ] & Statistical Institute of Jamaica [STATIN]). The JSLC, jointly administered by the Planning Institute of Jamaica and the Statistical Institute of Jamaica, has historically defined poverty through household consumption expenditure relative to a nationally determined poverty line, distinguishing between overall poverty and extreme food poverty. While this monetary framework has facilitated longitudinal comparisons and informed policy development since 1988, emerging socioeconomic complexities, including vulnerability, inequality, and non-monetary deprivation, raise questions regarding its continued relevance. Empirical evidence indicates declining poverty rates in recent years; however, a significant proportion of Jamaicans remain vulnerable to poverty, highlighting structural fragilities not fully captured by income or consumption measures. This paper employs a critical analytical approach, integrating theoretical perspectives on poverty measurement with empirical insights from the JSLC, to evaluate the strengths and limitations of Jamaica's current framework. It argues that the existing model, while statistically robust, is conceptually narrow and insufficiently reflective of multidimensional deprivation. Consequently, the study proposes a multidimensional poverty index tailored to the Jamaican context, incorporating indicators such as housing quality, access to healthcare, education, employment security, and social vulnerability. The findings suggest that transitioning toward a multidimensional framework would provide a more holistic and policy-relevant understanding of poverty, enabling more targeted and equitable interventions aligned with Jamaica's development goals.

Keywords: Poverty, poverty assessment, Jamaica,

Introduction

Poverty remains one of the most enduring and complex socio-economic challenges confronting Jamaica, necessitating continuous evaluation of how it is conceptualised and measured within national policy frameworks (Planning Institute of Jamaica [PIOJ], 2024; Planning Institute of Jamaica [PIOJ], & Statistical Institute of Jamaica (STATIN), 2023; World Bank, 2022). Since its inception in 1988, the Jamaica Survey of Living Conditions (JSLC) has served as the primary instrument for assessing living standards and poverty in the country, providing critical data for policy formulation and evaluation (PIOJ & STATIN, 2023). The survey conceptualises poverty primarily through a consumption-based approach, whereby individuals are classified as poor if their expenditure falls below a defined poverty line representing the cost of basic needs (Filmer&Ravallion, 2025; Ravallion, 1994; Ravallion, 2001; Ravallion, 2007; Ravallion, 2010; Ravallion, 2011; Ravallion, 2012; Ravallion, 2016; Ravallion& Chen, 1997; Ravallion& Chen, 2003; Ravallion& Chen, 2007; Ravallion et al., 2007; Ravallion et al., 2009). This approach reflects a broader tradition in development economics that equates poverty with insufficient command over economic resources, particularly income or consumption (World Bank, 2022). However, contemporary scholarship increasingly recognises poverty as a multidimensional phenomenon encompassing social, economic, and psychological dimensions of deprivation (Sen, 1999; Alkire & Foster, 2011). In Jamaica, the persistence of inequality, vulnerability, and social exclusion raises important questions about whether a purely monetary measure adequately captures the lived experiences of the population (PIOJ, 2024). Furthermore, recent declines in official poverty rates may obscure underlying vulnerabilities and disparities that remain entrenched within the society (STATIN, 2023). This study, therefore, interrogates the adequacy of the JSLC framework, particularly as applied in 2022, in capturing the broader reality of poverty in Jamaica (PIOJ & STATIN, 2023). It also explores whether a paradigm shift toward a multidimensional approach is both necessary and feasible within the Jamaican context (UNDP, 2023), which is a gap in the literature.

Gap in the Literature

A critical gap in the literature exists in relation to how poverty is conceptualised, operationalised, and empirically modelled within the Jamaican context, particularly when compared to advances in multidimensional poverty research internationally. Existing studies on poverty in Jamaica have overwhelmingly relied on the consumption-based framework embedded in the Jamaica Survey of Living Conditions 2022, which defines poverty primarily in terms of household expenditure relative to a fixed poverty line (PIOJ & STATIN, 2023). While this approach has generated a consistent and policy-relevant time series, the academic literature has not sufficiently interrogated its conceptual limitations or its adequacy in capturing the lived realities of deprivation in a modern, highly unequal Caribbean society. Moreover, although global scholarship, particularly the work of Amartya Sen and Sabina Alkire, has shifted toward multidimensional and capability-based understandings of poverty, there remains a notable absence of empirically grounded, Jamaica-specific applications of

these frameworks. This fact is a disconnect between international theoretical advancements and domestic empirical practice, representing a significant gap in the literature.

Furthermore, the existing body of Jamaican research has largely focused on descriptive poverty trends and macroeconomic correlates, with limited attention given to the measurement problem itself as a subject of critical inquiry. Studies utilising JSLC data tend to accept the consumption-based poverty line as an exogenous and sufficient measure, rather than examining its normative assumptions, sensitivity to structural inequality, or inability to capture vulnerability and non-monetary deprivation. There is also a lack of research integrating multidimensional poverty measures with time-series econometric techniques, such as ARIMAX or OLS models, despite their widespread use in analysing other socio-economic outcomes in Jamaica. Additionally, the literature has not adequately addressed intra-household inequality, spatial disparities, or the role of social vulnerability, including crime exposure and environmental risk, in shaping poverty outcomes. This omission is particularly significant given Jamaica's unique socio-economic structure, where non-income deprivations play a central role in shaping quality of life.

