



Macro Perspective of Bihar's Development

Achievements, Unfinished Agenda, and the Way Forward

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Abstract

Bihar's development is central to India's ambition of Viksit Bharat—to become a developed economy by 2047, given that Bihar has the second largest population and remains the poorest state. This paper provides a macroeconomic assessment of Bihar's development trajectory, achievements so far, remaining challenges, and reform priorities. Bihar's development story until the mid-2000s is complex—a combination of history, bad luck, and policy failures. This paper traces the reasons for the state's decline under colonial rule and during the post-Independence period, followed by the post-2005 turnaround associated with a reform-minded government that came to power with the mandate to focus on development and governance. We document the positive results under the new government yet find that the reforms so far are incomplete to deliver high, inclusive, sustainable, and stable growth. The paper then highlights the remaining challenges and identifies six priority areas that are fundamental and interconnected to make a big push: education, health, governance and law and order, mitigation of recurring floods, private sector development, and women's empowerment. These reforms are essential for raising productivity, accelerating structural transformation, and creating high-quality jobs for its young population. Recognising the scale of the required investment, the paper assesses Bihar's public debt dynamics and sustainability and quantifies the fiscal effort needed to finance alternative reform scenarios through stronger own-revenue mobilisation, more efficient and effective spending, additional support from the central government, and, if needed, further borrowing. Bihar's recent progress, favourable demographics, rising aspirations, natural resources, and scope to mobilise its large diaspora provide grounds for optimism, but sustained and coordinated reforms are necessary to achieve convergence with other states. and realise its development potential.

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I. Introduction

Bihar is the second most populous state in India (over 9 percent of India's population) and is estimated to reach 13.2 crores (132 million) in 2026.¹ It is larger than all but ten sovereign countries in the world (China, USA, Indonesia, Pakistan, Nigeria, Brazil, Bangladesh, Russia, Ethiopia, and Mexico).² Therefore, Bihar's economic development matters for *Viksit Bharat* (the Prime Minister's vision to transform India into a fully developed nation by 2047). It also gains significance for improving the living conditions of a substantial part of the world's population.

Bihar remains the poorest state in India, with per capita income at only about one-third of the national average. Several socio-economic indicators lag behind other states as well. This is both good news and bad news. Bad news because successive state governments up until the early 2000s reneged on their core responsibility of developing Bihar, and now it has a long way to go to catch up with other states. Good news because the potential for development is high, as evidenced in the nearly double-digit decadal growth witnessed soon after a reform-minded government came to power in 2005. It has a relatively young population with high aspirations to better themselves. Even though it still is predominantly an agricultural society, its land is fertile and fed by an abundance of water from the Ganges River that can be harnessed to increase agricultural productivity, release labour for the growing manufacturing and services sector, and provide clean energy to all sectors.

Socially, it is a highly stratified society with caste and class divisions. There are 214 castes, with the bulk comprising of the lower caste.³ The lower castes are divided into the Backward Class (27 percent), the Extremely Backward Class (36 percent), and the Schedule Caste and Tribe (nearly 21 percent). Not surprisingly, economic class is highly and positively correlated with social class. The upper caste owns or controls considerable land holdings and earns multiple of income of the lower classes. This social and economic stratification has often led to class and caste conflicts, violence, and deaths. Caste dominates politics and election cycles and has complicated policymaking as the priorities of various caste groups often differ and the vested interests of the higher castes, that hold substantial sway in local politics, are deeply entrenched.

To understand Bihar's current state of underdevelopment, it is important to understand its socio-economic and political history and why it became infamously known as a "BIMARU" (namely sick) state.⁴ This term was coined by demographer Ashish Bose for Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh (BIMARU) in the mid-1980s to denote that they were the "sick" states of India, as reflected in their relatively meagre economic growth and poor human development indicators. This year (2026), the National Democratic Alliance (NDA) government has been re-elected, and the hope is that the pro-development reforms, that began in the mid-2000s under the same political party, will continue. Since the task facing the new government is daunting, prioritising reforms, never an easy task, will be needed.

To the best of our knowledge, the last comprehensive set of studies on Bihar were compiled by Singh and Stern (2014) and Panagariya and Rao (2015) more than a decade ago. This paper provides an update of the macroeconomic developments since then, highlights the remaining challenges and reform priorities, and examines how these reforms can be financed within a fiscally sustainable framework. The paper also draws on recent insights on India's state capacity

¹ Population of Indian states 2026 - StatisticsTimes.com

² World Population Clock: 8.3 billion People (LIVE, 2026) - Worldometer

³ [Bihar-Caste-Census-Report-2023.pdf](#).

⁴ BIMARU in Hindi means sick.

and public service delivery by Muralidharan (2024), adapting them to Bihar's institutional and developmental context.

Given the enormity and vastness of the economic problems in Bihar, a holistic macroeconomic approach is needed to assess the development priorities. Our attempt in this paper will be to provide a framework for analysing macroeconomic developments and identify key areas that should be the new government's priority. The overarching goal will be to focus on fundamental reforms that cut across sectors, that will deliver high, inclusive, stable, and sustainable growth. Many of the much-needed reforms are interconnected and there are externalities. In line with Rosenstein-Rodan's Big Push Development Theory which was further developed by Sachs (2005), we believe that underdeveloped economies require simultaneous investments across infrastructure, human capital, institutions, and productive sectors to overcome multiple binding constraints. In other words, a large, coordinated, and comprehensive package of reforms is needed, and that small, piecemeal efforts are insufficient and, oftentimes, wasteful. A successful implementation of such reforms will deliver high-quality jobs, increase the living standards of Bihar's population, and help shift the mindset away from caste-based politics.

In our view, there are six priority areas: (1) education (2) health (3) governance and law and order (4) mitigating recurring and devastating floods (5) private sector development, and (6) empowerment of women. To deliver in these areas two fundamental levers are essential: first, the state's capacity to deliver on these reforms will need to be strengthened, and second, the reforms need to be financed. We propose ways to strengthen the state's capacity by improving the effectiveness of public service delivery, maintaining and strengthening law and order, and monitoring the progress on a continuous basis. We propose specific measures to increase the fiscal capacity to finance the reforms.

The remainder of the paper is organised as follows. Section II presents a historical perspective and provides the context of our analysis and policy recommendations in this paper. Section III highlights the achievements, documenting Bihar's remarkable progress since the early 2000s. These include an increase in economic growth rates, rising per capita incomes, an incipient shift away from agriculture, a strengthening of public finances, expansion of physical infrastructure (including roads, water supply, sanitation, and electricity distribution), progress in education and health, strengthening of law and order, and enhancements of household welfare through migration and remittance flows.

Section IV looks at Bihar in a comparative macroeconomic perspective: it documents Bihar's economic growth relative to other states, income and expenditure inequality within Bihar, relative disparity amongst its districts, income volatility in Bihar, and unemployment. The big picture that emerges is: Bihar has a long way to go to catch up with other states in terms of per capita income; development across districts within Bihar is highly uneven, with Patna standing out as by far the most developed; while income and expenditure inequality have narrowed over time, the reasons are not necessarily encouraging; Bihar faces the highest income volatility compared to other states; and, has high unemployment.

Section V examines Bihar's unfinished reform agenda and proposes ways to move forward. This section documents and analyses persistent gaps in education and health, gaps in governance and law and order, key challenges related to recurring floods, the reasons for the fledgeling private sector, and lack of women's economic empowerment due to gender discrimination and violence. Policy recommendations follow the identification of the gaps in each sub-section.

Given the large financing needs of Bihar, Section VI presents a debt sustainability analysis and proposes fiscal measures to finance the needed reforms. An attempt is also made to quantify these measures.

The final section offers concluding remarks and gives our reasons for optimism for Bihar's future.

II. Historical Perspective and Current Context

Historically, Bihar occupied a central place in India's political, intellectual, and economic life. The Nanda (345 BCE to 322 BCE), Mauryan (321 BCE to 185 BCE) and Gupta (240 CE to 550 CE) dynasties created highly successful empires that unified large parts of modern-day India. They were pioneers in setting up top-class administrative systems, providing social services and physical infrastructure, and promoting public discourse of socio-economic and religious matters (Singh and Stern, 2013). Nalanda and Vikramsila were eminent international centres of learning from where Buddhism spread to other countries.⁵ The Gangetic plain where Bihar is located had evolved into a major agrarian hub during ancient times, sustained by its highly fertile land. In more recent times, prominent political leaders of the 20th century such as Rajendra Prasad (the first President of independent India) and Jay Prakash Narayan (a protagonist of social progress who fought against corruption and authoritarianism in the 1970s) emerged from Bihar. Mahatma Gandhi's freedom struggle from the British began in the Champaran district in Bihar.

II.1. The Decline of Bihar under British Rule

The initial conditions of Bihar when India gained independence from the British in 1947 were dismal. During the British rule, Bihar witnessed a secular decline in living conditions of the vast majority of its population, which was overwhelmingly agrarian. Following independence, many forces—both external and internal to Bihar—perpetuated the mediocre economic performance of the state.

The Permanent Settlement of 1793, a land revenue system introduced by the British East India Company granted *zamindars* (rural landlords) hereditary rights to land in exchange for fixed tax revenues which were delinked from agricultural output. The zamindars, in turn, collected rent from the landless cultivators.⁶ The creation of zamindars as intermediaries disincentivised investments in land to increase productivity. Moreover, it fostered absentee landlordism, widespread tenant exploitation, and an increasing chasm between the lower and upper castes. Allocation of funds by the British for public administration, health, and education was among the lowest in Bihar and Orissa (Singh and Stern, 2013).

The well-documented British de-industrialisation policies in India also broke the back of Bihar's once-thriving agricultural and cottage industries, particularly handloom weaving and spinning. Prior to colonial intervention, eastern India (including Bihar) had a diversified rural economy in which artisanal production complemented agriculture and provided an important source of supplementary income (Roy, 2011; Ray, 2016).

Bihar's diversified agrarian structure was disrupted during the 19th century as mechanised textile production in Britain sharply reduced global prices, while colonial trade policies pushed the import of cheap manufactured goods into India (Clingsmith and Williamson, 2008). Traditional

⁵ Interestingly, *Arthashastra* (the study of economics) developed by Kautilya was first adopted in Bihar.

⁶ Unlike the eastern states of India, the southern and western states followed the Ryotwari system under the British Raj where revenues and taxes were directly linked to agricultural output and collected directly from the cultivators who owned their plots of land.

producers, unable to compete, were gradually displaced by foreign ones. This led to a shift of labour from handicrafts back to agriculture, increasing pressure on land and contributing to a long-term decline in rural productivity and diminished sources of income diversification (Roy, 2011). The erosion of artisanal capabilities, without a corresponding rise in modern industry, left the region with a structurally weak and agrarian-dominated economy at the time of independence.

II.2. Post-Independence Decline in Bihar until the Early 2000s

For more than half a century following Independence, Bihar remained one of India's economically weakest states, despite its rich natural resources and historical pre-eminence. The state was plagued with low industrialisation, weak infrastructure, poor social outcomes, and limited private investment. Slow agricultural modernisation, weak state capacity, and deterioration in governance and law-and-order conditions during the 1980s and 1990s further constrained economic development. As a result, Bihar has consistently ranked near the bottom of the Indian states across most income and socio-economic indicators.

Following independence, the Bihar Land Reforms Act (1950) and Ceiling Acts (1961, amended in 1973) were poorly implemented. Land remained concentrated with the upper castes as large landowners evaded ceiling laws, including via *benami* transfers.⁷ The absence of tenancy reforms and the deprivation of legal rights of sharecroppers disincentivised investments in land, leading to poor yields and low rural incomes. Land ownership became increasingly fragmented as children inherited ancestral property, precluding scale economies facilitated by the adoption of modern technology.

The Green Revolution that began in the 1960s across large parts of India and marked a significant transformation in Indian agriculture via the introduction of high-yielding variety seeds, fertilisers, and modern agricultural techniques, largely evaded Bihar. Even today, only around 60 percent of the gross cropped area in Bihar is irrigated (as per MoSPI data), far behind Punjab or Haryana.

The post-independence national industrial policies also worked against Bihar's interests. The central government's Freight Equalisation Policy introduced in 1952 (and continued through 1993) aimed to equalise the cost of transporting raw materials like minerals across the country, regardless of the distance from the source. This meant a factory could be set up anywhere in India, with subsidies on transportation costs of raw materials provided by the central government. This led to the flight of industries to states like Maharashtra, Gujarat, and Tamil Nadu, which had better governance, were more welcoming of private sector initiatives, and had better access to major ports and markets. While this policy adversely affected other mineral-rich states as well (such as West Bengal, Madhya Pradesh, and Odisha), it crippled Bihar's industrialisation beyond 1993 when the policy was revoked.⁸

1991 marked a turning point for India. The lead-up to its economic crisis in 1991 that culminated in a depletion of its foreign exchange reserves to less than 3 months of imports, a deterioration in fiscal accounts, and rising inflation prompted the government to initiate a comprehensive liberalisation and reform programme. These reforms focused on the reduction of tariffs and quotas (which were among the highest in the world), the easing of restrictions on foreign direct

⁷ *Benami* refers to finding ways to conceal the identity of the true owner of the property.

⁸ An interesting example relates to perishable food. Despite being India's largest producer of *litchis* and *makhana*, the state did not develop food-processing industries that could generate local employment. Instead, most of Bihar's agricultural produce is processed in other states, reaping benefits that should have stayed within Bihar.

investment, privatisation of state-owned enterprises to improve efficiency and reduce the fiscal burden, and deregulation to encourage the growth of the domestic private sector. The liberalisation programme was not purely voluntary but was also initiated under conditions imposed by the International Monetary Fund and the World Bank to undertake a comprehensive reform programme in exchange for loans.⁹ Following these reforms, India's growth trajectory, led by the western and southern states, rose to around 5.3 percent in the 1990s, compared to approximately 4 percent in the previous two decades.¹⁰ Unfortunately, the benefits of these reforms did not reach Bihar for reasons that were, to a large part, homegrown.

Given the distribution of power in India between the centre and states, state governments play a critical role in policy implementation and effective delivery of public services. Successive Bihar governments up until 2005 largely ignored the development agenda. The political agenda of ruling parties focused primarily on caste-based exigencies. During this period, Bihar witnessed a steady weakening of governance, caste-based strife, and rising corruption.

Just when several states of India post-1991 were busy taking advantage of the new economic environment created by the centre, Bihar saw the rise of a new Janata Dal (JD) party under a charismatic leader and Chief Minister, Lalu Prasad Yadav. As a representative of the backward caste, his stated main goal during his tenure was to bestow "dignity" to his caste as well as to the minority population. This went down extremely well with this group as they comprised about 84 percent of Bihar's population. Development, it was reported, would not be a priority of the JD government, as they believed it would only benefit the upper castes. Consequently, the state government left many public sector positions vacant rather than filling them through conventional recruitment processes, where qualified candidates were often perceived to come predominantly from the upper castes.¹¹ Yadav's tenure was marked by social justice initiatives and the empowerment of backward classes. To a reasonable extent, these initiatives were needed to address the large disparities between the rich and the poor which coincided with the upper and lower castes, respectively. The lower castes faced exploitation for centuries that had continued in the post-independence period, which certainly needed elimination.

