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Article

Indonesia's poverty puzzle: Chronic vs. transient poverty dynamics

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DEVELOPMENT ECONOMICS | RESEARCH ARTICLE

Indonesia's poverty puzzle: Chronic vs. transient poverty dynamics

Lilik Sugiharti¹, Miguel Angel Esquivias^{1*}, Mohd Shahidan Shaari², Ari Dwi Jayanti¹ and Abdul Rahim Ridzuan^{3,4,5,6,7}

Abstract: Indonesia has lowered the total poverty rate by less than 10%. Earlier poverty measurements in Indonesia suggest that transient poverty is more prevalent. We argue that, when employing the Equally Distributed Equivalent (EDE) approach and disaggregated poverty lines, chronic poverty is more prevalent than transient poverty. We estimated chronic and transient poverty in Indonesia from 2007 to 2014 by employing a large longitudinal dataset and disaggregated poverty line measures at the district level. The empirical results are robust in various groups based on education, gender, marital status, location (urban-rural), and employment characteristics (status, farming and non-farming, type, and sector). The results indicate that chronic poverty accounts for at least two-thirds of total poverty. Poverty gaps based on education, regional location, gender, and employment are significant. Moreover, we assess whether poverty is linked to socioeconomic aspects and policy programs using quantile regression. The findings indicate that gender (female), age, number of household members, and household location are positively related to higher poverty and chronic poverty. Household head deaths and physical disabilities are positively associated with poverty. Although the urban-rural poverty gap has decreased, casual workers remain prone to poverty. Moreover, poverty is negatively linked to educational attainment, access to financial, transportation, and communication services, suggesting that improving these aspects may help reduce poverty. Social aid programs that support health, food assistance, education, and conditional cash transfers are negatively linked to both total and chronic poverty. Energy subsidies were not associated with lower levels of poverty.

Subjects: Development Policy; Rural Development; Economics and Development; Population & Development; Economics

Keywords: Chronic poverty; transient poverty; gender gap; social welfare programs; poverty alleviation; social assistance; health system access; educational access

JEL Classification: I32; O53

1. Introduction

This study provides new evidence of poverty dynamics using the EDE approach applied to Indonesia from 2007 to 2014. Poverty alleviation requires collaborative efforts, including estimation and analysis of deprivation. Within the poverty dimension, decomposition into chronic and

transient components has emerged as a tool for supporting policymaking. Chronic poverty refers to a long-term state of deprivation (Chung & Maguire-Jack, 2020), while transient poverty is temporary and characterized by individuals entering or leaving it (Dang & Dabalen, 2019). Chronic and transient poverty demand distinct policy responses. The former, which is more closely linked to human and capital development, necessitates long-term plans and structural changes (Sugiharti et al., 2023). The latter, which is of a temporary nature, can be addressed through short-term policies (Tsiboe et al., 2023). Hence, to reduce poverty effectively, it is crucial to decompose poverty into its two components, as they are characterized by distinct underlying causes, durations, and levels of vulnerability (Aikaeli et al., 2021), necessitating tailored approaches to address their root issues and providing effective support (Leal Filho et al., 2022).

This study provides new evidence on poverty decomposition measurements in Indonesia using the EDE approach. Earlier measurements of poverty in Indonesia and other countries include headcount ratios, components, and spell approaches, and tend to report substantially larger rates of transient poverty than chronic ones (Table 1). We argue that the method and measurement of poverty lines matter to appropriately break poverty down into its components. This study applies the EDE approach (Duclos et al., 2010) to decompose poverty for several reasons. First, the results can be compared with commonly used approaches in Indonesia and other developing countries, mainly based on the work of Jalan and Ravallion (1998). Second, the EDE approach allows the breakdown of poverty (chronic and transient components) into the “average poverty gap and cost of poverty inequality” (Mai & Mahadevan, 2016) among individuals to identify the main sources of poverty (Hauser, 2023), which refers to the average poverty gap as the distance between a poverty line and the average income of poor individuals. Meanwhile, the cost of poverty inequality is the decrease in community welfare due to poverty and inequality. Both concepts are critical to the design of welfare redistribution and poverty eradication programs (Ichwara et al., 2023; Poy, 2023). Third, the EDE approach can correct the possible bias arising from limited waves in the data. Such considerations are important in longitudinal studies that use limited data for the analysis.

Table 1 summarizes studies on poverty dynamics in Indonesia and other countries. Most previous studies in Indonesia have employed the spell method (Dartanto & Nurkholis, 2013; Dartanto et al., 2020; Moeis et al., 2020), squared poverty gaps (Bella & Dartanto, 2018; Taufiq & Dartanto, 2020), or headcount ratios (Leeuwen & Földvári, 2016; Mahadevan et al., 2017). Few studies have employed the components approach in Indonesia, except for those by Akita and Dariwardani (2013), who used the Socioeconomic Survey (SUSENAS) dataset, and Dartanto et al. (2020), who used the Indonesian Family Life Survey (IFLS), the same dataset in this study, but the poverty lines were measured at the province level. However, poverty measurements in Indonesia consistently result in a larger transient than chronic poverty component (Mai & Mahadevan, 2016). We provide new estimates of poverty using the EDE approach (Duclos et al., 2010) by employing poverty line measurements at the regency level and in sub-groups of individuals.

Three challenges have been identified in the literature on poverty in Indonesia and other developing countries. First, a substantial number of studies claim that chronic poverty, such as South Africa (Beegle et al., 2016; Schotte et al., 2022) is less prevalent than transient poverty (Table 1). A shortcoming of earlier poverty measurements has been pointed out by Mai and Mahadevan (2016) who noted that earlier poverty measurements underestimated chronic poverty. Second, most studies in Indonesia and other developing nations use national or provincial poverty lines (Sugiharti et al. 2023). We suggest using more detailed poverty lines to estimate poverty elements and chronic poverty sources (the average poverty gap and inequality cost). Income disparity persists across and within provinces in Indonesia (Aginta et al., 2021; Firdausy & Budisetyowati, 2022; Hanandita & Tampubolon, 2016; Vidyattama, 2013). Adopting a poverty line (e.g., province-level or urban-rural levels) below the cost of living in regencies or districts will have implications for estimations of poverty, the poverty gap, and the cost of inequality. Other developing countries have also recorded intra-provincial welfare differences (Lagakos, 2020; Zhang

Table 1. Selected studies in poverty dynamics (proportion of chronic and transient poverty)