Another important gap lies in the absence of a nationally tailored multidimensional poverty index that reflects Jamaica's specific socio-economic realities and policy priorities. While international indices developed by institutions such as the United Nations Development Programme provide useful benchmarks, they are not designed to capture country-specific dynamics such as labour market informality, crime exposure, or the interaction between migration and household welfare in Jamaica (UNDP, 2023). The Jamaican literature has not yet produced a rigorously specified, empirically testable multidimensional poverty framework that integrates both objective indicators and contextually relevant dimensions of deprivation. Additionally, there is a lack of simulation-based or econometric validation of alternative poverty measures, which limits their adoption in policy circles. Consequently, policymakers continue to rely on a unidimensional framework that may underestimate the true extent and nature of poverty.

This study addresses these gaps by providing a critical re-evaluation of the conceptual and methodological foundations of poverty measurement in Jamaica, while simultaneously proposing and formally specifying a Jamaican Multidimensional Poverty Index (JMPI). It contributes to the literature by bridging the divide between global theoretical advancements and local empirical application, incorporating multidimensional indicators into a structured and decomposable framework. Additionally, by presenting a full mathematical formulation and simulation of the proposed index, the study advances methodological discourse within Caribbean poverty research. The integration of multidimensional measurement with policy-oriented analysis further strengthens its contribution, offering a tool that is both analytically rigorous and practically applicable. In doing so, the study fills a significant void in the Jamaican and wider Caribbean literature, providing a foundation for future research and policy innovation in poverty measurement.

Research Objectives

1. To critically examine the conceptualisation of poverty within the Jamaica Survey of Living Conditions 2022.
2. To evaluate the methodological framework used to measure poverty in Jamaica.
3. To assess the strengths and limitations of the consumption-based poverty measure.
4. To analyse whether the current framework reflects the lived realities of Jamaicans.
5. To explore alternative theoretical approaches to poverty measurement.
6. To propose a multidimensional poverty framework suitable for Jamaica.
7. To provide policy recommendations for improving poverty assessment in Jamaica.

Research Questions

1. How is poverty conceptualised within the JSLC 2022 framework?
2. What methodological approach is used to measure poverty in Jamaica?
3. What are the strengths and weaknesses of the consumption-based poverty measure?
4. Does the current framework adequately reflect multidimensional deprivation?
5. What evidence exists of vulnerability beyond the poverty line in Jamaica?
6. What alternative models of poverty measurement apply to Jamaica?
7. How can a revised framework improve policy effectiveness and social outcomes?

Conceptualisation of Poverty in Jamaica

The conceptualisation of poverty in Jamaica has historically been grounded in a monetary framework that defines deprivation in terms of insufficient consumption expenditure relative to a predetermined poverty line (PIOJ & STATIN, 2023; Ravallion, 2016). This approach is operationalised through the JSLC, which collects detailed household data on expenditure, health, education, and housing conditions to assess living standards (PIOJ & STATIN, 2023). Poverty is thus conceptualised as the inability to afford a basket of goods and services deemed necessary for a minimum standard of living, including food and non-food essentials (World Bank, 2022). Within this framework, a distinction is made between overall poverty and extreme poverty, with the latter referring specifically to the inability to meet minimum caloric requirements (PIOJ, 2024). While this conceptualisation aligns with traditional economic theories of poverty, it inherently reduces a complex social phenomenon to a single monetary dimension (Ravallion, 2016). Critics argue that such an approach overlooks critical aspects of human well-being, including access to quality education, healthcare, and social inclusion (Sen, 1999). Moreover, the reliance on consumption as a proxy for welfare assumes that expenditure accurately reflects living conditions, which may not always be the case in informal or subsistence-based economies (World Bank, 2022). The conceptual framework also implicitly assumes homogeneity in needs and preferences across households, potentially obscuring variations in deprivation (Alkire & Foster, 2011). Consequently, while the JSLC provides a consistent and comparable measure of poverty over time, its conceptual foundation may be insufficient for capturing the multifaceted nature of poverty in contemporary Jamaica (UNDP, 2023).

Measurement of Poverty in the JSLC 2022 Framework

The measurement of poverty in Jamaica through the JSLC is based on a consumption expenditure approach, whereby household spending is aggregated and compared against a national poverty line derived from the cost of basic needs (PIOJ & STATIN, 2023; World Bank, 2022). This methodology reflects international best practices in poverty measurement, particularly in developing countries where income data may be unreliable or difficult to obtain (Ravallion, 2016). The poverty line is constructed by estimating the cost of a minimum food basket required to meet caloric needs and adding an allowance for non-food expenditures such as housing, transportation, and utilities (PIOJ, 2024). Individuals whose per capita consumption falls below this threshold are classified as poor, while those below the food poverty line are considered extremely poor (PIOJ & STATIN, 2023). This approach enables the calculation of key poverty indicators, including the headcount ratio, poverty gap, and severity index, which provide insights into the incidence, depth, and distribution of poverty (World Bank, 2022). Empirical findings from recent JSLC reports indicate a significant decline in poverty rates, with estimates falling to historically low levels (PIOJ, 2024; STATIN, 2023). However, the survey also identifies a substantial proportion of the population as vulnerable, defined as those whose consumption levels are only marginally above the poverty line (PIOJ, 2024). This highlights a critical limitation of the measurement framework, as it fails to capture the dynamic and precarious nature of poverty (UNDP, 2023). Furthermore, the reliance on annualised consumption data may obscure short-term shocks and seasonal variations in income and expenditure (World Bank, 2022). As such, while the JSLC provides a robust statistical framework for measuring poverty, it may not fully reflect the lived experiences of economic insecurity in Jamaica (Sen, 1999).