At the same time, under Yadav's regime law and order deteriorated sharply, characterised by kidnapping, murder, robbery, burglary, and rampant bribery and corruption. The decline in infrastructure was noticeable—deteriorating roads, intermittent access to electricity, neglect of irrigation, and poor transport services. The health and education sectors also suffered immensely as they were politicised with frequent strikes and widespread absenteeism of employees. The Fodder Scam, one of the largest corruption scandals spanning many years, effectively ended Yadav's regime when he was personally implicated and convicted.

It is worth noting that fiscal federalism, which in India's case gives enormous revenue-raising powers to the centre, also disadvantaged Bihar. Bihar received among the lowest grants in per capita terms over successive Five-Year Plans. Due to low utilisation capacity, unspent central funds were diverted to other states, reinforcing the development trap.

⁹ During his budget speech on July 24, 1991, the then finance minister, Manmohan Singh, is famously quoted for proclaiming "Let the whole world hear it loud and clear. India is now wide awake."

¹⁰ National Statistical Office, Government of India.

¹¹ Arnab Mukherji and Anjan Mukherji. "Governance, Governance, and Governance: *"Sushashan"* and the New Bihar" In *The Story of New Bihar: Rekindling Governance and Development*, (Eds.) Nicholas Stern and N. K. Singh (Harper Collins, 2014)

The bifurcation of the state in 2000 into Bihar and Jharkhand further deepened Bihar's disadvantages. The division process was highly asymmetric. While physical assets were allocated on an "as is, where is" basis, financial liabilities were distributed according to population shares. As a result, Jharkhand, which accounted for roughly one-fourth of the population of the erstwhile Bihar, inherited nearly three-fourths of its physical assets, including much of the mineral-rich and industrialized region. The bifurcation also significantly increased Bihar's ecological vulnerability. Prior to bifurcation around 55 percent of Bihar's geographical area was flood prone. However, with the reduction in land area following the creation of Jharkhand, nearly 73 percent of the remaining state became vulnerable to floods in the North and droughts in the South, making Bihar far more susceptible to recurrent natural shocks and imposing an additional constraint on long-term development.¹²

In short, until the early 2000's, Bihar's economic base remained narrowly agrarian with low productivity and its fiscal capacity stayed constrained by a limited industrial tax base, high level of informality in the economy, and tax evasion. Given limited job opportunities and rising caste-based conflicts, Bihar witnessed a large out-migration of skilled and non-skilled workers.

II.3. The Post-2005 Turnaround: Governance Reforms, Public Investment, and Economic Recovery

With the defeat of the JD government by the NDA coalition government, Nitish Kumar became the Chief Minister in 2005. He faced a daunting task ahead. Honest public administration officials, dwindling in numbers over time, were demoralised while the corrupt ones were having a field day. There was a veritable crisis in the severely underdeveloped education and health sectors and infrastructure, the backbones of economic activity. Irrigation projects for several decades suffered from start-up delays, corruption, and poor implementation. The judicial system in Bihar was politicized and was effectively dysfunctional. The average person feared for their lives as crime had risen spectacularly in the previous two decades.¹³

The NDA government received an absolute majority with an explicit mandate of rooting out corruption and focusing on economic development. Much has been achieved in these two areas during Nitish Kumar's tenure (Panagariya & Rao, 2015)¹⁴. There was a steep decline in crime rates and special courts were established to speed up trials. The focus shifted to improving primary education and health outcomes and developing infrastructure. These developments are consistent with broader assessments of Bihar's post-2005 transformation documented in *The Story of New Bihar* (Singh and Stern, 2014)¹⁵.

The government placed strong emphasis on expanding primary education of girls, through initiatives such as free bicycles, uniforms, and scholarships, which raised school enrolment and retention rates among female students. The health sector also witnessed important gains. Public health centres became more functional, institutional deliveries increased significantly, and immunisation coverage improved. Simultaneously, large-scale investments in roads, bridges, and rural connectivity helped integrate previously isolated regions into broader markets and

¹² Arnab Mukherji and Anjan Mukherji. "Governance, Governance, and Governance: "Sushashan" and the New Bihar" In *The Story of New Bihar: Rekindling Governance and Development*, (Eds.) Nicholas Stern and N. K. Singh (Harper Collins, 2014)

¹³ ~1.24 lakh cognizable offences in 1990, ~1.15 lakh in 1995, and ~97,850 in 2005, NCRB Crime Record.

¹⁴ Arvind. Panagariya, A., & Rao, M. G. (Eds.). (2015). *The making of miracles in Indian states: Andhra Pradesh, Bihar, and Gujarat*. OUP Us.

¹⁵ Singh, N. K., & Stern, N. (2014). *The New Bihar-rekindling governance and development*. Harper Collins India.

economic networks. The expansion of road infrastructure, in particular, became a visible symbol of progress.

The government also focused on strengthening local governance and improving the delivery of public services. Administrative accountability improved, and efforts were made to restore public confidence in state institutions. Greater fiscal discipline, improved expenditure management, and higher utilisation of central funds contributed to a revival in development spending. Bihar's growth rate more than doubled during 2006–2013 compared to 1999–2006, with per capita income significantly accelerating after 2005.¹⁶

While Bihar's double-digit growth in the 2000s became a symbol of how governance and public investment can transform a historically underdeveloped economy, it still has a long way to go. As of date, it is the poorest state. More than 80 percent of Bihar's population still lives in rural areas.¹⁷ Of this vast number, nearly all (over 95 percent) remain landless or marginal farmers, with little capital or access to institutional credit. Not surprisingly, Bihar's economy remains largely dependent on agriculture, which employs around 54 percent¹⁸ of its workforce but contributes only 23 percent to Gross State Value Added (GSVA).¹⁹

III. The Good News First: Bihar's Development Turnaround and Emerging Trends

Bihar's development trajectory since the early 2000s marked a visible break from the prolonged period of economic stagnation and institutional decline that characterised the state in the preceding decades. After 2005, there was a gradual restoration of state capacity, upgrading of fiscal management, and expansion in infrastructure and welfare delivery. This led to a sharp increase in economic growth and improvements in social indicators. In fact, Bihar grew faster than most other states between 2005 and 2015. The broad macroeconomic picture that emerges is one of recovery and progress, as described below.

III.1. Economic Growth, Rising Per Capita Incomes, Structural Change and Poverty Reduction

One of the most striking features of Bihar's economic progress has been the acceleration of real per capita income growth after the mid-2000s. Figure 1(a) documents a spectacular and sustained rise in real per capita income. This improvement coincided with stronger governance, higher public investment, better road connectivity, and improvements in public service delivery and law and order.

Although Bihar's per capita Gross State Domestic Product (GSDP) growth remained more volatile than that of India's (Figure 1(b)), the state's growth consistently outperformed the national average during several years of the post-2005 period. The sharp contraction during the COVID-19 pandemic was followed by a strong recovery.

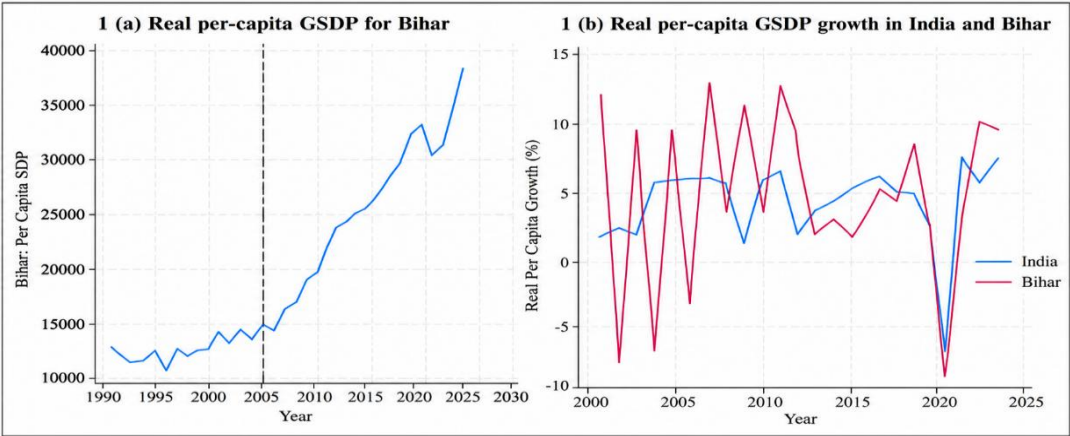
¹⁶ Bihar Economic Survey (2013–14).

¹⁷ 2023 Bihar Caste Census.

¹⁸ Government of India, Annual Report: Periodic Labour Force Survey (PLFS), 2023–24 (New Delhi: Ministry of Statistics and Programme Implementation, 2024), [Annual Report Periodic Labour Force Survey 23 24 0.pdf](#)

¹⁹ MOSPI.

Figure 1. Real Per Capita GSDP in Bihar and Real Per Capita GSDP Growth in Bihar and India

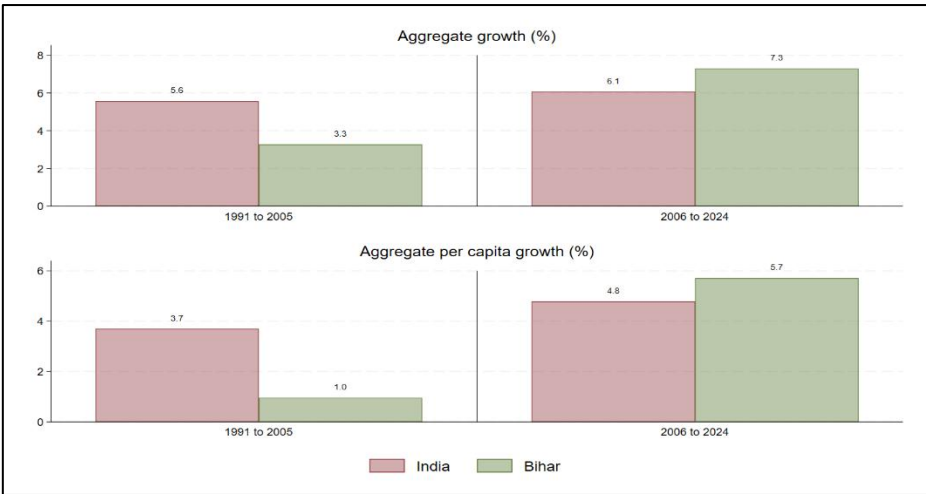


Source: Ministry of Statistics and Programme Implementation, Govt. of India.
Note: Data were sourced from EPWRF and spliced manually. Years in the figures refer to end of FY. For example, 2024 refers to FY2023-24.

Importantly, the increase in Bihar’s per capita GSDP growth did not arise from a demographic slowdown. Unlike many Indian states that benefited from declining fertility and slower population growth, Bihar’s total fertility rate remained substantially higher than the national average, declining only marginally from 3.7 during 1993–2004 to 3.6 during 2005–2021, compared to a decline from 3.0 to 2.3 for the national average.

Figure 2 confirms that the aggregate GSDP growth moves in tandem with the per capita GSDP growth trajectory. During the pre-2005 period (1991–2005), Bihar grew at a modest average annual rate of 3.3 percent (compared to 5.6 percent for India), rising sharply to 7.3 percent per year during 2006–2023, outpacing India’s at 6.1 percent over the same period. The post-2005 acceleration thus marks a significant turning point in Bihar’s economic performance, reflecting a shift from prolonged stagnation to one of the fastest-growing states. The bottom panel shows that per capita GSDP growth stagnated at 1 percent before 2005, rising subsequently to 5.7 percent, nearly one percentage point higher than India’s average despite Bihar’s higher fertility rates.

Figure 2. Bihar vs. India: GSDP Growth and Per Capita GSDP Growth India

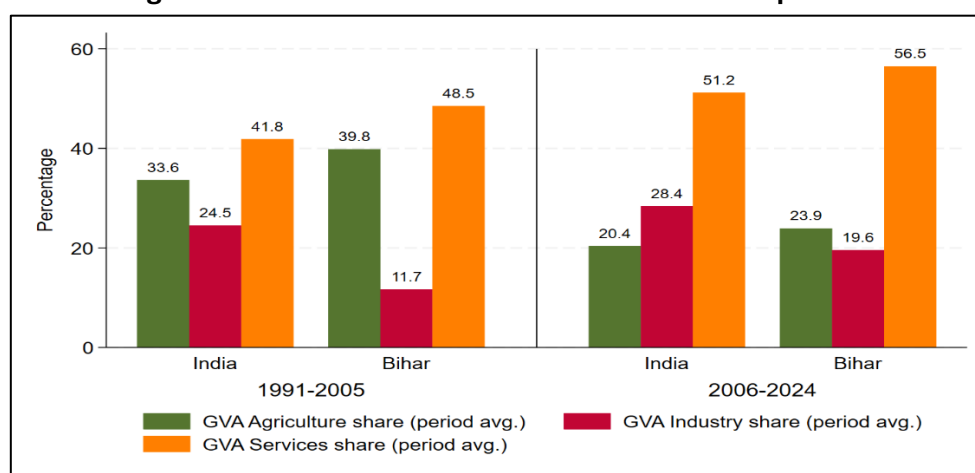


Source: MoSPI, Govt. of India. Data were sourced from EPWRF and spliced manually.

The sectoral composition of output also changed significantly over time. Figure 3 highlights the evolution of Bihar’s Gross State Value Added (GSVA) across major sectors. The share of the dominant agricultural sector declined sharply from nearly 40 percent between 1991 and 2005 to less than 24 percent during 2006–2023. The services sector emerged as the dominant driver of Bihar’s economy, accounting for nearly 57 percent of GSVA by 2023–24. Trade, transport, communication, construction, public administration, and other service activities expanded rapidly alongside improvements in connectivity.

While the industrial sector also grew markedly by over 10 percent during 2006–2024, surpassing India’s average by more than 4 percent, its relative share remained smaller at less than 20 percent compared to India’s average of nearly 30 percent, given Bihar’s small industrial base.

Figure 3. Bihar vs India: Sectoral GVA Shares Comparison



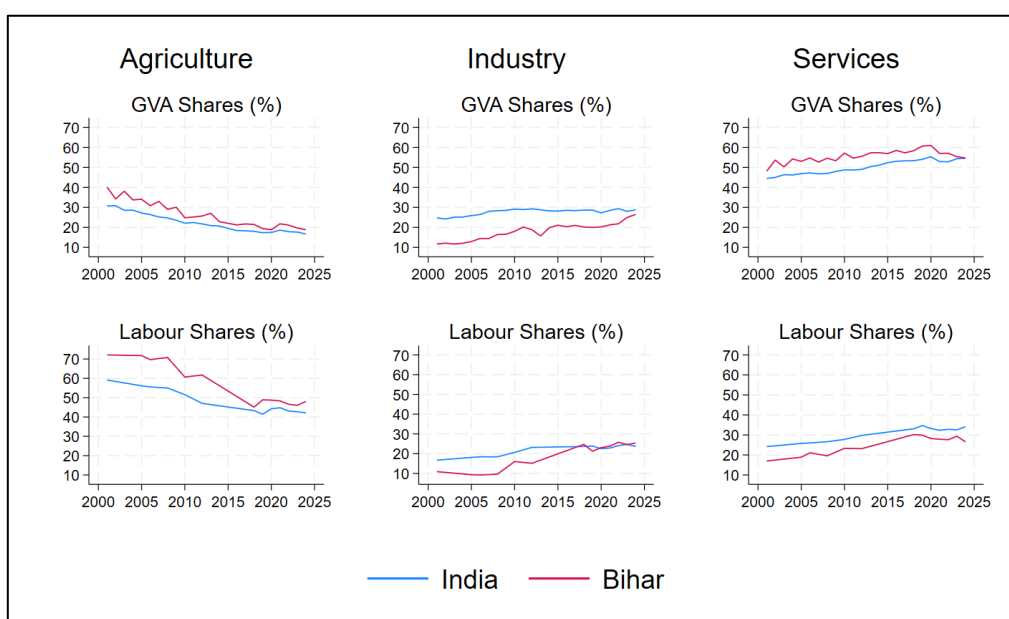
Source: Ministry of Statistics and Programme Implementation, Govt. of India.