Reference	Country	Period	Approach	Chronic	Transient
Ahmed and Tauseef (2022)	Bangladesh	2011–2019	Spells	19%	81%
Farooq and Ahmad (2020)	Pakistan	2001, 2004, 2010	Spells growth incidence curves (GIC)	43%	57%
Shabnam et al. (2023)	Pakistan	2010–2016	Headcount*	45%	55%
Arif et al. (2011)	Pakistan	1998–2001 2001–2004	Headcount ratio	24%	75%
Bayudan-Dacuycuy and Lim (2014)	Philippines	2004–2008	Spells	27%	73%
Villa and Niño-Zarazúa (2019)	Mexico	2002–2011	Spells***	26%	74%
Fernández-Ramos et al. (2016)	Mexico	2002–2005	Spells	36%	64%
Garza-Rodriguez et al. (2010)	Mexico	2002–2005	Components	69%	31%
Aikaeli et al. (2021)	Tanzania	2012–2018	Spells*	30%	70%
Dang and Dabalen (2019)	Sub-Saharan Africa**		Headcount*	33%	67%
Schotte et al. (2022)	South Africa	2008 –2017	Spells	50%	50%
Krishna and Shariff (2011)	India	1993–94 to 2004–05	Headcount	30%	70%
Abanokova et al. (2022)	Russia	1994–2017	Equivalence scales	45%	55%
Radeny et al. (2012)	Kenya	2000–2009	headcount, poverty gap, and poverty severity	22%	78%
Muyanga et al. (2013)	Kenya	1997–2007		63%	37%
Purwono et al. (2021)	Indonesia	2008 – 2010	EDE	92%	8%
Lo Bue and Palmisano (2020)	Indonesia	1993 – 2014	Spells*	20%	80%
			Spells	29%	71%
Dartanto et al. (2020)	Indonesia	1993–2014	Spell	12%	88%
Mai and Mahadevan (2016)	Indonesia	1993–2007	EDE	76%	24%
Akita and Dariwardani (2013)	Indonesia	2008–2010	Component	35%	65%
Dartanto and Nurkholis (2013)	Indonesia	2005 – 2007	Spells	19%	81%

*Synthetic panel methods, ** Regional average of 21 countries covering two periods between 1998 and 2011 (not all countries have same datasets), *** Markovian approach

et al., 2019). Moreover, Lee et al. (2017) and Glewwe (2012) noted that nearly 15% to 42% of transient poverty reported in earlier studies (i.e., cases in Vietnam and South Korea) results from inconsistent measurements of income or consumption.

Third, earlier studies measuring poverty dynamics for groups of individuals, that is, based on education, provincial location (Akita & Dariwardani, 2013; Purwono et al., 2021), urban-rural (Dartanto & Nurkholis, 2013), job status (Taufiq & Dartanto, 2020), religious background (Mai & Mahadevan, 2016), and age groups (Landiyanto, 2021), mostly adopt poverty lines at the provincial, urban and rural, or national level. This empirical evidence can be extended by using more disaggregated data (i.e., the poverty line at the regency level), which also estimates the poverty gap and the cost of inequality. Previous studies have used poverty lines only at the urban or regional level to examine issues in Africa (Dang & Dabalén, 2019), Kenya (Muyanga et al., 2013), Tanzania (Aikaali et al., 2021), Pakistan (Farooq & Ahmad, 2020), the Philippines (Bayudan-Dacuycuy & Lim, 2014), Mexico (Fernández-Ramos et al., 2016; Garza-Rodriguez et al., 2010), Ecuador (García-Vélez et al., 2022), India (Dang & Lanjouw, 2020; Krishna & Shariff, 2011), and South Africa (Schotte et al., 2022). EDE approaches are more robust for measuring poverty dynamics (Sugiharti et al., 2022).

To provide more disaggregate evidence, this study offers poverty components for different groups of individuals to avoid the “one size fits all” indicators often adopted in policymaking. Previous studies in Indonesia have highlighted a higher vulnerability to poverty among people with low levels of education (Taufiq & Dartanto, 2020), precarious income factors (Noerhidajati et al., 2020), limited access to services (Sugiharti et al., 2022), those located in rural areas (Gibson et al., 2023), and employment in specific sectors (Cameron et al., 2019; Mulyoutami et al., 2020). The literature also points out people vulnerable to poverty based on gender and specific age groups (Mulyoutami et al., 2020). Poverty in Indonesia has decreased at higher rates in provinces that are more open to trade and better connected (Kis-Katos & Sparrow, 2015; Putri et al., 2022) suggesting that accounting for regional differences in poverty measurements is important (Mahadevan et al., 2017).

After the estimation of poverty dynamics for various groups based on socio-demographic and employment characteristics, we apply a quantile approach to examine whether the following set of factors may be associated with poverty in Indonesia (See Table 2 for details): 1) demographic characteristics; 2) access to services and government aid programs (education, credit, health insurance, government aid); 3) spatial location (regional, urban-rural); 4) household characteristics; 5) employment; 6) ownership of assets; and 7) negative and positive shocks for households. Additionally, 8) we test whether the most important social aid programs in Indonesia—*Jamkesmas* (health insurance), *Raskin* (subsidized food-rice program for the 30 lowest income groups), *Keluarga Harapan PKH* (social security for the poor), and energy subsidy (gasoline *BBM* and *LPG* gas)—are linked to chronic and transient poverty alleviation.

This study uses the IFLS from 2007 to 2014, covering 13 out of 27 provinces in Indonesia. We employed a balanced data panel with 12,897 households. Poverty lines per district, city, and period were estimated using the Indonesian Database for Policy and Economic Research (INDO-DAPOER). Previous studies in Indonesia mainly employed poverty lines estimated at the provincial level, primarily distinguishing whether households are located in urban or rural areas. As noted by Akita and Miyata (2018), the inequality between districts within provinces is large, suggesting the need to use disaggregated data to obtain more precise poverty and inequality indicators.