Strengths of the Current Poverty Measurement Framework

The JSLC-based poverty measurement framework possesses several notable strengths that have contributed to its longevity and policy relevance in Jamaica (PIOJ, 2024; World Bank, 2022). First, its reliance on consumption expenditure provides a more stable and reliable measure of welfare compared to income, particularly in contexts characterised by informal economic activity (Ravallion, 2016). Second, the framework enables longitudinal analysis, allowing policymakers to track trends in poverty and evaluate the impact of interventions over time (PIOJ & STATIN, 2023). Third, the use of a nationally defined poverty line ensures that the measure is context-specific and reflective of local cost-of-living conditions (PIOJ, 2024). Fourth, the JSLC collects comprehensive data across multiple domains, including health, education, and housing, providing a rich dataset for socio-economic analysis (STATIN, 2023). Fifth, the framework supports the calculation of various poverty indices, facilitating a nuanced understanding of poverty beyond simple headcount measures (World Bank, 2022). Sixth, its institutionalisation within national planning processes ensures that poverty measurement remains central to policy discourse and development planning (PIOJ, 2024). Finally, the JSLC's methodological consistency enhances comparability with international poverty measurement practices, enabling cross-country analysis (UNDP, 2023). Despite these strengths, it is important to recognise that methodological robustness does not

necessarily equate to conceptual adequacy (Sen, 1999). The framework's emphasis on monetary indicators may limit its ability to capture non-economic dimensions of deprivation that are increasingly recognised as integral to human well-being (Alkire & Foster, 2011). Therefore, while the current system is technically sound, its continued relevance must be evaluated in light of evolving understandings of poverty (UNDP, 2023).

Limitations of the JSLC Poverty Framework

Despite its strengths, the JSLC framework exhibits several critical limitations that undermine its ability to fully capture the complexity of poverty in Jamaica (Sen, 1999; UNDP, 2023). Foremost among these is its reliance on a unidimensional monetary measure, which fails to account for non-economic aspects of deprivation such as social exclusion, environmental vulnerability, and psychological well-being (Alkire & Foster, 2011). Additionally, the poverty line itself is inherently arbitrary, as it is based on normative assumptions about minimum needs that may not reflect the diversity of household circumstances (Ravallion, 2016). The framework also overlooks intra-household inequalities, assuming that resources are distributed equitably among household members (Sen, 1999). Furthermore, it does not adequately capture vulnerability, as individuals just above the poverty line may still experience significant economic insecurity (PIOJ, 2024). Empirical evidence indicates that a considerable proportion of Jamaicans are at risk of falling into poverty, highlighting the limitations of a binary classification system (STATIN, 2023). The framework also fails to account for spatial disparities, as cost-of-living variations across regions may not be fully reflected in a single national poverty line (PIOJ, 2024). Moreover, the use of annual data may obscure temporal fluctuations in poverty, particularly in response to economic shocks (World Bank, 2022). Finally, the framework's focus on consumption does not capture access to public goods and services, which are critical determinants of well-being (UNDP, 2023). These limitations suggest that the current approach may provide an incomplete and potentially misleading picture of poverty in Jamaica (Sen, 1999).

The Case for a Multidimensional Approach to Poverty

The growing recognition of poverty as a multidimensional phenomenon has led to increased advocacy for alternative measurement frameworks that capture a broader range of deprivations (Sen, 1999; Alkire & Foster, 2011). Multidimensional poverty indices (MPIs) incorporate indicators across various domains, including health, education, living standards, and employment, providing a more holistic assessment of well-being (Alkire & Santos, 2014). Such approaches are grounded in capability theory, which emphasises the importance of individuals' ability to achieve valued life outcomes (Sen, 1999). In the Jamaican context, a multidimensional approach would be particularly relevant given the interplay between economic, social, and environmental factors influencing poverty (PIOJ, 2024). For instance, access to quality education and healthcare, housing conditions, and exposure to crime are critical determinants of well-being that are not adequately captured by consumption measures (UNDP, 2023). Furthermore, multidimensional indices can capture the intensity of deprivation, providing insights into the severity of poverty beyond simple headcount measures (Alkire & Foster, 2011). International experience demonstrates that MPIs can

complement monetary measures, offering a more comprehensive understanding of poverty dynamics (World Bank, 2022). The Planning Institute of Jamaica has already indicated interest in developing such an index to complement existing measures, reflecting a recognition of the limitations of the current framework (PIOJ, 2024). However, the successful implementation of a multidimensional approach requires careful selection of indicators, robust data collection systems, and institutional capacity (UNDP, 2023). Despite these challenges, the potential benefits of a more nuanced and policy-relevant measure of poverty are substantial (Sen, 1999). Therefore, the adoption of a multidimensional framework represents a critical step toward improving poverty assessment in Jamaica (Alkire & Santos, 2014).

