

Does the National Health Insurance Program Affect Life Insurance Demand in Indonesia?

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Abstract

Research Originality: This research pioneers a macro-institutional approach to life insurance demand by empirically proving a definitive crowding-out effect induced by Indonesia's universal healthcare mandate.

Research objectives: To investigate the dynamic impact of the state-mandated JKN program and national income on private LID in Indonesia.

Research methods: This study utilizes a Vector Error Correction Model (VECM) and structural break analysis on annual data from 2002 to 2022 to rigorously capture regime shifts, short-run frictions, and long-run equilibria.

Empirical result: The findings reveal a definitive crowding-out effect: the JKN mandate and rising compulsory insurance penetration significantly depress private LID, whereas income maintains a significant positive elasticity in the long run. Furthermore, structural break tests confirm a fundamental, permanent shift in consumer purchasing behavior post-2014, coinciding with the introduction of the JKN program.

Implications: Policymakers must orchestrate a regulatory environment that protects universal healthcare while actively sustaining the development of the private life insurance market. Insurers must innovate beyond state-overlapping benefits by developing investment-linked products and optimizing Coordination of Benefits (CoB) frameworks.

Keywords:

compulsory insurance; consumer purchasing behavior; coordination of benefits; crowd-out effect; universal health coverage

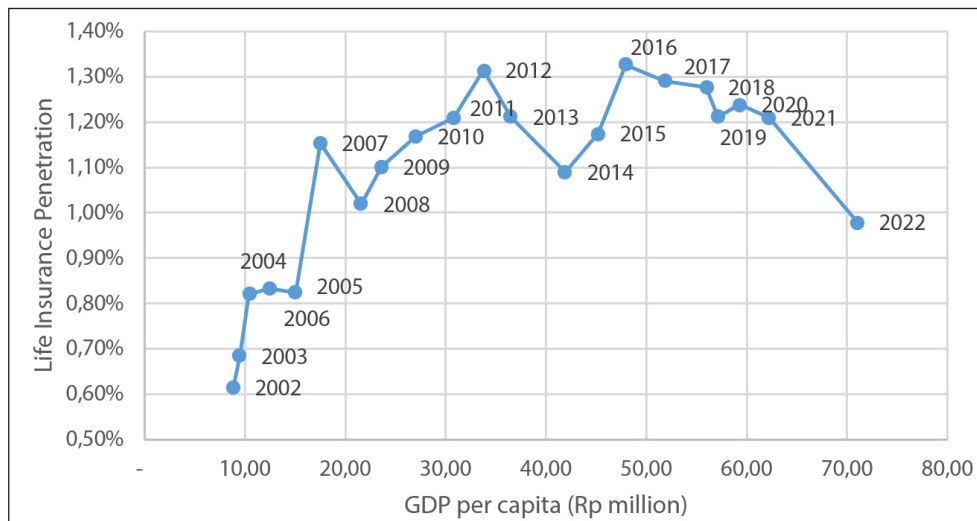
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INTRODUCTION

Life insurance development plays a significant role in economic growth and social stability in developing countries by mitigating mortality risk and mobilizing long-term capital (Raj et al., 2024; Rapi et al., 2025a). Indonesia represents a high-potential market within this cohort, with industry assets surging by over 2,000% since 2002. However, the sector currently faces a "penetration paradox" (Rapi et al., 2025b): despite increases in per capita income, insurance literacy, and financial inclusion since 2016, life insurance penetration decreased by 26% to 0.98% in 2022 (Figure 1). This significant empirical anomaly contradicts prevailing theories that identify income as the primary driver of life insurance demand (hereafter, LID) in developing nations (Srinivasan & Mitra, 2024; Rapi et al., 2025d) and challenges the anticipated positive impact of literacy on LID within the Indonesian insurance market (Tanjung & Cahyanti, 2025).

Figure 1. Life insurance penetration in Indonesia from 2002 to 2022



Source: OJK (research team processed)

Declining LID poses a critical threat to industry performance and long-term sustainability (Rahma et al., 2025), as insurance mechanisms fundamentally rely on a large number of participants (Kong, 2021). While the current study addresses the LID problem by analyzing its determinants through the lens of the life-cycle framework (Munmum et al., 2026), its application within the Indonesian context has led to a narrow focus on demand-side characteristics, such as Rapi et al. (2025b) in demography, Clara and Dwiputra (2025) in trust, and Altuntas et al. (2019) in cultural activities. This prevailing focus fails to account for the fact that life insurance purchases are complex decisions heavily influenced by the external macro-institutional environment (Heo et al., 2024).