Note: Data were sourced from EPWRF and spliced manually. Years in the figures refer to end of FY. For example, 2024 refers to FY2023-24.

Figure 4 highlights the evolving structure of Bihar’s economy in comparison with labour’s share in each sector. While agriculture’s share in Bihar’s GVA nearly halved in the second sub-period (Figure 4), its share in employment fell from over 70 percent to only about 50 percent, reflecting the stagnation of agricultural productivity of labour. This pattern stands in sharp contrast to advanced economies such as the United States, Canada, and most European countries, where agriculture contributes less than 1 percent of output and employs only about 1–3 percent of their workforce.

The share of both industry and services in output increased, in tandem with the increase in labour employment, almost reaching the national average. Interestingly, the share of labour in services remained lower than the national average throughout the period.

Figure 4. Bihar vs. India: Sectoral Composition of GVA and Employment



Source: MoSPI, Govt. of India. Data were sourced from EPWRF and spliced manually.

Note: Data were sourced from EPWRF and spliced manually. Years in the figures refer to end of FY. For example, 2024 refers to FY2023-24.

Economic growth in Bihar has been accompanied by a substantial reduction in multidimensional poverty. Consistent time series data on poverty at the state level is difficult to find. But recently, NITI Aayog created a National Multidimensional Poverty Index (MPI), whose underlying data are collected by the National Family Health Survey (NFHS) rounds. The last two NFHS surveys shows that Bihar's multidimensional poverty headcount declined sharply between 2015–16 and 2019–21 (Table 1). This improvement reflects gains in access to education, healthcare, electricity, sanitation, drinking water, housing, and other basic services that accompanied higher public investment and better governance.

Table 1. Bihar: Multidimensional Poverty Index

Indicator	Value
MPI Headcount Ratio, NFHS-4 (2015–16)	51.9%
MPI Headcount Ratio, NFHS-5 (2019–21)	33.8%
Decline	18 percentage points
	2.25 crore
Population that exited multidimensional poverty	≈20% of Bihar's 2015 population (≈11 crore).

Source: NITI Aayog, National Multidimensional Poverty Index: A Progress Review (2023).

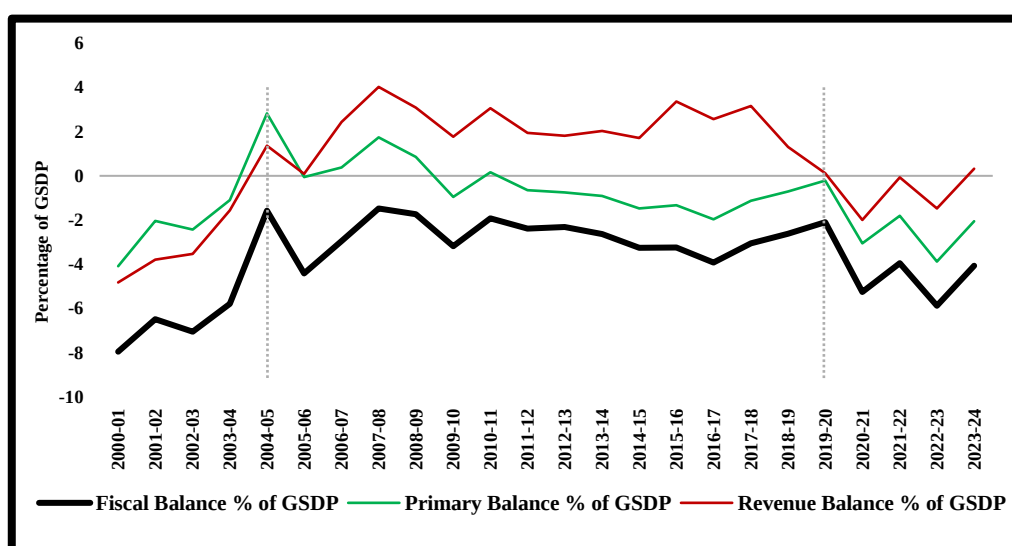
Despite this remarkable progress, Bihar continues to have the highest multidimensional poverty rate among Indian states, with one in three people still deprived across multiple dimensions.

III.2. Improvements in State Public Finances

An important pillar of Bihar's post-2005 recovery was the consolidation and reorientation of public finances until the advent of the COVID-19 shock. Improvements in fiscal management, rising development expenditure, and higher public investment have played a central role in supporting infrastructure creation, welfare delivery, and economic growth during 2005-2019.

The evolution of Bihar's fiscal position, depicted by fiscal, primary, and revenue balances, is presented in Figure 5.²⁰ We identify three distinct periods in fiscal performance: 2001-2004, 2005-2019, and 2019-2024. Across all three measures of fiscal performance, there is a significant improvement after 2005 until the COVID-19 shock. Fiscal balances improved from an average of -6.8 percent in 2001-2004 to an average of -2.7 percent in 2005-2019, falling to an average of -4.3 percent during 2020-2024. These developments were mirrored in the primary balance. Interest costs declined until 2009-10 and were relatively stable thereafter. The most striking developments are reflected in the revenue balance that registered a surplus during 2005-2019, deteriorating sharply thereafter, reflecting the impact of COVID-19 and the rise in current expenditures. A surplus in the revenue balance in the interim period (2005-2019) reflects the ability of the state government to cover its current expenditures.

Figure 5. Bihar: Trends in Fiscal Indicators



Source: MoSPI; RBI, *State Finances: A Study of Budgets* (various years).

Note: Authors' calculations based on data from MoSPI and RBI.

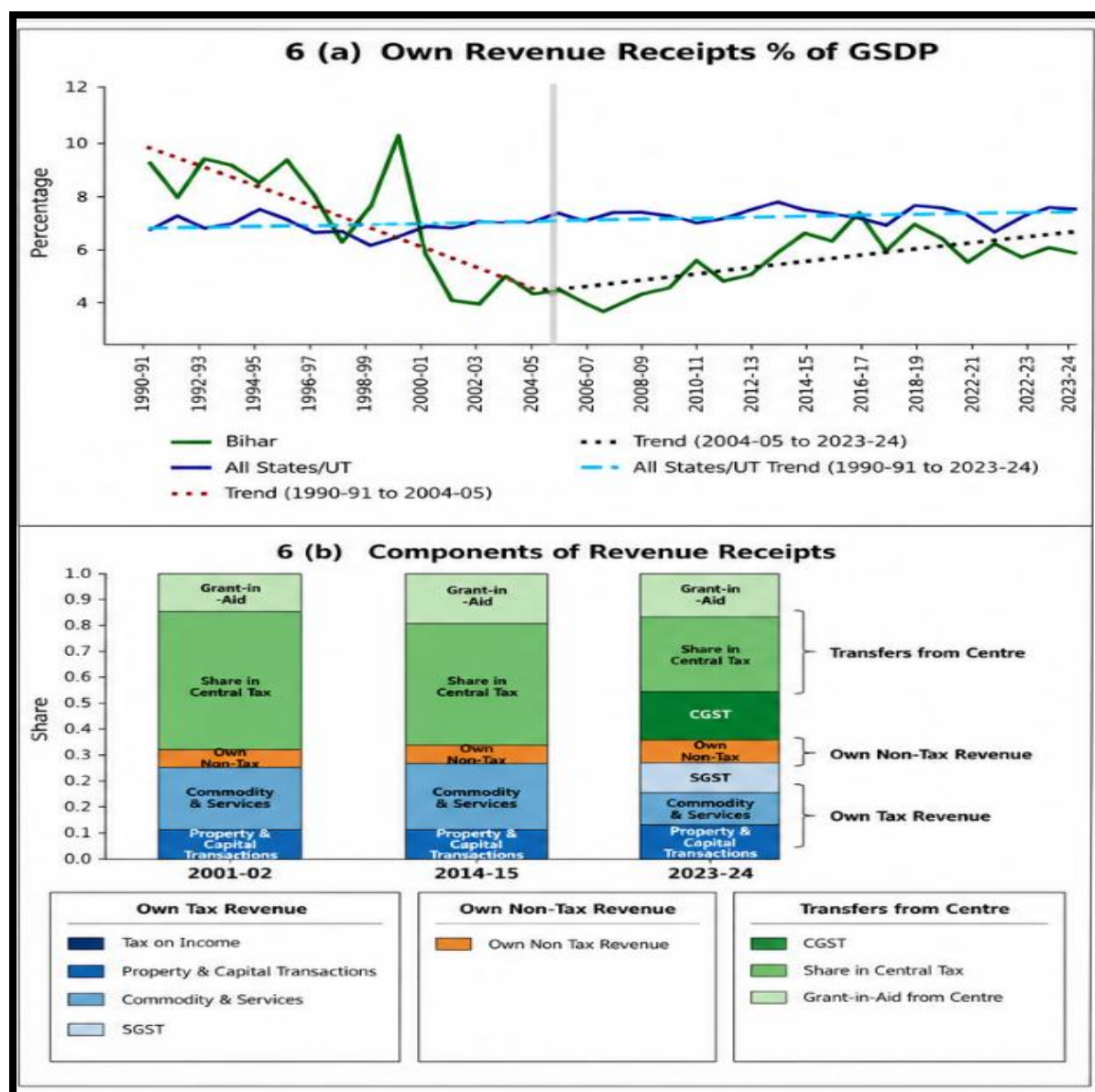
Figure 6 (a) shows that Bihar's own revenue receipts as a percentage of GSDP followed a markedly different trajectory before and after 2004-05.²¹ During 1990-91 to 2004-05, the ratio exhibited a pronounced downward trend, declining from around 9-10 percent in the early 1990s to below 5 percent by 2004-05, as reflected in the red trend line. Thereafter, the trend reversed (black trend line), with own revenue receipts recovering gradually over 2004-05 to 2023-24, reaching around 6-6.5 percent of GSDP by the end of the period. Despite this sustained improvement, the ratio remained below its early-1990s levels, in large part due to the substantial loss of state revenues following the liquor ban in 2016. In contrast, the average of all states/UTs remained relatively

²⁰ Revenue balance in India is defined as state revenues minus current expenditures.

²¹ Own revenue receipts in India are defined as revenues raised by the state government and exclude transfers from the central government.

stable at around 7 percent of GSDP throughout the period, showing a modest upward trend over the three decades. Thus, while Bihar experienced a significant recovery in revenue mobilisation after 2004–05, it continued to lag behind the average of all states/UTs by 2023–24.

Figure 6. Bihar vs. India: Revenue Receipts and Total Expenditure



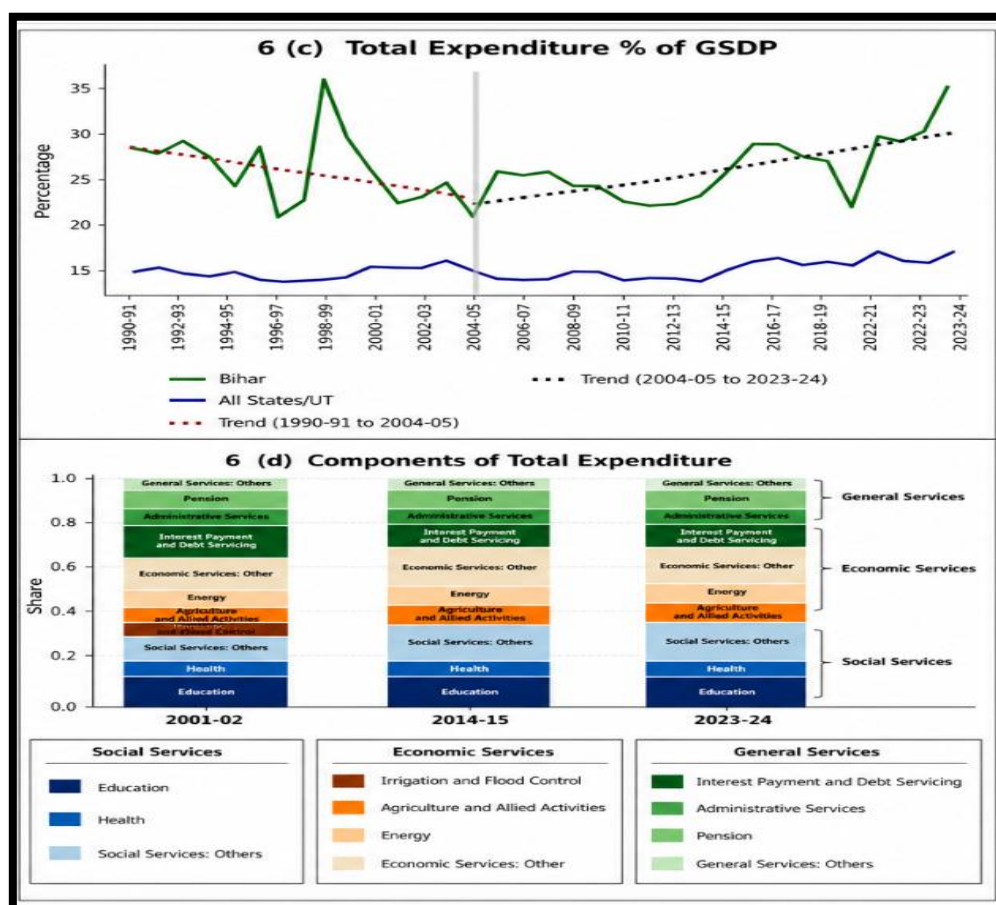
Source: MoSPI; RBI, State Finances: A Study of Budget (various years).

Note: Authors' calculations based on data from RBI and MoSPI. All States/UTs refers to the aggregate of State and Union Territory governments covered in the RBI data.

Notwithstanding the recovery of Bihar's own revenue receipts, since the bulk of the total revenues was mobilized by the central government,²² it remained largely dependent on transfers from the central government for augmenting its own revenues to finance its expenditure (Figure 6 (b)). Across all three periods, transfers from the centre constitute about 70 percent of total revenue receipts, though a distinct increase in the share of own revenue receipts is witnessed in the last period (2023-24). The impact of the introduction of GST (Goods and Services Tax) is visible in the

²² India's constitution bestows the Union (central government) substantially greater taxing powers to raise revenues for the states.

most recent period, with SGST (state-level) and CGST (central level) emerging as important components of the revenue structure.²³



Source: MoSPI; RBI, State Finances: A Study of Budget (various years).

Note: Authors' calculations based on data from MoSPI and RBI. All States/UTs refers to the aggregate of State and Union Territory governments covered in the RBI data.

The expansion of Bihar's revenue base and the continued flow of transfers from the Centre were reflected in a significant increase in public expenditure. Figure 6 (c) shows that total expenditure as a percentage of GSDP increased considerably during the post-2004–05 period, reversing the declining trend observed in the preceding years. Although expenditure fluctuated from year to year, the overall trajectory was upward, rising from around 22 percent of GSDP in 2004–05 to over 34 percent by 2023–24. Bihar's expenditure (as a share of GSDP) also remained consistently higher than the average of all states/UTs through much of the period.