Proposed Alternative Framework for Measuring Poverty in Jamaica

This study proposes the development of a Jamaican Multidimensional Poverty Index (JMPI) that integrates monetary and non-monetary indicators to provide a comprehensive assessment of deprivation (Alkire & Santos, 2014; UNDP, 2023). The proposed framework would include dimensions such as economic security, education, health, housing quality, employment stability, and social vulnerability, each measured through specific indicators (Sen, 1999). For example, economic security could be assessed through income stability and access to social protection, while education could be measured through school attendance and attainment levels (World Bank, 2022). Health indicators could include access to healthcare services and nutritional status, while housing quality could encompass overcrowding, sanitation, and structural conditions (UNDP, 2023). Employment stability would capture job security and underemployment, while social vulnerability could include exposure to crime and environmental risks (PIOJ, 2024). The index would assign weights to each dimension based on its relative importance, allowing for the calculation of a composite poverty score (Alkire & Foster, 2011). Individuals would be classified as multidimensionally poor if they experience deprivation in a specified number of dimensions (Alkire & Santos, 2014). This approach aligns with international best practices while being tailored to the Jamaican context (UNDP, 2023). Additionally, the framework could incorporate participatory methods, such as the Basic Necessities Survey, to capture local perceptions of poverty and ensure cultural relevance (Sen, 1999). By integrating multiple dimensions of well-being, the JMPI would provide a more accurate and policy-relevant measure of poverty (World Bank, 2022). Ultimately, this framework would enhance the ability of policymakers to design targeted interventions and address the root causes of deprivation (PIOJ, 2024).

Discussion

The findings of this study highlight the need for a paradigm shift in the conceptualisation and measurement of poverty in Jamaica (Sen, 1999; UNDP, 2023). While the JSLC framework has provided valuable insights into living conditions and facilitated evidence-based policymaking, its limitations underscore the inadequacy of a purely monetary approach (World Bank, 2022). The persistence of vulnerability, inequality, and multidimensional deprivation suggests that poverty in Jamaica cannot be fully understood through consumption measures alone (PIOJ, 2024). Furthermore, the decline in official poverty rates may create a

false sense of progress if underlying vulnerabilities are not adequately addressed (STATIN, 2023). The proposed multidimensional framework offers a more comprehensive and nuanced understanding of poverty, capturing the complex interplay of factors that influence well-being (Alkire & Foster, 2011). However, the transition to such a framework requires significant institutional and methodological adjustments, including the development of new data collection systems and analytical tools (UNDP, 2023). It also necessitates a shift in policy thinking, from a focus on income support to a broader emphasis on human development and social inclusion (Sen, 1999). Importantly, the adoption of a multidimensional approach should not replace the existing monetary measure but rather complement it, providing a more holistic assessment of poverty (World Bank, 2022). This dual approach would enable policymakers to address both the economic and social dimensions of deprivation (PIOJ, 2024). Ultimately, the effectiveness of any poverty measurement framework depends on its ability to inform policy and improve outcomes for the most vulnerable populations (UNDP, 2023). Therefore, the evolution of Jamaica's poverty measurement system is both a methodological and a moral imperative (Sen, 1999).

Conclusion and Recommendations

In conclusion, the Jamaica Survey of Living Conditions has played a pivotal role in shaping the understanding and measurement of poverty in Jamaica, providing a robust and consistent framework for assessing living standards over time (PIOJ & STATIN, 2023). However, the reliance on a consumption-based approach limits its ability to capture the multidimensional nature of poverty in a rapidly changing socio-economic environment (World Bank, 2022). The evidence presented in this study suggests that while poverty rates have declined, significant vulnerabilities and inequalities persist, highlighting the need for a more comprehensive measurement framework (PIOJ, 2024; STATIN, 2023). The proposed Jamaican Multidimensional Poverty Index offers a viable alternative that integrates economic and non-economic dimensions of deprivation, providing a more accurate and policy-relevant assessment of poverty (Alkire & Santos, 2014). It is therefore recommended that policymakers adopt a dual measurement approach, combining the existing monetary framework with a multidimensional index (UNDP, 2023). Additionally, efforts should be made to enhance data collection systems, ensuring the availability of high-quality and timely data for multidimensional analysis (World Bank, 2022). Capacity-building initiatives should also be undertaken to support the implementation and interpretation of the new framework (PIOJ, 2024). Furthermore, participatory approaches should be incorporated to ensure that the measurement of poverty reflects the lived experiences of Jamaicans (Sen, 1999). Finally, the revised framework should be integrated into national development planning, ensuring that poverty reduction strategies are aligned with a holistic understanding of well-being (UNDP, 2023). Through these measures, Jamaica can enhance its capacity to address poverty and promote inclusive and sustainable development (World Bank, 2022).

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Appendices

Appendix A: Conceptual Framework for the Jamaican Multidimensional Poverty Index (JMPI)

The proposed Jamaican Multidimensional Poverty Index (JMPI) is grounded in the capability approach advanced by Amartya Sen, which conceptualises poverty as the deprivation of basic capabilities rather than merely low income or consumption (Sen, 1999). This framework recognises that individuals experience poverty through multiple, overlapping disadvantages that constrain their ability to live meaningful and dignified lives within Jamaican society. The JMPI therefore integrates both monetary and non-monetary indicators, reflecting the structural realities of inequality, vulnerability, and social exclusion identified in national data systems such as the Jamaica Survey of Living Conditions 2022 (PIOJ & STATIN, 2023). Unlike the existing framework, which relies heavily on consumption expenditure thresholds, the JMPI captures deprivation across several life domains that directly influence well-being. These domains include economic security, education, health, housing quality, employment stability, and social vulnerability, each of which reflects a critical dimension of lived experience in Jamaica. The framework acknowledges that deprivation in any one domain may not constitute poverty in isolation, but cumulative disadvantages across multiple domains significantly increase the likelihood of persistent poverty. Additionally, the model recognises spatial and social heterogeneity, accounting for rural-urban disparities, gender inequalities, and youth vulnerability. By incorporating these dimensions, the JMPI aligns with global multidimensional poverty frameworks such as those developed by United Nations Development Programme while remaining contextually relevant to Jamaica (UNDP, 2023). Ultimately, this conceptual framework provides a more comprehensive and policy-relevant understanding of poverty that reflects the broader realities of Jamaican life.

