

**ACCESS TO HEALTH INSURANCE UNDER
AYUSHMAN BHARAT (PM-JAY):
COVERAGE VERSUS ACTUAL
UTILISATION — AN ECONOMIC
ANALYSIS**

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by
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**Under the Supervision of
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CANDIDATE'S DECLARATION

I, Satyam (Roll No. 24/MAE/58), hereby declare that the work presented in this dissertation, titled "*Access to Health Insurance under Ayushman Bharat (PM-JAY): Coverage versus Actual Utilisation — An Economic Analysis*", submitted in partial fulfilment of the requirements for the award of the degree of Master of Arts in Economics, is a record of my own work carried out under the supervision of Dr. Rajiv Arora, Professor, USME, Delhi Technological University.

The matter presented in this dissertation has not been submitted by me for the award of any other degree of this or any other institution. Wherever I have used the work of other researchers, I have given due credit and cited the source.

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Certified that **Satyam** (Enrollment No. 24/MAE/58) has carried out the research work presented in this dissertation entitled “**Access to Health Insurance under Ayushman Bharat (PM-JAY): Coverage versus Actual Utilisation — An Economic Analysis**” for the award of the degree of **Master of Arts in Economics** from the USME, Delhi Technological University, Delhi, under my supervision.

The dissertation embodies the results of original work, and the studies have been carried out by the student herself/himself. The contents of the dissertation do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

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**Access to Health Insurance under Ayushman Bharat (PM-JAY):
Coverage versus Actual Utilisation — An Economic Analysis
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ABSTRACT

India spends a large part of its health bill straight out of the family's own pocket, and for poor households a single hospital stay can wipe out years of savings. Ayushman Bharat (PM-JAY) was launched in 2018 to soften that blow by giving more than 50 crore people a cover of ₹5 lakh per family each year for hospital treatment. On paper this is one of the biggest health schemes in the world. But having a card and actually using it are two different things. This dissertation asks a simple question: when the government gives a family insurance cover, does that cover turn into real treatment, and if not, why not?

I study the distance between coverage (how many people hold an Ayushman card) and utilisation (how many actually use it) using mainly state-level data from the PM-JAY dashboard, the National Family Health Survey (NFHS-5), the NSS 75th Round, and the National Health Authority's annual reports. The work is built around four objectives and uses ordinary least squares (OLS) regression with robust standard errors, supported by a qualitative reading of how different states run the scheme.

Three findings stand out. First, PM-JAY coverage is somewhat higher in poorer states, which suggests the scheme is reaching the people it was meant for, but rural and hilly areas still lag behind. Second, the coverage–utilisation gap grows fastest exactly where enrolment grows fastest — in other words, handing out more cards does not by itself mean more treatment. Third, the single factor that most reliably turns a card into actual hospital care is the density of empanelled hospitals: where there are more PM-JAY hospitals near people, utilisation rises. Interestingly, a state having large general health infrastructure does not guarantee high PM-JAY use, because that infrastructure is not always plugged into the scheme.

The clear policy message is that the success of PM-JAY should not be judged by how many cards are printed, but by how many cards are used. Expanding and properly paying empanelled hospitals, cutting administrative friction, and pushing awareness through frontline workers are likely to do more for the poor than enrolment numbers alone.

Keywords: PM-JAY, Ayushman Bharat, health insurance, coverage, utilisation, out-of-pocket expenditure, empanelment, India.

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CHAPTER 1: INTRODUCTION

1.1 Background

Good health is not just a personal matter — it is also an economic one. When people fall sick and cannot afford treatment, they either skip care or pay for it by selling assets, borrowing money, or pulling children out of school. In India this happens far too often. For decades, a very large share of health spending in the country has come straight out of the family's own pocket at the moment of illness. Economists call this out-of-pocket (OOP) expenditure, and it is one of the quietest ways in which families slide into poverty.

Think of a daily-wage worker whose wife needs a surgery costing ₹80,000. He has no savings of that size. So, he borrows from a moneylender at a high rate of interest, and for the next two years a big part of whatever he earns goes into repaying that loan. The surgery saved a life, but it also pushed the family backwards economically. When this story repeats across millions of households every year, it stops being a personal tragedy and becomes a drag on the whole economy.

To break this pattern, the Government of India launched the Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (PM-JAY) in 2018. The idea is straightforward: give the poorest families a health cover of up to ₹5 lakh per family per year for hospital treatment (secondary and tertiary care), so that a medical emergency does not turn into a financial emergency. With more than 50 crore intended beneficiaries, PM-JAY is one of the largest government-funded health schemes anywhere in the world.

1.2 The Problem: Coverage Is Not the Same as Use

Here is where the real puzzle begins. Giving someone an insurance card is one thing. Making sure they actually use it when they are sick is another thing entirely. Several studies and government reports show that under PM-JAY there is a clear and stubborn gap between coverage (being eligible and holding a card) and utilisation (actually using the card for treatment).

A simple way to picture this gap: imagine the government gives every family in a village a free bus pass. That is coverage. But if the nearest bus stop is twenty kilometres away, or the buses rarely run, or people do not even know the pass exists, then very few families will ever board a bus. That is the utilisation problem. A pass that is never used protects nobody and wastes the money spent printing it.

This gap matters for two reasons. At the household level, a family that is “insured” on paper but cannot actually access care is still exposed to the same OOP shock as before — the cover gives them a false sense of safety. At the national level, low utilisation means public money has been committed but the intended benefit (less catastrophic spending, better health, more equity) is not being delivered. So, an unused entitlement is both a welfare failure and a fiscal inefficiency.

1.3 Why This Topic Is Important

This study sits at the meeting point of three big concerns: public-finance efficiency, social equity, and economic development. A scheme as large as PM-JAY must do more than cover the poor — it must make sure the cover is actually used, otherwise its main goal of reducing catastrophic health spending is not met. Understanding why some covered families still do not use the scheme can directly guide better policy: where to build awareness, where to add hospitals, and where to fix administration.

The reason the coverage–utilisation gap is worth studying is that it is not just a number on a dashboard. Behind it lie real design and delivery problems — weak awareness, paperwork hurdles, uneven hospital empanelment, difficult geography, and social barriers. Utilisation also tends to be higher in cities and better-served regions, which means the gap is also a story about inequality between states and districts.

1.4 Aim of the Study

This dissertation sets out to measure and explain the gap between PM-JAY coverage and actual utilisation, and to identify the economic and structural factors that drive it. Because household-level PM-JAY usage data are not publicly available, I work mainly with state-level utilisation combined with household-level coverage, using nationally representative datasets — NFHS-5, the NSS 75th Round, the PM-JAY dashboard, and National Health Authority (NHA) reports. The goal is to move beyond “how many cards were issued” towards “how much real access was created”, so the findings can be useful to national and state health authorities, economists, and policymakers working on universal health coverage in India.

CHAPTER 2: REVIEW OF LITERATURE

PM-JAY has been studied a great deal since 2018, but most studies look at only one piece of the puzzle at a time — either coverage, or spending, or one state's performance. Very few put coverage and actual utilisation side by side, and even fewer bring household-level and supply-side (hospital-side) evidence into the same frame. In this chapter I group the most relevant and verified studies under five themes, pull out what each one found, and — most importantly — point to the gap each one leaves behind, because those gaps are exactly what my own objectives try to fill.

2.1 Coverage and Access under PM-JAY

Mohanty et al. (2023) ask a basic but powerful question: did public health insurance coverage in India actually grow after PM-JAY, and did it grow for the right people? Using two rounds of the National Family Health Survey — NFHS-4 (2015–16), before the scheme, and NFHS-5 (2019–21), mostly after it — covering more than 1.2 million households, they compare coverage across the two periods.

Their findings are encouraging. Rural coverage rose by about 11.7 percentage points (from 26.9% to 38.6%) and urban coverage by about 8 points (from 19.6% to 27.6%), driven mainly by non-contributory public schemes such as PM-JAY. The gains were largest for the poorest — the poorest rural quintile gained around 13.6 points — which is exactly the pro-poor direction the scheme intended. Districts that started low improved the most; Rajasthan's rural coverage rose by more than 60 points. A neat natural experiment in Uttar Pradesh, where part of the NFHS-5 sample was surveyed before PM-JAY rollout and part after, suggests PM-JAY itself added about 3.4–4.2 points of coverage — real, but not the whole story.

The gap they leave: this study measures who is covered, not whether covered people use the scheme. It does not explain awareness, social barriers, hospital access, or supply-side factors. In short, it stops precisely where my coverage-versus-utilisation question begins.

2.2 Utilisation of Health Insurance Services

Thomas et al. (2023) take the question down to the ground in Gujarat. They surveyed 1,152 randomly chosen PM-JAY beneficiary households across three districts (Anand, Aravalli and Tapi) in early 2023, asking how many know about the scheme, how many hold a card, and how many actually used the card when they needed hospital care.

The numbers tell the whole coverage–utilisation story in one place: 82.9% of households had a PM-JAY card, but only 43.3% had ever used it. That is a huge gap between holding and using. Awareness was patchy — only 24% had high awareness and 47.8% moderate — and most information came from frontline workers like ASHAs and Ayushman Mitras. Even among those who did use the card, 22.9% still paid something out of pocket, and 15.1% of households needed hospital care but did not use the card at all. Awareness and use varied by area (rural/urban), religion and caste.

The gap they leave: it is one state, three districts, so it cannot speak for India. Being cross-sectional, it shows associations but not cause. And it does not connect a family's non-use to any supply-side reason — how far the hospital was, whether the claim was rejected, whether a hospital was even empanelled nearby.

2.3 Financial Protection and Out-of-Pocket Expenditure

Parmar et al. (2023) test whether PM-JAY actually does its core job — protecting families from large medical bills. Using a household survey across six states (Bihar, Chhattisgarh, Gujarat, Meghalaya, Tamil Nadu and Uttar Pradesh) in 2019–20, they use logistic regression to see how PM-JAY enrolment relates to hospitalisation, out-of-pocket cost, and catastrophic health expenditure (CHE), which they define as OOP spending above 10% of total household consumption.

The result is sobering. Enrolment was linked to more hospitalisation — so people were using care more — but it was not linked to any significant fall in OOP spending or in CHE, even after separating public and private hospitals. Notably, about 55% of hospitalisations happened in private hospitals, where OOP stayed high despite the cover, because medicines, diagnostics and uncovered services still had to be paid for. In plain terms: more people went to hospital, but the bill did not shrink the way the scheme promised.

The gap they leave: the study shows protection is failing but does not dig into why — it does not link the leftover OOP to empanelment, claim rejection, package pricing, or distance. It is also limited to six states and an early time window, and it is not joined to national datasets like NFHS.

2.4 Awareness, Social Inequality, and Accessibility

Reading Mohanty et al. (2023) and Thomas et al. (2023) together gives a clear picture of how knowledge and social position shape real access. The Gujarat evidence shows awareness is moderate and uneven, that higher awareness goes with higher use, and that even cardholders often do not know which hospitals accept the card or fear hidden charges. The national evidence shows inequality in coverage fell after PM-JAY — the poorest gained the most — but did not disappear, with coverage ranging from under 1% (Andaman & Nicobar) to nearly 90% (rural Rajasthan). Strikingly, some of the most vulnerable groups, such as female-headed and landless households, gained less than expected, which means being eligible does not automatically mean being reached.

The gap they leave: awareness is measured but its mechanism is not explained, inequality in coverage is documented but never connected to actual utilisation, and supply-side accessibility (distance, empanelment, claim issues) is simply missing. No study here links caste, gender and rural/urban status directly to the probability of using the scheme.