A natural question that arises is whether the increase in revenue receipts was spent wisely. Figure 6 (d) above looks at the changing composition of Bihar's total expenditure and shows that, over time, proportionately more was spent on social and economic services, which are developmental, rather than on general services or interest payments, which are current obligations (such as pensions, salaries, administrative services, and interest payments). In fact,

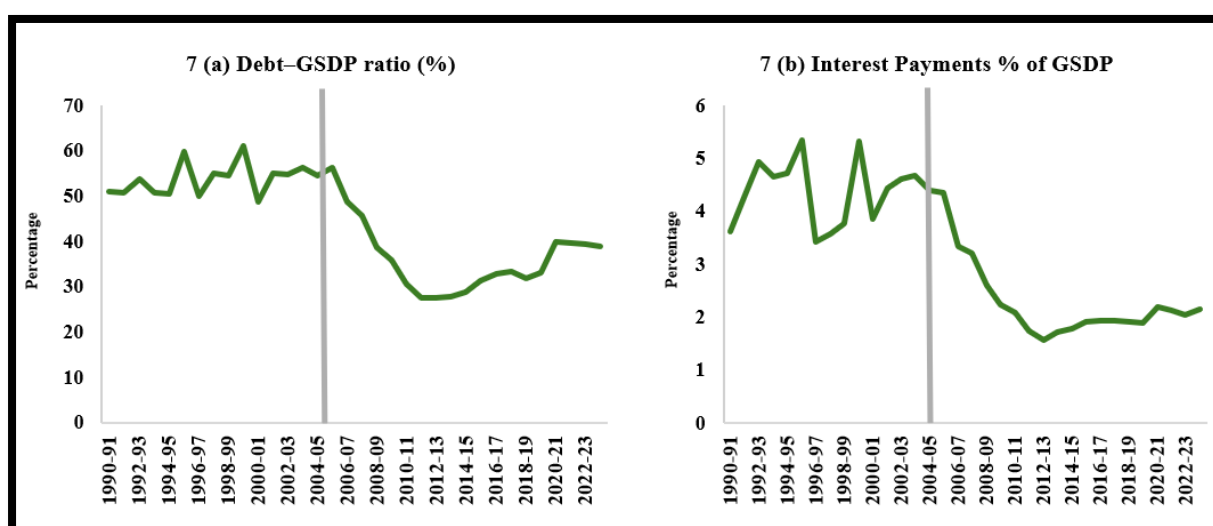
²³ GST is similar to Value Added Tax (VAT). In India VAT was introduced at the state-level in 2005, but the rates could differ across states. VAT was replaced by GST at the national level in 2017 to unify tax rates for the entire country.

as Figure 6 (d) shows, the share of economic and social services increased from about 60 percent in 2001-02 to nearly 71 percent in 2023-24.

The expansion of public expenditure did not lead to a corresponding increase in Bihar's debt burden. As Figure 7 (a) below shows, debt as a percentage of GSDP declined substantially during the post-2004–05 period. After remaining above 50 per cent of GSDP for much of the 1990s and early 2000s, the ratio fell steadily over the following decade, dropping to below 30 per cent until the economy was hit by the COVID-19 shock. Even so, state government debt has remained well below the levels seen before 2004-05. This decline reflects positive debt dynamics at play, primarily due to higher economic growth.²⁴

The relatively favourable debt profile can also be viewed in the evolution of the state's interest burden (Figure 7 (b)). Interest payments as a percentage of GSDP fell sharply after 2004-05, reflecting both the expansion of the GDP base and a reduction in the cost of borrowing in real effective terms. This positive growth-interest rate differential has helped contain the debt burden, creating the fiscal space for physical and human capital development without a commensurate increase in debt, relative to the size of its economy.

Figure 7. Bihar: Debt Trajectory and Interest Payments



Source: MoSPI; RBI, State Finances: A Study of Budget (various years).

Note: Authors' calculations based on data from MoSPI and RBI.

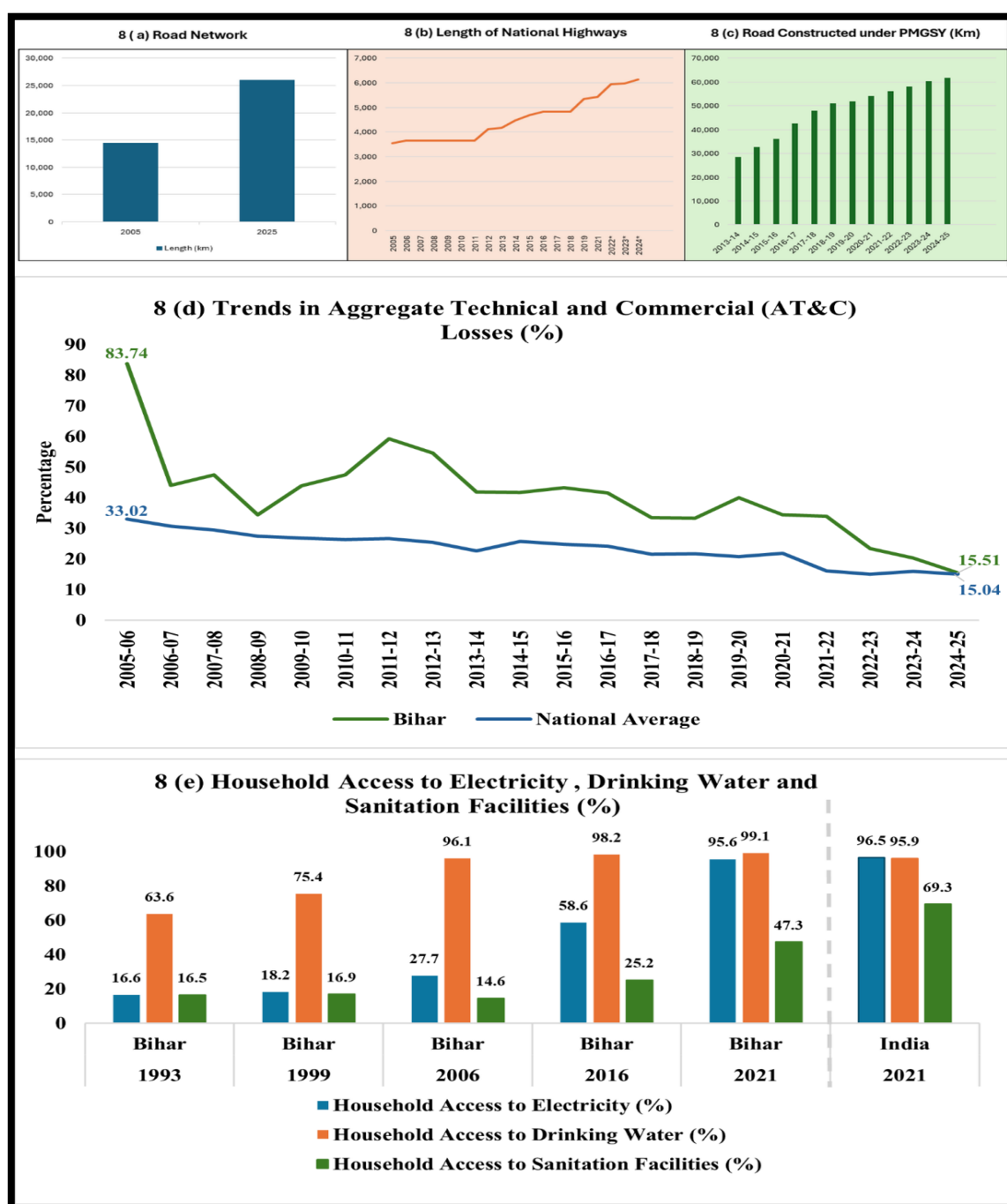
III.3. Expansion of Physical Infrastructure: Roads, Water, Electricity Distribution, and Sanitation

A central component of Bihar's post-2005 development has been the expansion of physical infrastructure, improvements in road connectivity, drinking water access, sanitation, and electricity distribution. Figures 8 (a), (b), and (c) show that the total road network under the Road Construction Department (comprising National Highways, State Highways, and Major District Roads) expanded by nearly 80 percent and National Highways by over 70 percent. Rural

²⁴ Cross-country evidence indicates that the fastest way public debt-to-GDP ratio is reduced in a stable macroeconomic environment is via higher economic growth, rather than by raising primary balance as a share of GDP or a reduction in interest rate.

connectivity also improved significantly through the Pradhan Mantri Gram Sadak Yojana (PMGSY), with road construction doubling during the last decade.

Figure 8. Bihar: Trends in Infrastructure Development



Source: Ministry of Road Transport and Highways (MoRTH), Government of India (Figures 8(a)–8(c)); Power Finance Corporation (PFC), *Performance of State Power Utilities Reports* (various years) (Figure 8(d)) 25.; National Family Health Survey (NFHS), Rounds 1–5 (Figure 8(e)).

²⁵ AT&C loss data are compiled from various editions of the Power Finance Corporation's (PFC) *Performance of State Power Utilities* reports.

These investments have reduced travel time, improved access to markets, schools, and health facilities, and increased linkages between rural and urban areas (World Bank, 2024)²⁶. Undoubtedly, these advances are making a significant difference in people's day-to-day living.

Among the visible examples of Bihar's improving state capacity over the past two decades has been the transformation of its electricity distribution system. A useful measure of the effectiveness of power-sector governance is Aggregate Technical and Commercial (AT&C) losses, which capture the gap between electricity supplied and revenue ultimately collected.²⁷

In 2005–06, AT&C losses stood at nearly 84 percent, compared with a national average of 33 percent. In effect, more than four-fifths of the electricity entering the distribution system was either physically lost or not paid for. Such losses imposed severe financial pressures on the power sector, limited the ability of utilities to invest in network improvements, and undermined the reliability and sustainability of electricity supply. As shown in Figure 8 (d), AT&C losses had declined sharply to 15.5 percent by 2024–25, closing the gap with the national average. Investments in feeder separation, network modernisation, metering, billing systems, digital monitoring, and collection mechanisms helped reduce technical losses. Equally important were improvements in enforcement and utility management that curtailed leakages and strengthened accountability. While the loss in revenues due to technical reasons were substantially reduced, commercial losses due to subsidisation of electricity consumption by households and businesses by the state government remained large, as we will see later.

Figure 8 (e) compares Bihar with the all-India average on developments in access to basic household utilities during the post-2005 period. Household access to electricity increased sharply from less than 17 percent in 1993 to over 95 percent by 2021, nearly converging with the national average. Access to drinking water also rose significantly, increasing from less than 64 percent in 1993 to universal coverage in 2021, marginally exceeding the all-India average of 96 percent. While sanitation facilities in India at less than 70 percent lag behind other utilities in India, this difference is starker for Bihar—By 2021, Bihar was only at 47 percent.

Still, access to sanitation has improved significantly, nearly doubling the number of households covered in five years starting in 2016. This was driven by the *Swachh Bharat Mission* under which more than 1.2 crore household toilets were constructed.²⁸ The most impressive initiatives were the *Har Ghar Nal Ka Jal* programme and the *Jal Jeevan Mission* (2019) that delivered the most impressive results: tap water coverage in rural areas increased from less than 2 percent in 2019 to more than 95 percent by 2025.²⁹

III.4. Bihar's Socio-Economic Indicators: Increasing Access to Education and Health

Education

The post-2005 period also witnessed sustained efforts to improve access to primary and secondary education, particularly for girls and disadvantaged communities. Initiatives such as the bicycle scheme for girls, the recruitment of para-teachers, and the expansion of the school's physical infrastructure were undertaken. According to ASER 2024, only about 3 percent of rural

²⁶ World Bank – Bihar Rural Road Projects (P155522).

²⁷ High AT&C losses typically reflect a combination of technical inefficiencies, theft, poor metering, weak billing systems, and limited administrative capacity to enforce payment compliance.

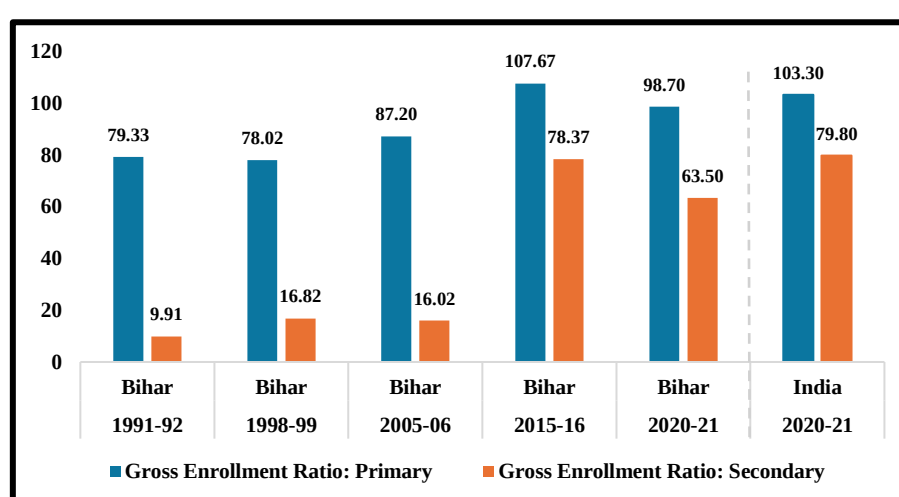
²⁸ “*Swachh Bharat*” translates to “Clean India” and “*Har Ghar Nal Ka Jal*” to “Tap Water for Every Home.”

²⁹ Tap water refers to FHTC Connection, i.e., Functional Household Tap Connection.

children aged 6 to 14 are out of school, and the foundational-to-preparatory transition rate is 98.8 percent, essentially identical to the national average. Government investment has played a central role in expanding access to education in Bihar. Government schools account for 81.2 percent of total enrolment, compared with 49.2 percent nationally, highlighting the state's heavy reliance on the public education system to provide schooling to its rural and disadvantaged populations.³⁰ There are encouraging signs on both learning and equity. Government efforts have yielded positive results beyond expanding access. Bihar performs better than the national average in foundational arithmetic, as measured by ASER, and girls now outperform boys in secondary school enrolment by about 5 percentage points, reflecting significant progress toward gender equity in education.

In Figure 9, we see a steady increase in the primary enrolment ratio from less than 80 percent in 1991-92 to nearly full enrolment by 2021.³¹ There was also an increase in secondary enrolment ratio from 16 percent in 2005-06 to nearly 80 percent in 2015-16. But this ratio had fallen to less than 64 percent by 2020-21, remaining well behind India's average. Unless there are extreme circumstances such as wars or conflicts, it is not usual to see education indicators fall over time. We explore deeper into these issues in Section V.

Figure 9. Bihar and India: Gross Enrolment Ratio (in percent)



Source: EPW Research Foundation Dataset (various years).

Note: The primary level refers to Grades I–V, and the secondary level refers to Grades IX–XII. GER can exceed 100 percent due to the inclusion of over- aged and under-aged pupils/students resulting from early or late school entry and grade repetition.