A salient example of such external influence is compulsory insurance, which often triggers a "crowding-out effect" that constrains household budget allocation for private coverage, thereby suppressing market uptake (Lambregts & Schut, 2020). Compulsory insurance is a state-mandated framework requiring obligatory enrollment in specific

coverage types (Vaidya & Boes, 2021), while "crowd-out" refers to the contraction of private insurance market share as the scale of compulsory schemes expands (Lennon, 2025). Often synonymous with Universal Health Coverage (UHC) or social insurance (Lim, 2021), these mandates are designed to alleviate the financial burden on the state, mitigate social emergencies, and reduce health disparities (Parth, 2025). Moreover, they systematically mitigate adverse selection and free-riding (Molander, 2025) and are closely aligned with the Sustainable Development Goals (SDGs) (Endalamaw et al., 2025).

Compulsory insurance in Indonesia was formally institutionalized through the establishment of BPJS Kesehatan and BPJS Ketenagakerjaan (Susilo et al., 2025). By consolidating fragmented social assistance schemes, the National Health Insurance System (JKN) has expanded its coverage to 277 million participants, fundamentally restructuring the nation's healthcare financing through state-mandated participation (Azizatunnisa et al., 2025). This mandate was formally codified under Law No. 40 of 2004, Law No. 24 of 2011, and Law No. 1 of 2014. As a result, the JKN initiative bridged a significant protection gap and was widely welcomed by uninsured cohorts that had previously relied on out-of-pocket expenditures (Agustina et al., 2019).

Pannequin et al. (2025) argue that compulsory insurance, while critical for risk mitigation, triggers a rational decline in self-insurance among risk-averse individuals when statutory coverage is perceived as sufficient. Furthermore, because consumers purchase private insurance to hedge against medical cost volatility, the capacity of compulsory schemes to reduce medical expenditure and risk leads to a diminished propensity to acquire private coverage (Veiga et al., 2025; Lim, 2021). Additionally, Zhang et al. (2024) demonstrate that state-mandated insurance reduces consumers' reliance on life policies, while Andersson and Eriksson (2015) suggest that compulsory premiums strain household budgets, consequently elevating lapse rates among existing private contracts.

Despite these findings, the interplay between compulsory and private insurance remains contested. Alternative research highlights a complementary dynamic associated with JKN expansion. For instance, Bah and Abila (2022) suggest that, under specific demographic and income thresholds, social security functions as a household asset that can stimulate LID. Similarly, Trinh et al. (2023) argue that public health improvements enhance societal well-being, ultimately driving an increase in life insurance uptake. Furthermore, Zhang and Palma (2021) find that compulsory insurance often provides only partial coverage, thereby creating protection gaps that incentivize the purchase of private policies.

Consequently, whether the JKN program influences LID in Indonesia remains an unresolved empirical question. Inconsistent international findings and a lack of targeted research within the Indonesian context drive this ambiguity. Furthermore, existing evaluations of the JKN program overlook this intersectoral relationship; for instance, Ainy and Pujiyanto (2025) focus on active JKN membership, Khoirunurrofik and Raras (2021) examine supply-side influences on JKN adoption, and Idris et al. (2025) examine the demand for outpatient and inpatient care. Thus, a critical research gap persists regarding the implementation of the JKN program as a macro-structural driver of the declining

LID phenomenon in Indonesia. Given the significant role of the life insurance sector in Indonesia, it is critical to shift the analytical framework from isolated consumer-side models to a broader macro-institutional evaluation.

Therefore, the objective of this study is to investigate the dynamic impact of the JKN program and national income on private LID in Indonesia. The novelty of this research lies in its empirical investigation of the state-mandated "crowding-out" effect, transitioning the academic focus from individual-level determinants to macro-institutional, supply-side factors. Methodologically, this study contributes by employing a Vector Error Correction Model (VECM). While prior research has frequently relied on static estimators (Lurie et al., 2021; Zhang & Palma, 2021; Pannequin et al., 2025), the VECM framework rigorously captures the persistent and non-linear impacts of compulsory insurance interventions, generating sophisticated insights into long-run equilibria and causal directions. Consequently, this econometric approach is optimally suited to decode the complex LID-JKN nexus in Indonesia.

