

Fiscal Sustainability of Universal Health Coverage and PBPU Inactivity in Semarang City

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Abstract

This study examines the fiscal sustainability of the National Health Insurance Program and Universal Health Coverage (UHC) in Semarang City, with particular focus on the PBPU segment as the principal fiscal risk group. Secondary administrative data from the Semarang Health Office and BPJS Kesehatan were used, covering annual UHC and budget records, monthly JKN membership records by segment, and weekly reactivation and transfer records from 2018 to 2026. A quantitative descriptive-analytic case study design was applied using a census of all available administrative records. Data were analyzed through descriptive statistics, trend analysis, segment comparison, and fiscal ratio analysis. The results show that Semarang City maintained full administrative UHC coverage from 2023 onward, but active participation fluctuated between 81.37% and 86.33% during the same period, while the UHC budget increased from IDR 41.39 billion in 2024 to IDR 121.01 billion in 2026. PBPU recorded the lowest active rate across all JKN segments at 65.14% in May 2026, and contributed 36.33% of all inactive members despite representing only 15.39% of total membership. Reactivation accounted for 52.87% of UHC-related cases, indicating that coverage maintenance depends on continuous fiscal intervention. These findings indicate that Semarang City's UHC is administratively sustainable but fiscally vulnerable. Administrative coverage and fiscal sustainability are not equivalent conditions and must be evaluated separately. UHC assessment should therefore incorporate active participation rates, PBPU compliance, reactivation volumes, and local budget capacity alongside coverage indicators.

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INTRODUCTION

The National Health Insurance Program, or Jaminan Kesehatan Nasional (JKN), is Indonesia's main policy instrument for achieving Universal Health Coverage (UHC). Through JKN, the government seeks to ensure that all citizens can access needed health services without facing excessive financial hardship. At the local level, UHC achievement is commonly measured through the proportion of residents registered as JKN participants. Kota Semarang has reached a very high level of UHC coverage, exceeding 98% and approaching full administrative coverage in recent years. This achievement reflects strong local government commitment to expanding health insurance protection. However, high administrative coverage does not automatically indicate that the program is financially sustainable. UHC is not only a matter of how many residents are registered, but also whether participants remain active, whether contributions are collected regularly, and whether public budgets can continue supporting participants whose contribution status becomes unstable.

This issue is particularly important in the segment of Pekerja Bukan Penerima Upah (PBPU), or non-wage workers. PBPU participants generally work in the informal sector and pay their JKN contributions independently. Unlike formal workers whose contributions are deducted through employers, PBPU participants often face irregular income, unstable employment, changing household expenditure priorities, and varying levels of understanding about health insurance benefits. These conditions make PBPU one of the most vulnerable segments in terms of contribution compliance. Previous studies show that compliance among informal and independent JKN participants is influenced by ability to pay, willingness to pay, income, knowledge, perception of benefits, service experience, family size, and perceived fairness of contribution levels (Hidayat et al., 2025; Tsuroyya & Maharani, 2024). Therefore, PBPU non-compliance should not be understood merely as an individual behavioral problem, but also as a reflection of structural economic vulnerability.

In Kota Semarang, the PBPU issue is closely related to the gap between administrative UHC coverage and active participation. When PBPU participants stop paying contributions, their membership status may become inactive. This creates a situation in which a city can report high UHC coverage while still facing a large number of inactive participants. Azzahra and Maharani (2025) found that non-compliance among PBPU participants in Kota Semarang increased significantly, with more than 100,000 non-compliant participants and arrears reaching Rp107.2 billion in 2024. This evidence indicates that PBPU non-compliance is not only a problem of participant discipline, but also a potential fiscal risk for maintaining UHC at the city level.

The fiscal dimension becomes more complex when inactive PBPU participants require reactivation, shift to local government-financed schemes, or accumulate contribution arrears. Local governments may maintain UHC status through APBD-supported financing, but this strategy can increase fiscal pressure if the number of inactive or non-compliant PBPU participants remains high. Studies on JKN financing have emphasized that Indonesia's progress toward UHC still faces challenges related to contribution collection, informal sector participation, deficits, and the sustainability of health financing (Susilo et al., 2025). In this context, the success of UHC should not be assessed only from coverage indicators, but also from active participation rates, PBPU active rates, inactive membership levels, budget trends, and participant movement between financing segments.