Health

Health indicators in Bihar were relatively poor until the early 2000s. Alongside the state's post-2005 economic recovery, however, health outcomes improved markedly, supported by higher investments in public health infrastructure, maternal and child healthcare, immunisation, nutrition programmes, disease prevention, and rural health outreach. Fertility declined from 3.0

³⁰ Basic school infrastructure has also improved substantially and now exceeds the national average on several indicators. Nearly all schools have access to drinking water (99.7 percent), functional girls' toilets (98.0 percent), and electricity (97.5 percent), reflecting sustained public investment in improving the learning environment.

³¹ Gross Enrolment Ratio (GER) is the total enrolment in a given level of education, regardless of age, expressed as a percentage of the population in the official age group for that level. Because it includes over-age and under-age students, as well as repeaters, the GER can exceed 100 percent.

to 2.7 births per woman, approaching the replacement level, while the share of women aged 20–24 years married before age 18 fell from 40.8 percent to 34.6 percent.

One of the most significant improvements has been in the utilisation of maternal and child health services. Institutional deliveries increased sharply over the past two decades from under 20 percent in 2005–06 to 81.1 percent in 2023–24, reflecting expanded access to health facilities, financial incentives under the Janani Suraksha Yojana (JSY), and the growing reach of frontline health workers.³² Similarly, full immunisation coverage among children aged 12–23 months increased from just 11 percent in 1993 to 71 percent in 2023–24 (Figure 10(a)), driven by the expansion of routine immunisation services, Mission Indradhanush, stronger primary healthcare, and improved outreach. Although coverage has improved substantially, it remains below the national average of 77 percent (2023–24), highlighting the need to reach the remaining unvaccinated and partially vaccinated children.³³

Child nutrition has also improved steadily, although Bihar continues to lag behind the national average (Figure 10(b)). The share of underweight children declined from nearly 63 percent in 1993 to 41 percent in 2023–24.³⁴ Similarly, stunting among children fell from 61 percent to 43 percent over the same period.³⁵ These improvements reflect important gains in child health but also underscore the persistence of chronic undernutrition.

These improvements in maternal care, immunisation, and child nutrition have contributed to substantial gains in child survival and overall population health. Child mortality and life expectancy are widely used indicators of population health because they capture the cumulative effects of nutrition, disease, healthcare, sanitation, and living conditions. Improvements in these indicators therefore reflect broad gains in health and human development. Bihar has experienced a sharp decline in both infant and under-five mortality over the past three decades (Figure 10(c)). Despite these gains, Bihar continues to lag behind the national average. In 2021, the infant mortality rate was 47 deaths per 1,000 live births, compared with 35 nationally, while the under-five mortality rate stood at 56, compared with the national average of 42. Life expectancy has increased to about 70 years, bringing the state close to the national average (Figure 10(d)).

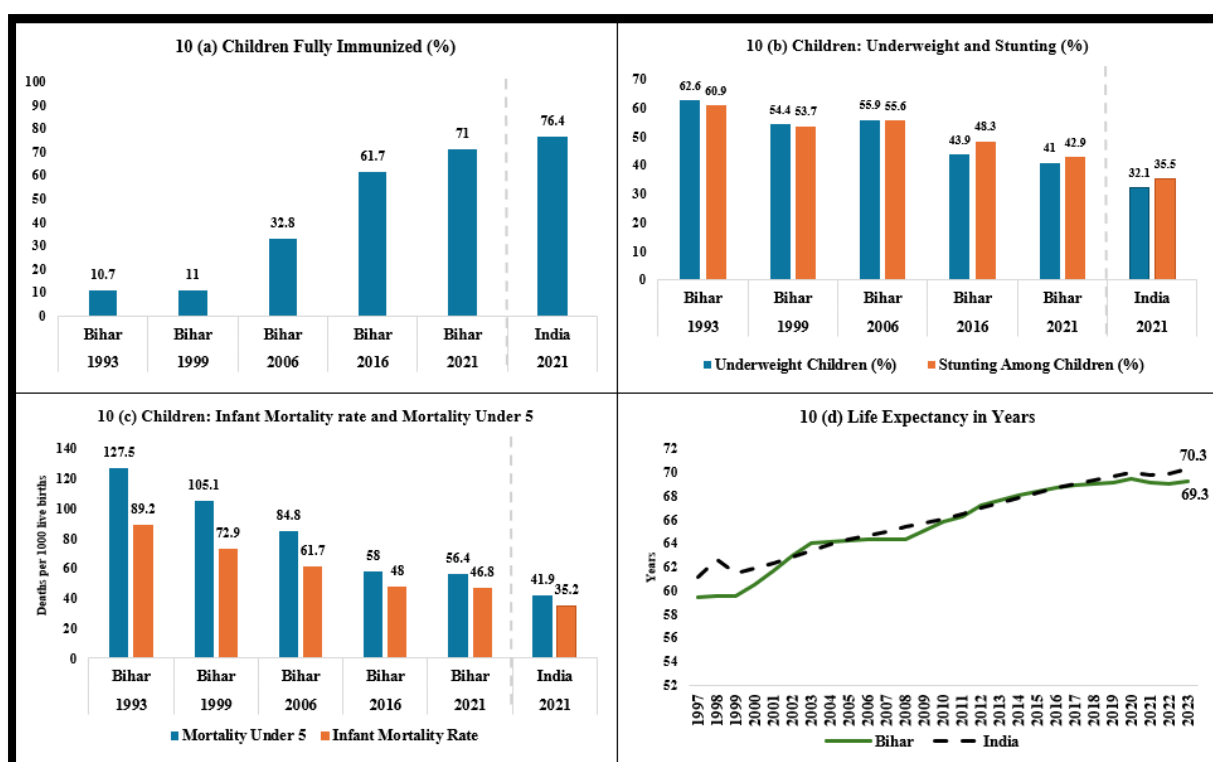
³² The Janani Suraksha Yojana (JSY), launched in 2005 under the National Rural Health Mission, is a conditional cash transfer programme that provides financial incentives to encourage institutional deliveries among pregnant women, particularly those from poor and vulnerable households. The programme also incentivizes Accredited Social Health Activists (ASHAs) to identify pregnant women, facilitate antenatal care, and ensure delivery in health facilities.

³³ Nearly one in four children remains incompletely immunized.

³⁴ Underweight is defined as low weight-for-age, with a weight-for-age z-score more than two standard deviations below the WHO Child Growth Standards median (WAZ < -2). It is a composite indicator that reflects both chronic and acute undernutrition.

³⁵ Stunting is defined as low height-for-age, with a height-for-age z-score more than two standard deviations below the WHO Child Growth Standards median (HAZ < -2). It reflects chronic undernutrition and repeated illness during early childhood.

Figure 10: Bihar and India: Trends in Selected Health Indicators



Sources: National Family Health Survey (NFHS), Rounds I–V; Sample Registration System (SRS), 2023.

Note: Life expectancy estimates are based on the Sample Registration System (SRS), 2023. The Infant Mortality Rate (IMR) is defined as the number of deaths of infants under one year of age per 1,000 live births, while the Under-five Mortality Rate (U5MR) is defined as the number of deaths of children under five years of age per 1,000 live births, as reported in NFHS. Data on child nutrition (underweight and stunting) and full immunisation are also derived from NFHS Rounds I–V.

III.5. Decline in Violent Crimes

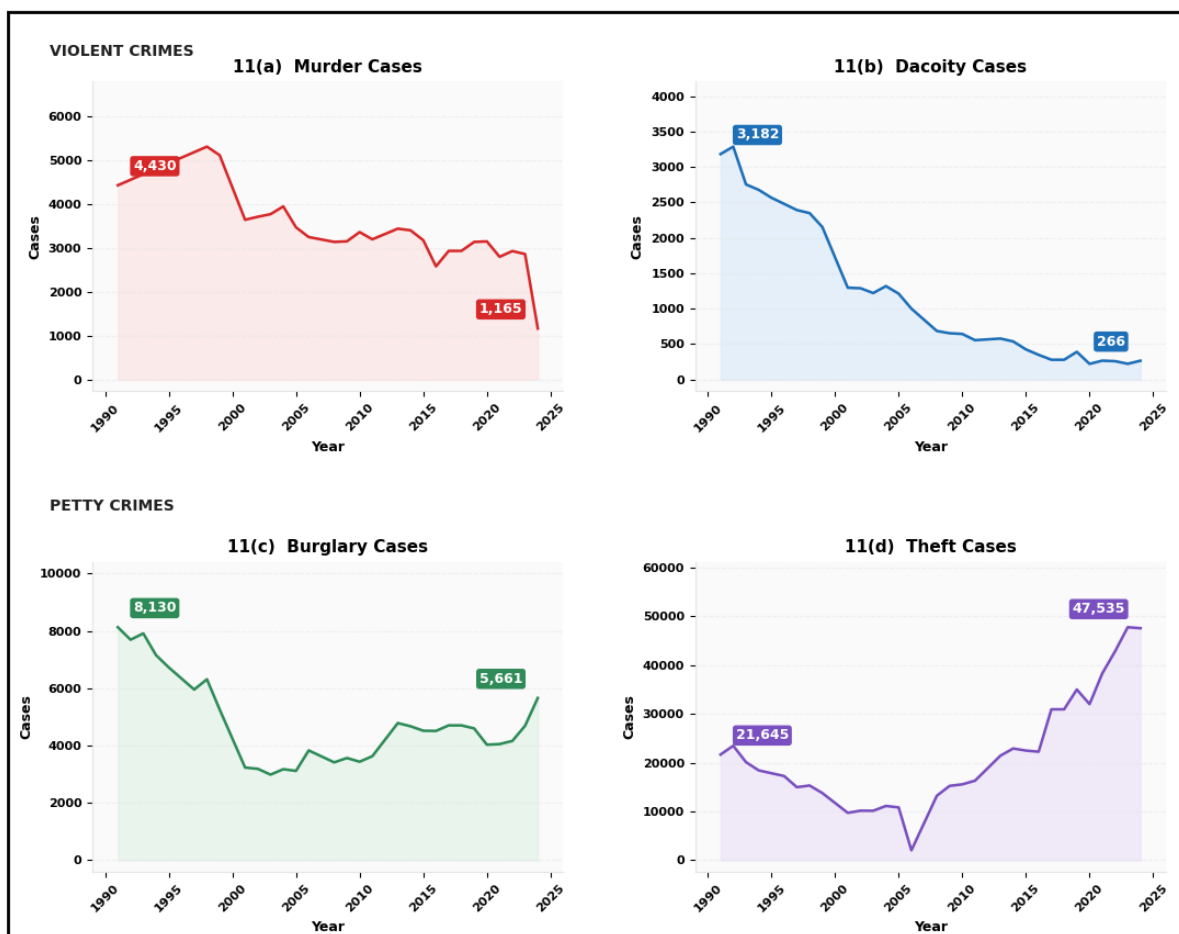
The restoration of law and order was critical in Bihar's post-2005 recovery. Following decades of corrupt practices, violent crime, and weak administrative capacity, the state government under Nitish Kumar began to place emphasis on policing, criminal prosecution, judicial reforms, and administrative accountability. A key innovation was the introduction of "speedy trials" through fast-track and special courts, coupled with closer coordination between the police, prosecutors, and the judiciary. The government also prioritized the prosecution of offenders under the Arms Act and other serious criminal statutes, leading to a sharp increase in convictions, reducing the perception of impunity that had characterized earlier decades. These measures strengthened the credibility of the state's capacity to deter violent crime.³⁶ They also generated substantial economic spillovers by reducing transaction costs of doing business, easing the mobility of labour and goods, and enabling a move towards market integration. The state's investments in physical and digital infrastructure, especially the construction of roads, allowed the accessibility and rapid deployment of law enforcement officials.

Figure 11 shows a substantial decline in violent and organized crimes over the last three decades. Murder cases fell from a peak of more than 5,300 cases in the late 1990s to about 1,165 cases in 2024. Dacoity, historically associated with rural banditry and weak law enforcement, declined even more sharply—from over 3,200 cases in the early 1990s to merely around 222 cases by 2024. However, theft cases increased nearly fivefold with greater urbanisation, rising population

³⁶ Economic Survey 2010-11, Finance Department, Govt. of Bihar

pressures, and insufficient state capacity to deal with lesser crime. A similar trend can be seen with regard to burglary cases. Part of the increase could also reflect better reporting.

Figure 11: Overall Crime Trends in Bihar (1991 - 2024)

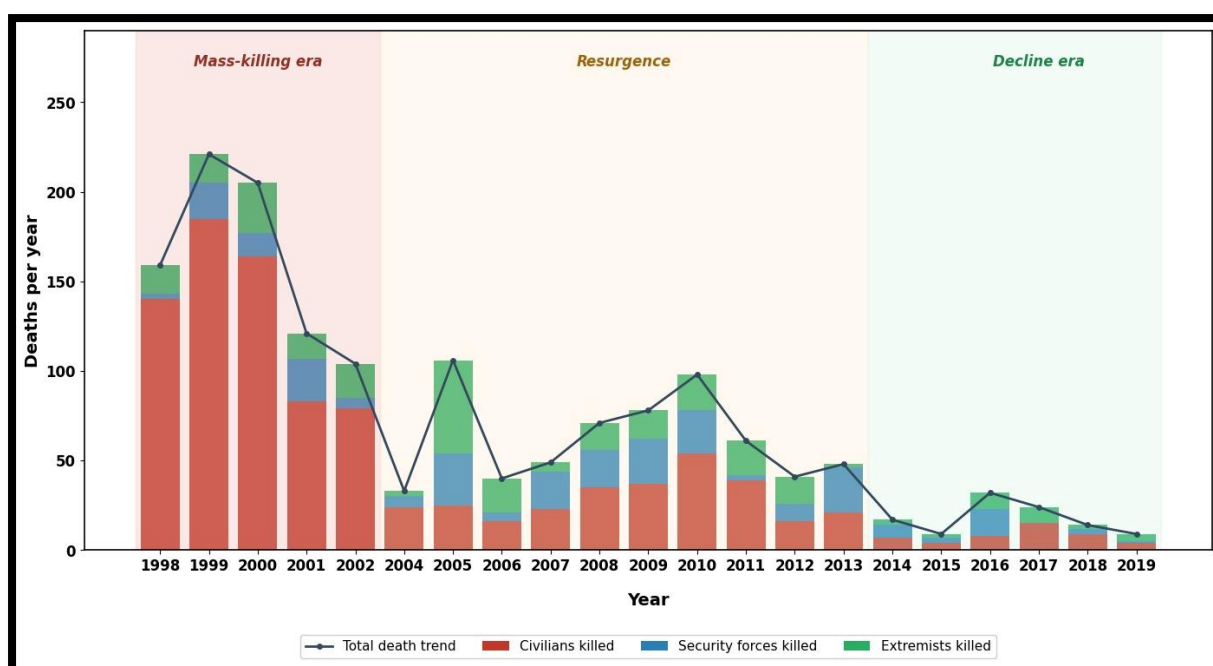


Source: National Crime Records Bureau, Ministry of Home Affairs, Govt. of India

Figure 12 reinforces Bihar's turnaround in the decline in violent crimes by perusing the trends in Naxal-related incidents and fatalities after the early 2000s.³⁷ The central government provided extensive support in the eradication of Naxalism in Bihar and other states. This effort was reinforced by Nitish Kumar who successfully facilitated the surrender of arms by the Naxalites, in part by recognising that the Naxalite movement was a result of the marginalisation of lower castes and tribes by the state authorities and upper castes, rather than acts of ordinary criminals.

³⁷ Naxalites are communist insurgents in India who waged armed conflicts against the government and higher classes to demonstrate against the socio-economic inequalities of lower castes and tribes.