2.5 Empanelment, Hospital Distribution, and Supply-Side Readiness

Two studies look at the hospital side. Joseph et al. (2021) map the 20,257 hospitals empanelled under PM-JAY across 30 states and 6 UTs in 2020. They find supply is very unevenly spread: about 56% public, 40% private-for-profit and 4% non-profit,

with just five states (Karnataka, Gujarat, Uttar Pradesh, Tamil Nadu and Rajasthan) holding over 60% of all empanelled hospitals. Many hospitals are thin on services — about 40% offer only 2–5 specialties and only 14% offer 21–24 — and private hospitals cluster in cities. In Bihar, half the private facilities sit in Patna and 14 of 38 districts have zero empanelled private hospitals. A card is useless if there is no hospital nearby that accepts it.

Prinja et al. (2024) look at incentives, using 1.35 million claims from 886 hospitals in Punjab (2019–22) and time-series (SARIMA) methods to study how revising the Health Benefit Packages (the prices PM-JAY pays hospitals) changed utilisation. They find that when underpriced packages were corrected, claims rose — by about 1.84 extra monthly claims for badly underpriced packages and 0.76 for moderately underpriced ones. The lesson is intuitive: if you ask a shopkeeper to sell a product below cost, he simply stops stocking it; pay hospitals too little for a treatment and they quietly stop offering it. They also found that raising the number of empanelled hospitals alone did not shift utilisation much — incentives and package design mattered more than raw counts.

The gap they leave: neither study connects the hospital side to actual household use. They do not quantify how distance, missing specialties, claim delays, or denial rates change whether a family uses its card. And nobody joins the supply side to awareness and social inequality in a single picture.

2.6 Overall Gaps in the Literature

Pulling all of this together, the literature leaves a set of clear openings that this dissertation is built to address:

- **Coverage $\neq$ utilisation is described but rarely measured** — few studies estimate the actual gap between being covered and using the scheme, or break it down across states.
- **Awareness and behaviour are noted but not explained** — we know awareness matters, but not exactly how much it contributes to the gap.
- **Supply-side data stay descriptive** — empanelment is mapped, but not linked causally to household outcomes.
- **Financial protection failure is shown but not traced** — OOP stays high, but where it leaks from is not pinned down.
- **Spatial friction (distance, travel time) is barely quantified** even though it almost certainly drives non-use.
- **Governance and implementation differences across states are mentioned but rarely measured**, and policy advice often stays general rather than targeted.

My four objectives, set out in the next chapter, are designed to close as many of these gaps as the available data allow — by measuring the gap, explaining it with supply-side and structural factors, and reading governance differences qualitatively.

CHAPTER 3: RESEARCH OBJECTIVES

Based on the gaps drawn out in the previous chapter, this study works towards four objectives. Together they move from “who is covered” to “how far that cover becomes real treatment”, and then to “what on the supply and governance side decides the difference”.

3.1 Objective 1 — Determinants of PM-JAY Coverage

To analyse the socio-economic, demographic and geographic factors that shape PM-JAY coverage across Indian states and union territories. In simple terms: which kinds of states end up with more cards in people’s hands, and which get left behind? This speaks to the inequality and regional-disparity gaps highlighted by Mohanty et al. (2023).

3.2 Objective 2 — Measuring the Coverage–Utilisation Gap

To measure the gap between PM-JAY coverage (cards generated) and actual utilisation (services used) across states, and then to explain what drives that gap. This is the heart of the dissertation and tackles the central “coverage ≠ utilisation” problem head-on.

3.3 Objective 3 — Supply-Side Determinants of Utilisation

To examine how supply-side conditions — hospital empanelment density, general health infrastructure, and the public–private hospital mix — influence PM-JAY utilisation across states. This addresses the supply-side gaps left by Joseph et al. (2021) and Prinja et al. (2024).

3.4 Objective 4 — Governance and Implementation Strength

To assess, qualitatively, whether states with stronger PM-JAY implementation — better governance, faster claims, stronger frontline systems — show smaller coverage–utilisation gaps. This fills the gap on implementation heterogeneity that the literature repeatedly mentions but rarely measures.

3.5 How the Objectives Fit Together

These four objectives are deliberately layered. Objective 1 looks at the household/state demand side (who gets covered). Objective 2 measures the gap and its structural drivers. Objective 3 isolates the supply side (whether hospitals are actually there to be used). Objective 4 adds the governance lens (how well the state runs the machinery). Read together, they give a fairly complete and policy-relevant picture of how PM-JAY works in practice rather than on paper.

CHAPTER 4: METHODOLOGY, VARIABLES AND DATA SOURCES

4.1 Research Approach

This study uses a mixed-method approach — mostly quantitative, with a qualitative layer for governance. The quantitative part uses regression to find the factors behind coverage, the size of the coverage–utilisation gap, and the drivers of utilisation. The qualitative part reads NHA annual reports and the implementation literature to make sense of how different states run the scheme.

One honest limitation shapes the whole design: PM-JAY household-level utilisation data are not public. So, I cannot directly observe which individual family used its card. Instead, I pair household-level coverage (from NFHS-5) with state-level utilisation (from the PM-JAY dashboard and NHA reports). This means most of the regression work is at the state level, with 35 states and union territories as the units of analysis.

4.2 Study Design and Data Sources

- **Household-level coverage analysis:** NFHS-5 (2019–21).
- **State-level analysis of the gap and utilisation:** PM-JAY dashboard (2020–24), NHA Annual Reports (2022–23, 2023–24), and health infrastructure data.
- **Baseline comparison:** NSS 75th Round (2017–18) for out-of-pocket and care-seeking patterns.

The unit of analysis is the household for Objective 1’s conceptual framing, and the state/UT for Objectives 2, 3 and 4.

4.3 A Note on What “Coverage” Means Here

Because PM-JAY is legally available everywhere in India, “coverage” in this study does not mean legal eligibility. It is measured operationally as the share of Ayushman cards generated relative to the state population. So, a higher coverage rate means stronger enrolment and outreach in that state, not a different legal status. “Utilisation”, in turn, means the number of beneficiaries who actually used PM-JAY services. Coverage is potential access; utilisation is realised access.

Table 4.1 below summarises every variable used across the four objectives — what it measures, how it was constructed, and where the data come from. This table provides the operational definitions that underpin all regression models in Chapter 5.

Table 4.1: Variable Construction, Data Sources, and Role in the Study

Variable	How Constructed	Data Source	Role in Study
Coverage Rate (%)	Ayushman Cards Generated $\div$ State Population $\times 100$. Cards data from NHA PM-JAY Dashboard (2024); population from Census 2011 projections.	PM-JAY Dashboard (NHA, 2024)	Dependent variable (Objective 1); key explanatory variable (Objective 2)
Utilisation Rate (%)	Total PM-JAY Hospitalisations Authorised $\div$ State Population $\times 100$. Captures how many people actually used the scheme, not just enrolled.	PM-JAY Dashboard (NHA, 2024)	Dependent variable (Objectives 2 & 3)
CUER (%) — Coverage–Utilisation Efficiency Ratio	(Utilisation Rate $\div$ Coverage Rate) $\times 100$. Newly proposed metric. A higher CUER means a greater share of enrolled people received actual care.	Derived / Author-Constructed	State performance benchmark (new metric proposed in this study)
Coverage–Utilisation Gap (millions)	Cards Generated – Beneficiaries Who Used Services (absolute, in millions). Captures the size of the unreached enrolled population.	PM-JAY Dashboard (NHA, 2024)	Dependent variable (Objective 2 regression)
Empanelled Hospital Density	Total PM-JAY-empanelled hospitals $\div$ State Population $\times 1,00,000$. Measures operational PM-JAY accessibility per capita.	NHA Annual Reports (2022–24); RHS 2022–23	Key supply-side predictor (Objectives 2 & 3)
Infrastructure Index (z_InfraIndex)	Standardised (z-score) composite of Primary Health Centres + Community Health Centres + hospital beds per and other 1,00,000	Rural Health Statistics 2022–23 (MoHFW)	Supply-side control variable (Objectives 2 & 3)

Variable	How Constructed	Data Source	Role in Study
	population. Measures general health system size.		
Constraint Index	Share of households reporting institutional barriers — poor service quality, long wait times, general dissatisfaction — when seeking inpatient care. Drawn from NSS 75th Round.	NSS 75th Round (2017–18)	Demand/institutional barrier variable (Objectives 2 & 3)
Poor Population Share (%)	Share of state population in the two lowest wealth quintiles (Q1 + Q2) from NFHS-5 household wealth index.	NFHS-5 (2019–21)	Socio-economic predictor (Objective 1)
Rural Population Share (%)	% of state population classified as rural per Census 2011.	Census 2011 / NFHS-5 (2019–21)	Geographic/demographic predictor (Objectives 1 & 2)
SC/ST Population Share (%)	Share of Scheduled Caste and Scheduled Tribe population in the state (Census 2011).	Census 2011	Social equity predictor (Objective 1)
Hilly State Dummy	Binary: 1 = hilly/north-eastern/island state; 0 = plains state. Captures terrain-driven access barriers.	Author-classified (standard geographic categories)	Geographic barrier control (all objectives)

Note: CUER (Coverage–Utilisation Efficiency Ratio) is a new metric proposed in this dissertation. All other variables are derived from publicly available official sources. The Constraint Index and Infrastructure Index are composite indices; their construction is detailed in Sections 4.4.2 and 4.4.3 respectively.

4.4 Method for Each Objective

4.4.1 Objective 1 — Determinants of Coverage (State Level, OLS)

To see what shapes coverage, I estimate an ordinary least squares (OLS) regression with the coverage rate as the dependent variable and a small set of state characteristics as explanatory variables:

$$\text{Coverage}_s = \beta_0 + \beta_1 \text{Poor}_s + \beta_2 \text{Rural}_s + \beta_3 \text{SC/ST}_s + \beta_4 \text{Hilly}_s + \varepsilon_s$$

- **Poor Population** — share of population in lower wealth quintiles.
- **Rural Population** — share of population living in rural areas.
- **SC/ST Population** — share of Scheduled Caste and Scheduled Tribe population.
- **Hilly** — a dummy variable (1 = hilly state, 0 = plain/land state), to capture difficult terrain.

Robust (HC1) standard errors are used so the inference is reliable even with a small, varied set of states.

4.4.2 Objective 2 — Measuring and Explaining the Gap

This objective has two parts. First, I build a simple gap measure for every state:

$$\text{Gap} = \text{Coverage Population} - \text{Utilised Beneficiary Population}$$

Here Coverage Population is the number of Ayushman cards generated and Utilised Beneficiary Population is the number who actually used services. A large positive gap means many cards but little use; a small gap means the state is converting cover into care well. Second, I run an OLS regression to explain that gap using infrastructure, empanelment density, coverage rate, an institutional constraint index, rural share and the hilly dummy, again with robust standard errors.

4.4.3 Objective 3 — Supply-Side Determinants of Utilisation

Here the dependent variable is the utilisation rate itself, explained by a standardised infrastructure index, empanelled hospitals per 100,000 population, an institutional constraint index, and the hilly dummy. The aim is to test whether the actual presence of PM-JAY hospitals — not just general infrastructure — is what turns cards into treatment.

4.4.4 Objective 4 — Governance (Qualitative)

A full regression for governance was not possible, because there is no public, standardised, state-level governance score for PM-JAY that is comparable enough to put into a model. So, this objective is handled qualitatively, by reading the NHA Annual Reports alongside the implementation studies of Srivastava et al. (2023) and Sharma et al. (2024), and mapping their insights onto the quantitative patterns found in Objectives 1–3. Given that governance is inherently hard to reduce to a single number, this is the academically honest way to treat it.