METHODS

This study employs a VECM augmented by rigorous structural break analysis to investigate the structural instability of LID in Indonesia and analyze its nexus with the JKN program. The empirical analysis utilizes secondary data from 2002 to 2022 at an annual frequency, sourced from the Indonesian Insurance Statistics (SPI) published by the Financial Services Authority (OJK). This dataset represents the most authoritative and comprehensive regulatory record available. LID is measured by life insurance penetration (the ratio of premiums to GDP) and life insurance density (premiums per capita), both of which are standard variables in LID studies (Bhatia et al., 2021). The independent variables include the JKN program, measured by its implementation timeline and the penetration of compulsory insurance, and income, measured by GDP per capita as a macroeconomic control. All econometric analyses are performed using EViews 10 software.

The VECM approach is selected for its capacity to capture short-term innovations and long-term equilibrium dynamics (Huriso et al., 2026). This model is particularly effective for testing macroeconomic influences on LID, as demonstrated in previous emerging market contexts (Sharku et al., 2021; Mathew & Sivaraman, 2017). A critical prerequisite for insurance demand analysis is the identification of structural changes, as regulatory interventions often trigger immediate and persistent shifts in premium behavior (Ge, 2022; Lu & Ker, 2024). In the presence of such regime shifts, VECM becomes critical for verifying the existence of cointegrated relationships that might otherwise be obscured by temporal volatility (Gao et al., 2025).

The study first assesses model stability using the Cumulative Sum (CUSUM) test and examines potential regime shifts via the Chow test, following the frameworks of Hemrit (2021) and Lu and Ker (2024). These approaches have been widely utilized to evaluate model stability (Hemrit, 2021), distributional structural changes in insurance (Lu

& Ker, 2024), and asymmetrical relationships in the banking sector (Fakhrunnas et al., 2023). The CUSUM results indicate instability if the plot of recursive residuals exceeds the critical bounds at a 5% significance level. Subsequently, the Chow test evaluates the following hypotheses at the a priori 2014 breakpoint, which marks the introduction of universal healthcare in Indonesia:

Subsequently, the VECM is executed through a multi-stage procedure to ensure estimation robustness: (1) Stationarity testing conducted via the Augmented Dickey-Fuller (ADF) test; (2) Lag optimization and Vector Autoregression (VAR) stability checks to determine the appropriate temporal depth for the model; (3) Johansen Cointegration Test to identify long-run equilibrium nexuses; (4) VECM modeling to capture error correction mechanisms; and (5) Dynamic analysis utilizing Impulse Response Functions (IRF) and Forecast Error Variance Decomposition (FEVD) to assess the persistence and magnitude of the JKN program's impact on LID over time. VECM is a form of restricted VAR, with the following equation specifications:

$$\Delta Y_t = \mu_{0x} + \mu_{1x}t + \Pi_x Y_{t-1} + \sum_{i=1}^{k-1} \Gamma_{ix} \Delta Y_{t-i} + \varepsilon_t$$

where, t is year t ($t = 2002, \dots, 2022$), k denotes the optimal lag length of the underlying VAR in levels, $k - 1$ represents the order of the VECM, Δ signifies the first-difference operator, Y_t is a vector of n endogenous variables at t , μ_{0x} and μ_{1x} represent the intercept vector (constant term) and the linear time trend, respectively, Π_x is the long-run impact matrix, decomposed as $\alpha\beta'$, where α represents the speed of adjustment coefficients and β' represents the cointegrating vector or long-term equilibrium, Y_{t-1} is the variables in levels, Γ_{ix} is $n \times n$ matrix of parameters capturing the short-run dynamics for lag i ($i=1,2,\dots,k-1$), and ε_t is the error term.

The VECM estimation is independently applied to four distinct model specifications: (1) life insurance penetration, income, and compulsory insurance penetration; (2) life insurance density, income, and compulsory insurance penetration; (3) life insurance penetration, income, and JKN implementation; and (4) life insurance density, income, and JKN implementation. To ensure methodological consistency, each specification is subjected to a uniform sequence of econometric diagnostics and analytical protocols. The operational definitions and metrics for all variables are detailed in Table 1. The research framework is illustrated in Figure 2, which conceptualizes how the JKN program and national income significantly influence LID in Indonesia.