The main problem addressed in this research is how low compliance and inactivity among PBPU participants affect the fiscal sustainability of the JKN/UHC program in Kota Semarang. This problem is relevant because local governments are increasingly required to maintain UHC status while managing limited public budgets. If PBPU inactivity continues to grow, the burden of maintaining coverage may shift from individual contributions to public financing. This raises an important policy question, can UHC in Kota Semarang be considered fiscally sustainable if administrative coverage is high but PBPU active participation remains weak?

This study aims to analyze the fiscal sustainability of JKN/UHC in Kota Semarang by examining low compliance and active status among PBPU participants as key risk factors. Specifically, the study seeks to describe UHC achievement and UHC budget development, measure active and inactive PBPU participation, compare PBPU active rates with other JKN segments, examine the relationship between PBPU inactivity and fiscal pressure indicators, and formulate policy implications for strengthening sustainable UHC financing. By doing so, this research contributes to the policy discussion by shifting the focus from UHC as a coverage achievement to UHC as a financially sustainable health financing system.

LITERATURE REVIEW

Universal Health Coverage and Fiscal Sustainability

Universal Health Coverage refers to a condition in which all people can access quality health services without experiencing financial hardship. In Indonesia, JKN serves as the primary mechanism for achieving this goal. However, UHC requires more than formal enrollment. Sustainable UHC depends on the balance between coverage expansion, contribution collection, public subsidy capacity, service utilization, and health system financing. Susilo et al. (2025) argue that Indonesia's progress toward UHC is still constrained by organizational and financing challenges, including deficits, difficulties in collecting contributions from informal workers, and inequality in service capacity. This means that UHC must be analyzed not only through population coverage, but also through financial and operational sustainability.

Fiscal sustainability refers to the ability of a health financing system to maintain its obligations over time without creating excessive budget pressure or weakening service delivery. At the local level, fiscal sustainability becomes especially important because regional governments may use local budgets to cover residents who are not fully protected through other contribution mechanisms. When the number of subsidized, inactive, or reactivated participants increases, local budgets may face growing pressure. Therefore, the sustainability of JKN/UHC at the city level depends on the interaction between administrative coverage, active membership, contribution compliance, and APBD capacity.

Kartika (2025) shows that JKN coverage is influenced by socioeconomic and health system factors, including poverty, PBI participation, and the availability of doctors. This finding is relevant because it highlights that coverage expansion is connected to broader structural conditions. However, coverage indicators alone do not fully explain whether participants are active or whether financing is stable. For this reason, the distinction between administrative membership and active participation is essential. A high UHC achievement rate may conceal a lower active participation rate, especially when many participants are registered but inactive due to unpaid contributions.

PBPU Compliance and Informal Sector Vulnerability

PBPU participants occupy a strategic but vulnerable position in JKN financing. They are expected to contribute independently, yet many work in the informal sector, where income is irregular and uncertain. Hidayat et al. (2025), in a national study of informal sector workers, found that ability to pay and willingness to pay are critical factors influencing contribution compliance. Their findings indicate that the capacity of informal workers to pay JKN premiums is often below the required contribution level. Compliance is also shaped by JKN literacy, perceived risk, experience with catastrophic illness, service utilization, and satisfaction with health services.

This evidence suggests that non-compliance should not be understood simply as low awareness. For many PBPU participants, payment behavior is linked to affordability, household priorities, perceived benefits, and trust in the system. Tsuroyya and Maharani (2024), through a systematic literature review, identified several factors associated with PBPU compliance, including income, perception, motivation, education, knowledge, age, family size, occupation, perceived program benefits, and distance or time required to access payment channels. These factors show that compliance is multidimensional and shaped by both individual and structural conditions.

Studies in different regions show similar patterns. Banjarnahor et al. (2023) found that independent JKN participants in Medan faced compliance barriers such as accumulated arrears, economic constraints, household dependents, premium increases, and perceptions that basic health services could still be accessed through local identification documents. Roza et al. (2024) also found that public perspectives toward JKN premium increases were influenced by income and employment status. These findings strengthen the argument that PBPU compliance is closely connected to affordability and perceived value.