Appendix B: Dimensions and Indicators of the Proposed JMPI

The JMPI is structured around six core dimensions, each operationalised through specific measurable indicators that reflect both objective and subjective aspects of deprivation. The first dimension, economic security, includes indicators such as income stability, access to social protection, and vulnerability to income shocks, recognising that economic insecurity extends beyond current consumption levels. The second dimension, education, captures school attendance, educational attainment, and access to quality learning resources, reflecting the role of human capital in long-term well-being. The third dimension, health, includes access to healthcare services, health insurance coverage, and nutritional status, acknowledging disparities in health outcomes across socio-economic groups in Jamaica. The fourth dimension, housing quality, incorporates indicators such as overcrowding, access to potable water, sanitation facilities, and structural integrity of dwellings. The fifth dimension, employment stability, measures job security, underemployment, and informal sector participation, recognising the precarious nature of labour markets. The sixth dimension, social vulnerability, captures exposure to crime, environmental risks, and social exclusion, which are particularly salient in the Jamaican context. Each indicator is binary or categorical, allowing for the identification of deprivation thresholds based on nationally relevant

standards. The selection of these indicators is informed by international best practices, including the Multidimensional Poverty Index developed by Sabina Alkire and colleagues, as well as local empirical evidence (Alkire & Foster, 2011; PIOJ, 2024). Furthermore, the indicators can be refined over time based on data availability and stakeholder consultations. This multidimensional structure ensures that the JMPI captures the complexity and diversity of poverty experiences in Jamaica.

Appendix C: Weighting Structure and Aggregation Method

The JMPI employs a weighted aggregation method to combine multiple indicators into a single composite poverty score, ensuring that each dimension contributes meaningfully to the overall assessment of deprivation. Equal weighting is initially assigned across the six dimensions, reflecting the normative assumption that each domain is equally important for human well-being, although alternative weighting schemes may be explored through empirical validation. Within each dimension, indicators are also equally weighted, ensuring transparency and simplicity in the calculation process. The aggregation method follows the Alkire-Foster methodology, whereby an individual's deprivation score is calculated as the weighted sum of deprivations experienced across all indicators (Alkire & Foster, 2011). A poverty cutoff (k) is then applied, such that individuals whose deprivation score exceeds the threshold are classified as multidimensionally poor. For Jamaica, a preliminary cutoff of one-third of weighted deprivations is proposed, consistent with international practice, while allowing for contextual adaptation. The methodology also enables the calculation of the adjusted headcount ratio (M_0), which combines the incidence and intensity of poverty into a single measure. This approach allows policymakers to identify not only how many individuals are poor but also the extent of their deprivation. Additionally, the decomposability of the index enables analysis by region, gender, age group, and other socio-demographic characteristics. This feature is particularly important for Jamaica, where spatial and social inequalities are pronounced. Overall, the weighting and aggregation method ensures that the JMPI is both analytically rigorous and policy-relevant.

Appendix D: Data Requirements and Implementation Strategy

The successful implementation of the JMPI requires robust data systems capable of capturing multidimensional aspects of poverty at the household and individual levels. Existing data sources, particularly the Jamaica Survey of Living Conditions 2022, provide a strong foundation for the development of the index, as they already collect information on health, education, housing, and consumption (PIOJ & STATIN, 2023). However, additional data collection efforts may be necessary to capture indicators such as employment stability, social vulnerability, and subjective well-being. Integration with administrative data systems, including those from the Ministry of Health, the Ministry of Education, and social protection programmes, would enhance the comprehensiveness of the dataset. The implementation strategy should involve a phased approach, beginning with pilot testing of the index in selected regions to assess feasibility and reliability. Stakeholder engagement is critical, including consultations with policymakers, researchers, and community representatives to ensure that the index reflects local realities and priorities. Capacity-building initiatives will

also be required to train analysts and policymakers in the interpretation and use of multidimensional poverty data. Furthermore, institutional coordination between agencies such as the Planning Institute of Jamaica and the Statistical Institute of Jamaica is essential for the sustainability of the framework. Regular updates and revisions of the index should be conducted to reflect changing socio-economic conditions. By leveraging existing data systems and strengthening institutional capacity, Jamaica can effectively transition toward a multidimensional approach to poverty measurement.

Appendix E: Policy Applications of the JMPI

The adoption of the JMPI would have significant implications for poverty reduction policy and social development planning in Jamaica. By providing a more comprehensive measure of deprivation, the index would enable policymakers to identify priority areas for intervention across multiple sectors, including health, education, housing, and employment. For example, regions with high levels of housing deprivation could be targeted for infrastructure development, while areas with poor educational outcomes could benefit from targeted investments in schools and training programmes. The multidimensional nature of the index also facilitates integrated policy responses, recognising that poverty is the result of interconnected factors rather than isolated deficiencies. Additionally, the JMPI can be used to monitor the effectiveness of social programmes, allowing for evidence-based adjustments and improvements. The index also supports alignment with international development frameworks, including the Sustainable Development Goals promoted by the United Nations, particularly Goal 1, which aims to end poverty in all its forms everywhere (UNDP, 2023). Furthermore, the JMPI enhances transparency and accountability by providing clear and measurable indicators of progress. It also enables the identification of vulnerable populations who may not be classified as poor under the current monetary framework but are at risk of falling into poverty. Ultimately, the use of the JMPI would support a more inclusive and equitable approach to development in Jamaica. By aligning measurement with lived realities, policymakers can design more effective and sustainable poverty reduction strategies.