Figure 2. Research framework of income, JKN Program, and LID model

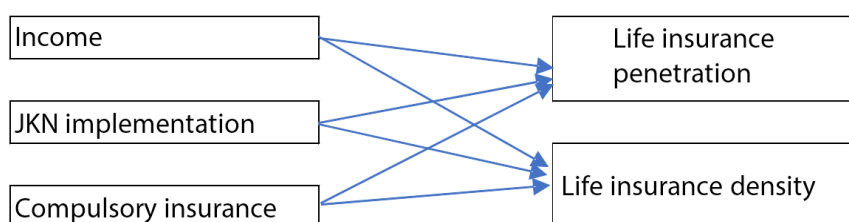


Table 1. Operational Variable of Income, JKN Program, and LID Model

Variable	Code	Measurement	Source	H	
				P	D
Dependent Variable					
Penetration	<i>P</i>	$P = \frac{LI\ Premium}{GDP}$	Secondary data • <i>LI Premium</i> : OJK		
Density	<i>D</i>	$D = \frac{LI\ Premium}{Population}$	• <i>GDP</i> : OJK • <i>Population</i> : OJK		
Independent Variable					
Income	<i>W</i>	$W = \frac{GDP}{Population}$	Secondary data • <i>GDP</i> : OJK	+	+
JKN implementation	<i>U</i>	<i>U</i> = 1, if JKN implemented, and 0 others	• <i>Population</i> : OJK • <i>Social Premium</i> : OJK	-	-
Compulsory Insurance	<i>S</i>	$S = \frac{Social\ Premium}{GDP}$		-	-

RESULTS AND DISCUSSION

This study empirically investigates the paradox of declining LID in Indonesia amidst rising national income. The analysis initially tests for structural breaks in LID patterns and subsequently employs a VECM to evaluate short- and long-run dynamics. The central finding shows that the implementation of the JKN program and the corresponding rise in compulsory insurance penetration have induced a substitution effect, effectively crowding out LID. Moreover, structural break analyses confirm a fundamental shift in consumer purchasing behavior following the introduction of the JKN in 2014. These results provide evidence that LID in Indonesia does not evolve in isolation but is significantly shaped by exogenous policy interventions.

Table 2. Descriptive Statistics of Income, JKN Program, and LID Model

Variable	P	D	W	U	S
Mean	1.08	408,112	35.22	0.43	0.50
Median	1.17	442,347	33.78	0.00	0.10
Maximum	1.33	753,189	71.03	1.00	1.38
Minimum	0.61	54,201	8.83	0.00	0.08
Std. Dev.	0.21	250,259	19.64	0.51	0.51
Skewness	-0.88	-0.02	0.18	0.29	0.55
Kurtosis	3.23	2.22	1.90	1.08	1.18
Observations	21	21	21	21	21

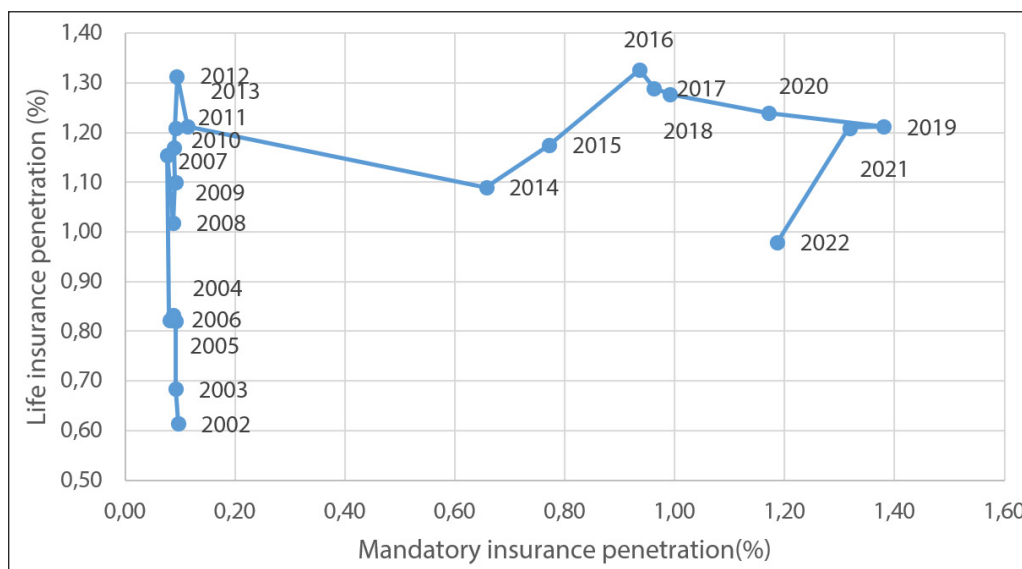
Note: Life insurance penetration (P); Life insurance density (D); Income (W); *Dummy* JKN (U); Compulsory insurance penetration (S)

Table 2 summarizes the descriptive statistics for the dataset. The data reveal an average insurance penetration of 1.08% and a density of IDR 408,112. Furthermore, the mean values for income, JKN implementation, and compulsory insurance are IDR 35.22 million, 43%, and 0.50%, respectively. Except for JKN implementation and compulsory

insurance, all variables exhibit low variation in the data. Preliminary unit root testing confirms that all variables are stationary at the level or first difference at $\alpha = 0.1$. Thus, the dataset is robustly suited for further cointegration modeling.