We add to poverty dynamics research by studying Indonesian cases in the following ways. First, we use large longitudinal data to track individuals over time,¹ which is more accurate than synthetic panels that rely on assumptions of income and consumption patterns. Second, we apply the EDE and poverty line at the district level to improve on previous studies, which found transient poverty is higher than chronic poverty. In other developing countries (See Table 1, Mexico, the Philippines, Bangladesh,

Table 2. Descriptions of the variables

Variable	Definition (Head of Household—HH)
Edu	The highest education level attained of the head of household (1) Not attending school/elementary school (SD) (2) Junior high school (SMP) (3) High school (SMA) or equivalent (4) Diploma or bachelor degree (S1) (5) Master (S2) or doctoral (S3)
Gender	Gender of the HH
Age	Age of HH (years)
Age2	Age squared
Employ	Employment status of HH (1 or 0)
Mhh	Number of household members
Spouse_Work	Spouse employment status (1 or 0)
Urban	HH is located in an urban area (1 or 0)
Assets	Value of HH assets (Indonesian Rupiah)
Access	
Finance	Access for all finance types (1 or 0)
Mobility	Access to mobility (ownership of motorized vehicles) (1 or 0)
Cominfo	Access to communication and information (1 or 0)
Shocks	
Shock_Positive	Receives an increase in salary or gifts (1 or 0)
New job	Receives a new job (1 or 0)
Disability	HH has a disability (1 or 0)
Accident	HH has had an accident
Death	HH/member of household has died
Government Programs	
Health	Health assistance and insurance (<i>Jamkesmas</i>) (1 or 0)
Bbm	Access to fuel-gas subsidy (1 or 0)
Pkh	HH Receives social assistance PKH (<i>Keluarga Harapan</i>) (1 or 0)
Raskin	HH Receives basic needs assistance (<i>Raskin</i>) (1 or 0)
Edu	HH Receives assistance with access to education (1 or 0)
Work Sector	
Sector1	Work in mining and agriculture sector (1 or 0)
Sector4	Work in the financial sector
C_Selfemploy	Work as self-employed (have employees or not) (1 or 0)
Casual_Worker	Work casually in agriculture/non/unpaid (1 or 0)

Source. IFLS Data. Note. 1= yes; 0=otherwise. HH Head of Household

South Africa, and Pakistan, among others), poverty dynamics are estimated using more straightforward approaches (spells, components, headcount ratios, or other) and highly aggregated data to determine poverty lines (see Table 1). Third, we examine poverty dynamics in several groups, offering a robust disaggregated analysis. Empirical evidence on the rural—urban scope (Farooq & Ahmad, 2020; Shah & Debnath, 2022), provincial location (Artha & Dartanto, 2018; Tsiboe et al., 2023), and educational gaps (Purwono et al., 2021; Taufiq & Dartanto, 2020) has been extensive. Evidence of disaggregated groups based on gender, sectoral economic activity, job status, and education is limited. Fourth, Indonesia is a large developing nation with 270 million people, 1.9 million km², US\$1.3 trillion in 2022 (GDP), diverse

ethnicity, religious variety, and varied geography. This provides an interesting context for multidimensional poverty research (Borga & D'Ambrosio, 2021; Roy et al., 2019; Shah & Debnath, 2022).

This paper is structured as follows: Section two reviews poverty dynamics. Section three outlines the methodology and data. Section four presents the poverty gap estimation with EDE and quantile regression to examine poverty levels, socioeconomics, and policies. Section five concludes with policy implications and limitations.

2. Literature review

2.1. Poverty dynamics

The literature on poverty dynamics measurement uses the spell approach, headcount ratio, component approach, among others. The spell approach defines chronically poor people as those in poverty during the entire period (Lo Bue & Palmisano, 2020; Mendola & Busetta, 2012). Those with income or consumption expenditure above the poverty line are transiently poor (Ahmed & Tauseef, 2022). The spell approach does not measure poverty or unequal income distribution (Mai & Mahadevan, 2016). It also does not permit income transfers across periods (Bayudan-Dacuycuy & Lim, 2014).

The component approach, which uses the square poverty gap (Sundar Pani & Mishra, 2022), averages individual income/expenditure, allowing perfect substitutability (Alkire et al., 2017). It assumes a permanent income component, distinguishing chronic poverty from transient poverty. The estimated poverty line is used to determine chronic poverty in households (Shah & Debnath, 2022). The gap between total and chronic poverty indicates transient poverty. However, this approach does not take into account the number of times a household falls below the poverty line (Mai & Mahadevan, 2016).

Building on the components approach, we adopt the EDE method (Jalan & Ravallion, 2000) to relax the assumption of stable income across periods. The EDE adopts the concept of permanent income as the basis for measuring chronic poverty (Muryani & Esquivias, 2021). Permanent income is assumed to be the minimum income/expenditure needed by a household to maintain equivalent welfare levels across periods through inter-temporal income transfers (subject to budget constraints), as noted by Hauser (2023).

Mendola and Busetta (2012) developed the Poverty Persistence Index (PPI) and Aggregate Index of Persistence in Poverty (APPI) to measure poverty severity, length, and recentness. The "Incidence, Intensity, Depth, and Severity" studies have studied multidimensional poverty in developing countries (Abubakar, 2022; Roy et al., 2019; Shah & Debnath, 2022), including Indonesia (Firdausy & Budisetyowati, 2022). Synthetic panel data is another way to manage longitudinal data when it is not consistently available. This approach assumes that changes in income and consumption create poverty bounds, which can be used to differentiate the poor from the non-poor (Dang & Dabalen, 2019; Shabnam et al., 2023).

To end poverty in Indonesia, we need to comprehend its chronic and transient causes. The debate on poverty measures in Indonesia is inconclusive. Transient poverty is estimated at 60% or more (Aji, 2015). Dartanto et al. (2020) used EDE and IFLS data to estimate 20% poverty in 2014, twice the official and prior estimates, which appears unlikely. Purwono et al. (2021) estimated poverty with the EDE and spell approaches, with 92% and 29% poverty respectively. Indonesia had especially high EDE poverty, likely due to the poverty lines' high aggregation (Sugiharti et al., 2022). This study seeks to resolve this debate.

2.2. Socioeconomic factors associated with changes in poverty

The chronic component of poverty is usually linked to structural factors like lack of education (Tohari et al., 2019), health services, remote/rural locations (Sundar Pani & Mishra, 2022), lack of

credit, and working in agriculture (Ahsan & Kelly, 2018; Cameron et al., 2019; Ruggeri Laderchi et al., 2017; Schaner & Das, 2016). Transient poverty may be caused by sickness, job loss, disasters, price hikes, poor health, low income, and no savings (Dang & Dabalen, 2019; Fitritia & Matsuyuki, 2022; Noerhidajati et al., 2020).

Chronic poverty in Indonesia has decreased, with 9.78% (26.4 million) poor in March 2020 (Statistics Indonesia, BPS). However, moderate poverty and economic vulnerability remain high (Firdausy & Budisetyowati, 2022; Gibson et al., 2023). Aji (2015) estimated 25% of the population (65 million people) may be at risk of poverty. Economic shocks, disasters, and the COVID-19 pandemic may raise the poverty rate (Dartanto et al., 2020; Leal Filho et al., 2022). Poor effectiveness of poverty alleviation programs may be due to imprecise identification of chronic and transient poverty, and lack of coordination in Indonesia's programs for the poor and low-income (Bah et al., 2019).