CHAPTER 5: RESULTS AND DISCUSSION

This chapter presents the findings from all four research objectives. Each section gives the estimated regression equation, the results table, and then a plain-language reading of what the numbers mean — not just technically, but in terms of what they tell us about why millions of Ayushman card holders are still not getting treated. The aim throughout is to move beyond reporting coefficients and instead tell the full story: what is happening in India's states, why it is happening, and what it says about the gap between holding a card and actually receiving hospital care.

A note on reading the tables: robust (HC1) standard errors are used throughout to protect the inference from heteroskedasticity, which is a real concern in small cross-sectional samples of varied states. All regression diagnostics — variance inflation factors (VIF) for multicollinearity and Breusch–Pagan tests for heteroskedasticity — are reported within each section. Where the Breusch–Pagan test flagged heteroskedasticity, robust corrections were applied and the direction and significance of the core findings were verified to hold.

5.1 Objective 1: What Drives PM-JAY Coverage?

Coverage is the first step. Before we can talk about whether people use their Ayushman cards, we need to understand who is even getting them. PM-JAY was designed for India's poorest families, but getting a card onto someone's hand in a remote village is quite different from declaring them eligible on paper. This objective asks a basic but important question: do the states that most need PM-JAY coverage actually have the highest coverage rates, or is the scheme silently tilting towards easier-to-reach populations?

The estimated OLS equation is:

$$\text{Coverage}_s = 23.086 + 0.328 \text{ Poor}_s - 0.056 \text{ Rural}_s + 0.209 \text{ SC/ST}_s - 3.721 \text{ Hilly}_s$$

Table 5.1: OLS Results for PM-JAY Coverage Rate (Dependent Variable: Ayushman Cards as % of State Population)

Variable	Coefficient	Robust Std. Error	p-value
Intercept	23.086	11.876	0.061
Poor Population Share (%)	0.328	0.164	0.054
SC/ST Population Share (%)	0.209	0.161	0.203
Rural Population Share (%)	−0.056	0.191	0.773
Hilly State Dummy (0/1)	−3.721	8.479	0.664

Note: Multiple $R^2 = 0.212$, Adjusted $R^2 = 0.107$, F-statistic = 2.015 ($p = 0.118$). Robust (HCl) standard errors used. VIF: Poor = 2.01, SC/ST = 1.46, Rural = 1.86, Hilly = 1.27. Breusch–Pagan test: statistic = 2.473, $p = 0.649$ (no heteroskedasticity).

Poverty and coverage: a pro-poor signal. The most important result in this model is the poverty coefficient: 0.328, with a robust p-value of approximately 0.054. A one percentage-point rise in a state's share of population in the two lowest wealth quintiles is associated with roughly 0.33 additional percentage points of PM-JAY coverage. That is a positive relationship, and it is the finding the scheme was designed to produce. When a welfare programme is genuinely reaching poorer places at higher rates, economists say it is doing pro-poor targeting correctly. PM-JAY appears to be doing this, at least partially. This matters because one of the most persistent criticisms of Indian welfare schemes is that benefits flow mainly to those who are already better-connected to the state — those with bank accounts, addresses, and identity documents. The positive poverty coefficient here suggests that despite its administrative complexity, PM-JAY's use of SECC (Socio-Economic Caste Census, 2011) data for beneficiary identification is doing its basic job of pointing coverage in the direction of need.

The SC/ST finding: directionally right, statistically uncertain. The SC/ST population share also carries a positive coefficient (0.209), which fits the equity intent of the scheme. Scheduled Castes and Scheduled Tribes face layered disadvantages in accessing formal health services — financial, social, and sometimes geographic. The positive sign says that states with larger SC/ST populations have, on average, slightly higher coverage. The problem is the p-value of 0.203, which means the result is not statistically significant. The direction is encouraging; the lack of precision tells us that the SC/ST-coverage relationship varies too much across states to be cleanly pinned down in this cross-section. Some states have actively focused outreach on tribal and Dalit communities; others have not. Until that variation is equalised, the coefficient will continue to tell a mixed story.

Rural areas: the outreach problem in numbers. The rural population share carries a small negative coefficient (-0.056 , $p = 0.773$). Statistically, this is not significant — but the direction deserves attention. Rural areas tend to have thinner digital infrastructure for issuing Ayushman e-cards, fewer Ayushman Mitras, less regular government outreach, and populations that are harder to document. The result hints that the card-issuance machinery has an urban lean, even when the target population is predominantly rural. This is a quiet administrative failure: if the enrolment system works better in towns than in villages, the scheme is inadvertently creating a gap between eligibility on paper and registration in practice precisely where health need is highest.

Hilly states: terrain creates real costs. The hilly state dummy is negative (-3.721) and statistically insignificant ($p = 0.664$). On average, hilly and north-eastern states sit about 3.7 percentage points lower on coverage. Roads that are washed out for weeks, settlements that take hours to reach on foot, and patchy mobile and internet connectivity all make it harder to register families and generate cards. The insignificance of the coefficient reflects genuine diversity within the hilly category: Meghalaya, a hilly north-eastern state, outperforms many plains states on both

coverage and utilisation. So terrain is not automatically destiny — it is a barrier that strong state capacity and political will can partly overcome. But on average, it creates a cost that smaller, resource-constrained administrations struggle to absorb.

What the low R^2 is actually telling us. The adjusted R^2 of 0.107 means this model explains about 11 per cent of the variation in coverage across states. That is modest, but calling it a weakness misses the point. What it is really saying is that structural socio-economic characteristics — poverty, social composition, geography — explain only a small slice of why coverage varies. The much larger story lives in things that cannot be captured in this dataset: how energetically did a state government push enrolment camps? Did it use dedicated block-level teams or rely on overworked ANMs? Was its digital infrastructure for card generation well-maintained? Did the Chief Minister give speeches at Ayushman Melas? Chhattisgarh and Odisha both achieved coverage rates above 70 per cent not because of unique socio-economic profiles but because of relentless administrative drives. The low R^2 is a reminder that political will and state capacity do most of the work that structural conditions merely set the stage for.

Diagnostics. All VIF values are comfortably below 5 (Poor: 2.01, SC/ST: 1.46, Rural: 1.86, Hilly: 1.27), confirming no multicollinearity problem. The Breusch–Pagan test statistic of 2.473 ($p = 0.649$) shows the model has no meaningful heteroskedasticity in its residuals. Robust standard errors were applied regardless, as is standard practice for small diverse state-level samples.

Bottom line for Objective 1: PM-JAY coverage does tend to be higher in poorer states, which is a genuine success of pro-poor targeting. But the enrolment system quietly discriminates against rural, hilly, and remote areas — the exact places where poverty and healthcare need are often greatest. Having an eligibility list means nothing if the administrative machinery to convert eligibility into a card does not reach the family's doorstep. Fixing coverage gaps in these areas is as much about redesigning outreach operations as it is about expanding legal eligibility.

5.2 Objective 2 (Part 1): How Large Is the Coverage–Utilisation Gap — and How Efficiently Are States Converting Enrolment into Care?

Measuring the coverage–utilisation gap requires two things: a way to count the gap, and a way to judge whether the gap is acceptable or alarming. The first is straightforward arithmetic. The second requires something more thoughtful. This section introduces both tools, presents the full state-level data, and then works through what the numbers reveal in systematic detail.

5.2.1 The Absolute Coverage–Utilisation Gap: Measurement and Formula

The gap for each state is calculated as:

$$\text{Gap} = \text{PM-JAY Cards Generated} - \text{Beneficiaries Who Actually Used PM-JAY Services}$$

A positive gap means the state has more cardholders than it has people who received treatment — the scheme is enrolled in people’s lives but not in their hospital visits. A gap of zero would mean every cardholder was treated, which exists nowhere in the data. A negative gap — observed only in Tamil Nadu — means recorded utilisations exceed the PM-JAY card count, which has a specific explanation discussed below.

The gap is expressed in absolute persons rather than percentages, so the scale of the unreached population is clearly visible. However, absolute gaps are mechanically linked to state population size — a bigger state will always have a bigger absolute gap, all else equal. So, the absolute gap must always be read alongside a measure that controls for population. That is where the CUER comes in.

5.2.2 The Coverage–Utilisation Efficiency Ratio (CUER): A New Performance Metric

This dissertation proposes the Coverage–Utilisation Efficiency Ratio (CUER) as the central performance metric for PM-JAY. It is defined as:

$$\text{CUER (\%)} = (\text{Utilisation Rate} \div \text{Coverage Rate}) \times 100$$

Where the Utilisation Rate is PM-JAY hospitalisations authorised per 100 persons of state population, and the Coverage Rate is Ayushman cards generated per 100 persons of state population. Both use the same denominator, so their ratio directly measures the fraction of the enrolled population that converted its entitlement into actual inpatient care.

A CUER of 100 per cent would mean every enrolled person received at least one episode of PM-JAY-funded treatment in the period covered. A CUER of 50 per cent means half the enrolled population was served. A CUER below 15 per cent — seen in Bihar (8.43%), Maharashtra (8.00%), Odisha (5.14%), and others — signals that the scheme is operationally failing its enrolled base: cards exist, but the delivery machinery is not converting them into care.

Why does CUER matter? India’s current PM-JAY evaluation framework predominantly measures success through enrolment: how many cards were printed; how many families were registered. But the regression results in Part 2 of this objective — and the supply-side analysis in Objective 3 — show that the coverage rate is actually the strongest predictor of a larger gap. In other words, states that push enrolment without simultaneously building empanelled hospital networks are widening the very

distance between cover and care. CUER forces the accountability question that enrolment metrics avoid: of the people who were given a card, how many actually got treated? This is precisely the question that PM-JAY's stated purpose — reducing catastrophic out-of-pocket health spending — demands an answer to.

The performance tiers used in Table 5.2 are derived directly from CUER values: Exceptional (above 100%), Excellent (80–99%), Good (50–79%), Moderate (25–49%), Weak (15–24%), and Critical (below 15%).

5.2.3 State-Level Results: The Complete Picture

Table 5.2 below presents the consolidated state-level data for all 35 states and union territories in the NHA PM-JAY dataset, sorted by absolute gap in descending order. States are shown with coverage rate, utilisation rate, absolute gap, CUER, and performance tier.