Figure 3 illustrates a sharp shift in LID trajectory around the 2014 policy threshold. From 2002 to 2013, LID exhibited robust expansion, with penetration increasing by 97% and density surging by 716%. Conversely, the market stagnated following the 2014 introduction of the JKN program. By 2022, life insurance penetration had contracted by 10%, while density growth slowed to 52%. During these periods, national income and social insurance penetration grew by 313% and 18% (2002–2013) before shifting to growth rates of 69% and 81% (2014 to 2022), highlighting a significant divergence between the private and compulsory insurance sectors.

Figure 3. Life Insurance and Compulsory Insurance Penetration in Indonesia



Source: OJK (research team processed)

Figure 4 illustrates a structural shift emerging in 2014, as evidenced by the CUSUM trajectory breaching the 5% significance boundaries, thereby indicating parameter instability. Subsequently, a Chow breakpoint test was conducted for the year 2014 under the null hypothesis of no structural break. As detailed in Table 3, the empirical results robustly reject the null hypothesis; the F-statistic (14.62), log-likelihood ratio (21.02), and Wald statistic (29.25) all have p-values below the 0.1 significance level. These findings confirm a fundamental shift in consumer purchasing behavior coinciding with the mandatory implementation of the JKN program. Consequently, this parametric instability supports the need to employ a VECM for the subsequent analysis.

Prior to conducting structural inferences, it is imperative to verify the dynamic stability of the specified VAR systems. As evidenced by the diagnostic results across the four specified models, the maximum computed modulus is 0.9409 (observed in Model 4) or lower, confirming that no roots violate this threshold. Consequently, this empirical

evidence robustly confirms the stability of all models. This verified structural integrity ensures the reliability of the baseline specifications and validates their deployment for subsequent dynamic analyses. To specify the optimal lag structure for empirical models, multiple standard information criteria, specifically the sequential modified LR test, Final Prediction Error (FPE), Akaike (AIC), Schwarz (SC), and Hannan-Quinn (HQ), were systematically evaluated. For Models 1 and 2, all five diagnostic criteria strictly converge on an optimal lag length of 1. In contrast, the tests for Models 3 and 4 exhibit minor informational divergence, although the strictly parsimonious Schwarz criterion (SC) indicates a lag of one, the preponderance of the evidence across the LR, FPE, AIC, and HQ criteria strongly dictates an optimal lag length of three.

Figure 4. Cumulative Sum Test Between Life Insurance Penetration and Income

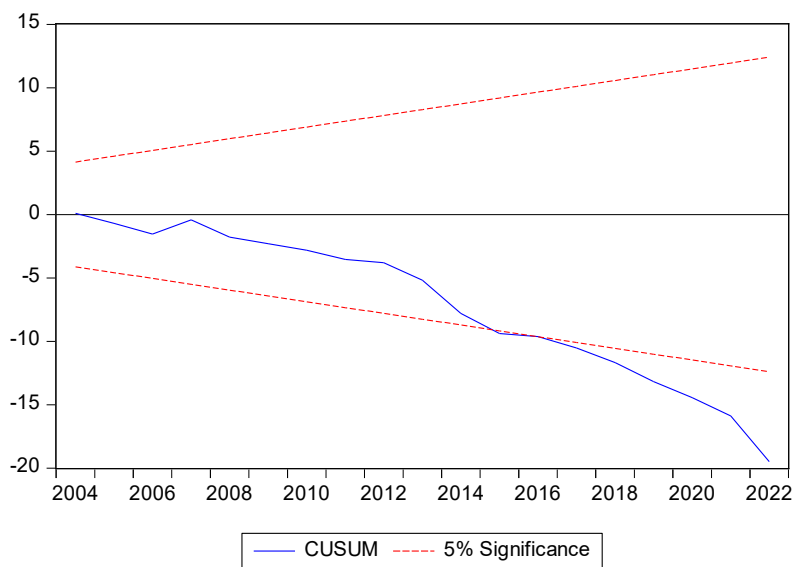


Table 3. Result of structural break analysis use Chow test.