In addition, Indonesia's poverty is more prevalent in rural areas, agricultural activities, and among women (Cameron et al., 2019; Dartanto & Nurkholis, 2013; Mai & Mahadevan, 2016). Smaller and more traditional farmers are also vulnerable, as are those lacking access to insurance, finance, and technology (Firdausy & Budisetyowati, 2022; Muryani & Esquivias, 2021; Sugiharti et al., 2022). Poverty reduction efforts in Indonesia are addressed through three blocks of programs: direct social aid (Tohari et al., 2019), community empowerment, and microenterprise empowerment. Therefore, it is crucial to determine whether policy programs to reduce poverty are effective.

3. Methodology

This study estimates chronic and transient poverty components in Indonesia using consumption data. The EDE method proposed by Duclos et al. (2010) measures income gaps among individuals (social welfare and inequality). EDE generates a distribution of poverty gaps (Bayudan-Dacuycuy & Lim, 2013; Mai & Mahadevan, 2016) and distinguishes between chronic and transient components among individuals based on the generated distribution gaps.

For a particular period t , the normalized poverty gap is described as

$$g_{it} = \frac{z_t - y_{it}}{z_t} \quad (1)$$

where $g_{it}^\alpha = \left(\frac{z_t - y_{it}}{z_t}\right)^\alpha$ if $z_t > y_{it}$ and $g_{it}^\alpha = 0$ if $z_t \leq y_{it}$

The normalized gaps across periods of each individual i are denoted by $g_i = (g_{i1}, g_{i2}, g_{i3}, \dots, g_{it}, \dots, g_{iT})$ and across all individuals, it is given by $g = (g_1, g_2, g_3, \dots, g_n)$. Employing a monotonic transformation of Γ_α leads to a measure of total poverty expressed in money terms as

$$\Gamma_\alpha^{Total}(g) = \Gamma_\alpha(g) = [P_\alpha(g)]^\frac{1}{\alpha} \quad (2)$$

where $\Gamma_\alpha(g)$ is defined as the EDE poverty gap. To account for the inequality in poverty status, α is set to be ≥ 1 , meaning that the larger the difference between $\Gamma_\alpha(g)$ and $\Gamma_1(g)$, the more unequal the distribution of individual welfare is (ill-fare) and the more normalized poverty gaps are. The cost of inequality in the gaps among the entire population is set by

$$C_\alpha(g) = \Gamma_\alpha(g) - \Gamma_1(g) \quad (3)$$

where $C_\alpha(g)$ is the cost of an increase in the average poverty gap, expressed in monetary terms. The total poverty is given by equations (2) and (3) as

$$\Gamma_{\alpha}^{Total}(g) = \Gamma_{\alpha}(g) = C_{\alpha}(g) + \Gamma_1(g) \quad (4)$$

The component of transient poverty is obtained by

$$\theta_{\alpha}(g_i) = \gamma_{\alpha}(g_i) - \gamma_1(g_i) \quad (5)$$

Aggregating this transient cost across the entire population of individuals (n's) gives

$$\Gamma_{\alpha}^{Transient}(g) = \frac{1}{n} \sum_{i=1}^n \theta_{\alpha}(g_i) \quad (6)$$

Following Duclos et al. (2010), the distribution of individual EDE poverty gaps are defined as $\gamma_{\alpha}(g_i)$, while the cost of inequality between individuals as $C_{\alpha}(\gamma_{\alpha}(g_i))$ and the transient poverty as

$$\Gamma_{\alpha}^{TotalPoverty}(g) = \Gamma_{\alpha}^{Transient}(g) + \Gamma_{\alpha}^{Chronic}(g) \quad (7)$$

where

$$\Gamma_{\alpha}^{Chronic}(g) = \Gamma_1(g) + C_{\alpha}(\gamma_{\alpha}(g_i)) \quad (8)$$

3.1. Quantile regression approach

This study computed poverty gaps and used quantile and OLS regression to analyse chronic and transient poverty determinants. Koenker and Bassett (1978) quantile regression model can assess correlated effects of variables in different response variable quantiles. Quantile regressions enable non-constant parameters across welfare spectrums (De Silva, 2008). Quantile analysis can assess the impact of socioeconomic and policy factors on poverty levels. This approach compares the effects of poverty-related factors at different welfare levels (Peng et al., 2019). Following Bayudan-Dacuycuy and Lim (2013), the model is expressed as:

$$\begin{aligned} Y_i &= BX_i + e_i, \\ Quant_{\theta}(y_i|x_i) &= \beta_{\theta}x_i \\ Y_{i*} &= 0, \text{ if } Y_1 = 0 \\ Y_{i*} &= Y_i \text{ if } 0 < Y_i \leq 1 \end{aligned} \quad (9)$$

where Y_{i*} is the dependent variable identifying the limit between chronic and transient poverty, represented as the poverty status; X_i is the vector of variables employed as explanatory components; B is the vector of unknown socioeconomic parameters to be estimated; e_i is a disturbance term assumed to be independent, following a normal distribution, with a mean of zero and a constant variance. $I = 1, 2, \dots (n \text{ total observations})$.

We estimate three quantile regressions at the 25, 50, and 75 quantiles. Standard errors were estimated by bootstrapping with 100 replications following De Silva (2008). As a point of comparison, we provide estimates using OLS, which allows an estimation of the relation between the independent set of variables and the average value of the response variable (Garza-Rodriguez et al., 2021). Meanwhile, quantile regressions enable the estimation of the effects of the explanatory variable on different wealth levels.

The independent variable for both the chronic and transient models considers the following aspects (see Table 2): 1) demographic characteristics; 2) household characteristics; 3) spatial location; 4) access to services; 5) the presence of positive shocks and negative socks; 6) social

programs (*Jamkesmas*, health insurance), energy subsidy, *Keluarga Harapan PKH* (social security for the poor), *Raskin* (subsidized rice program), and public education; and 7) employment.

3.2. Data

Data were collected from the Rand Corporation (IFLS). We focus on the period between 2007 and 2014. The rationale for selecting this period is that we draw poverty lines at the district level, and previous periods do not have such data. The IFLS is longitudinal data consisting of 13 of the 27 provinces in Indonesia, representing 83% of the country's population. This study used household-level data in the form of a balanced panel with 25,794 observations. We employ the poverty lines per district, city, and period provided by INDO-DAPOER.