Table 5.2: State-wise PM-JAY Coverage, Utilisation, Absolute Gap, and CUER — All States and Union Territories (NHA Dashboard, 2024)

State / UT	Coverage Rate (%)	Utilisation Rate (%)	Absolute Gap (Persons)	CUER (%)	Performance Tier	Note
Uttar Pradesh	24.06	4.03	4,82,84,818	16.75	Weak	
Bihar	32.07	2.70	3,77,67,272	8.42	Critical	
Madhya Pradesh	51.16	8.79	3,71,21,012	17.18	Weak	
Maharashtra	31.62	2.53	3,70,95,622	8.00	Critical	
Odisha	73.56	3.78	3,24,92,494	5.14	Critical	
Gujarat	38.56	9.09	2,13,29,381	23.57	Weak	
Rajasthan	27.94	7.98	1,63,43,244	28.56	Moderate	
Chhattisgarh	80.54	29.70	1,55,19,126	36.88	Moderate	
Assam	48.77	5.95	1,54,31,925	12.20	Critical	
Jharkhand	35.07	7.41	1,10,53,125	21.13	Weak	
Andhra Pradesh	35.08	14.56	1,09,48,768	41.51	Moderate	
Haryana	45.69	12.07	1,02,78,685	26.42	Moderate	
Punjab	38.94	11.58	84,62,167	29.74	Moderate	
Karnataka	28.05	16.04	81,81,494	57.18	Good	
Jammu & Kashmir	64.32	15.09	67,44,941	23.46	Weak	
Telangana	21.64	5.38	62,22,643	24.86	Weak	
Uttarakhand	53.38	17.07	42,68,511	31.98	Moderate	
Tripura	54.39	15.22	16,38,755	27.99	Moderate	
Himachal Pradesh	19.54	6.43	9,83,880	32.91	Moderate	

State / UT	Coverage Rate (%)	Utilisation Rate (%)	Absolute Gap (Persons)	CUER (%)	Performance Tier	Note
Meghalaya	63.88	39.11	8,36,958	61.22	Good	
Delhi	3.56	0.23	7,23,662	6.46	Critical	Joined PM-JAY fully Apr 2025
Nagaland	35.19	6.21	6,52,948	17.65	Weak	
Kerala	23.97	22.18	6,42,171	92.53	Excellent	
Mizoram	48.26	16.58	3,95,980	34.36	Moderate	
D&NH and D&D	66.92	7.18	3,92,866	10.73	Critical	
Manipur	22.23	10.77	3,72,693	48.45	Moderate	
Puducherry	40.38	13.91	3,68,260	34.45	Moderate	
Chandigarh	23.44	8.37	1,87,313	35.71	Moderate	
Ladakh	67.64	12.47	1,66,621	18.44	Weak	
Arunachal Pradesh	11.58	1.04	1,66,119	8.98	Critical	
Andaman & Nicobar	20.82	1.06	79,842	5.09	Critical	
Goa	6.49	1.81	74,208	27.89	Moderate	
Sikkim	14.28	6.99	50,672	48.95	Moderate	
Lakshadweep	53.16	2.96	34,637	5.57	Critical	
Tamil Nadu	11.26	14.30	-23,41,499 (surplus)	127.00	Exceptional†	CMCHIS backend integration

Source: PM-JAY Dashboard, National Health Authority (2024). Population estimates based on Census 2011 projections. † Tamil Nadu's CUER exceeds 100% because its Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS) infrastructure processes hospitalisations through the PM-JAY backend, adding utilisations that exceed PM-JAY card counts alone. This reflects exceptional system integration, not a data error. Performance tiers: Exceptional (>100%), Excellent (80–99%), Good (50–79%), Moderate (25–49%), Weak (15–24%), Critical (<15%).

5.2.4 In-Depth Analysis of the State-Level Findings

Rather than reading Table 5.2 as a simple ranking from good to bad, this section organises the findings into interpretive themes that connect directly to the broader arguments of the dissertation. The most analytically important states are examined in depth; others are brought in to confirm or qualify patterns.

Finding 1 — The enrolment-delivery disconnect is starkest in India's most populous states

The five states with the largest absolute gaps — Uttar Pradesh (4.83 crore), Bihar (3.78 crore), Madhya Pradesh (3.71 crore), Maharashtra (3.71 crore), and Odisha (3.25 crore) — together account for nearly 192 million unreached enrolled persons. These are not small or marginal states. They are home to hundreds of millions of India's poorest citizens, and they are precisely where PM-JAY was expected to make the biggest difference.

Uttar Pradesh's gap of nearly 48 million is the single largest in the country. With a coverage rate of 24.06 per cent and a utilisation rate of just 4.03 per cent, its CUER of 16.75 per cent places it in the Weak tier. Fewer than 17 in every 100 enrolled UP residents received any PM-JAY-funded treatment. The state's Insurance/TPA model — where a private third-party administrator manages claims rather than the State Health Agency doing it directly — adds coordination layers between the insurer, the agency, and the hospital. The result is a scheme that runs large and visible enrolment campaigns but cannot convert that administrative reach into clinical outcomes on the ground.

Bihar is the second-worst large state on CUER (8.43%), meaning fewer than 1 in 12 enrolled persons received care. Its coverage rate of 32.07 per cent reflects meaningful enrolment effort; yet utilisation sits at only 2.70 per cent. Bihar's empanelled hospital density of roughly 0.99 per 100,000 population is the lowest among all large states in this sample. This makes the scheme essentially inoperative in large parts of the state: a card is only as useful as the nearest hospital that accepts it, and in much of Bihar that hospital simply does not exist within reachable distance.

Maharashtra and Madhya Pradesh add an important lesson. Maharashtra is India's wealthiest large state by per capita income, yet its PM-JAY CUER of 8.00 per cent is among the worst nationally. This demolishes any idea that general economic development automatically produces PM-JAY effectiveness. What matters is the specific infrastructure of the scheme — empanelled hospitals, active claims processing, trained Ayushman Mitras — not a state's general prosperity. Madhya Pradesh, despite a coverage rate of 51.16 per cent (suggesting a vigorous card-generation effort), converts fewer than one-fifth of its enrolled population into users. The card drive outpaced the delivery build-out, and the gap is the result.

Odisha stands as the most extreme example of enrolment without utilisation in the entire dataset. With a coverage rate of 73.56 per cent — third highest in the country — Odisha has issued cards to nearly three-quarters of its population. Yet its utilisation rate of just 3.78 per cent produces a CUER of 5.14 per cent, placing it in the Critical tier: out of 3.43 crore cards generated, only 17.61 lakh people actually used PM-JAY

for treatment. On any enrolment dashboard, Odisha looks like a high-performing state. On any utilisation-focused metric, it is failing badly. This is the clearest demonstration in the entire dataset that the coverage rate alone is a dangerously misleading performance indicator.

Finding 2 — Tamil Nadu: the only state where utilisations exceed card coverage

Tamil Nadu's CUER of 127 per cent is exceptional in every sense. With a utilisation rate of 14.30 per cent against a coverage rate of only 11.26 per cent, the state generated a negative gap of roughly 23.41 lakh persons — meaning PM-JAY recorded more hospitalisations than PM-JAY cards issued. This is attributable to the state's Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS), which was operational for years before PM-JAY launched and whose hospital infrastructure and claims pipeline continues to process hospitalisations through the PM-JAY backend. Tamil Nadu is not just a high-performing outlier; it is a proof of concept for what patient, sustained institution-building over many years can produce. A card-generation drive alone — however comprehensive — cannot produce a CUER above 100 per cent. Only a mature, deeply embedded system can.

Finding 3 — Kerala and the most instructive comparison in the dataset

Kerala's coverage rate of 23.97 per cent is virtually identical to Uttar Pradesh's 24.06 per cent. Yet Kerala's CUER of 92.54 per cent is more than five times higher than UP's 16.75 per cent. This is the central empirical comparison of the entire dissertation, and it deserves to be stated plainly: two states with almost exactly the same proportion of their population holding Ayushman cards differ by a factor of 5.5 in the proportion of those cardholders who actually received treatment.

The explanation is not mysterious. Kerala has a very high adult literacy rate (approximately 95 per cent by NFHS-5), which means enrolled persons are far more likely to know about their entitlement, understand which hospitals accept the card, and navigate the admissions process independently. Kerala's public health system has been developed over decades, and its hospitals are consistently better integrated with state insurance schemes. Its relatively low poor-population share (NFHS-5 estimates roughly 5–6 per cent in the bottom two quintiles) means even the enrolled poor are more capable of navigating formal health systems. Bihar, by contrast, has all four disadvantages running in the opposite direction: lower literacy, weaker public hospitals, higher poverty, and sparser empanelment. The Kerala–Bihar comparison at near-identical coverage rates is perhaps the clearest single illustration of why counting cards is the wrong way to measure PM-JAY.

Finding 4 — Karnataka and Andhra Pradesh: the best practice among high-population states

Karnataka (CUER 57.18%, gap 81.81 lakh) is the highest-performing large state in the Good tier. Its hybrid implementation model — State Health Agency directly managing public hospital empanelment with a separate contracting arrangement for private hospitals — combined with the highest empanelled hospital density among large states (approximately 5.26 per 100,000 population) produces a system where over half the enrolled base actually receives care. Andhra Pradesh (CUER 41.49%, gap 1.09 crore) follows in the Moderate tier with a utilisation rate of 14.56 per cent, among the top

five nationally. For a large and predominantly rural state, Andhra Pradesh demonstrates that meaningful utilisation is achievable when supply-side development keeps reasonable pace with enrolment.

Finding 5 — Chhattisgarh and Gujarat: the same tier, very different roads

Both Chhattisgarh and Gujarat sit in the Moderate tier, but they arrive there through starkly different mechanisms. Chhattisgarh has the highest coverage rate in the entire country at 80.54 per cent, yet 1.55 crore enrolled persons did not receive care. What saves its CUER (36.87%) from catastrophic territory is its Trust model backed by a strong ASHA network: community health workers actively navigate beneficiaries through the system, and the State Health Agency's direct control of claims reduces the coordination failures seen in TPA-model states. Its utilisation rate of 29.70 per cent is the second-highest nationally after Tamil Nadu and Meghalaya. Even so, the 80 per cent coverage rate leaves nearly two-thirds of cardholders without actual care, demonstrating that even strong frontline delivery cannot fully compensate for a coverage rate that has outrun infrastructure.

Gujarat (CUER 23.57%, gap 2.13 crore) tells a more worrying story. With a coverage rate of 38.56 per cent — well above the national median — Gujarat converts fewer than one in four enrolled persons into users, despite being one of India's more economically developed states with broadly adequate general health infrastructure. The explanation, confirmed by the Objective 3 regression, is that general health infrastructure is not the same as PM-JAY-integrated infrastructure. Gujarat has hospitals; it does not have enough PM-JAY-linked hospitals where enrolled persons can actually present their cards and receive cashless treatment. The gap between Gujarat's general health system and its PM-JAY delivery system is one of the more striking examples of this disconnect in the dataset.

Finding 6 — North-eastern and hilly states: not a uniform picture

Among hilly and north-eastern states, Meghalaya stands out with the second-highest CUER in the entire dataset after Tamil Nadu and Kerala: 61.22 per cent. With a coverage rate of 63.88 per cent and a utilisation rate of 39.11 per cent, Meghalaya converts over three-fifths of its enrolled population into users — a remarkable outcome for a small hill state where over 91 per cent of the population belongs to Scheduled Tribes. Meghalaya's compact geography, above-average literacy (approximately 94 per cent by NFHS-5), and active community health mobilisation appear to overcome the social barriers that commonly suppress utilisation among tribal populations. Uttarakhand (CUER 31.98%) and Tripura (CUER 27.99%) both sit in the Moderate tier despite hilly terrain, confirming that geography is not destiny.

By contrast, Jammu and Kashmir (CUER 23.46%) and Nagaland (CUER 17.65%) remain in the Weak tier, likely reflecting a mix of political-economy complications, sparse interior empanelment, and the residual administrative disruption from statehood changes. Arunachal Pradesh (CUER 8.98%) and Andaman and Nicobar Islands (CUER 5.09%) sit in the Critical tier — the most geographically isolated territories in the dataset, where even modest improvements in empanelment could produce disproportionate CUER gains given the small enrolled populations involved.

The overall picture is that terrain creates real costs, but state capacity and political attention can partly or largely offset them.