Active Membership, Arrears, and Local Fiscal Pressure

The relationship between PBPU compliance and fiscal sustainability becomes visible when inactive membership and arrears are connected to local financing needs. Azzahra and Maharani (2025) provide the closest empirical reference for Kota Semarang by examining JKN payment compliance among informal PBPU participants in Tlogosari Kulon. Their study reports that non-compliant PBPU participants in Kota Semarang increased from 35.99% in 2022 to 48.36%, or 108,949 people, in 2023, and reached 109,345 people in 2024, with arrears of Rp107.2 billion in 2024. These figures indicate that PBPU non-compliance is not only a behavioral issue but also a potential fiscal risk.

The fiscal risk is especially relevant when local governments maintain UHC status through public financing. Fitria and Puspendari (2024), in their study of PBPU Mandiri participants who shifted to PBPU Pemerintah Daerah in Kota Bengkulu, found that only 202 out of 5,362 participants paid their arrears after shifting segments, with very low receivable collectibility. This finding shows that segment transfer can solve administrative coverage problems but does not automatically resolve outstanding arrears. For Kota Semarang, this is important because PBPU movement to APBD-supported schemes may help preserve UHC coverage while leaving unresolved financial obligations.

Fienlian and Puspendari (2025) examined the Kader JKN program in improving PBPU contribution collectibility and found that collectibility efforts face obstacles related to human resources,

incentives, willingness to pay, and ability to pay. This suggests that improving PBPU compliance requires more than administrative reminders. It requires targeted education, affordability-sensitive policy, effective collection mechanisms, and participant segmentation based on actual economic capacity. Bela (2023) also found that the REHAB program can help participants repay arrears gradually, but its utilization remains limited and requires stronger socialization, monitoring, and evaluation.

Research Gap and Conceptual Position

Existing studies have extensively discussed determinants of PBPU compliance, willingness to pay, ability to pay, and participant perceptions. However, fewer studies directly connect PBPU compliance with fiscal sustainability of UHC at the city level. This research addresses that gap by positioning PBPU inactivity as a fiscal risk indicator, not merely as an individual compliance problem. In Kota Semarang, the key issue is not whether UHC coverage has been achieved administratively, but whether that achievement can be maintained financially when a significant number of PBPU participants are inactive or non-compliant.

The conceptual position of this study is that fiscal sustainability of UHC depends on the alignment between coverage achievement, active participation, contribution compliance, and budget capacity. PBPU becomes the critical segment because it carries a higher risk of inactivity than more institutionally financed groups, such as PBI-APBN, PPU, BP, or PD Pemda. Therefore, analyzing PBPU active rates, inactive rates, participant movement to APBD, reactivation patterns, and UHC budget trends can provide a clearer picture of whether Kota Semarang's UHC is financially sustainable.

Based on the reviewed literature, this research focuses on the proposition that high administrative UHC coverage may not be fiscally sustainable when PBPU inactivity remains high. The study contributes to health financing policy by providing a city-level analysis that links participant compliance behavior with public budget implications. This approach is expected to support more precise policy recommendations for strengthening PBPU collectibility, improving participant retention, managing arrears, and protecting the long-term sustainability of JKN/UHC in Kota Semarang.

METHODS

This study employed a quantitative descriptive-analytic case study design to examine the fiscal sustainability of JKN/UHC in Semarang City. The research object was the JKN/UHC program, with particular attention to the PBPU segment as a potential fiscal risk group. The study used secondary administrative data from the Semarang Health Office and BPJS Kesehatan covering the 2018–2026 period. Records from 2026 were interpreted according to their data status as actual realization, target, or projection.

A census approach was applied by including all available administrative records within the study period. The unit of analysis consisted of annual UHC and budget records, monthly JKN membership records by segment, and weekly records of participant reactivation and transfer to local government-financed schemes. Data were collected through documentation using a structured extraction sheet containing UHC coverage, active participation rate, budget allocation, total membership, active and inactive membership, reactivation, and PBPU transfer indicators.