To measure poverty, we employed data on household expenditure instead of income, as it is a more consistent proxy for household welfare in developing countries (Bayudan-Dacuyucuy & Lim, 2013; Mai & Mahadevan, 2016). Household expenditure is adjusted according to the number of household members, employing the equivalence scale from (Glewwe & Twum-Baah, 1991). $AE = (N_{adults} + \beta N_{children})^{\mu}$ where $\mu \leq 1$ works as a parameter to capture the scale effects, N accounts for the number of household members, and β adjusts for a child's cost (adjusted at different age groups) relative to an adult's cost.

Due to space limitations, the descriptive statistics of the observational data are not displayed (available upon request).

4. Results

4.1. Poverty dynamics

Table 3 displays the total and partial poverty estimates for each category. Systematically, Indonesia's largest proportion of dynamic poverty is chronic, with significant variations across groups. A total of 76.6% of poverty is chronic, almost triple that of transient or temporary poverty (23.3 %). Sumatra Island provinces have the highest average poverty rate (11%). West Nusa Tenggara has 10% poverty, with 61% being chronic. South Sumatra (85%), West Nusa Tenggara (83%), and South Sulawesi (88%) have the highest chronic poverty proportions. South Sulawesi had the highest chronic poverty rate (93%). Riau, Jambi, Central Kalimantan, and East Kalimantan had the highest cost of inequality (42–52%). Sumatra and Kalimantan are rich in natural resources, such as palm oil, rubber, and coal. Inequality's cost implies substantial inequity in both islands, despite resources. This may be due to Dutch Disease.

Our EDE-based estimates of total, chronic, and transient poverty in Indonesia differ from non-EDE studies, which usually found a larger proportion of transient poverty (Akita & Dariwardani, 2013; Dartanto & Nurkholis, 2013). However, our estimates match those of other EDE-based studies in Indonesia (Mai and Mahadevan (2016)). They found 76% chronic poverty in Indonesia between 1993–2007. Dartanto et al. (2020) used IFLS data and EDE, yielding different estimates due to different poverty lines. Sugiharti et al. (2022) found chronic poverty as that the largest component in Indonesia.

This study, using 2007–2014 data, finds lower inequality costs and higher average poverty gaps than Mai and Mahadevan (2016). Previous research assumed equal poverty thresholds across regencies and cities in a province, which is doubtful given the significant income/expenditure variations (Firdausy & Budisetyowati, 2022; Sugiharti et al., 2022). Mai and Mahadevan (2016) used an individual-scale and provincial poverty line, whereas we used household-scale data and a more detailed poverty line at district and city levels.

Poverty decreased overall. Table 3 reveals disparities among households. Household heads with only elementary school or less make up 16% of total poverty and 82% of chronic poverty. Education attainment reduces total and chronic poverty, increasing transient poverty and inequality cost. Total poverty among those with senior high school dropped to 4.5%, and chronic poverty decreased from

Table 3. Poverty decomposition (total, transient, and chronic)

				Decomposition of chronic poverty	
				Average poverty	Cost of Inequality
By Education					
Elementary or less	0.160	0.028(18%)	0.132(82%)	0.089(56%)	0.042(26%)
Junior High school	0.059	0.014(24%)	0.044(76%)	0.032(56%)	0.012(21%)
Senior High school	0.045	0.013(29%)	0.032(71%)	0.020(47%)	0.011(26%)
Undergraduate	0.025	0.009(37%)	0.015(63%)	0.006(27%)	0.008(37%)
Postgraduate	0.019	0.008(43%)	0.010(57%)	0.004(23%)	0.006(33%)
By Province					
North Sumatra	0.118	0.025(22%)	0.092(78%)	0.053(45%)	0.039(33%)
West Sumatra	0.100	0.023(23%)	0.077(77%)	0.045(44%)	0.032(31%)
Riau	0.089	0.015(18%)	0.073(87%)	0.060(11%)	0.012(22%)
Jambi	0.021	0.010(50%)	0.010(50%)	0(0%)	0.010(49%)
South Sumatra	0.122	0.023(19%)	0.098(81%)	0.065(56%)	0.033(28%)
Lampung	0.093	0.020(22%)	0.072(78%)	0.051(54%)	0.021(22%)
Bangka Belitung	0.107	0.024(23%)	0.083(77%)	0.056(52%)	0.026(24%)
Riau Islands	0.039	0.012(31%)	0.027(69%)	0.006(16%)	0.021(52%)
Jakarta	0.068	0.016(24%)	0.051(76%)	0.034(50%)	0.017(24%)
West Java	0.082	0.018(22%)	0.064(78%)	0.045(56%)	0.019(23%)
Central Java	0.059	0.013(23%)	0.045(77%)	0.036(61%)	0.009(15%)
Yogyakarta	0.056	0.013(24%)	0.042(76%)	0.028(51%)	0.013(24%)
East Java	0.063	0.015(24%)	0.048(76%)	0.032(51%)	0.015(24%)
Banten	0.052	0.016(31%)	0.036(69%)	0.023(43%)	0.013(25%)
Bali	0.022	0.005(26%)	0.017(74%)	0.012(52%)	0.004(21%)
West Nusa Tenggara	0.105	0.018(17%)	0.087(83%)	0.064(61%)	0.022(21%)
Central Kalimantan	0.036	0.010(29%)	0.026(71%)	0.010(28%)	0.015(42%)
South Kalimantan	0.055	0.008(15%)	0.046(85%)	0.036(65%)	0.010(19%)
East Kalimantan	0.006	0.003(49%)	0.003(49%)	0(0%)	0.003(49%)
South Sulawesi	0.069	0.008(12%)	0.060(88%)	0.053(93%)	0.006(12%)
By Gender					
Male	0.067	0.015(23%)	0.051(77%)	0.035(54%)	0.015(23%)
Female	0.116	0.023(20%)	0.093(80%)	0.062(54%)	0.031(27%)
By Marital Status					
Single	0.115	0.022(20%)	0.092(80%)	0.059(52%)	0.032(28%)
Married	0.065	0.015(23%)	0.050(77%)	0.035(55%)	0.014(23%)
By Employment Status					
No-Job	0.116	0.023(20%)	0.092(80%)	0.061(53%)	0.031(27%)
Employed	0.069	0.015(23%)	0.053(77%)	0.037(54%)	0.016(24%)

(Continued)