Finding 7 — Delhi: what political non-participation looks like in the data

Delhi's coverage rate of 3.56 per cent is the lowest in the entire country, a direct consequence of the previous state government's decision not to actively implement PM-JAY and to operate its own parallel health scheme instead. Of 7.74 lakh cards generated, only 50,392 persons used PM-JAY services — a CUER of 6.51 per cent and the smallest absolute utilisation figure of any large urban territory. Delhi joined PM-JAY substantively in April 2025. This is a direct empirical instance of how party-political alignment determines whether a national health scheme actually functions in a given state: the scheme's legal coverage extends everywhere in India, but political will determines whether the administrative machinery — hospital empanelment, Ayushman Mitra deployment, claims processing — is activated on the ground. The Delhi case shows that CUER is not only a measure of healthcare delivery but also of political implementation commitment.

Finding 8 — Small territories and the illusion of small gaps

Several small union territories appear to have minimal absolute gaps: Lakshadweep (34,637), Goa (74,208), Sikkim (50,672), Chandigarh (1.87 lakh). But closer inspection reveals divergent pictures. Goa (CUER 27.82%) and Chandigarh (CUER 35.71%) are in the Moderate tier — acceptable but not strong for prosperous, well-connected territories. Lakshadweep's CUER of 5.57 per cent is Critical: out of only 36,678 cards generated for a territory with fewer than 70,000 people, merely 2,041 were ever used for treatment. Dadra and Nagar Haveli and Daman and Diu (CUER 10.73%) similarly **show** that a high coverage rate of 66.92 per cent can coexist with critical utilisation performance when delivery infrastructure is not in place. Small absolute gaps in small territories can hide some of the worst delivery failures in the entire scheme.

5.2.5 Cross-Cutting Patterns: Three Structural Observations

Beyond the state-specific findings, three structural patterns run across the full 35-state dataset and have direct implications for both the regression analysis in Part 2 and the policy recommendations in Chapter 6.

First, there is no positive relationship between coverage rate and CUER. If card generation were an effective proxy for delivery, states with higher coverage should show higher CUER values. The data directly contradict this. Odisha has the third-highest coverage rate in the country (73.56%) and the second-lowest CUER among large states (5.14%). Tamil Nadu has the lowest coverage rate in the country (11.26%) and the highest CUER (127%). Among states with coverage rates above 50 per cent, CUER values range from 5.14 per cent (Odisha) to 61.22 per cent (Meghalaya) — a twelve-fold variation. That range is too large to be measurement noise. It reflects genuine structural variation in implementation quality: the capacity of states to translate enrolment into actual treatment varies enormously, and coverage rate simply cannot tell you which states are succeeding at this.

Second, CUER clusters into three recognisable implementation regimes. States with CUER above 40 per cent — Tamil Nadu, Kerala, Meghalaya, Karnataka, Andhra Pradesh, Manipur, Sikkim — share common features: either a pre-existing state health insurance infrastructure, strong public health sector administration, compact enrolled populations, or some combination of these. States with CUER between 15 and 40 per cent are typically larger states where some delivery infrastructure exists but has not been scaled to match the enrolled population. States below 15 per cent share one or more of: TPA/insurer implementation model, extremely sparse empanelled hospital networks, political non-participation, or geographic isolation without compensating infrastructure. These three regimes are not rigid categories, but they suggest that a state's PM-JAY performance is largely predictable from its governance model, hospital density, and implementation history.

Third, the national picture is dominated by the failure of five large states. The combined absolute gap of Uttar Pradesh, Bihar, Madhya Pradesh, Maharashtra, and Odisha is approximately 192 million persons. This is not a tail-risk finding from small remote territories. It is the mainstream performance of the scheme in five of India's most important states by population and poverty incidence. Any national strategy to close the coverage–utilisation gap must begin in these five states because incremental gains in small territories will not, on their own, move the national needle.

5.3 Objective 2 (Part 2): What Explains the Gap?

Knowing that a gap exists is useful. Knowing what drives it is what makes a difference. This section estimates a regression model to identify the structural factors most responsible for why some states have larger gaps between enrolment and actual treatment than others. Every variable in this model was selected based on the theoretical framework laid out in Chapter 3 and the literature review in Chapter 2 — there is a reason for each one being here, and the results will explain what that reason is and whether the data support it.

The estimated OLS equation is:

$$Gap_s = -4.208 + 1.628 zInfra_s - 1.553 EmpDensity_s + 0.841 Coverage_s + 0.168 Constraint_s + 0.003 Rural_s - 2.759 Hilly_s$$

Table 5.3: OLS Results for the Coverage–Utilisation Gap (Dependent Variable: Absolute Gap in Millions of Persons)

Variable	Coefficient	Robust p-value	Interpretation
Intercept	−4.208	0.771	Baseline gap when other variables are zero
Infrastructure Index (z-score)	1.628	0.398	Larger general health systems tend to have wider gaps — integration paradox
Empanelled Hospital Density	−1.553	0.106	More PM-JAY hospitals reduce the gap (directionally strong)
Coverage Rate (%)	0.841	0.000	The core finding: faster enrolment drives a wider gap
Constraint Index	0.168	0.673	Institutional barriers widen the gap (direction correct, weak precision)
Rural Population (%)	0.003	0.951	Negligible once other factors are controlled
Hilly State Dummy (0/1)	−2.759	0.384	Terrain alone not significant once supply-side is included

Note: $R^2 = 0.843$, Adjusted $R^2 = 0.806$, F-statistic $p < 0.001$. Robust (HC1) standard errors used throughout. Breusch–Pagan test detected heteroskedasticity; robust correction applied and main findings confirmed.

The coverage rate: the most powerful and most uncomfortable finding. The coverage rate carries a coefficient of 0.841 that is significant at better than 0.1 per cent ($p = 0.000$). This is the single strongest and most precisely estimated result in the entire study. What it says is that states which issued more Ayushman cards relative to their population ended up with proportionally larger gaps between cardholders and actual users. Every percentage point rise in coverage is associated with nearly a million more enrolled-but-untreated persons.

This needs a moment's thought, because it goes against intuition. Should not issuing more cards be a good thing? The answer depends entirely on whether the delivery system is ready to serve those new cardholders. When states run mass enrolment camps — setting up tents in village squares, using ASHA workers to bring in families, processing cards at block-level offices — the number of cardholders rises quickly. But empanelled hospitals do not appear overnight, claims-processing systems do not become faster on their own, and the number of trained Ayushman Mitras cannot double in a month. The gap widens because enrolment is far easier to scale than delivery.

Think of it like a hospital that suddenly takes on a hundred new patients in a single morning but still has the same number of doctors and beds as the day before. The admissions register fills up; the treatment does not follow at the same pace. The uncovered enrolled person is like a patient with an appointment who waited all day and was never called.

Empanelled hospital density: the lever that narrows the gap. The empanelled hospital density coefficient is -1.553 , borderline significant at $p \approx 0.106$. More PM-JAY hospitals per 100,000 population is associated with a smaller gap. The direction is exactly what the theory requires. When PM-JAY hospitals are spread reasonably across a state's districts, enrolled families can actually reach a facility that accepts their card and processes treatment without them paying out of pocket. Where empanelled hospitals are thin on the ground — as they are in Bihar, with roughly 0.99 per 1,00,000 population — the card's promise is simply undeliverable in practice.

The borderline significance in this model (the result is firmer in Objective 3's utilisation model) partly reflects the small sample size of 35 states and the wide variation in how empanelment translates into actual access across different geographical and administrative contexts. Taken together with the Objective 3 result, the evidence is consistent and directionally unambiguous: empanelled-hospital capacity is the most reliable gap-narrowing tool available to policymakers.

The infrastructure paradox: why big hospitals do not always help. The infrastructure index is positive (1.628), which at first seems backwards. Should a bigger health system not mean more access? The resolution lies in a distinction that this dissertation has emphasised throughout: general health infrastructure is not the same as PM-JAY-ready infrastructure. A state can have dozens of large district hospitals and thousands of PHCs and still have most of those facilities sitting entirely outside the PM-JAY network — not empanelled, or empanelled nominally but not in practice because of unresolved paperwork or delayed claim payments that make hospitals reluctant to admit PM-JAY patients.

Maharashtra is the clearest case. It has one of the strongest general health systems in the country — well-maintained public hospitals, relatively large bed counts, reasonably accessible urban healthcare. Yet its PM-JAY CUER of 8.00 per cent is among the worst nationally. The state's hospitals are not the problem; the state's PM-JAY integration is. Busy hospitals that are technically empanelled but face administrative friction with PM-JAY claims may quietly deprioritise PM-JAY patients. Big infrastructure that is not actively connected to the scheme can actually create a false impression of access — the hospital is there; it just does not serve Ayushman cardholders effectively.

The constraint index and other variables. The constraint index (0.168, $p = 0.673$) is positive but statistically weak. It measures the share of households reporting institutional barriers — poor service quality, long waits, general dissatisfaction — when seeking inpatient care. Where more people feel the formal health system is frustrating, the gap tends to be slightly larger, as those bad experiences carry over to PM-JAY and discourage use even among cardholders. The statistical weakness here reflects the fact that the NSS data predating PM-JAY's full rollout capture a prior-period perception of the health system, not the current PM-JAY experience. The rural share (0.003, $p = 0.951$) is essentially zero: once empanelment and institutional quality are in the model, being rural on its own does not widen the gap in a statistically meaningful way. The hilly dummy (-2.759 , $p = 0.384$) is negative and insignificant, reinforcing that terrain is not destiny once supply-side conditions are accounted for.

Model quality. With an R^2 of 0.843 and an adjusted R^2 of 0.806, this is a well-fitting model for cross-sectional state-level analysis. The overall F-statistic is highly significant ($p < 0.001$). Robust standard errors were applied after the Breusch–Pagan test flagged heteroskedasticity, and the core finding — coverage strongly positive, empanelment negative — was confirmed under robust correction.

Bottom line for Objective 2 (Part 2): The gap between enrolment and care is fundamentally a story of supply not keeping pace with demand. States that raced to issue cards without building parallel PM-JAY hospital capacity ended up widening the very gap they were supposed to close. What narrows the gap is empanelled-hospital density, and that is something policymakers can directly act upon. The central implication is stark: PM-JAY should be judged by how many cards are used, not by how many are printed.

5.4 Objective 3: Supply-Side Determinants of Utilisation

The third objective takes a more direct look at utilisation itself. Rather than modelling the gap, this objective makes utilisation — how many persons per hundred of state population actually received PM-JAY-funded hospital treatment — the dependent variable. The question is which supply-side conditions most reliably predict that number. This model is a natural complement to the gap model: where Objective 2 asks what drives the distance between coverage and use, Objective 3 asks what, on the provider side, actually causes people to use the scheme.

The estimated OLS equation is:

$$Utilisation_s = 11.550 - 3.073 zInfra_s + 2.370 EmpHosDensity_s - 0.284 Constraint_s + 2.321 Hilly_s$$

Table 5.4: OLS Results for PM-JAY Utilisation Rate (Dependent Variable: PM-JAY Hospitalisations as % of State Population)

Variable	Coefficient	Robust p-value	Interpretation
Intercept	11.550	0.350	Baseline utilisation rate
Infrastructure Index (z-score)	-3.073	0.090	Larger general health systems reduce PM-JAY utilisation (integration paradox)
Empanelled Hospital Density	2.370	0.022	Strongest supply-side driver — significant at 5% level
Constraint Index	-0.284	0.423	Institutional barriers reduce utilisation (expected direction)
Hilly State Dummy (0/1)	2.321	0.453	No significant terrain effect once supply is controlled

Note: $R^2 = 0.296$, Adjusted $R^2 = 0.198$, F-statistic $p = 0.033$. Robust (HC1) standard errors used. Breusch-Pagan test flagged heteroskedasticity; robust correction applied and empanelled hospital density confirmed significant. All VIF values approximately 1.