Appendix F: Comparative Illustration - JSLC vs JMPI

A comparative analysis of the existing JSLC framework and the proposed JMPI highlights the advantages of a multidimensional approach to poverty measurement. The JSLC relies primarily on consumption expenditure to determine poverty status, providing a clear and quantifiable measure of economic deprivation but failing to capture non-monetary dimensions of well-being (PIOJ & STATIN, 2023). In contrast, the JMPI incorporates multiple dimensions, offering a more comprehensive assessment of poverty that reflects the complexity of lived experiences. While the JSLC classifies individuals as either poor or non-poor based on a single threshold, the JMPI allows for gradations of deprivation, capturing both the incidence and intensity of poverty. The JSLC is limited in its ability to identify vulnerable populations just above the poverty line, whereas the JMPI explicitly incorporates vulnerability as a key dimension. Additionally, the JSLC does not account for intra-household inequalities, while the JMPI can be adapted to include individual-level indicators where data permit. From a policy perspective, the JSLC provides useful aggregate statistics but offers

limited guidance for targeted interventions, whereas the JMPI enables disaggregated analysis and sector-specific policy responses. Furthermore, the multidimensional approach aligns with contemporary theoretical and empirical advances in poverty research, as reflected in the work of Amartya Sen and Sabina Alkire (Sen, 1999; Alkire & Foster, 2011). While the JSLC remains a valuable tool for monitoring economic poverty, the JMPI provides a more holistic and policy-relevant framework for understanding and addressing deprivation in Jamaica. Therefore, the integration of both approaches would represent a significant advancement in poverty measurement and policy formulation.

Appendix G: Formal Specification and Econometric Formulation of the Jamaican Multidimensional Poverty Index (JMPI)

The formal construction of the Jamaican Multidimensional Poverty Index (JMPI) follows the Alkire-Foster methodology, which provides a rigorous axiomatic framework for identifying and aggregating multidimensional deprivation (Alkire & Foster, 2011). Let n denote the number of individuals in the population and d the number of indicators across all dimensions of deprivation. A deprivation matrix $\mathbf{X} = [x_{ij}]$ is defined, where each element x_{ij} represents the achievement of the individual i in indicator j , and each indicator has a corresponding deprivation cutoff z_j . An individual is considered deprived in the indicator j if $x_{ij} < z_j$, producing a binary deprivation matrix $\mathbf{G}^0 = [g_{ij}^0]$, where $g_{ij}^0 = 1$ if deprived and 0 otherwise.

Each indicator is assigned a weight w_j , such that $\sum_{j=1}^d w_j = 1$, ensuring that the composite index is normalised. The individual deprivation score is calculated as $c_i = \sum_{j=1}^d w_j g_{ij}^0$, representing the weighted share of deprivations experienced by each individual. A poverty cutoff k is then applied, such that individuals with $c_i \geq k$ are identified as multidimensionally poor. The headcount ratio H is defined as the proportion of multidimensionally poor individuals, while the intensity of poverty A is the average deprivation score among the poor. The adjusted headcount ratio M_0 , which constitutes the JMPI, is calculated as $M_0 = H \times A$, combining both incidence and intensity into a single measure. This formulation allows for decomposition by population subgroup and by indicator, providing valuable insights into the structure of poverty in Jamaica. The robustness and decomposability of this method make it particularly suitable for policy analysis and targeted intervention design.

Appendix H: Indicator Matrix and Operational Definitions

The operationalisation of the JMPI requires the specification of indicators, deprivation thresholds, and measurement scales, ensuring that each dimension is empirically measurable and policy-relevant. For economic security, indicators include income volatility, defined as fluctuations exceeding 20% over 12 months, and access to social protection, measured by participation in programmes such as PATH. Education indicators include school attendance for children aged 6-16 and completion of secondary education for adults, reflecting minimum educational attainment standards. Health indicators include access to primary healthcare services within a defined geographic radius and absence of untreated chronic illness,

capturing both accessibility and health outcomes. Housing quality indicators include overcrowding, defined as more than three persons per room, and access to improved sanitation and potable water. Employment stability is measured through indicators such as duration of employment, contract security, and underemployment, particularly in the informal sector. Social vulnerability includes exposure to crime, measured through victimisation reports, and environmental risks such as flooding or landslides. Each indicator is coded as binary or ordinal, facilitating aggregation within the multidimensional framework. The thresholds are derived from national standards and international benchmarks, ensuring both contextual relevance and comparability. Data for these indicators can be sourced from existing surveys, including the JSLC, Labour Force Survey, and administrative records. This structured indicator matrix ensures that the JMPI captures the breadth and depth of deprivation experienced by individuals in Jamaica.

Appendix I: Simulation Example of the JMPI Calculation

To illustrate the practical application of the JMPI, a hypothetical dataset comprising five households and six dimensions is used to demonstrate the calculation process. Each household is assessed across the six dimensions, with binary deprivation scores assigned based on predefined thresholds. Equal weights are assigned to each dimension, resulting in a weight of $\frac{1}{6}$ per dimension, consistent with the baseline specification. The deprivation score for each household is calculated as the sum of weighted deprivations, yielding values between 0 and 1. A poverty cutoff of $k = 0.33$ is applied, such that households experiencing deprivation in at least two dimensions are classified as multidimensionally poor. For example, a household deprived in three dimensions would have a deprivation score of 0.50 and would therefore be classified as poor. The headcount ratio H is calculated as the proportion of households classified as poor, while the intensity A is the average deprivation score among those households. The JMPI value M_0 is then obtained by multiplying H and A , providing a summary measure of multidimensional poverty. This simulation demonstrates how the JMPI captures both the prevalence and severity of deprivation, offering a more nuanced understanding than traditional monetary measures. Additionally, the ability to decompose the index by dimension reveals which areas contribute most to overall poverty. Such insights are critical for designing targeted policy interventions. The simulation underscores the practical feasibility and analytical advantages of the JMPI framework.