Figure 12: Decline in Naxalism in Bihar



Source: South Asia Terrorism Portal, Institute for Conflict Management.

Taken together, the evidence presented so far suggests that Bihar's post-2005 recovery was driven by a combination of improvements in law and order, a sharp decline in violent crimes and caste-based conflicts, and public investment in education, health, and infrastructure.

III.6. Migration and Remittances Increase Household Welfare

The role of migration and remittances can be viewed positively, as it reflects that labour is mobile which helps equalize wages for similar skills across the country, benefits the recipient states demand for labour, and reduces the fiscal pressure on the sending states to provide social services to more people. If remittances are large, there is a clear benefit to the households in the recipient state. But there is no question that large out-migration and remittances reflect lower per capita income and lower job opportunities at home (Panagariya 2014)³⁸.

It is well-known that Bihar has witnessed large-scale out-migration, including seasonal migration, and is a large beneficiary of remittances. Unfortunately, no systematic comparable data on out-migration is available to facilitate state-wise comparisons. We were able to use data from the NSS 64th Round and analyse migration in Bihar for FY 2007-08 only. Since Bihar still remains the poorest state, there is no reason to believe that out-migration has slowed down since then³⁹.

At the outset, it is worth noting that the nature of out-migration differs widely between men and women. Men move out of Bihar mostly to find jobs, while women move mostly because they marry someone from another district or state. The scale of male out-migration was large. In 2007-08, 104 of every 1000 males in Bihar were out-migrants, well above the all-India average of 81. This movement was overwhelmingly directed outside the state—844 of every 1000 male out-

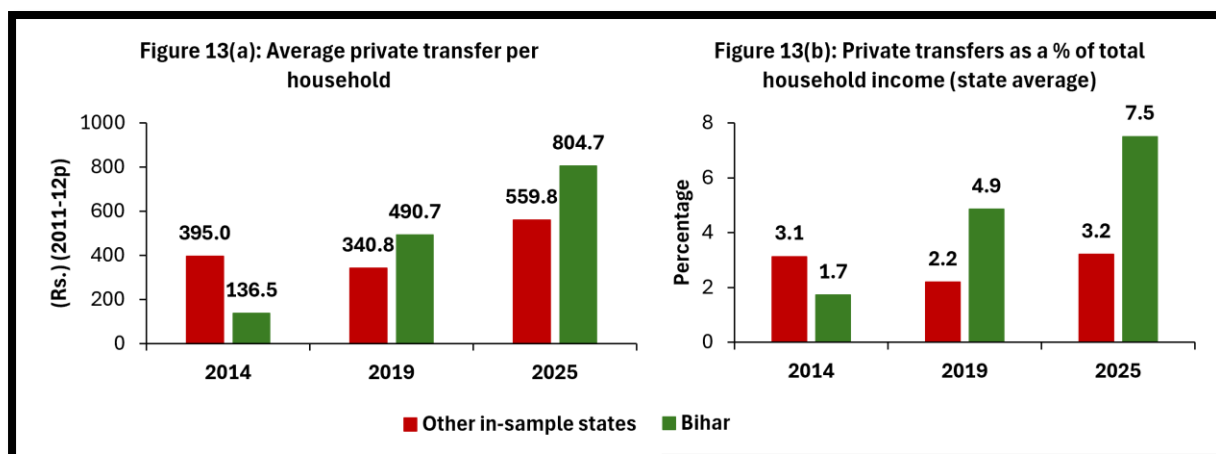
³⁸ Panagariya, Arvind. Chapter 24. In *The Story of New Bihar: Rekindling Governance and Development*. Edited by N. K. Singh and Nicholas Stern.

³⁹ Given the absence of comparable recent state-level migration data, we cannot establish with certainty whether the rate of out-migration has increased or declined since 2007-08. will never catch up

migrants from Bihar had moved to another state, with only 130 remaining within Bihar, and the rest (28) migrated abroad. The reason was almost entirely economic. Employment-related reasons accounted for 877 of every 1000 male out migrants from Bihar, above the all-India figure of 783. This outflow of men from Bihar sustained households' consumption and increased their standard of living.⁴⁰

Female out-migration, on the other hand, was smaller than male's (63 per 1000) and was driven by marriage rather than work (only 1.3 percent had moved for employment reasons). Of those who had moved because they got married, nearly 80 percent had moved within the state.

Figure 13. Bihar and Other States: Developments in Remittances



Source: Income Pyramids, CPHSdx – CMIE (2014 - 2025)⁴¹

Data on remittances are available at infrequent intervals and are presented in Figure 13. The overall picture that emerges is that remittances in Bihar have risen rapidly over time both in absolute terms (in constant prices) and as a share of household income (Figure 13 (a)). Figure 13 (b) shows that private transfers received per household more than quadrupled in real terms during 2014-2025, surpassing the average of other states by 2019, and remained higher thereafter in both absolute terms and as a share of total household income. The contrast is sharper as a share of household income.

IV. The Not-So Good News: Bihar in a Comparative Macro Perspective

As documented in the previous section, Bihar is the poorest Indian state, but its economic growth rate has been faster than the all-India average in the past two decades. A key question that arises is whether Bihar's higher growth rates will lead to an increase in its per capita income to reach the levels achieved by other states over time. To ensure inclusive and stable growth, it is also of interest to examine whether income distribution has widened or narrowed over time, district level disparities are large or small, income volatility is high or low, and unemployment is large or small. We explore these questions in the sections below.⁴²

⁴⁰ Employment, Unemployment, and Migration Survey, July 2007 – June 2008, NSS 64th Round, MoSPI

⁴¹ These results should be interpreted with caution given concerns about the representativeness of the CPHS data. The survey tends to under-represent poorer households, with this bias appearing to have increased over time, while also potentially under-reporting incomes at the top of the distribution. The net effect of these opposing biases on measured inequality is therefore uncertain (Jha and Basole, 2023).

⁴² The analysis also draws on interstate indicators available in the NITI Aayog–NCAER State Economic Forum Dashboard (2025).

IV.1. Convergence with Other States

Is Bihar's long-term growth trajectory converging toward the income levels of the rest of India? Economic convergence can be examined from two complementary perspectives. Absolute convergence refers to the process whereby poorer regions grow faster than richer regions and gradually narrow income gaps and reach the same per capita income in the steady state in the long run. This theory is based on the neoclassical growth model (Solow–Swan model), which assumes that all regions have the same technology, savings rates, and population growth rates. Conditional convergence recognizes that regions will converge towards different long-run steady-state income levels depending on their structural characteristics such as technology, savings rates, population growth rates, and also other factors such as human capital development, institutions, state capacity etc.

Formally, whether economies are converging to the same steady-state per capita income or not can be best captured by statistically testing for convergence. Table 2 presents the results for both absolute and conditional convergence.

Table 2: Convergence of per capita income across 17 Indian States (2001-2023)

	(1) Cross-Sectional OLS	(2) 5-Period Averages with State and Period FE
Log of Initial Per Capita SDP	0.010** (0.005)	-0.069*** (0.017)
Observations	17	85
R-squared	0.200	0.712

Source: Author's calculations.

Notes: The dependent variable is the annualised growth rate of real per capita SDP, expressed in log terms. The explanatory variable is the log of initial real per capita SDP.

Column (1) reports heteroskedasticity-robust standard errors.

Column (2) reports standard errors clustered at the state level.

*p < 0.10, ** p < 0.05, *** p < 0.01

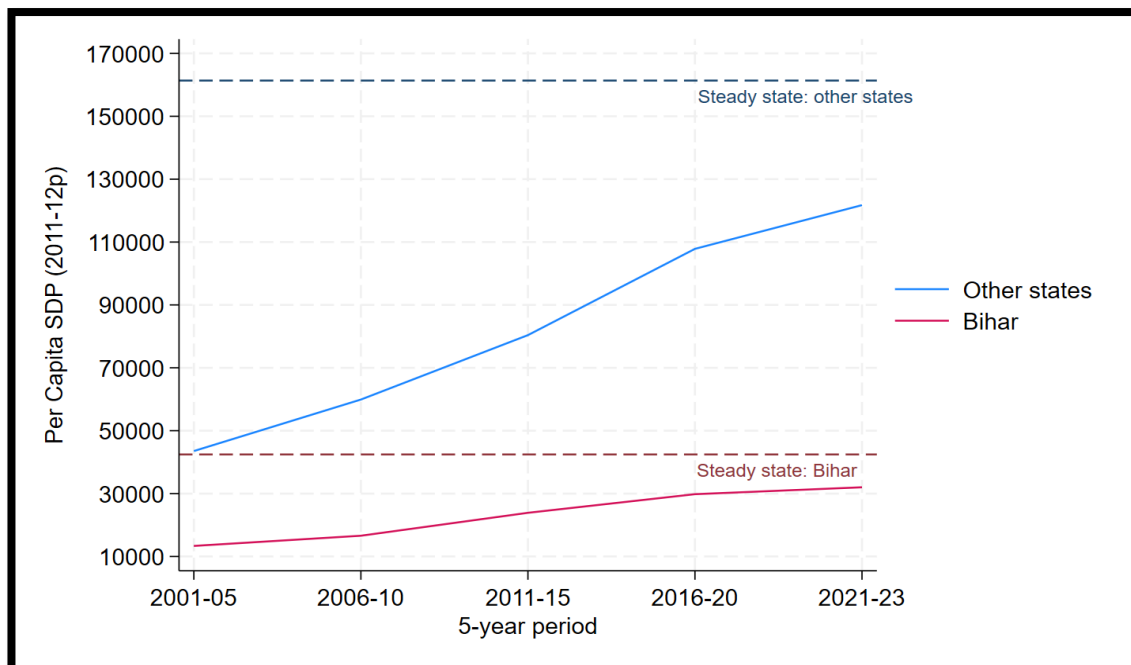
We use data from the financial year 2000-01 (the first year when Bihar was bifurcated into two states, Bihar and Jharkhand) to the latest year available (FY 2022-23). The sample included 17 large states, including Bihar.⁴³ In column 1 we test for absolute convergence by running a cross-sectional OLS regression of the per capita income growth rate on the initial per capita income. If the coefficient on the initial per capita income is negative, it implies there is convergence to the same per capita income across states; if it's positive there is no convergence. As column 1 (cross-sectional regression) indicates there is no absolute convergence as the coefficients are positive. This confirms the graphical presentation in Figure 14. It shows that Bihar remained substantially poorer than the other states' average throughout the period, and that the gap actually widened during the period under consideration. At current trajectory and without additional reforms, Bihar's per capita income will not catch up with other states.

In column 2, we test for "conditional" convergence by running a panel regression (using 5-year averages for each state) for the same sample but include the possibility that there may be some structural characteristics that differ across states (called "fixed" effects) and that states may be impacted by different factors over time (election-related spending, floods and draughts etc which

⁴³The analysis considers the following 17 states: Punjab, Haryana, Rajasthan, Uttar Pradesh, Bihar, Assam, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu.

are called “time” effects) that lead to different levels of per capita income over time. The results on conditional convergence indicate that Bihar and “other states” are converging (the coefficient on per capita income is negative) but to their own steady-state levels of per capita income in the long run, as illustrated in Figure 14.

Figure 14: Absolute and Conditional Convergence: Bihar and India (2011–12 Prices)



Source: Author's Calculations based on data from MOSPI

Note: Data were sourced from EPWRF and spliced manually. Years in the figures refer to end of FY. For example, 2024 refers to FY2023-24.

The important implication of these results is that Bihar can only move towards absolute convergence by raising per capita income growth rates to even higher levels by upgrading the structural characteristics through policy reforms.

IV.2. Income and Expenditure Inequality within Bihar

Table 3 presents the evolution of average monthly household income and expenditure by decile in Bihar between 2014 and 2025. The distribution of income indicates a marked narrowing of inequality over the period. Real monthly incomes grew substantially faster among lower-income households than among higher-income households, reflecting a process of catch-up. The poorest decile recorded an increase of more than 200 percent, while real income in the richest decile declined marginally. Consequently, the ratio of average income in the richest decile to that in the poorest decile fell sharply from 16.5 in 2014 to 5.4 in 2025.

The distribution of household expenditure presents a somewhat different picture. Average monthly expenditure increased across all deciles, with gains exceeding 50 percent for most income groups. Compared with income, expenditure remained considerably more evenly distributed across households. By 2025, average expenditure in the richest decile was only about 2.9 times that of the poorest decile, compared with an income ratio of 5.4. This suggests that poorer households were able to smooth consumption despite relatively low incomes, supported by remittances, direct benefit transfers, public support programmes, and, possibly, borrowing.

Table 3. Average Monthly Household Income and Expenditure by Decile in Bihar, 2014 and 2025 (2011–12 Prices)

Decile	Income (2011–12 prices)			Expenditure (2011–12 prices)		
	2014	2025	Increase (%)	2014	2025	Increase (%)
1 (Poorest)	1,521	4,588	201.6	3,300	4,556	38.1
2	3,846	6,593	71.4	3,803	5,888	54.8
3	4,364	7,416	69.9	4,095	6,539	59.7
4	4,869	8,055	65.4	4,364	7,121	63.2
5	5,642	8,686	54.0	4,647	7,680	65.3
6	6,695	9,318	39.2	5,015	8,254	64.6
7	7,660	10,337	34.9	5,509	8,904	61.6
8	9,126	12,107	32.7	6,162	9,638	56.4
9	12,064	15,382	27.5	7,015	10,597	51.1
10 (Richest)	25,135	24,569	-2.3	9,441	13,248	40.3

Source: Consumption Pyramids, CPHSdx – CMIE. Based on authors' calculations.

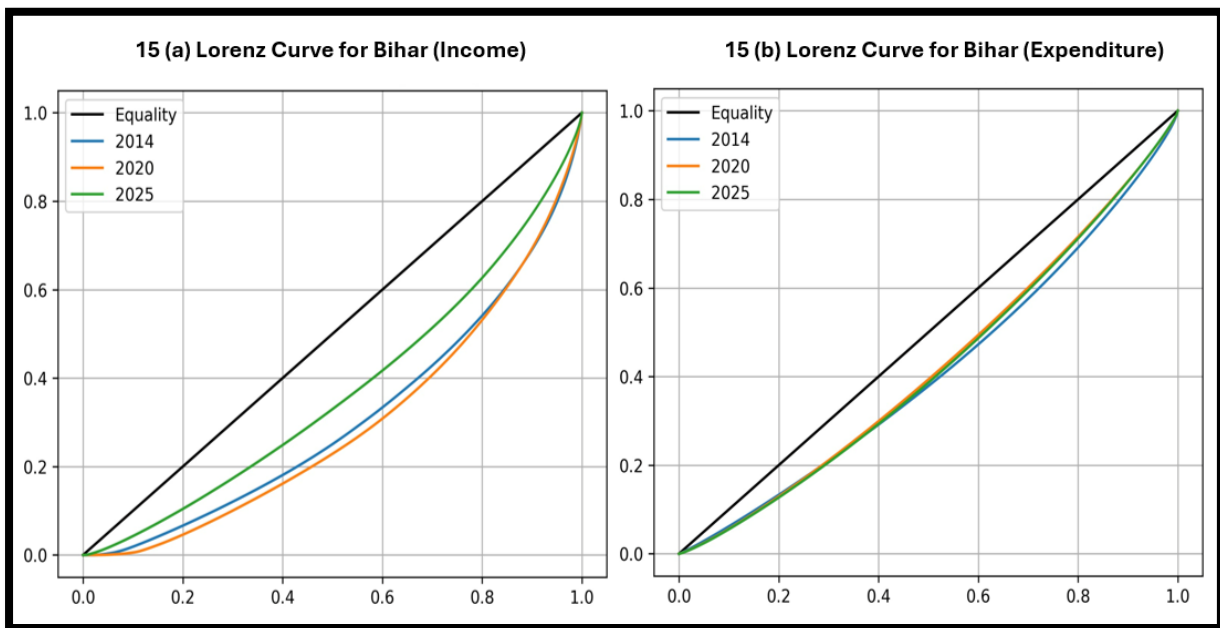
Lorenz curves are a useful tool to visually see whether income and expenditure inequality are high or low and whether they have fallen or risen over time. Figure 15 presents Lorenz curves⁴⁴ for the distribution of household income and expenditure in Bihar for 2014, 2020, and 2025. The 45-degree line represents the line of perfect equality, where each proportion of household accounts for an identical proportion of total income or expenditure. The further the Lorenz curve lies below this line, the greater the degree of inequality.