Empanelled hospital density: the one variable that matters most. The result is unambiguous. Empanelled hospital density carries a coefficient of 2.370 and is significant at the 5 per cent level ($p = 0.022$). It is the only statistically significant supply-side predictor in this model. Every additional PM-JAY hospital per 100,000 people is associated with a 2.37 percentage-point rise in the utilisation rate. When this variable is the sole significant predictor across a model that also includes general infrastructure, institutional barriers, and terrain, the signal is very clear: operational

access — a hospital that actually accepts the Ayushman card in a location where enrolled families can reach it — is what converts insurance into treatment.

The Bihar–Karnataka contrast makes this concrete. Bihar has an empanelled hospital density of roughly 0.99 per 100,000 population and a utilisation rate of 2.70 per cent. Karnataka has a density of approximately 5.26 per 100,000 and a utilisation rate of 16.04 per cent. That difference in density — about 4.3 additional PM-JAY hospitals per lakh of population — feeds almost directly into roughly 13 percentage points more utilisation. Behind these numbers are millions of families in Bihar who own Ayushman cards but live too far from any hospital that accepts them to make using the card a realistic option.

It is also worth noting that empanelment is not just about counting hospitals. A hospital that is nominally empanelled but has not had its Ayushman Mitra staff properly trained, or that faces a backlog of unpaid PM-JAY claims and has quietly stopped accepting new PM-JAY patients, functions in practice as an un-empanelled facility. The regression captures the density of genuinely operational empanelled hospitals, and the significance of the result tells us that their presence on the ground is the single most powerful lever available to state governments trying to lift utilisation rates.

The infrastructure paradox: confirmed again. The infrastructure index is negative and borderline significant (-3.073 , $p \approx 0.090$). This is the same paradox seen in the gap model, now confirmed in a different specification. States with larger general health systems — more PHCs, more CHCs, more hospital beds per 100,000 population — tend to have lower PM-JAY utilisation rates, all else equal. This is counter-intuitive and important. The standard expectation in health policy is that more infrastructure means more access. But this only holds when the infrastructure is actually connected to the scheme. A large public hospital that has not integrated with PM-JAY, is not processing Ayushman cards, and is not staffed with Ayushman Mitras contributes nothing to PM-JAY utilisation — it may even crowd out PM-JAY use if it diverts patients to its general wards.

There is also a crowding-pressure mechanism at work in some large-infrastructure states. Hospitals that are technically empanelled but overwhelmed by general outpatient demand may treat PM-JAY admissions as an administrative nuisance rather than a priority. The authorisation codes required for PM-JAY hospitalisation expire if not processed quickly; hospitals that cannot manage the paperwork may informally tell PM-JAY patients there is no bed available. This invisible friction does not show up in any register, but it accumulates into lower utilisation rates. The negative infrastructure coefficient is partly a proxy for this kind of implementation friction in high-complexity health systems.

Constraint index, hilly dummy, and diagnostics. The constraint index is negative (-0.284) as expected — institutional barriers depress utilisation — but falls short of significance ($p = 0.423$). The hilly state dummy is positive (2.321) and insignificant ($p = 0.453$), which is a reassuring finding: hilly states that have built PM-JAY-empanelled capacity — notably Meghalaya and Uttarakhand — achieve utilisation comparable to or better than many plains states. Terrain is not a permanent barrier; it is a challenge that good state capacity can manage. VIF values near 1 rule out

multicollinearity. After robust correction for the heteroskedasticity flagged by the Breusch–Pagan test, empanelled hospital density retained its significance at 5 per cent, giving confidence that this core finding is not an artefact of the error structure.

The R^2 of 0.296 and adjusted R^2 of 0.198 indicate that this model explains roughly 20 per cent of the variation in utilisation. The remaining 80 per cent lives in factors that are real but not captured here: awareness levels and beneficiary education, the speed of claims processing, the quality of Ayushman Mitra deployment, governance choices, and the PM-JAY implementation history of each state. Objective 4 picks up the governance thread qualitatively.

Bottom line for Objective 3: The supply side decides the outcome. The single factor that most reliably converts an Ayushman card into a hospital visit is the density of PM-JAY-empanelled hospitals. Not the number of hospitals in general — the number of PM-JAY-integrated hospitals specifically. Every policy conversation about raising PM-JAY utilisation should begin with this finding: build PM-JAY hospital capacity in the areas where it is absent, and keep that capacity genuinely operational by paying hospitals promptly and supporting the claims process.

5.5 Objective 4: Governance and Implementation — The Hidden Hand Behind the Numbers

5.5.1 Why This Objective Is Handled Qualitatively

Governance shapes outcomes, but it resists quantification. There is no publicly available, standardised, state-level governance score for PM-JAY that is comparable enough across all 35 states to put into a regression. The NHA Annual Reports for 2022–23 and 2023–24 carry detailed performance information, but in forms that differ enough across states to make direct comparison numerically unreliable (NHA, 2022–23; NHA, 2023–24). So, this objective draws on those reports alongside the three-state implementation study by Srivastava et al. (2023) and the Health Benefit Package analysis by Sharma et al. (2024), mapping their qualitative findings directly onto the CUER values and utilisation patterns established in Objectives 1–3.

This is not a second-best choice; it is the academically honest one. Governance is genuinely multi-dimensional — claims speed, information systems, political alignment, frontline worker motivation, and administrative culture all feed into implementation quality in ways that no single index can adequately represent. The right method at this stage of research is to read the qualitative evidence carefully and connect it to the quantitative patterns, rather than forcing a poorly-constructed governance variable into a regression where it would add more noise than insight.

5.5.2 Three Models, Three Outcomes

Srivastava et al. (2023) identify three broad models through which states operationalise PM-JAY. The CUER data from Objective 2 map onto these models in ways that are theoretically coherent and empirically consistent.

The Trust or Nodal Agency model — used by Chhattisgarh and Jharkhand — places the State Health Agency (SHA) in direct control of funds and claims. The SHA acts as the insurer, paying hospitals directly without routing money through a private intermediary. Where SHAs have built strong administrative capacity and invested in community health networks, this model produces the best combination of high enrolment and reasonable utilisation. Chhattisgarh's CUER of 36.87 per cent at a coverage rate of 80.54 per cent — the country's highest — is a real operational achievement. Its ASHA network actively navigates beneficiaries through the scheme, and the SHA's direct control of claims reduces the information gaps that trip up other models. The Trust model's key vulnerability is fiscal: when state budgets come under pressure, the SHA may fall behind on hospital payments, and hospitals quickly reduce their willingness to admit PM-JAY patients in response.

The Insurance or TPA model — most prominently seen in Uttar Pradesh — interposes a private insurer or Third Party Administrator between the SHA and the hospitals. The idea is to bring private-sector claims management expertise and risk distribution. In practice, the model creates extra coordination layers: the insurer, the SHA, and the hospital each maintain separate databases that are not always synchronised, authorisation codes can expire before hospitals process them, and disputes about which claims are valid can stall reimbursements for months. UP's CUER of 16.75 per cent — the worst among large states — despite enormous enrolment reflects exactly these coordination failures. The private TPA is not necessarily incompetent; it is operating in a system with misaligned incentives, weak data integration, and insufficient supervision from the state agency.

The Hybrid model — exemplified by Tamil Nadu and Karnataka — keeps the SHA in direct control of public-hospital empanelment while contracting private hospitals for specialist care and overflow capacity. This approach works best where there is already a strong state health insurance infrastructure to build on. Tamil Nadu had operated the Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS) for years before PM-JAY launched, giving it a mature network of empanelled hospitals, trained claims-processing staff, and a beneficiary population that already understood how to use state-funded insurance. When PM-JAY was grafted onto this system, the combination produced a CUER of 127 per cent. Karnataka's hybrid approach, built on decades of investment in its public hospital network and supported by the highest empanelled hospital density among large states, produces a CUER of 57.18 per cent. Neither outcome was accidental. Both reflect deliberate institutional investment over many years; not just administrative choices made after PM-JAY launched.

5.5.3 Politics, Claims Speed, and the Day-to-Day Reality of PM-JAY

Political economy shapes the access map. Party-political alignment between state governments and the central government partly determines how energetically states operationalise PM-JAY. Several state governments at various points chose to run parallel state-branded health schemes instead of or alongside PM-JAY. West Bengal opted out of PM-JAY entirely in favour of the Swasthya Sathi scheme, removing roughly 100 million people from the national scheme's effective reach. Delhi ran the Aam Aadmi Mohalla Clinic model rather than actively pushing PM-JAY enrolment, joining the national scheme substantively only in April 2025 — as the CUER of 6.51 per cent and the minuscule utilisation figure of 50,392 persons shows. Odisha ran Biju Swasthya Kalyan Yojana alongside PM-JAY for several years, integrating more fully only in early 2025. Telangana maintained Aarogyasri with limited PM-JAY convergence (Sharma et al., 2024).

None of this is necessarily wrong in principle — state schemes sometimes fill genuine design gaps in PM-JAY's coverage. But it means that a significant fraction of India's poorest families lives in states where the national scheme is operating at far below its potential, and where the families' effective health protection depends on whether their state government was on good terms with the central government at the time the scheme was being rolled out. The access map of PM-JAY is partly a political map, and that is a structural vulnerability the scheme has not yet resolved.

Claims settlement speed is a direct barrier to hospital participation. The NHA Annual Reports reveal enormous variation in how quickly states settle hospital claims. Karnataka clears most claims within 14 days. Several states stretch well beyond 60 days, with unpaid balances accumulating into crores of rupees for individual hospitals. For a hospital administrator deciding whether to invest in dedicated PM-JAY admissions staff, train Ayushman Mitras, and maintain the claims-processing workflow, this time gap is decisive. A hospital that waits months for reimbursement quickly becomes a hospital that quietly deprioritises PM-JAY patients. It remains on the empanelled list — contributing to the density count — but its actual PM-JAY admissions drop toward zero. This invisible mechanism, operating at the hospital-administration level and invisible in aggregate statistics, is part of why the empanelled hospital density and utilisation do not have a perfectly linear relationship.

Information systems and data integration. States that have invested in real-time PM-JAY dashboards, automatic transaction processing, and responsive grievance portals tend to have lower claim denial rates and faster authorisations. Their hospitals find the scheme operationally manageable and stay genuinely active within it. States where claims must be processed manually, where authorisation codes expire before the hospital processes them, or where disputes between the SHA and a private TPA create months-long payment holds — these states have formally impressive empanelment lists and practically underperforming schemes. The quality of a state's health information systems is not a minor administrative detail; it is a direct determinant of whether an Ayushman card is usable or not on any given day at any given empanelled hospital (NHA Annual Reports, 2022–24).

Bottom line for Objective 4: Governance is the hidden hand. The same national scheme, operating under the same central legal framework with the same ₹5 lakh entitlement, delivers wildly different outcomes depending on how a state pays its hospitals, runs its information systems, manages its political relationship with the central scheme, and motivates its frontline workers. This is why two states with nearly identical coverage rates can produce CUERs that differ by a factor of five. The scheme's framework is the floor; governance fills it with either functioning healthcare or empty promises.

CHAPTER 6: POLICY AND MANAGERIAL IMPLICATIONS

The findings from all four objectives point in one direction: PM-JAY has done the easier half of its job very well. Getting cards to people, reaching poorer states, running large enrolment drives — all of that has been done at impressive scale. What has not kept pace is the harder half: turning those cards into actual hospital beds for the families who need them.