F-statistic	14.62899	Prob. F(2,17)	0.0002
Log likelihood ratio	21.02143	Prob. Chi-Square(2)	0.0000
Wald Statistic	29.25798	Prob. Chi-Square(2)	0.0000

The empirical results of the Johansen cointegration test indicate that the null of zero cointegrating equations is robustly rejected for all models, as the computed test statistics exceed their respective critical thresholds at $\alpha = 0.1$. Conversely, the test fails to reject the subsequent null hypothesis of "at most one" cointegrating equation, yielding p-values ranging from 0.0969 to 0.3047. Therefore, the statistical evidence confirms the existence of exactly one distinct cointegrating vector within each specified system. This confirmed long-run structural relationship meets the necessary econometric preconditions for analyzing the market's dynamic adjustments using a VECM framework across all models.

The long-term VECM equation for model 1, $P_{t-1} = 0.11 W_{t-1} - 0.16 S_{t-1}$, indicates that while income positively affects life insurance penetration, compulsory insurance exerts a significant negative effect, robustly confirming the hypothesized crowding-out effect. In the short run, the error correction term (ECT) for penetration is significantly negative (-0.18). IRF results for Model 1 demonstrate that the penetration response to compulsory insurance decreases sharply into negative territory until the second period. Furthermore, the FEVD for Model 1 reveals a systemic shift: while penetration variation initially stems from idiosyncratic shocks, the percentage of variation driven by compulsory insurance eventually outpaces the influence of income.

The long-term VECM equation for model 2, $D_{t-1} = 1.23W_{t-1} - 0.11 S_{t-1} + 8.38$, shows that national income robustly expands insurance density and that compulsory insurance has a significant long-term impact, supporting the crowding-out hypothesis. The short-term model exhibits a significant speed of adjustment at -0.60. IRF results for Model 2 indicate that the density response to compulsory insurance becomes negative from the outset. Additionally, FEVD results for Model 2 confirm the dominance of the institutional ecosystem; from the sixth period onward, compulsory insurance exerts a larger effect on density variance than income.

The long-term equation for Model 3, $P_{t-1} = -6.24 + 1.53 W_{t-1}$, reveals a highly significant positive elasticity. In the short run, the introduction of the JKN program exerts a significant negative shock (-0.08) on life insurance penetration, providing empirical evidence of an immediate policy-induced crowding-out effect. IRF results for Model 3 show that the JKN program induces high volatility, with life insurance penetration failing to stabilize and fluctuating between positive and negative values throughout the ten-year horizon. FEVD results indicate that, while penetration variation is primarily driven by internal shocks in the short term, the influence of income on penetration variance increases significantly from the third year onward.

Finally, the long-term equation for Model 4, $P_{t-1} = -2.98 + 2.53 W_{t-1}$, reveals a highly significant positive elasticity, although JKN implementation lacks statistical significance in the short run. Furthermore, the statistically insignificant ECT (0.15) implies weak exogeneity, demonstrating that short-term deviations from equilibrium are not resolved through immediate self-correcting adjustments in life insurance density. IRF results for Model 4 reveal a highly volatile ecosystem where variables fail to stabilize following the structural shock of JKN implementation. FEVD results show that density shocks are largely self-derived, with income having a negligible effect, suggesting that the exogenous JKN policy plays a primary role in disrupting market stability.

This study broadens the existing Life Insurance Demand (LID) literature by shifting the analytical focus away from traditional consumer-centric models (Segodi & Sibindi, 2022) toward policy-driven determinants. While recent scholarship has begun exploring institutional supply-side factors, such as insurer financial soundness (Rapi et al., 2025c), country governance (Zhang et al., 2024), and national policy uncertainty (Lu et al., 2025), this research contributes a novel perspective by explicitly quantifying the systemic

impact of the JKN program. The critical socio-economic function of life insurance, juxtaposed against empirically observed demand stagnation, renders this investigation vital for developing nations (Rapi et al., 2025d). Furthermore, as Bhatia et al. (2021) posit, robust LID analyses are essential for informing both corporate product development and government regulatory frameworks to foster sustainable industry growth.

Additionally, this research enriches the discourse on compulsory insurance by using Indonesia's JKN program as a focal case study, contrasting with prior literature that examines mandates in niche sectors such as bicycle insurance (Asai, 2025), flood insurance (Osberghaus, 2023), and agricultural insurance (Zhang & Palma, 2021). By situating the analysis within a developing economy, this study addresses a significant geographical gap, given that existing evidence is predominantly derived from developed markets (Dragota et al., 2023) and comprehensive insurance studies in Indonesia remain limited (Rapi et al., 2025b). Methodologically, the use of a VECM enables a rigorous examination of both short-run transitional frictions and long-run equilibrium relationships, elevating the standard of evidence beyond static macroeconomic analyses.