				Decomposition of chronic poverty	
	Total poverty	Transient Poverty	Chronic poverty	Average poverty	Cost of Inequality
By Location					
Rural	0.092	0.018(20%)	0.073(80%)	0.052(57%)	0.021(23%)
Urban	0.063	0.015(24%)	0.048(76%)	0.032(51%)	0.016(26%)
By Farming					
No-Farming	0.069	0.016(23%)	0.053(77%)	0.035(52%)	0.017(25%)
Farming	0.089	0.018(21%)	0.070(79%)	0.050(57%)	0.020(22%)
By Job Status					
Self Employed	0.084	0.017(21%)	0.066(79%)	0.047(56%)	0.019(23%)
Gov Worker	0.025	0.009(37%)	0.016(63%)	0.008(35%)	0.007(30%)
Casual Unpaid	0.094	0.020(22%)	0.073(78%)	0.047(50%)	0.026(28%)
Casual Agriculture	0.126	0.022(18%)	0.103(82%)	0.073(58%)	0.029(23%)
Casual Non_Agriculture	0.083	0.018(22%)	0.064(78%)	0.044(54%)	0.020(24%)
By Sector					
Mining	0.093	0.018(20%)	0.074(80%)	0.049(58%)	0.025(29%)
Manufacturing	0.056	0.014(26%)	0.041(74%)	0.027(51%)	0.013(25%)
Electricity'	0.053	0.016(30%)	0.037(70%)	0.017(33%)	0.019(36%)
Construction	0.061	0.015(25%)	0.046(75%)	0.030(50%)	0.015(26%)
Wholesale	0.054	0.013(24%)	0.040(75%)	0.029(54%)	0.011(21%)
Transportation	0.059	0.013(23%)	0.045(77%)	0.032(56%)	0.013(23%)
Finance	0.040	0.013(33%)	0.027(67%)	0.012(31%)	0.014(35%)
Services	0.050	0.013(26%)	0.037(74%)	0.024(49%)	0.013(26%)
Other	0.076	0.019(25%)	0.057(75%)	0.036(48%)	0.021(28%)
Agriculture	0.107	0.020(19%)	0.086(81%)	0.062(58%)	0.023(22%)
Farmer	0.089	0.018(21%)	0.070(79%)	0.050(57%)	0.020(22%)

Source: Calculations based on IFLS Data for 2007 and 2014.

82% to 71%. We demonstrate how education can move people from chronic to transient poverty, in line with earlier studies (Dartanto et al., 2020; Taufiq & Dartanto, 2020).

Females experience almost twice the total poverty of males and a higher chronic poverty rate. Muryani and Esquivias (2021) attributed this to education, financial access, and location. Single heads of households had a higher total poverty rate (11.5%) than married households. Single households experience more income inequality (28%) than married couples (23%). Unemployed rural farming households have higher poverty and chronic poverty than urban households. The rural-urban and agricultural/non-agricultural gaps are narrower than other groups, similar to the cost of inequality. Moeis et al. (2020) found that welfare improved (2000–2007) when Indonesians left agriculture. However, casual agriculture workers had the highest average total poverty (12.6%) and chronic/average poverty based on job status (8.3%).

The total poverty among self-employed heads of households is 8.4%, lower than average. Dartanto et al. (2020) found similar results, noting informal workers are unlikely to move into higher-income groups. Entrepreneurship has been encouraged (Cameron et al., 2019) as informal workers and self-

employed people make up 60–70% of the workforce (Muryani & Esquivias, 2021; Sugiharti et al., 2022). Urban women are often in informal sectors (Schaner & Das, 2016). Government workers have the least poverty but the highest inequality and poverty fluctuation among job groups. Mining and agriculture have the highest chronic and average poverty (in line with Moeis et al., 2020), while electricity and finance have the highest inequality costs. Manufacturing and service-related industries have 40–50% lower poverty than primary sectors.

4.2. Quantile regression estimates

This section empirically estimates the effects of demographic, socioeconomic, and policy aspects on the dynamic poverty components using quantile regression (Table 4). OLS estimations were used to compare results. Demographic and social factors were linked to chronic poverty (Table 4). Education, gender, age, employment, household size, spouse's employment, and location all had positive correlations with lower chronic poverty. These variables had greater effects at higher quantiles. Fewer variables were associated with transient poverty, showing socio-demographic characteristics are important for chronic poverty but less so for temporary poverty.

Education levels of household heads reduce chronic poverty, but not transient poverty. Education is more strongly linked to chronic poverty in the upper quartiles. This is consistent with previous research in Indonesia (Absor et al., 2022; Dartanto & Nurkholis, 2013; De Silva & Sumarto, 2015; Hanandita & Tampubolon, 2016) and other developing countries (Janz et al., 2023; Leal Filho et al., 2022; Nawab et al., 2023; Shah & Debnath, 2022).

Female-headed households in Indonesia experience more poverty (11.5%) than male-headed ones (6%). Prior research indicates women are more likely to be poor or earn less than men (Bella & Dartanto, 2018; Muryani & Esquivias, 2021). Gender poverty gaps persist as a significant issue. Education seems to play a more significant role than gender in poverty, consistent with studies in Indonesia, India, Kenya, and Mexico (Absor et al., 2022; Abubakar, 2022; Dartanto et al., 2020; Garza-Rodriguez et al., 2021; Ichwara et al., 2023; Shah & Debnath, 2022). The age of the household head is also linked to poverty in a non-linear manner. Older household heads are more likely to experience poverty, aligning with previous studies (Peng et al., 2019).

OLS calculations suggest employment reduces chronic poverty by 1.7% and temporary poverty by 0.4%. However, employment in primary sectors (Work_Sector1) doubles chronic poverty risk compared to other sectors. This indicates that merely having a job doesn't guarantee poverty escape, and primary sector households are more poverty-prone. These findings align with previous studies in Indonesia, Nigeria and Mexico, where working in secondary and tertiary sectors is linked to reduced poverty levels (Abubakar, 2022; Garza-Rodriguez et al., 2021).

Family size increases the risk of total poverty by 2%. Chronic poverty (1.9%) is more likely to increase than transient poverty (0.1%), especially in the upper quartiles. More family members in poor households may increase the chance of staying poor rather than escaping poverty. These findings align with earlier studies in Indonesia (Artha & Dartanto, 2018; Bella & Dartanto, 2018; Muryani & Esquivias, 2021; Widyanti et al., 2009), the Philippines (Bayudan-Dacuyucuy & Lim, 2014), Sri Lanka (Deyshappriya & Minuwanthi, 2020), Mexico (Garza-Rodriguez et al., 2021), and Ethiopia (Mehari, 2022), although the quartile tests were not provided in earlier analyses in Indonesia.