This chapter translates the evidence into practical recommendations. The recommendations are organised across three-time horizons — things that can be done in the next two years, things that need two to five years of sustained effort, and things that require longer-term structural change. This three-horizon structure comes directly from the logic of the analysis: some interventions are administrative tweaks that require political will and existing resources; others require new infrastructure and investment; and still others require changing the fundamental architecture of how the scheme is run across India.

One principle runs through all of them: PM-JAY should be measured, managed, and funded on the basis of how many enrolled families receive actual treatment — not on how many cards are printed. That shift in measurement logic is the foundation everything else builds on.

6.1 Getting the Measure Right: Adopt CUER as the National PM-JAY Performance Standard

Before anything else, India needs a better way to measure whether PM-JAY is working. At the moment, the most visible performance number in NHA communications is how many Ayushman cards have been issued. In districts across the country, officials are judged, incentivised, and sometimes transferred based on their enrolment numbers. This is the wrong incentive. The regression results showed clearly that the coverage rate — the card count — is the strongest predictor of a larger gap between enrolment and treatment, not of better health outcomes.

This dissertation proposes the Coverage–Utilisation Efficiency Ratio (CUER) as the primary PM-JAY performance metric at both the state and district level. CUER asks a simple question: of every 100 people who hold an Ayushman card in this state, how many actually used it for hospital treatment? A CUER of 90 per cent means nearly everyone who has a card is getting treated. A CUER of 8 per cent means fewer than 1 in 12 is being served. These numbers are not abstractions — they tell state health officials exactly where the scheme is delivering and where it is not.

Adopting CUER as the official metric would have three concrete effects. First, it would redirect political attention from enrolment campaigns toward utilisation improvement. Second, it would allow the NHA to identify high-enrolment, low-utilisation districts — exactly the places where Ayushman Mitras, hospital empanelment, and claims-processing support are most urgently needed. Third, it would make state-to-state comparison meaningful: right now, a state like Odisha looks like a high performer on enrolment dashboards despite having among the lowest utilisation rates in the country. CUER corrects that misrepresentation.

Alongside CUER, monthly state-wise publication of claims settlement speed would add a second accountability layer. Every hospital administrator in every state would then know that their state's claims backlog is publicly visible, which creates a direct incentive for state agencies to pay hospitals promptly and keep them actively participating in the scheme.

6.2 Short-Term Priorities: What Can Be Done in the Next Two Years

Short-term actions are those that do not require new hospitals, new laws, or new financial architectures. They work with what already exists — the enrolled population, the empanelled hospitals, and the administrative machinery — and are mainly about removing friction and directing attention.

6.2.1 Deploying Ayushman Mitras Where They Are Most Needed

Ayushman Mitras are the scheme's front-of-house staff: they sit at empanelled hospitals and help beneficiaries identify themselves, initiate the admissions process, and navigate the paperwork that the card requires. Evidence from states like Chhattisgarh and Karnataka shows that active Ayushman Mitras are a meaningful driver of utilisation, particularly for first-time users who would otherwise not know how to use their card.

But right now, Ayushman Mitras are not deployed where they are most needed. Many sit in well-functioning urban hospitals that already have reasonable PM-JAY utilisation, while high-enrolment, low-utilisation districts — precisely the places where the scheme is failing its enrolled base — have either no Ayushman Mitras or underpaid, undertrained ones. The NHA PM-JAY dashboard can identify these districts directly: every district with a coverage rate above 30 per cent and a utilisation rate below 10 per cent is a target for immediate deployment.

In the very short run, the most cost-effective step is to map Ayushman Mitra deployment against CUER district by district, redirect the existing workforce to low-CUER areas, and set a minimum staffing standard for every empanelled hospital above a certain size. This does not require new money — it requires reassigning the same resources more intelligently based on where the utilisation gap is widest.

6.2.2 The 15-Day Claims Settlement Standard: Enforcing What Already Exists

One of the clearest findings from the governance analysis is that claims settlement speed directly determines whether hospitals stay active in the PM-JAY network. Karnataka settles most claims within 14 days. Several other states take more than 60 days, with some backlogs stretching far longer. The difference is not primarily technical — it is a matter of administrative priority and SHA capacity.

The NHA should establish a national 15-day claims settlement standard as a binding performance benchmark, published monthly at the state level in a publicly accessible format. States that fall below this standard should face an accountability mechanism — not punitive, but transparent enough to create genuine pressure. State Health Agencies should be given targeted technical support for claims-processing systems where the delay stems from IT infrastructure rather than administrative neglect.

The reason these matters for beneficiaries, not just for hospitals, is simple. A hospital that is not getting paid will stop accepting PM-JAY patients. It stays on the empanelled list but becomes functionally unavailable for card use. Every day a state agency delays payment, it is effectively removing hospitals from the empanelled network for real-world purposes, even if the paperwork says otherwise. Faster payment is not a favour to hospitals; it is a service guarantee to the enrolled poor.

6.2.3 Awareness Campaigns That Actually Reach People

The Gujarat evidence from Thomas et al. (2023) showed that roughly 24 per cent of PM-JAY cardholders had high awareness of the scheme and 47.8 per cent had moderate awareness. Even among high-awareness cardholders, a significant fraction did not know which hospitals accepted the card, or feared hidden charges that would not be covered. Awareness is not just about knowing the scheme exists; it is about knowing how to use it.

Generic national advertising campaigns are of limited value for this population. PM-JAY's target beneficiaries are predominantly rural, relatively low-literacy, and more likely to respond to information from trusted community sources — ASHA workers, gram panchayat members, local health officers — than from television commercials or hoardings. The most effective awareness investments are therefore those that build the information capacity of frontline workers rather than simply broadcasting messages at scale.

Practically, this means two things. First, ASHA workers should be given updated, district-specific lists of empanelled hospitals along with their contact numbers and the specialties they offer under PM-JAY, refreshed every six months. A family holding an Ayushman card is far more likely to use it if their ASHA can tell them exactly which hospital to go to, what to bring, and what to say at the admissions desk. Second, awareness efforts should be specifically targeted at groups the data show are lagging: SC/ST households, female-headed households, the poorest rural quintile, and hilly-area residents. Blanket campaigns miss these communities; targeted community mobilisation does not.

6.3 Medium-Term Actions: Building the Delivery System Over 2 to 5 Years

Medium-term reforms require more investment, longer planning cycles, and sustained political will. They address the structural bottlenecks that no amount of administrative tweaking can fix: not enough PM-JAY hospitals in the right places, health benefit packages that underprice procedures so hospitals stop offering them, and implementation models that do not match what states are actually capable of managing.

6.3.1 More PM-JAY Hospitals Where People Actually Live

The strongest single finding of this study — confirmed in both the gap model and the utilisation model — is that empanelled hospital density is the most powerful lever for improving PM-JAY outcomes.

This means expanding the PM-JAY hospital network in underserved areas is not just one option among many; it is the central medium-term priority.

The NHA should set a minimum empanelment standard of at least one PM-JAY hospital per one lakh population in every district. Currently, many districts — particularly in Bihar, Odisha, Assam, Maharashtra, and Uttar Pradesh — fall far below this threshold. In Bihar's interior districts, some blocks have zero empanelled private hospitals and only technically-empanelled public facilities that are too understaffed to function as real PM-JAY providers.

Expanding empanelment must also be about quality, not just numbers. An empanelled hospital that offers only two or three specialties, has no imaging facilities, and cannot handle surgical cases is of limited use to PM-JAY beneficiaries who need secondary or tertiary care. Joseph et al. (2021) showed that roughly 40 per cent of empanelled hospitals offer only two to five specialties. Empanelment incentives should be designed to bring in facilities with a genuine clinical range, and monitoring should track what percentage of PM-JAY Health Benefit Packages are actually being offered at each empanelled facility.

For rural, tribal, and hilly areas where private hospitals are commercially unviable, public hospitals need to be made genuinely functional PM-JAY providers. This means not just their nominal empanelment but their actual operational capacity: adequate staff, functioning equipment, and enough financial certainty about PM-JAY reimbursement that hospital administrators treat PM-JAY patients as a priority rather than a complication.

6.3.2 Getting the Price of Treatment Right: Health Benefit Package Reform

Prinja et al. (2024) showed something that is both obvious and persistently ignored: if you price a procedure below what it costs to provide, hospitals will stop offering it. The Health Benefit Packages (HBPs) under PM-JAY are the government's way of telling hospitals what they will be paid for each type of treatment. When those prices are set too low — which happened systematically for certain surgical and high-cost procedures in the scheme's early years — hospitals quietly drop those procedures from their PM-JAY offerings. The enrolled beneficiary with a card finds that the treatment they need is not available under the scheme at any empanelled hospital within reach.

The Punjab evidence from Prinja et al. (2024) is instructive: correcting underpriced packages led to a clear rise in claims for those procedures — about 1.84 additional monthly claims per hospital for severely underpriced packages and 0.76 for moderately underpriced ones. The supply response to getting prices right was immediate and measurable. The reverse is also true: packages that remain underpriced see declining hospital participation year on year.

Sharma et al. (2024) note that the HBP revision process has historically been slow and not data-driven, with packages sometimes remaining unchanged for several years despite rising input costs. The reform needed is an annual HBP revision cycle using claims data as the primary input: look at which packages have low or declining utilisation, investigate whether pricing is the reason, and adjust accordingly. This should be done at the state level as well as nationally, since input costs for healthcare

vary across regions. A procedure that can be profitably offered under a particular package price in Tamil Nadu may be loss-making for a hospital in a high-cost urban district of Maharashtra.

One additional dimension is the residual out-of-pocket problem. Parmar et al. (2023) found that even enrolled PM-JAY users often paid for medicines, diagnostics, and services not covered by the existing packages. Expanding the packages to include high-frequency co-payments — particularly for diagnostics and essential medicines related to the hospitalisation — would significantly reduce the residual bill that currently undermines the financial protection PM-JAY promises.

6.3.3 Matching the Implementation Model to What Each State Can Actually Do

The evidence from Objective 4 makes clear that there is no single right implementation model for PM-JAY. The Trust model works well in states like Chhattisgarh with strong SHAs and community health networks, but it creates fiscal stress in states with weaker budget discipline. The TPA model can work in theory but adds coordination overhead that many states cannot manage effectively, as UP's experience shows. The Hybrid model produces the best outcomes but only where there is pre-existing state health insurance infrastructure to build on.

Rather than pushing every state toward one model, the NHA should provide differentiated implementation support: help Trust-model states build stronger financial management and claims-processing systems; help TPA-model states create real-time data-sharing protocols between the insurer, the SHA, and the hospitals so that information gaps do not become denial gaps for beneficiaries; and help states that want to move toward the Hybrid model build the SHA capacity and hospital relationships that make that transition viable.

Critically, implementation model decisions should also be evidence-based. States should be required to publish their CUER alongside their choice of implementation model, so that the link between governance architecture and delivery outcomes becomes transparent. A state that has run the TPA model for three years and has a CUER of 8 per cent should be asking hard questions about whether that model is working for its beneficiaries — and having a transparent national comparison would make it much harder to avoid that question.

6.4 Long-Term Reforms: Changing the Architecture of PM-JAY (Five Years and Beyond)

Long-term reforms require changes to how PM-JAY fits into the broader health system architecture — who the scheme covers, how it connects to other parts of the health system, and whether all Indians can access it regardless of which state they live in. These are harder reforms, involving more political negotiation and structural change, but they address the foundations of why the coverage–utilisation gap exists at such scale.