Data analysis was conducted in six stages: data cleaning and logical verification, descriptive statistics, trend analysis, comparative analysis across membership segments, fiscal ratio analysis, and synthesis of findings. Fiscal sustainability was assessed using indirect indicators, including active participation rate, inactive membership rate, UHC coverage, budget allocation, reactivation numbers, and transfer-to-local-government rates. Correlation analysis was used only as an exploratory tool and was not interpreted as evidence of causality because of the limited number of observations.

RESULTS AND DISCUSSION

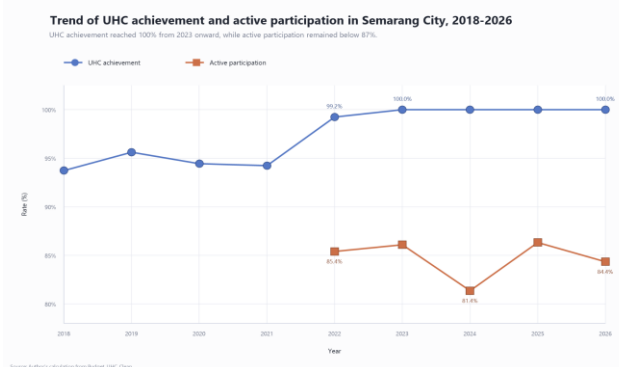
UHC achievement and Active participation

The results show that Semarang City has achieved strong administrative UHC coverage, but this achievement is not fully matched by active participation. As presented in Table 1, UHC achievement increased from 93.73% in 2018 to 99.24% in 2022 and reached 100% from 2023 to 2026. However, the active participation rate remained lower than the UHC achievement rate. Active participation was 85.41% in 2022, increased slightly to 86.10% in 2023, declined to 81.37% in 2024, rose to 86.33% in 2025, and declined again to 84.35% in 2026. This pattern indicates that administrative coverage does not automatically reflect active membership.

Table 1. UHC achievement, Active participation, and UHC budget in Semarang City, 2018-2026

Year	UHC Achievement (%)	Active Participation (%)	UHC Budget (billion IDR)
2018	93.7	-	61.230.002.000
2019	95.6	-	82.637.643.000
2020	94.4	-	128.769.039.000
2021	94.2	-	166.825.951.000
2022	99.2	85.41	69.112.435.000
2023	100	86.10	61.543.406.400
2024	100	81.37	41.393.676.800
2025	100	86.33	91.637.018.740
2026	100	84.35	121.006.248.800

As seen in Figure 1, the gap between UHC achievement and active participation becomes visible after Semarang reached full UHC coverage. While UHC achievement remained at 100%, active participation fluctuated below 87%. This finding supports the argument that UHC should not be evaluated only from population registration, but also from the stability of active participation and health financing capacity (Susilo et al., 2025).



The budget pattern also suggests potential fiscal pressure. Although UHC achievement remained 100% from 2023 onward, the UHC budget increased from IDR 41.39 billion in 2024 to IDR 91.64 billion

in 2025 and IDR 121.01 billion in 2026. This indicates that maintaining UHC status may require increasing local fiscal support, especially when active participation remains below administrative coverage.

PBPU as the main inactive membership risk

The comparison across JKN membership segments shows that PBPU had the lowest active rate among all segments. In May 2026, PBPU recorded 262,313 total members, with 170,869 active members and 91,444 inactive members. The PBPU active rate was 65.14%, much lower than PBI-APBN, PPU, PD Pemda, and BP (see Table 2).