45% of households have two incomes, and having employed spouses reduces poverty. The effect of a partner's employment status is greater in deeper poverty quintiles. Indonesian women are often out of the labor force (Cameron et al., 2019; Schaner & Das, 2016), so policies to encourage women's participation may reduce poverty. Improving childcare and introducing flexible, family-friendly arrangements can help more women join the workforce (Peng et al., 2019).

Living in urban areas negatively correlates with chronic and total poverty, aligning with (Tsiboe et al., 2023), but not with transient poverty. Previous research indicates higher poverty rates and

Table 4. Determinants of poverty by demographics, access, shocks, and Government programs (transient, chronic, & total)

	TRANSIENT POOR				CHRONIC POOR				TOTAL POVERTY			
	OLS	Q25	Q50	Q75	OLS	Q25	Q50	Q75	OLS	Q25	Q50	Q75
Edu	-0.001	-0.001	0.000	-0.003	-0.037***	-0.0083***	-0.024***	-0.050***	-0.039***	-0.011***	-0.028***	-0.050***
Sex	0.000	0.001	0.001	0.000	0.008*	0.002	0.006*	0.023***	0.008	0.003	0.005	0.024***
Age	0.0001*	0.000	0.000	0.000	0.001***	0.0003***	0.000***	0.002***	0.001***	0.000	0.001	0.002
Age2	-0.000**	0.000	0.000	0.000	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	0.000	0.000	0.000
Employ	-0.004*	-0.002	0.000	-0.006	-0.017*	-0.007	-0.015*	-0.012	-0.021*	-0.013	-0.014	-0.018
Mhh	0.001***	0.000***	0.001**	0.001***	0.019***	0.005***	0.014***	0.027***	0.020***	0.007***	0.016***	0.029***
Spouse_Work	-0.002*	-0.001	-0.002	-0.005*	-0.029***	-0.006***	-0.013***	-0.050***	-0.032***	-0.010*	-0.023***	-0.049***
Urban	-0.001	-0.002	0.000	-0.001	-0.018**	-0.002	-0.003	-0.025**	-0.019**	-0.005	-0.005	-0.020
Assets	0.000	0.000	-9.12e-12*	0.000	-1.02e-10***	-2.31e-11***	-5.10e-11***	-6.99e-11***	-1.07e-10***	-3.29e-11***	-6.29e-11***	-7.07e-11***
Access												
Finance	-0.009***	-0.012**	-0.014**	-0.007	-0.123***	-0.056**	-0.176***	-0.171***	-0.132***	-0.082***	-0.164***	-0.204***
Mobility	-0.004**	-0.001	-0.004	-0.008***	-0.059***	-0.012***	-0.036***	-0.085***	-0.063***	-0.016**	-0.037***	-0.093***
Cominfo	-0.009***	-0.007**	-0.012**	-0.014***	-0.111***	-0.032***	-0.113***	-0.212***	-0.120***	-0.042***	-0.116***	-0.213***
Shocks												
Shock_Positive	-0.005***	-0.004***	-0.006**	-0.006**	-0.031***	-0.009***	-0.024***	-0.027**	-0.037***	-0.012**	-0.032***	-0.037***
New_job	-0.005	-0.007**	-0.009*	-0.003	0.000	-0.003	-0.007	-0.006	-0.005	-0.007	-0.014	-0.008
Disability	-0.007*	0.013	-0.010*	-0.011	0.041**	0.047***	-0.003	0.042*	0.035	0.076**	0.003	0.006
Accident	0.001	0.006*	-0.001	0.001	-0.003	-0.004	-0.001	0.006	-0.002	-0.010	-0.001	0.009
Death	0.023**	0.025**	0.024	0.022	0.066	0.066*	0.074***	0.066	0.090*	0.116***	0.094**	0.016
Government_Programs												
Health	-0.001	-0.001	-0.003	-0.003	-0.046***	-0.009***	-0.025***	-0.047***	-0.047***	-0.011**	-0.029***	-0.050***
Bbm	0.000	0.003*	-0.001	-0.002	0.067***	0.020**	0.071***	0.129***	0.068***	0.035***	0.070***	0.129***
Pkh	-0.002	-0.003	-0.011	0.003	-0.061**	-0.036	-0.012	-0.060	-0.063*	-0.059	0.000	-0.068

(Continued)

Table 4. (Continued)

	TRANSIENT POOR				CHRONIC POOR				TOTAL POVERTY			
	OLS	Q25	Q50	Q75	OLS	Q25	Q50	Q75	OLS	Q25	Q50	Q75
Raskin	-0.001**	-0.001***	-0.002***	-0.002	0.002	-0.001***	-0.002*	0.001	0.000	-0.003***	-0.005***	0.001
Edu	-0.003	-0.003	-0.002	0.000	-0.040**	-0.012	-0.024**	-0.047***	-0.043**	-0.021*	-0.036***	-0.072***
Work—Sector												
Sector1	0.004*	0.004*	0.001	0.008	0.041***	0.023***	0.043***	0.034	0.045***	0.037***	0.043***	0.034*
Sector4	0.012**	0.001	0.014***	0.014*	0.019	0.016*	0.023***	-0.023	0.030	0.026**	0.035*	0.005
C_Selfemploy	-0.004**	0.000	-0.005	-0.007*	-0.013	-0.007	-0.011**	-0.015**	-0.016*	-0.009	-0.015	-0.015
Casual_Worker	0.001	0.000	0.005	0.001	0.023*	-0.002	-0.004	0.053**	0.024*	-0.005	0.002	0.049**

Source: Calculations based on IFLS Data for 2007 and 2014. Note. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

intensity in rural Indonesia compared to urban areas (Dartanto et al., 2020; Hanandita & Tampubolon, 2016; Mai & Mahadevan, 2016). Reports from Morocco (Yassine & Bakass, 2022), Mexico (Fernández-Ramos et al., 2016), South Africa (Biyase & Zwane, 2018), and Sri Lanka (Deyshappriya & Minuwanthi, 2020). However, we posit that rural poverty is persistent.

Asset ownership reduces total, chronic, and transient poverty, as seen in India (Khosla et al., 2023), the Philippines (Bayudan-Dacuycuy & Lim, 2013), and Indonesia (Dartanto et al., 2020). Assisting individuals in acquiring assets like land or houses could help alleviate poverty, in line with Peng et al. (2019). Access to finance, mobility, info, and communication reduces poverty, especially chronic poverty. Infrastructure (Gibson et al., 2023), mobility, telecommunications, and financial services (Esquivias et al., 2020) are essential for poverty alleviation. Credit exclusion is often linked to chronic poverty (Esquivias et al., 2020; Ruggeri Laderchi et al., 2017). Households' capacity to cope with shocks affects their risk of temporary poverty. Positive shocks like bonuses, salary increases, and gifts reduce poverty (both chronic and transient). New jobs can reduce temporary poverty, mainly in Q25 and Q50, but not chronic poverty. A new job can stabilise income and reduce the risk of poverty.