The empirical findings substantiate the hypothesis that the implementation of the JKN program, alongside expanding compulsory insurance penetration, exerts a definitive crowding-out effect on LID in Indonesia. This phenomenon presents a compelling paradox that challenges traditional assumptions within the life-cycle theoretical framework, which typically isolates demand analysis to the consumer side and assumes that income growth invariably drives bequest and retirement motives (Munmun et al., 2026). Instead, our results provide empirical validation of the crowd-out theory, which posits that while rising income influences insurance demand, it simultaneously prompts consumers to seek more efficient substitutes (Lennon, 2025). Consequently, this study disputes the "complement theory", which suggests compulsory insurance stimulates broader market demand (Bah & Abila, 2022), by confirming that mandated social insurance fundamentally acts as a substitute that depresses private LID.

Ultimately, the study demonstrates that Indonesia's JKN program functions as a substitute for private life insurance. This crowding-out mechanism is explicitly captured by the significant, negative long-term elasticity of LID with respect to compulsory insurance penetration, a structural relationship that mirrors historical observations in Sweden (Andersson & Eriksson, 2015) and the MENA region (Emamgholipour et al., 2017). Furthermore, the FEVD and IRF diagnostics from Models 1 and 2 reveal that shocks to compulsory insurance generate larger and more volatile disruptions to LID than equivalent income shocks. This dynamic aligns with the experimental conclusions drawn by Pannequin and Corcos (2020) and Pannequin et al. (2025). Thus, the stagnation of private insurance demand in Indonesia is not an anomaly but a rational consumer response to the rollout of universal healthcare; the mandatory budgetary reallocation required by the JKN program inherently diminishes the capacity for discretionary life insurance purchases.

Beyond the specific mandate of compulsory insurance, broader regulatory frameworks significantly influence LID. Life insurance inherently involves long-term contracts that

demand a high degree of institutional trust (Rahma et al., 2025), yet the market remains vulnerable to asymmetric information (Han et al., 2026). Consequently, government intervention is essential to mitigate these market failures (Hafiz et al., 2022); robust governance and stringent regulation effectively bolster consumer confidence (Horvey & Odei-Mensah, 2025). As Annan (2022) asserts, regulatory oversight corrects market anomalies, thereby optimizing the efficiency of insurance mechanisms. Empirically, Srbinoski et al. (2022) demonstrate that rigorous market conduct regulations positively stimulate LID in the United States.

Regulatory intervention also has a multidimensional impact on the broader insurance ecosystem. For instance, the regulatory shift toward risk-based supervision fundamentally shapes insurers' portfolio decisions (Zinyoro & Aziakpono, 2023) and asset-liability management strategies (Rahma et al., 2025). However, regulation can yield complex externalities; Jasinski (2025) observes that overly stringent industry regulations can inadvertently exacerbate the vulnerability of uninsured populations. Conversely, Handel1 and Kolstad (2022) indicate that compulsory frameworks, such as the Affordable Care Act in the U.S., successfully mitigate adverse selection. Furthermore, Molander (2025) contends that systems reliant on public funding tend to achieve greater operational efficiency, though qualitative improvements in social health provisioning invariably increase aggregate costs. Thus, analyzing the nuanced role of regulation remains paramount for comprehensively understanding insurance market development.

Crucially, empirical evidence identifying a substitution effect should not be construed as a rationale for diminishing support for the JKN program. Social insurance yields substantial welfare benefits, particularly for low-income groups (Green et al., 2021), and the JKN significantly increases healthcare utilization among individuals with disabilities (Azizatunnisa et al., 2025). Isnaeni et al. (2025) confirm that the program has fundamentally improved access to medical services and bolstered financial protection in Indonesia. Additionally, Nugrahaeni et al. (2020) demonstrate that the JKN successfully reduces out-of-pocket costs and the probability of catastrophic delivery expenditures.

By 2025, the JKN program had encompassed over 280 million individuals, accounting for 98% of Indonesia's population, with an active participation rate of 81.5%, while fully subsidizing 141 million low-income citizens through the *Penerima Bantuan Iuran (PBI)* program (Susilo et al., 2025). Despite these milestones, the implementation of JKN has exposed significant systemic vulnerabilities. These include persistent financial deficits (Cheng et al., 2022), a substantial "missing middle" demographic that remains uninsured (Agustina et al., 2019), supply-side disparities coupled with infrastructure shortages (Khoirunurrofika & Raras, 2021), and the enduring risk of catastrophic out-of-pocket expenditures (Probandari et al., 2025).