As shown in Figure 15(a), the income Lorenz curves indicate a noticeable reduction in inequality over time, with the 2025 curve lying closer to the line of equality than the corresponding curves for 2015 and 2020. This suggests that income gains have become more broadly distributed across households, consistent with the narrowing gap between the highest and lowest income deciles observed in Table 3. A similar pattern of narrowing of the gap is observed in the expenditure Lorenz curve (Figure 15(b)). The difference is that the expenditure Lorenz curves lie considerably closer to the line of equality in all three years, indicating that consumption is distributed more evenly than income.⁴⁵ Aggregate measures of wealth inequalities are most likely higher, but no systematic data exists to confirm this.

⁴⁴ The Lorenz curve plots the cumulative share of total income (or expenditure) against the cumulative share of households ranked from the poorest to the richest. Under perfect equality, the bottom x per cent of households would receive exactly x per cent of total income or expenditure, represented by the 45-degree line of equality. The greater the deviation of the Lorenz curve from this line, the greater the degree of inequality in the distribution.

⁴⁵ The associated Gini coefficients confirm the evidence from the Lorenz curves. The higher values indicate greater inequality. Bihar's income Gini coefficient increased from 0.38 in 2014 to 0.41 in 2020 before declining to 0.26 in 2025, consistent with the narrowing gap between the highest and lowest income deciles. Expenditure inequality remained substantially lower, with Gini coefficients ranging from 0.13 to 0.22.

Figure 15. Lorenz Curves for Bihar: Income and Expenditure



Source: Consumption Pyramids, CPHSdx – CMIE. Based on author's calculations.

Overall, all measures indicate declining inequality, particularly in household expenditures. However, in Bihar this decline likely reflects the out-migration of skilled workers to better-paying jobs outside the state, leaving behind a workforce with fewer high-quality employment opportunities, rather than broad-based improvements in living standards.

Unequal Land Ownership and Agrarian Inequality in Bihar

A defining feature of Bihar's rural economy is the highly unequal distribution of land ownership. Despite decades of land reform legislation, the overwhelming majority of rural households cultivate very small holdings while a small minority controls a disproportionate share of agricultural land.

Table 4 presents the distribution of operational landholdings by size in Bihar in 1971–72 and 2019, the years for which data are available. The data reveal a marked shift toward smaller and more fragmented holdings over time, driven by population growth and the continuous subdivision of land through inheritance. In 1971–72, marginal farmers who owned less than one hectare accounted for nearly 72 percent of all landholding households. By 2019, their share had risen sharply to 95.2 percent. In fact, Bihar has one of the lowest average landholdings in India, at 0.39 hectares, second only to Kerala (0.18 hectares) and well below the national average of 1.08 hectares.⁴⁶ Conversely, the proportion of medium and large landholders declined dramatically. Households operating more than 4 hectares constituted about 4 percent of all landholders in 1971–72 but had virtually disappeared by 2019.

At first glance, the predominance of marginal holdings may appear to suggest a more egalitarian agrarian structure. However, the distribution of land area tells a different story. While marginal farmers accounted for more than 95 percent of all landholding households in 2019, they owned only 62.7 percent of total agricultural land. In contrast, the remaining 4.8 percent of households

⁴⁶ Gulati (2025).

owned approximately 37.3 percent of agricultural land. The coexistence of an overwhelming majority of marginal farmers with a small group of relatively larger landowners continues to shape Bihar's rural economy, limiting agricultural productivity, constraining income growth, and contributing to persistent rural poverty.

Table 4. Distribution of Operational Landholdings by Size Class in Bihar, 1971–72 and 2019

Holding Size	Proportion of Households		Proportion of Land Held	
	1971–72	2019	1971–72	2019
Marginal (0–1 ha)	71.7	95.2	18.2	62.7
Small (1–2 ha)	15.1	3.7	23.4	21.3
Semi-medium (2–4 ha)	9.2	1.1	28.1	11.4
Medium (4–10 ha)	3.7	0.0	23.6	1.8
Large (>10 ha)	0.4	0.0	6.7	2.9

Source: NSS Land and Livestock Holdings Surveys, Govt. of India, 2019.

IV.3. Regional Dispersion within Bihar

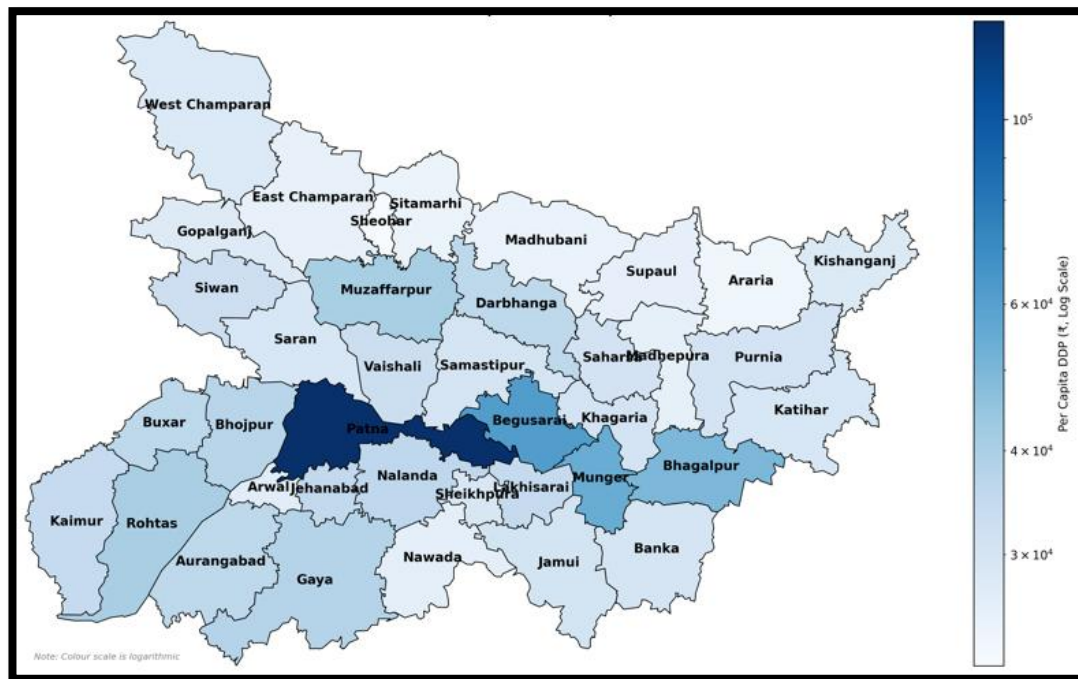
Due to limitations in the availability of consistent district-level time series data, it is not possible to undertake a systematic analysis of regional convergence within Bihar. Nevertheless, district-level per capita domestic product for 2023–24 provides useful insights into the spatial distribution of economic activity.

Figure 16 highlights the pronounced concentration of economic activity in a small number of districts. Patna stands out as the state's primary economic hub, recording by far the highest level of per capita domestic product. The concentration of higher-income districts extends beyond Patna to a few neighbouring districts, including Begusarai, Munger, and Bhagalpur, reflecting the emergence of an economic corridor in central Bihar. These districts benefit from greater urbanisation, industrial activity, administrative importance, and stronger connectivity.

In contrast, much of northern, eastern, and southern Bihar continues to exhibit relatively low levels of per capita domestic product, underscoring the uneven spatial distribution of economic opportunities across the state. The pattern suggests that Bihar's growth remains concentrated in a few economic centres rather than being broadly dispersed across districts.⁴⁷

⁴⁷ While the map points to significant regional disparities, it does not allow conclusions regarding whether poorer districts are catching up with richer ones. Assessing absolute or conditional convergence would require a consistent panel of district-level data over time.

Figure 16. Per Capita Domestic Product across the Districts of Bihar for 2023–24

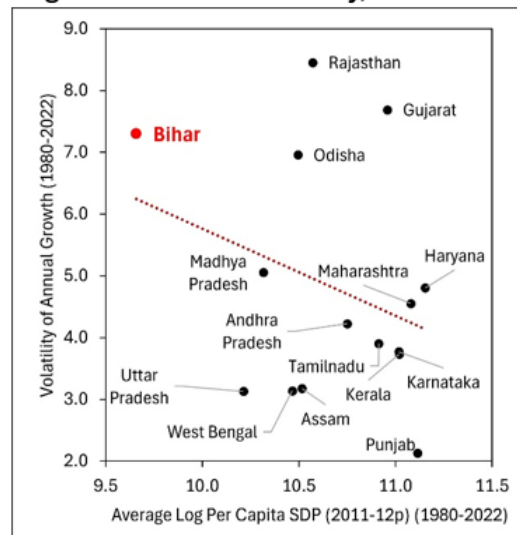


Source: Directorate of Economics and Statistics, Govt. of Bihar and based on authors' calculations.

IV.4. Income Volatility and Growth

Economic performance can be measured not only by the rate of growth but also by the resilience of growth over time. States that experience large fluctuations in growth often face greater uncertainty, making it more difficult to attract private investment and sustain improvements in income, employment, and living standards. Bihar has experienced periods of both rapid expansion and sharp slowdowns, as show in Figure 17.⁴⁸ Figure 17 shows the correlation between the volatility of annual GSDP growth and the average log per capita GSDP during 1980-2022 across state. It indicates that Bihar had the lowest per capita GSDP, while its growth volatility remained among the highest in the country.

Figure 17. Growth Volatility, 1980–2022



Source: Based on authors' calculations using GSDP data from MoSPI.

IV.5. Unemployment

While registered unemployment rates are low and declining in Bihar, as in the rest of India (Table 5), generating productive and formal employment for Bihar's rapidly expanding working-age population remains one of its most pressing challenges. The unemployment rate in rural Bihar fell

⁴⁸ We recognize that Bihar was bifurcated in 2000. Still, these calculations present an approximation of the developments in Bihar over a longer time period.

from 4.3 percent in 2017-18 to 2.6 percent in 2023-24, while in urban areas it declined from 8.8 percent to 5.8 percent respectively. Similar trends are observed at the national level.

The relatively high employment rates hide the low quality of employment in general. Moreover, they also hide the low labour force participation rates for women at 32 percent in rural areas and less than 17 percent in urban areas, compared to the national averages for women at 48 percent and 28 percent, respectively, as of 2023-2024. These low participation rates for women highlight the formidable social barriers they face and their high reservation wage, compounded by the absence of productive and high-quality employment.

Expanding quality employment opportunities, in general, will be essential for sustaining high economic growth, reducing poverty, reversing the out-migration trend, and accelerating structural transformation. These trends call for improving the quality of human capital on the supply side and stimulating the private sector, on the demand side, two areas that we will delve deeper in the next section.

Table 5. Rural–Urban Unemployment Rates in Bihar and India: Male, Female and Overall, 2017–18 and 2023–24 (in percent)

Year	Rural			Urban			Overall		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
Bihar (2017–18)	4.8	2.0	4.3	8.9	7.7	8.8	5.2	2.8	5.0
India (2017–18)	6.4	10.6	5.3	6.8	10.2	7.7	6.1	5.6	6.0
Bihar (2023–24)	2.8	2.0	2.6	4.7	8.4	5.8	3.0	2.7	3.0
India (2023–24)	2.4	2.9	2.5	4.4	6.4	5.1	3.2	3.2	3.2

Source: Based on authors' calculations using PLFS data from Ministry of Statistics and Programme Implementation, Govt. of India.

V. Bihar's Unfinished Agenda and Policy Recommendations

In this section, we identify six fundamental challenges, which if addressed, will set Bihar on a path of high, inclusive, stable, and sustainable growth. While there are many specific areas that could be improved, reforms in these six areas will generate the highest positive externalities throughout the economy. Moreover, we suggest a big-bang, rather than a piece-meal approach in that work must begin in each of these areas simultaneously. The six areas are: gaps in education, gaps in health, gaps in governance and law and order, recurring floods and disasters, the missing private sector, and gender discrimination and violence.

Bihar's development experience since 2005 has already demonstrated that progress is greatest when reforms are implemented on multiple fronts simultaneously, such as fiscal consolidation, improvements in physical and digital infrastructure, strengthening of law and order, improvements in education and health outcomes, and a decrease in crime. Our policy recommendations will build upon existing state initiatives, including the ongoing Development Policies & Programmes (2025-2030).⁴⁹ Programmes such as Saat Nischay-3, the Fourth Bihar

⁴⁹ <https://bvm.bihar.gov.in/mission/>; <https://jaljeevanhariyali.bihar.gov.in/>, <https://phedbihar.gov.in/>, <https://state.bihar.gov.in/rural/>, <https://startup.bihar.gov.in/>.

Agriculture Road Map, the Bihar Industrial Investment Promotion Package (BIIPP-2025), the Bihar Skill Development Mission, the Jal Jeevan Hariyali Mission, and JEEViKA are already major steps in the right direction.⁵⁰

V.1. Education

As noted in previous sections, Bihar’s recent growth turnaround has been driven by public-sector investment, especially in physical infrastructure, rather than by the private-sector growth that typically makes greater use of formal skills. These sectoral trends matter for education in two ways: they limit the productivity gain a worker can realise from additional schooling within the activities that currently dominate the state’s economy, and they weaken the local demand for skills that would otherwise draw households toward more schooling, even though, as the secondary-school discussion below shows, the return to skill where it is used is substantial. At the same time, a more skilled workforce is a precondition for any shift toward the higher-value, skill-intensive activities the state lacks, including the private-sector development discussed later, for which the supply of educated workers is a binding input. Education therefore enters the growth relationship from both sides: it raises current productivity and enables future structural change.

Skill formation is cumulative, with capability at one stage conditioning the productivity of investment at the next (Cunha and Heckman 2007), which is why this section treats the constraint at each educational level in turn. The central finding is that these constraints differ across levels: foundational learning and attendance in the early grades, the supply of schools and teachers at the secondary level, and basic access at the higher-education stage. The subsections below follow that order, spanning early childhood and primary (NEP’s foundational and preparatory stages)⁵¹, the transition into secondary, and higher education, each identifying the binding roadblock and how to address it, with recommendations consolidated in box below.