Negative events like accidents are linked to short-term poverty. The death of family heads or relatives raises the chance of chronic (6% at Q25, 7.4% at Q50) and transient poverty (2.5% at Q25, 2.3% at OLS), necessitating social aid due to long-term effects. Short-term effects could intensify after a family leader's death, which is significant for COVID-19 (Sparrow et al., 2020). Increased mortality may affect poverty in Indonesia and globally (Albani et al., 2022; Brandily et al., 2021; Laajaj et al., 2022). Having a disabled household member raises chronic poverty odds, as Peng et al. (2019) found. Surprisingly, this study discovered households with disabilities in the Q50 are less likely to experience temporary poverty. Poor health (Khosla et al., 2023; Özsoy & Gürler, 2022), disabilities (Absor et al., 2022), and accidents (Ahsan & Kelly, 2018; Bella & Dartanto, 2018) can negatively impact income or assets due to inability to work, asset utilization, or job market discrimination (Usman & Projo, 2021).

Government aid like health insurance and scholarships substantially lessen chronic poverty, as shown in Indonesian studies (Hanandita & Tampubolon, 2016; Moeis et al., 2020). Health assistance and public education reduce chronic poverty by 4.6% and 4% respectively, according to OLS estimates. Support programs are crucial in mitigating chronic poverty (Bah et al., 2019; Tohari et al., 2019). Our study aligns with Sparrow et al. (2013), suggesting health insurance reduces poverty. Food aid is negatively linked to both persistent and temporary poverty (0.1–0.2%). A substantial aid program reduced chronic and total poverty based on OLS results, but quantile estimates were insignificant.

Fuel subsidies, aimed at universally boosting Indonesians' purchasing power, paradoxically increase temporary and chronic poverty risk (Sahara et al., 2022). Non-poor households received 74.5% of these subsidies, leaving only 25.5% for poor households, indicating a skewed distribution.

In Indonesia, the job sector of household heads significantly affects poverty dynamics. Individuals employed in mining, agriculture, and finance sectors are more prone to chronic and temporary poverty due to wage differences (Gibson et al., 2023; Moeis et al., 2020). Non-productivity factors cause disparities (Ahsan & Kelly, 2018; Dartanto et al., 2018). Self-employers face less chronic or transient poverty, as Moeis et al. (2020) found that moving to self-employment or formal activities increases spending and reduces poverty in Indonesia as well as (Chung & Maguire-Jack, 2020) found in the United States. However, Sugiharti et al. (2022) noted a decrease in poverty reduction via self-employment. Casual workers are more likely to face severe, long-term poverty. Q75% households with casual workers had a 5% higher poverty likelihood, according to Sugiharti et al. (2022). Casual workers in Indonesia, often in seasonal jobs, had the highest occupational mobility.

5. Conclusion

The estimates of poverty components using the EDE approach indicate that chronic poverty is more prevalent in Indonesia (more than 75%) than transient share. The EDE approach estimates

chronic poverty is more common in Indonesia (over 75%) than transient poverty. Low education, female gender, single mothers, informal jobs, and primary sector work are associated with higher poverty levels. Socioeconomic groups, location, and labor status have large disparities, suggesting targeted efforts for vulnerable groups. Inequality costs more for those with higher education and those in the service sector (finance, energy, and government) or entrepreneurs.

Chronic poverty is higher in most groups, so poverty reduction needs structural policies to improve human resources through education, access to services (health, education, transportation, communication, and finance), and formal employment. Poverty is more severe in areas with natural resources, likely due to Dutch Disease from commodity price fluctuations. Higher education, urban living, larger assets, and formal employment reduced chronic poverty. Access to finance, mobility, communication, and information lessened transient and chronic poverty. Government programs such as health services, food support, direct transfers, and education also reduced chronic poverty. Energy subsidies don't reduce poverty, but may support purchasing power. Disabilities, accidents, and deaths increase chronic and transient poverty.

This study has several drawbacks that should be addressed in future research. It only uses two IFLS surveys from 2007–2014, so more recent data should be included when available. Before 2007, district-level poverty line data was unavailable. Future studies may use alternative methods to estimate the poverty line at the district (or lower) level, extending the analysis period. Despite the data limitation, we can demonstrate the importance of using more detailed data for the poverty line. The study found that inequality is the main cause of persistent poverty in education groups, regions with abundant resources, and certain sectors (e.g. electricity and finance). This implies large income and wage gaps due to higher education or certain sectors (rich in natural resources). Further research is needed to understand the causes of these large disparities. Third, the data and methods did not allow causal inferences on monetary poverty changes over time. The EDE approach offers chronic and transient poverty measures, but not individual household poverty measures (Mai & Mahadevan, 2016). However, we provide chronic poverty sources at a disaggregated level for various categories, which is beneficial for policymakers. The quantile approach cannot prove cause-and-effect between socioeconomic, policy, or life event factors and poverty. However, it reveals the different relationships these elements have across poverty levels.

Our findings point to five research directions. First, use more detailed data to measure poverty due to its sensitivity to living standards, poverty lines, and equivalence scale. Second, poverty reduction efforts must be tailored to each context. Future studies should measure poverty accurately and examine poverty reduction in specific groups. Indonesia should focus on reducing chronic poverty, avoiding transitory poverty, and promoting equal income growth. Studies should assess policy effectiveness and focus on specific reduction programs. Fourth, social programs reduce poverty. Further research should assess direct social benefits and other programs (e.g., conditional transfer schemes) in the country. Non-direct social benefit schemes should be studied to promote entrepreneurship and women's labor market involvement. Childcare and pre-employment cards (Kartu Prakerja) may reduce poverty. Future studies should assess if social aid coordination and common targeting programs can help. Our study could not determine if vulnerable households were reached.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

Data were obtained from the Indonesian Family Life Survey (IFLS). <https://www.rand.org/well-being/social-and-behavioral-policy/data/FLS/IFLS.html>

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Note

1. We only use two out of the five available datasets in Indonesia. We provide new estimates for poverty lines for the 2007–2014 period (two latest datasets). Due to data limitations, the estimation of poverty lines at the district level before 2007 is not possible.

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