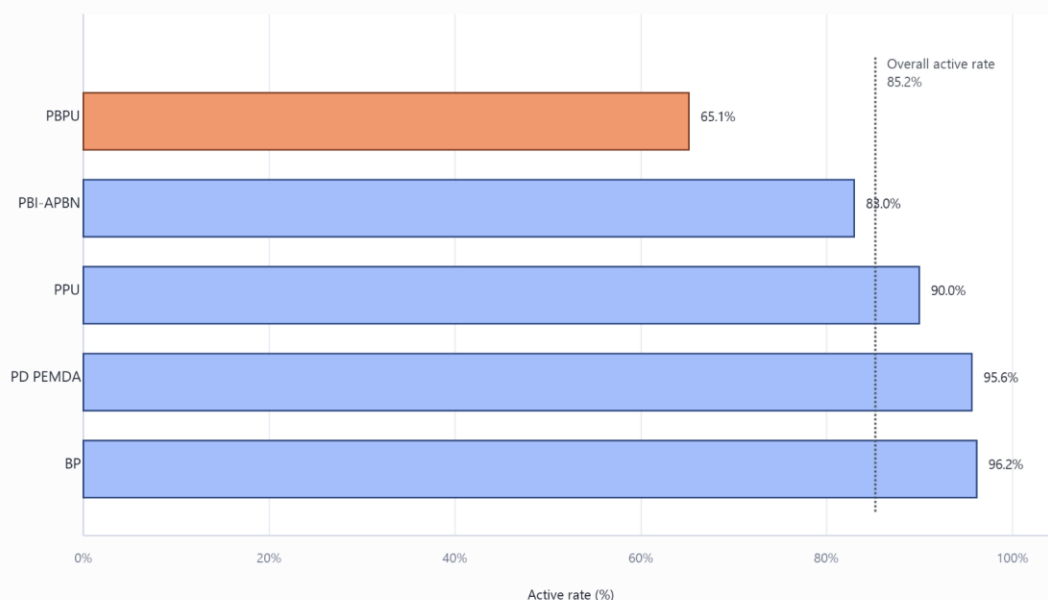
Table 2. JKN membership status by segment in May 2026

Segment	Total members	Active members	Inactive members	Active rate (%)
PBPU	262,313	170,869	91,444	65.14
PBI-APBN	450,192	373,493	76,699	82.96
PPU	712,401	640,815	71,586	89.95
PD Pemda	217,528	207,959	9,569	95.60
BP	62,487	60,083	2,404	96.15

Figure 2 strengthens this finding by showing that PBPU is clearly separated from other segments in terms of active membership. Although PBPU represented only 15.39% of total JKN membership in May 2026, it contributed 36.33% of all inactive members. This disproportionate contribution indicates that PBPU is not merely one of several inactive groups, but the most important fiscal risk segment.

Active rate by JKN membership segment in May 2026

PBPU had the lowest active rate, far below the citywide active membership rate.



This result is consistent with previous studies showing that PBPU and informal sector participants face greater difficulty maintaining regular contribution payments. Hidayat et al. (2025) found that payment compliance among informal workers is influenced by ability to pay, willingness to pay, JKN

literacy, service experience, and satisfaction with services. Tsurayya and Maharani (2024) also identified income, perception, motivation, education, family size, occupation, and access to payment channels as determinants of PBPU compliance. Therefore, the low PBPU active rate in Semarang should be interpreted as a structural financing issue, not only as an individual compliance problem.

PBPU trend and fiscal implications

The monthly PBPU data show that inactivity persisted across the available observation period. In 2025, the average PBPU active rate was 62.71%, with an average of 103,343 inactive PBPU members per month. In January-May 2026, the average active rate improved to 64.03%, while the average number of inactive PBPU members declined to 95,152. However, the level of inactivity remained high.

Table 3. PBPU active status summary, 2025-2026

Period	Average members	total	Average members	active	Average members	inactive	Average active rate (%)
2025 average	277,075		173,732		103,343		62.71
2026 average	264,432		169,280		95,152		64.03
May 2026	262,313		170,869		91,444		65.14

These findings are aligned with Azzahra and Maharani (2025), who reported high PBPU non-compliance in Semarang City and identified substantial arrears among PBPU participants. The present study extends that evidence by showing that PBPU inactivity has associated with increased pressure for UHC fiscal sustainability. If a large proportion of PBPU participants remain inactive, the city may need to rely more heavily on reactivation mechanisms or local-government-financed membership schemes.

Weekly UHC records further indicate that reactivation and transfer activities are important mechanisms for maintaining coverage. Up to the available records before June 2026, there were 2,499 PBPU-to-APBD transfers and 14,536 APBD participant reactivations from 27,495 UHC-related cases. PBPU-to-APBD transfer accounted for 9.09% of total cases, while APBD reactivation accounted for 52.87%. These figures suggest that maintaining UHC coverage requires continuous fiscal and administrative intervention.