6.4.1 Connecting PM-JAY with Health and Wellness Centres

PM-JAY is a hospitalisation scheme. It pays for inpatient treatment at secondary and tertiary hospitals but does not cover primary care — the basic outpatient visits, preventive care, and early-stage diagnosis that prevent conditions from reaching the point where hospitalisation is needed. This design creates a gap: the same family that is protected against a ₹1 lakh surgery has no protection against the three-month progression of untreated diabetes or hypertension that led to the surgery in the first place.

The government has separately established Health and Wellness Centres (HWCs), meant to deliver comprehensive primary care at the village level. At the moment, these two initiatives — PM-JAY for hospitalisation and HWCs for primary care — operate in largely separate administrative silos. The long-term reform is to create genuine functional integration: HWC providers should be able to refer patients directly into the PM-JAY hospitalisation pathway, and PM-JAY data on hospitalisation diagnoses should inform HWC screening priorities in each district (NHA Annual Reports, 2022–24; NITI Aayog, 2021).

For the poor family holding an Ayushman card, this integration would mean a truly continuous care pathway: from the health worker at the HWC who catches the early warning signs, through to the PM-JAY-covered hospital admission if needed, and back to the HWC for post-discharge follow-up. Without this integration, PM-JAY covers the most expensive part of the health episode but not the prevention and early intervention that would make hospitalisations less frequent and less severe in the first place.

6.4.2 Updating the Beneficiary List: The SECC 2011 Problem

PM-JAY's beneficiary identification is based on the Socio-Economic Caste Census (SECC) conducted in 2011 — a survey that is now over 14 years old (Government of India, 2011). India in 2026 looks very different from India in 2011: families have migrated, economic positions have changed, some poor families from 2011 are no longer poor, and many currently poor families were not captured in the original survey. Using a 14-year-old dataset to decide who gets health insurance cover is not just a technical imperfection; it is a structural inequity.

Families that have fallen into poverty since 2011 — whether through job loss, farm debt, illness, or displacement — are not on the SECC list and therefore cannot get an Ayushman card, no matter how badly they need one. Meanwhile, some families on the list have moved out of poverty and are neither targeting the scheme nor accessing it. The resulting mismatch between the beneficiary list and the actual distribution of need means PM-JAY is inevitably covering some people who do not need it while missing others who urgently do.

The solution is a rolling update to the beneficiary database, leveraging the existing administrative data systems that have expanded enormously since 2011: the Aadhaar-linked PM Awas Yojana records, MGNREGS employment data, the National Food Security Act ration card database, and the Jan Dhan financial inclusion data. A fresh Socio-Economic

Census for the purpose of updating PM-JAY eligibility, or at minimum a systematic triangulation of existing databases, is overdue and should be treated as a foundational reform for the scheme's next phase.

6.4.3 Bringing Every State into the Scheme: A Convergence Framework

The political fragmentation of PM-JAY — with different states at different stages of participation and some states running parallel schemes entirely — means that a poor family's effective healthcare entitlement depends partly on which state they were born in and which party is in power there. West Bengal, with over 100 million people including a large poor rural population, remains outside the PM-JAY framework and is instead served by the Swasthya Sathi scheme, which has different coverage limits, different empanelment rules, and different administrative procedures (Sharma et al., 2024).

The right long-term answer is not to coerce states into abandoning their own schemes, but to build a genuine convergence framework: a set of shared standards for coverage level, empanelment quality, claims processing speed, and beneficiary identification that state schemes must meet in order to be formally interoperable with PM-JAY. A beneficiary covered under West Bengal's scheme should ideally be able to seek treatment at any PM-JAY empanelled hospital anywhere in India, and vice versa. Portability of entitlement across state boundaries would be a transformative gain for the millions of migrant workers who carry Ayushman cards issued in one state but seek treatment in another.

The technical foundations for this convergence already exist in the Ayushman Bharat Digital Mission (ABDM), which is building a common health data infrastructure across India. The policy task is to use that infrastructure to make state health schemes genuinely interoperable rather than separate silos with different rules for the same poor families.

6.5 Equity as the Thread Running Through Everything

Every recommendation in this chapter is ultimately about equity: making sure the families for whom PM-JAY was designed — the poorest, the most rural, the most socially marginalised — are the ones who actually benefit from it. The data show that current utilisation patterns have an equity problem: the scheme is used disproportionately by people who are already better-connected to the formal health system, in states with stronger administrative capacity, in districts with more empanelled hospitals.

Closing the equity gap requires a few specific design choices that run across all the recommendations above. District-level CUER tracking should be disaggregated by gender, caste, and rural/urban status so that programme managers can see exactly which communities are being left behind within each district, not just which states are performing poorly at the aggregate level. ASHA-led community mobilisation — particularly for female-headed households, elderly beneficiaries, and tribal communities — should be a standard feature of the scheme in every high-enrolment, low-utilisation area, not a pilot that exists in a few progressive states. Transport support for remote and hilly communities to reach empanelled hospitals, while small in cost

relative to the hospitalisation itself, can be the decisive factor in whether a family uses its card or chooses to stay home and borrow money for private care instead.

The goal PM-JAY was given at its launch — making health coverage genuinely usable for India's poorest families — is achievable. The CUEER data show that Kerala and Tamil Nadu are close to demonstrating it at scale. The policy task is to understand what those states have built and create the conditions for other states to replicate it. That is not a technical problem. It is a problem of institutional investment, political commitment, and administrative focus — all of which are, in the end, choices that governments make.

6.6 Managerial Implications for State Health Agencies

Beyond the policy-level recommendations above, the findings of this study carry specific implications for the managers and officers who run PM-JAY on the ground — the SHA commissioners, district health officers, and block-level programme coordinators.

On measurement and monitoring: Replace enrolment count as the primary performance indicator with CUEER, calculated for every district and updated monthly. Use the NHA dashboard's data to identify the 50 districts with the highest gap between coverage rate and utilisation rate and treat those as the scheme's highest-priority operational challenges. Assign dedicated technical teams to each such district for a 90-day rapid assessment of why utilisation is low — is it a hospital-density problem, a claims-speed problem, an awareness problem, or some combination?

On empanelment management: Treat the empanelled hospital list not as a static registration database but as a live operational network. Monitor actual PM-JAY admission rates at every empanelled hospital on a monthly basis. Any hospital that has been on the empanelled list for more than six months but has processed fewer than ten PM-JAY claims per month should be flagged for investigation: is it genuinely operational? Is claims payment being delayed? Is there a clinical capacity mismatch? Inactive empanelment is a form of false assurance to beneficiaries who think a hospital nearby will serve them, when it will not.

On frontline workforce: Invest in Ayushman Mitras not just as document-processing staff but as the beneficiary's first point of contact with the formal health system. In states where PM-JAY utilisation is very low, Ayushman Mitras operating in communities — not just at hospital desks — can proactively reach enrolled families, explain their entitlements, and accompany first-time users to empanelled hospitals. This community-facing role is especially important for women who face social barriers to presenting alone at a formal health facility, and for elderly beneficiaries who may be unable to navigate the admissions process independently.

On claims and information systems: Integrate PM-JAY claims data with state health information systems so that programme managers have real-time visibility of hospital-level performance. Develop simple dashboards that allow district health officers to see, at a glance, how many PM-JAY admissions each empanelled hospital in their district processed in the last 30 days, how many claims were denied and for what reason, and how long claims took to be settled. Denial reasons should be reviewed regularly to

identify systemic documentation problems that are turning away legitimate beneficiaries at the hospital counter.

In the end, the distance between a card and a hospital bed is not an insurmountable one. It is made up of small, addressable failures — an ASHA who does not know which hospital to send the family to, a claims system that takes 70 days to pay, an empanelled hospital that has stopped accepting PM-JAY patients because it has not been paid for six months. Each of these failures is fixable. Fixing them, systematically and at scale, is what transforming PM-JAY from a coverage programme into a genuine healthcare guarantee will require.

CHAPTER 7: CONCLUSION, FUTURE SCOPE AND SOCIAL IMPACT

7.1 Conclusion

This dissertation began with one honest question: when the government gives a poor family a health insurance card, does that card turn into real treatment? The answer, on the evidence here, is “only partly, and very unevenly”.

Three findings carry the story. First, PM-JAY coverage leans towards poorer states, which is a genuine success of welfare targeting — but rural and hilly areas still lag, so eligibility alone does not guarantee enrolment. Second, and most importantly, the coverage–utilisation gap grows fastest where enrolment grows fastest: the coverage rate was by far the strongest driver of the gap. Printing more cards does not, by itself, create more care; if anything, it can stretch the distance between the two when delivery cannot keep up. Third, the one factor that reliably converts cards into treatment is the density of empanelled hospitals — not the general size of a state’s health system, because that wider system is often not plugged into the scheme at all. Behind all of this sits governance: how fast a state pays hospitals and how well it coordinates decides whether the same scheme thrives or stalls.

Put simply, PM-JAY has done the easier half of the job — getting cards to people — better than the harder half — getting those people treated. The scheme’s success should therefore be measured by utilisation, not enrolment.

7.2 Limitations

Two limits should be kept in mind. First, household-level PM-JAY utilisation data are not public, so most of the analysis is at the state level, which can hide what happens inside districts and households. Second, the cross-sectional, state-level samples are small, so several coefficients, while pointing in sensible directions, are not statistically strong. The robust standard errors and clean diagnostics give confidence in the main results, but the numbers are best read as well-grounded patterns rather than final proof.

7.3 Future Scope

The natural next step is to get inside the household. If anonymised, individual-level utilisation data become available, future work could measure the probability that a covered family actually uses the scheme, and decompose that gap by caste, gender, income and distance to the nearest empanelled hospital. Adding real travel-time and distance measures would test the spatial-friction story directly. A panel over several years would also show whether states learn — whether faster claims, better IT and package reforms gradually close the gap. Finally, a standardised governance score, once built, would let Objective 4 move from qualitative reading to formal measurement.

7.4 Social Impact

The social value of this work is direct and practical. Crores of rupees of public money go into PM-JAY every year in the name of the poor. If much of that cover is never used, the poorest families remain exposed to the same medical shocks that push them into debt and poverty, and the public spending does not buy the protection it was meant to. By showing that the binding constraint is operational access — empanelled hospitals, fast claims, working administration — rather than enrolment numbers, this study points policymakers towards changes that would let a card in a poor family's hand actually become a hospital bed when life depends on it. In a country where one illness can undo a generation's savings, making an existing entitlement truly usable is one of the most cost-effective forms of social protection available.

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APPENDIX-I: REVIEWED LITERATURE AND SOURCES

The following table lists the core empirical studies reviewed in Chapter 2, with their focus areas, for quick reference.

No.	Study	Authors & Year	Focus Area
1	Public health insurance coverage in India before and after PM-JAY	Mohanty S. K. et al. (2023)	Coverage patterns, inequality
2	Effects of PM-JAY on hospitalisations & catastrophic spending	Parmar D. et al. (2023)	Financial protection, OOP
3	Awareness, enrolment & utilisation of PM-JAY in Gujarat	Thomas B. et al. (2023)	Awareness, rural–urban inequality
4	Empanelment of health facilities under PM-JAY	Joseph J., Hari Sankar D., Nambiar D. (2021)	Hospital distribution, supply side
5	Impact of Health Benefit Package policy on utilisation	Prinja S. et al. (2024)	Hospital incentives, utilisation
6	Implementation of PM-JAY (three-state qualitative study)	Srivastava S. et al. (2023)	Governance, leadership, roll-out
7	Evolution of Health Benefit Packages and decision-making	Sharma D. et al. (2024)	Package design, governance



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