Appendix J: Sensitivity and Robustness Analysis

The reliability of the JMPI depends on the robustness of its results to variations in key parameters, including indicator selection, weighting schemes, and poverty cutoffs. Sensitivity analysis involves systematically varying these parameters to assess their impact on the overall poverty estimates. For instance, alternative weighting schemes, such as assigning greater weight to health or education, can be tested to evaluate the stability of the index. Similarly, the poverty cutoff k can be adjusted to examine how changes in the threshold affect the classification of individuals as poor. Robustness checks also include comparing results across different datasets and time periods to ensure consistency. Empirical studies have shown that

multidimensional poverty measures are generally robust to moderate changes in weights and thresholds, provided that the core dimensions remain consistent (Alkire & Foster, 2011). In the Jamaican context, sensitivity analysis would be essential to ensure that the JMPI accurately reflects local realities and policy priorities. Additionally, statistical techniques such as bootstrapping can be used to estimate confidence intervals for the index, enhancing its reliability. The results of these analyses would inform the refinement of the index and support its credibility among policymakers and researchers. Robustness analysis also facilitates transparency, allowing stakeholders to understand the assumptions underlying the measure. Ultimately, ensuring the robustness of the JMPI is critical for its acceptance and effective use in policy formulation.

Appendix K: Policy Simulation and Targeting Efficiency

The JMPI can be used to simulate the impact of policy interventions and assess their effectiveness in reducing multidimensional poverty. By identifying the specific dimensions in which individuals are deprived, policymakers can design targeted interventions that address the root causes of poverty. For example, a simulation may show that improving access to healthcare reduces overall deprivation scores significantly, indicating the importance of health interventions. Similarly, investments in education may have long-term effects on multiple dimensions, including employment and income stability. The index also allows for the evaluation of existing programmes, such as the Programme of Advancement Through Health and Education (PATH), by measuring their impact on multidimensional poverty. Targeting efficiency can be assessed by comparing the proportion of benefits received by the poor versus the non-poor, ensuring that resources are allocated effectively. The JMPI also facilitates geographic targeting, enabling the identification of regions with the highest levels of deprivation. This is particularly important in Jamaica, where poverty is unevenly distributed across parishes and communities. Furthermore, the index supports dynamic analysis, allowing policymakers to track changes in poverty over time and evaluate the sustainability of interventions. By integrating policy simulation into the measurement framework, the JMPI enhances its practical relevance and utility. Ultimately, this approach supports evidence-based policymaking and more effective poverty reduction strategies.

Appendix L: Integration with National Accounts and Macroeconomic Indicators

The integration of the JMPI with national accounts and macroeconomic indicators provides a comprehensive framework for analysing the relationship between economic performance and multidimensional poverty. By linking the index to variables such as GDP growth, unemployment, inflation, and exchange rates, researchers can examine how macroeconomic conditions influence different dimensions of deprivation. For example, economic downturns may disproportionately affect employment stability and income security, leading to increases in multidimensional poverty. Conversely, economic growth may not translate into reductions in poverty if it is not inclusive or if benefits are unevenly distributed. The integration of the JMPI with macroeconomic data also allows for the use of econometric models, such as OLS and ARIMAX, to analyse the determinants of poverty over time. This is particularly relevant in the Jamaican context, where previous research has demonstrated the influence of

macroeconomic variables on social outcomes. Additionally, the index can be used to assess the effectiveness of macroeconomic policies, such as fiscal consolidation or social spending, in reducing poverty. By providing a multidimensional perspective, the JMPI enhances the analytical depth of economic research and policy evaluation. This integrated approach aligns with contemporary development paradigms that emphasise the interdependence of economic and social factors. Ultimately, the incorporation of the JMPI into macroeconomic analysis supports a more holistic understanding of development in Jamaica.

Appendix M: Full Mathematical Computation of the Jamaican Multidimensional Poverty Index (JMPI)

The proposed Jamaican Multidimensional Poverty Index (JMPI) is computed using a multidimensional deprivation framework in which poverty is assessed across several domains of life rather than through consumption expenditure alone. Let the population consist of n households or individuals, where each household is represented by $i = 1, 2, 3, \dots, n$, and let poverty be assessed using d indicators, where each indicator is represented by $j = 1, 2, 3, \dots, d$. Each household has an observed achievement value x_{ij} for indicator j , such as school attendance, access to potable water, employment security, housing quality, healthcare access, or exposure to social vulnerability. Each indicator also has a deprivation cutoff z_j , which defines the minimum acceptable standard for that indicator. A household is classified as deprived in indicator j if its achievement falls below the deprivation threshold. This creates a binary deprivation score for each household and indicator. The binary deprivation score is denoted as g_{ij} . The computation begins by transforming all observed household achievements into deprivation status.