This finding is consistent with Fitria and Puspandari (2024), who found that shifting PBPU Mandiri participants to local-government-supported schemes did not automatically resolve arrears. Thus, transfer to APBD can preserve administrative UHC coverage, but it may also shift financial responsibility from individual participants to the local government. Programs such as Kader JKN and REHAB may help improve collectibility, but previous studies show that their effectiveness depends on human resources, incentives, socialization, willingness to pay, and ability to pay (Bela, 2023; Fienlian & Puspandari, 2025).

Overall, the results show that Semarang City has achieved UHC administratively, but fiscal sustainability remains vulnerable. The main risk comes from the gap between full UHC coverage and lower active participation, especially among PBPU participants. PBPU has the lowest active rate, contributes disproportionately to inactive membership, and creates pressure for reactivation or APBD-supported financing. Therefore, UHC sustainability in Semarang should be evaluated not only by coverage achievement, but also by active participation, PBPU collectibility, inactive membership control, and local budget capacity.

CONCLUSION

This study concludes that UHC in Semarang City has been achieved administratively, but administrative achievement and fiscal sustainability are not equivalent conditions. Full UHC coverage has been maintained from 2023 onward, yet active participation fluctuated between 81.37% and 86.33% during the same period, and the UHC budget increased from IDR 41.39 billion in 2024 to IDR 121.01 billion in 2026. These patterns indicate that sustaining administrative coverage requires growing fiscal support, and that the two conditions administrative UHC and fiscal sustainability must be evaluated separately.

The PBPU segment is the principal source of fiscal vulnerability. With an active rate of 65.14% in May 2026, PBPU performed substantially below all other JKN segments. Despite representing only 15.39% of total membership, PBPU accounted for 36.33% of all inactive members. At the operational level, 52.87% of UHC-related cases involved APBD reactivation, and PBPU-to-APBD transfers accounted for 9.09% of cases indicating that maintaining coverage depends on continuous fiscal and administrative intervention rather than stable contribution compliance.

Taken together, these findings suggest that Semarang City's UHC is administratively sustainable but fiscally vulnerable. The vulnerability is structural: it originates from the concentration of inactive membership in a segment characterized by informal employment, irregular income, and limited contribution capacity. This distinction has direct policy implications. Evaluating UHC solely through coverage indicators obscures the fiscal condition underlying that coverage. A more complete assessment must incorporate active participation rates, PBPU active rates, reactivation volumes, segment transfer patterns, and local budget trends.

For policy, the priority should be prevention of PBPU deactivation rather than management of deactivation after it occurs. Given that over 95,000 PBPU members were inactive on average in early 2026, and that reactivation already dominates UHC casework, interventions that reduce initial deactivation through early arrears warning, targeted payment assistance, and ability-to-pay segmentation would reduce both fiscal pressure and administrative burden. Programs such as Kader JKN and REHAB have potential but require stronger evaluation frameworks to determine whether they reduce long-term fiscal exposure or only defer it. Future research should incorporate direct arrears data and qualitative evidence from PBPU participants to distinguish between those who are unable to pay and those who are unwilling to pay, as these two groups require fundamentally different policy responses.

Author Contribution

Conceptualization, M.R.P. and M.A.D.; methodology, M.R.P. and G.S.; software, M.R.P.; validation, M.R.P., M.A.D., G.S., and G.A.A.; formal analysis, M.R.P. and G.S.; investigation, M.R.P. and M.A.D.; resources, M.R.P.; data curation, M.R.P. and G.A.A.; writing original draft preparation, M.R.P.; writing review and editing, M.A.D., G.S., and G.A.A.; visualization, M.R.P. and G.S.; supervision, M.R.P.; project administration, M.A.D. and G.A.A. All authors have read and agreed to the published version of the manuscript.

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Conflict of Interests

The authors declare no conflict of interest.

Data Availability Statement

The data supporting the findings of this study are not publicly available because they are derived from administrative records. The data are available by request to the corresponding author, subject to permission from the relevant institutions.

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