To address these challenges, policymakers must adopt a dual-objective strategy: sustain the social safety net provided by JKN while actively fostering a regulatory environment conducive to the growth of the life insurance market. The *Coordination of Benefits (CoB)* scheme emerges as a viable developmental mechanism (Nugraheni et al., 2020). CoB is a structural procedure in which multiple insurance entities concurrently

cover an individual for identical health benefits, ensuring that aggregate disbursements do not exceed total healthcare costs. Formalized under BPJS Kesehatan Regulation No. 4 of 2016, this framework allows participants to upgrade their coverage class beyond their baseline rights by using supplemental private insurance or covering the cost differential out of pocket. Through CoB, the market effectively transitions from a strictly compulsory public system to an optimized, mixed-insurance paradigm, or to a uniform compulsory baseline combined with residual voluntary purchases (Zhang & Palma, 2021).

Consequently, insurers must innovate product offerings that are complementary rather than strictly substitutive for BPJS benefits. Market data from SPI OJK (OJK, 2022) indicates a strong preference for consumers for investment-linked insurance products (IDR 95 trillion), followed by endowments (IDR 33 trillion) and standalone health insurance (IDR 8 trillion). Notably, joint-venture insurers dominate the investment-linked segment with IDR 67 trillion in purchases, whereas national companies lead in endowment acquisitions at IDR 23 trillion. Given that investment products represent the primary growth driver across corporate structures, the combined approach of developing unit-linked products and optimizing CoB schemes presents a strategic pathway to stimulate LID in Indonesia.

Nevertheless, the practical execution of CoB is hindered by several operational obstacles, primarily structural cost discrepancies. Although cost differentials are addressed in overarching JKN legislation, including the National Social Security System (SJSN) Law, Presidential Regulation No. 82 of 2018, and Minister of Health Regulation No. 3 of 2023, there is a critical absence of standardized guidelines governing inter-provider coordination. Furthermore, perceived deficiencies in BPJS service delivery quality (Saleh & Umiyati, 2020) undermine public trust, prompting many insured individuals to bypass BPJS entirely when seeking care (Sujarwoto et al., 2026). At the corporate level, entities pioneering CoB-integrated products, such as Mandiri Inhealth, have reported stagnant LID growth driven by implementation inefficiencies. Therefore, advancing CoB-based insurance products necessitates deeper empirical and operational analysis.

This study acknowledges several limitations, primarily related to external macroeconomic shocks and industry-specific crises during the JKN implementation period. Specifically, global economic uncertainty prompted regulatory relaxation, allowing minimum risk-based capital (RBC) requirements to be adjusted downward to 50%. This period also saw significant industry instability, marked by aggregate losses in 2018, driven largely by high-profile insolvencies at AJB Bumiputera and Jiwasraya (Rapi et al., 2025c). Additionally, the empirical models do not account for the structural disruptions induced by the COVID-19 pandemic, despite its documented negative effects on LID (Qian, 2021). These exogenous events fundamentally depressed consumer confidence and purchasing power, representing critical unobserved variables that future research must incorporate.

CONCLUSION

This study yields critical insights into the persistent contraction of LID in Indonesia. The empirical findings demonstrate that the implementation of the JKN program and the

penetration of compulsory insurance exert a significant negative impact on life insurance purchases. In contrast, income maintains a significant positive elasticity in the long run. Furthermore, the structural break analysis provides robust evidence of a fundamental shift in consumer purchasing dynamics, concurrent with the mandated rollout of the JKN program. These results confirm that the JKN program induces a powerful crowding-out effect, acting as a primary catalyst for the decline of LID in Indonesia. The findings extend the life-cycle hypothesis framework by establishing that consumer behavior is not formed in isolation but is strictly bound to the broader macro-institutional environment.

These findings necessitate a strategic paradigm shift in both national regulatory frameworks and corporate insurance models to ensure long-term industry viability. Policymakers must urgently pursue a dual-objective approach that safeguards the JKN's critical social safety net while cultivating a regulatory environment conducive to private market growth. This requires fortifying the CoB scheme to enable a seamless transition of the sector from a strictly compulsory mandate to an efficient, mixed-insurance ecosystem. To overcome current operational bottlenecks, regulators must design innovative policies to support this dual-objective strategy. At the same time, private life insurers must pivot away from substitutive coverage toward developing highly complementary portfolios, particularly emphasizing investment products and implementing the CoB scheme. By addressing these structural inefficiencies, life insurance companies can effectively harmonize public healthcare financing with the sustainability of their businesses.

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