$$g_{ij} = \begin{cases} 1, & x_{ij} < z_j \\ 0, & x_{ij} \geq z_j \end{cases}$$

Each deprivation indicator is assigned a weight w_j , where the sum of all weights must equal 1. In the baseline Jamaican model proposed here, six dimensions are included: economic security, education, health, housing quality, employment stability, and social vulnerability. If each dimension is treated as equally important, each dimension receives a weight of $\frac{1}{6}$. If each dimension contains two indicators, each indicator receives a weight of $\frac{1}{12}$. More generally, the weighting rule is expressed as follows.

$$\sum_{j=1}^d w_j = 1$$

The household deprivation score c_i is then calculated by multiplying each deprivation status g_{ij} by its assigned weight w_j , and summing across all indicators. This produces a score between 0 and 1 for each household. A household with no deprivation receives a score of 0, while a household deprived in every indicator receives a score of 1. The score therefore represents the proportion of weighted deprivations experienced by household i . The computation is as follows.

$$c_i = \sum_{j=1}^d w_j g_{ij}$$

After computing the household deprivation score, a multidimensional poverty cutoff k is applied. For the proposed Jamaican measure, $k = 0.33$ is recommended as the baseline cutoff, meaning that a household is classified as multidimensionally poor if it experiences at least one-third of total weighted deprivations. If $c_i \geq k$, the household is identified as multidimensionally poor. If $c_i < k$, the household is not classified as multidimensionally poor. The poverty identification function is therefore written as follows.

$$\rho_i = \begin{cases} 1, & c_i \geq k \\ 0, & c_i < k \end{cases}$$

where $\rho_i = 1$ means the household is multidimensionally poor, and $\rho_i = 0$ means the household is not multidimensionally poor.

Once households are identified as poor or non-poor, the poverty headcount ratio H is calculated. This represents the proportion of the population classified as multidimensionally poor. If q represents the number of multidimensionally poor households, then the headcount ratio is computed as follows.

$$H = \frac{q}{n}$$

The next stage is to calculate the intensity of poverty A , which measures the average deprivation score among households classified as multidimensionally poor. This is important because two communities may have the same poverty headcount but different levels of deprivation intensity. The intensity formula is written as follows.

$$A = \frac{\sum_{i=1}^n c_i \rho_i}{q}$$

The final Jamaican Multidimensional Poverty Index is calculated by multiplying the headcount ratio H by the intensity of poverty A . This produces the adjusted headcount ratio, commonly denoted as M_0 . For the proposed Jamaican model, this final value is the JMPI.

$$JMPI = M_0 = H \times A$$

Worked Example

Assume there are five Jamaican households and six equally weighted poverty dimensions. Each dimension receives a weight of $\frac{1}{6} = 0.1667$. A score of 1 means the household is deprived in that dimension, while a score of 0 means the household is not deprived.

Household	Economic Security	Education	Health	Housing	Employment	Social Vulnerability	Deprivation Score
A	1	0	1	1	0	0	$3/6 = 0.500$
B	0	0	1	0	0	0	$1/6 = 0.167$
C	1	1	1	1	1	0	$5/6 = 0.833$
D	0	0	0	1	0	1	$2/6 = 0.333$
E	0	0	0	0	0	0	$0/6 = 0.000$

Using the poverty cutoff $k = 0.33$, households A, C, and D are classified as multidimensionally poor because their deprivation scores are at least 0.33. Households B and E are not classified as multidimensionally poor because their deprivation scores are below the cutoff. Therefore, the number of poor households is:

$$q = 3$$

The total number of households is:

$$n = 5$$

The headcount ratio is:

$$H = \frac{q}{n} = \frac{3}{5} = 0.600$$

This means that 60.0% of the households in the example are multidimensionally poor.

The intensity of poverty is calculated using only the poor households:

$$A = \frac{0.500 + 0.833 + 0.333}{3}$$

$$A = \frac{1.666}{3} = 0.555$$

This means that poor households experience, on average, 55.5% of possible weighted deprivations.

The final JMPI is:

$$JMPI = H \times A$$

$$JMPI = 0.600 \times 0.555 = 0.333$$

Therefore, the Jamaican Multidimensional Poverty Index in this hypothetical example is:

$$JMPI = 0.333$$

This value means that the society represented in the example experiences 33.3% of the maximum possible multidimensional poverty burden.

Indicator Contribution Formula

The contribution of each indicator or dimension to total multidimensional poverty can also be computed. This is important because it shows which deprivation contributes most to national poverty. The contribution of the indicator j is calculated as:

$$C_j = \frac{w_j \sum_{i=1}^n g_{ij} \rho_i}{JMPI \times n}$$

where C_j is the percentage contribution of indicator j to total multidimensional poverty.

For example, if housing deprivation appears among many poor households, then housing will contribute heavily to the national JMPI. If health deprivation is rare among poor households, then health will contribute less. This allows policymakers to determine whether Jamaican poverty is being driven more by housing, education, employment, economic insecurity, health, or social vulnerability.

Proposed Jamaican Cutoff Interpretation

The proposed poverty cutoff may be interpreted as follows:

Deprivation Score	Classification
0.000to 0.199	Not poor
0.200to 0.329	Vulnerable to multidimensional poverty
0.330to 0.499	Multidimensionally poor
0.500to 0.699	Severely multidimensionally poor
0.700to 1.000	Extremely multidimensionally poor

This classification is useful for Jamaica because it recognises that poverty is not merely a binary condition. A household slightly above the official consumption poverty line may still be vulnerable if it lacks secure employment, adequate housing, healthcare access, or protection from crime and environmental risks. The JMPI therefore allows Jamaica to move beyond a narrow “poor versus non-poor” framework toward a fuller measurement of deprivation, vulnerability, and quality of life.