V.1.1. Primary and Foundational Stages: Quality as a Constraint

At the foundational and primary stages, the problem of getting children into school is not the primary concern: Bihar enrolls the majority of primary-age children and moves them through the early grades at par with national rates. The system is overwhelmingly public, with government schools accounting for 81.2 percent of enrolment against 49.2 percent nationally (UDISE+ 2024-25). What restricts at this level is quality rather than access. ASER 2024 finds that only about 3 percent of rural children aged 6-14 are out of school, and the foundational-to-preparatory transition rate is 98.8 percent, essentially identical to the national rate. The problem is the foundational stage itself, where Bihar’s Gross Enrolment Ratio (GER) is only 24.5 percent against 41.4 percent nationally (Table 6); this reflects continued dependence on NGO-driven *Anganwadi*

⁵⁰ The recommendations are informed by Bihar-specific research on development and poverty, evidence from recent programme evaluations, and broader national and international literature on structural transformation, climate adaptation, human capital formation, women’s economic empowerment, and state capacity (World Bank, 2005; Rao, 2013; Sharma, 2005; Muralidharan, 2024; IPCC, 2023).

⁵¹ The evidence in each subsection is drawn from three sources that recur throughout: the Annual Status of Education Reports (ASER), a household survey of children’s learning in rural areas in India; the Unified District Information System for Education Plus (UDISE+), the administrative census of schools; and the All-India Survey on Higher Education (AISHE).

centres, which are attended by 68.9 percent of three-year-olds in rural Bihar. The transition to a formal school is envisaged by the National Education Policy (NEP) but has only recently begun.

Table 6. Gross and Net Enrolment Ratios in Formal Schooling, Bihar and India, 2024-25
(in percent)

School stage	GER, Bihar	GER, India	NER, Bihar	NER, India
Foundational (PP-II)	24.5	41.4	20.2	36.9
Preparatory (III-V)	86.5	95.4	61.6	68.8
Middle (VI-VIII)	68.9	90.3	48.9	64.8
Secondary (IX-XII)	44.7	68.5	34.3	52.2

Source: UDISE+ 2024-25. GER (gross enrolment ratio) is enrolment at a stage as a percentage of the official age-group population; NER (net enrolment ratio) restricts the numerator to age-appropriate enrolment. Foundational figures exclude Anganwadi centres and standalone private pre-primary provision (see text).

Learning levels are low in absolute terms, but Bihar no longer trails the national rural average, and on arithmetic, it is a relative strength: 37.5 percent of Standard (Std) III children in Bihar can do at least two-digit subtraction, against 33.7 percent nationally, while reading levels track the national average closely (Table 7). Even so, only about a quarter of Std III children, and fewer than half of Std V children, can read even a Std II-level text — one grade behind for Std III children and three grades behind for Std V children. Bihar’s 2024 levels exceed both 2022 and 2018 across reading and arithmetic, coinciding with post-pandemic reopening and the NIPUN Bharat mission, though direct causal attribution is not possible. Grade averages also mask wide within-classroom dispersion: 12.7 percent of Bihar’s Std III children cannot read letters at all, against 8.2 percent nationally, while 26 percent already read at grade level.

Table 7. Learning outcomes, Bihar and India (rural), 2022 and 2024 (in percent of children)

Indicator	Bihar 2022	Bihar 2024	India 2022	India 2024
Panel A: All children (government and private)				
Std III can read a Std II text	19.8	26.3	20.5	27.1
Std III can do at least subtraction	28.8	37.5	25.9	33.7
Std V can read a Std II text	42.5	43.8	42.8	48.8
Std V can do division	35.6	36.2	25.6	30.7
Std VIII can read a Std II text	71.2	72.9	69.6	71.1
Std VIII can do division	59.5	64.0	44.7	45.8
Panel B: Government schools only (Std III)				
Std III can read a Std II text	12.9	20.1	16.3	23.4
Std III can do at least subtraction	21.2	28.2	20.2	27.6

Source: ASER 2024. “All children” combines government, private, and other school types; Panel B isolates children enrolled in government schools, who account for about 81 percent of enrolment in Bihar. Reading: child can read a Class II-level text. Arithmetic: child can do at least two-digit subtraction or, where indicated, division. The Std III all-children reading figures for 2024 (26.3 Bihar, 27.1 India) are from ASER’s trend series; the within-grade distribution table reports 26.1 and 27.0 respectively.

The quality constraint is reinforced by low daily attendance and teacher presence. In 2024, only 60.9 percent of enrolled primary children and 53.5 percent of upper-primary children were present in government schools on the day of the ASER visit, fifteen to twenty percentage points below the national rural average. An independent headcount across 81 government schools in two flood-belt districts, Araria and Katihar, recorded still-lower attendance of roughly 20 to 23 percent (Dreze et al. 2023); part of this gap is seasonal, since school closures in Bihar's extensive flood-affected areas can cost a child one to two months of instruction a year (Paik and Gogoi 2022). Teacher presence, too, trailed the national level (79.0 and 81.9 percent at primary and upper-primary, against 87.5 and 86.9 percent), consistent with well-documented teacher absence in Indian government schools (Chaudhury et al. 2006). This is unlikely to be a pay problem: pay and effort are uncorrelated among Indian public-school teachers, while far lower-paid, tenure-free private-school teachers attend more reliably (Lemos, Muralidharan, and Scur 2021), a selection and accountability problem. Effective instructional time is therefore well below what enrolment figures imply.

Basic physical infrastructure is largely in place and ahead of the national average in several respects: 99.7 percent of schools have drinking water, 98.0 percent have a functional girls' toilet, and 97.5 percent have electricity (Appendix Table 1), though a national audit found nearly 40 percent of recorded school toilets non-existent or unusable in practice (CAG 2020). The remaining gaps concentrate in learning inputs: a library or reading corner in 66.7 percent of schools against 89.5 percent nationally, and a playground in 51.0 percent against 83.0 percent, respectively. The sharpest deficit is digital: only 25.2 percent of schools have a computer facility, about 40 points below the national average, though 84.8 percent report internet access, the highest among comparison states (Appendix Figure 1), so the marginal return to closing the computer gap is high.

V.1.2. Secondary Education: The Retention Problem

Bihar's enrolment ratios decline steeply at the upper stages, and the gap with India widens as the stages rise: the gross enrolment ratio falls from 86.5 percent at the preparatory stage to 68.9 percent at the middle stage and 44.7 percent at the secondary stage, against national figures of 95.4, 90.3, and 68.5 percent, respectively (Appendix Table 2). The break is not in the early grades; the foundational-to-preparatory transition is near-universal, but at the next two steps: the preparatory-to-middle transition is 71.8 percent, and the middle-to-secondary transition is only 66.7 percent. Cumulatively, only 25.3 percent of children who started Class 1 are retained to the secondary stage in Bihar, against 47.2 percent nationally, the lowest retention rate among comparison states (Appendix Table 2). The losses are not uniform by sex: Bihar's secondary net enrolment ratio is higher for girls than boys (36.8 against 32.1 percent), the reverse of the national pattern, consistent with adolescent boys leaving school for labour or migration.

The access deficit is also structural. Only 13.2 percent of Bihar's schools offer secondary grades, against 20.9 percent nationally, and only 18.8 percent of teachers are deployed at the secondary level, against 22.8 percent nationally. Bihar's pupil-teacher ratio is within the statutory 30:1 norm at the foundational, preparatory, and middle stages, and exceeds it only at secondary, where it reaches 34 against a national figure of 21, a stage-specific rather than uniform shortage, and one

driven by too few secondary schools and teachers relative to the cohort graduating from middle school.

Thin provision interacts with demand-side constraints. Muralidharan and Prakash (2017) find that Bihar's Mukhyamantri Balika Cycle Yojana, which gave bicycles to girls enrolling in secondary school, raised girls' secondary enrolment substantially and narrowed the gender gap, with effects largest where the distance to a secondary school was greatest, causal evidence that part of the shortfall is a demand response to thin and distant provision rather than a fixed preference for leaving school. The larger Mukhyamantri Kanya Utthan Yojana (multi-stage cash transfers since 2018) plausibly reinforces this, though we are not aware of a published independent evaluation. The decision to continue also responds to expected returns, and since English-language skills carry sizable wage returns in India (Azam, Chin, and Prakash 2013), weak learning (Section V.1.2) dampens the incentive. The constraint is thus provision-led but demand-reinforced: thin supply raises the cost of continuing, weak learning lowers the return, and labour-market pull raises boys' opportunity cost of staying.

V.1.3. Higher education: Access as the Binding Constraint

At the tertiary level the constraint is access, and the deficit is large. Bihar's higher-education gross enrolment ratio for the 18-23 age group is 17.1 percent against 28.4 percent nationally, among the furthest from the NEP 2020 target of 50 percent by 2035 (Table 8). This reflects a thin institutional base, only 7 colleges per lakh of the 18-23 population against 30 nationally, and severe crowding of the colleges that exist, with average enrolment of 2,088 per college against 709 nationally and a pupil-teacher ratio of 64 against 23. This is primarily a supply-side constraint; on the demand side, the collateral-free Bihar Student Credit Card has run since 2016 (up to Rs 4 lakh, interest-free since 2025), with no published independent evaluation of its enrolment effect. The deficit is also unequal: the gender parity index is 0.92 in Bihar and 0.72 for Scheduled-Caste women, against 1.01 nationally. The four-year undergraduate reform introduced in 2023 under NEP 2020 has run ahead of institutional capacity, with compressed exam schedules and disrupted teaching.

Table 8. Higher-education indicators, Bihar and India, 2021–22

Indicator	Bihar	India
Number of colleges	1,092	45,473
Colleges per lakh population (18–23)	7	30
Average enrolment per college	2,088	709
Gross enrolment ratio, 18–23 (%)	17.1	28.4
Pupil–teacher ratio (all institutions, regular mode)	64	23
Gender parity index, GER (all categories)	0.92	1.01
Gender parity index, GER (Scheduled Castes)	0.72	1.01

Source: AISHE 2021–22. The gross enrolment ratio is for the 18–23 age group based on the 2011 Census population. Bihar's overall GER of 17.1 percent reflects 17.8 percent for men and 16.3 percent for women; the gender parity index is the female GER value divided by the male value.

V.1.4. Policy recommendations

Specific recommendations are set out in the box below. Bihar's education problem is not primarily one of early-grade access or of budgetary effort. The state already enrolls the overwhelming majority of young children and runs a foundational-learning mission (NIPUN Bihar), a remedial drive (Mission Daksh), an Anganwadi network, and a girls' access scheme. Across states, the budget share for education bears no systematic relationship to the share of children who can read (Appendix Figure 2), and Bihar pairs an above-average budget share with below-average reading. The binding constraint is the efficiency with which spending converts into learning, what Muralidharan (2024) calls the "total factor productivity of public spending," and the system's inability to see whether learning is happening at all. The recommendations below are framed against a 2047 horizon but are built to start now. They are low-hanging fruit in that they require no new programmes; each strengthens, sequences, or modernises a provision the state already runs, beginning with the ability to measure, on which the rest depend. Strengthening higher education will be crucial for developing the skilled workforce needed to sustain long-term growth (Mishra, 2014)⁵².

Policy Recommendations: Education - Learning System for 2047

Each recommendation is grounded in the evidence presented in this section and benchmarked against demonstrated practice. The prerequisite in Recommendation is measurement: without it, genuine gains cannot be told apart from reported ones.

1. Outcome measurement: Near-universal enrolment sits alongside a quarter of Std III children unable to read a Std II text, because administrative data overstate learning: re-testing in Madhya Pradesh and Andhra Pradesh found schools reporting above 65 percent officially and none above 65 percent on re-test (Singh 2020). Build an integrated, child-level data system on the APAAR/PEN identifier, anchored in the Planning Department rather than the department it measures, covering attendance, teacher presence, and assessed competence over time. Validate it permanently through an annual independent household learning survey and nested re-testing scored on reported-versus-actual divergence ("truth scores"). Gujarat's Vidya Samiksha Kendra is the domestic template. The system should support students, rather than naming-and-shaming or stigmatising them; schools must combine mandatory bias audits with humans making decisions about children.

2. Foundational literacy and numeracy: A single Std III classroom spans children who cannot read letters (12.7 percent) and very low children reading at grade level (26 percent); the dispersion, not the average, should be the target. Reserve a daily 60-to-90-minute block for instruction matched to each child's assessed level (Teaching at the Right Level), re-tooling Mission Daksh as the vehicle, which yields among the largest and most cost-effective gains documented in India (Banerjee, Cole, Duflo, and Linden 2007). Exploit Bihar's high school internet (84.8 percent) but low computer penetration (25.2 percent) by prioritising the hardware that runs adaptive, teacher-

⁵² Mishra, Prachi. Chapter 23. In *The Story of New Bihar: Rekindling Governance and Development*. Edited by N. K. Singh and Nicholas Stern.

supervised software, whose gains come from personalisation rather than the device (Escueta et al. 2020). Prioritise foundational skills above socio-emotional learning, consistent with NEP 2020.

3. Teachers: The constraint is effectiveness, not headcount: recent BPSC drives brought the statewide ratio to about 32:1, yet credentials, experience, and pay barely predict how much pupils learn, and pay and effort are uncorrelated in Indian public schools (Lemos, Muralidharan, and Scur 2021). Target remaining recruitment at secondary, shortage subjects, and the disadvantaged blocks furthest from the 25:1 norm. Adopt practicum-based preparation and selection, the single highest-priority reform available (Muralidharan 2024), equip teachers with generative-AI tools, and shift supervision from monitoring to coaching by filling vacant supervisory posts, which raises instructional time about ten times more cost-effectively than hiring more teachers. Separate authorised duty from genuine (unauthorized) absence in any monitoring, since genuine absence is about 2.5 percent against 19 percent recorded (Azim Premji Foundation 2017).

4. Early childhood: Deploy a second, locally hired worker dedicated to pre-primary teaching in Anganwadi centres. A randomised evaluation in Tamil Nadu found that this doubled instructional time, raised mathematics and language learning, and reduced stunting, at an estimated social return of about thirteen times the cost, while a salary rise for the incumbent did nothing (Ganimian, Muralidharan, and Walters 2024).

5. Secondary access and retention: Only 25.3 percent of children who start Class 1 reach secondary school, the lowest among comparator states. Concentrate secondary construction where the network is thinnest using Samagra Shiksha capital transfers; offer panchayats the option to consolidate very small schools into nodal schools with transport funded from the savings, given that transport is a proven access lever in Bihar (Muralidharan and Prakash 2017); and raise the return to continuing with a demand-side cash or kind transfer extended to adolescent boys, who now leave earlier than girls.

6. Higher education and skilling: Access is the binding constraint: a GER of 17.1 against 28.4 nationally and 7 colleges per lakh against 30, respectively. Sequence capacity ahead of further structural reform (Andrews, Pritchett, and Woolcock 2017), target equity for Scheduled-Caste women, whose gender-parity index is just 0.72, and build certified, industry-linked skilling tracked into employment via APAAR.

7. Financing and public financial management: Bihar pairs a high budget share with low per-child spending, and files reportedly move across thirty-two desks before funds reach schools (Muralidharan 2024). Reallocate from providing blanket hardware, salary, and infrastructure toward the high-return interventions described above; ring-fence a mandatory operations-and-maintenance grant per school to be released only on independent functional verification; devolve discretionary funds on a “70:20:10” formula (equal share, need, measured improvement); and transfer funds directly to spending units soon after budget approval with speed of disbursement a monitored indicator.

V.2. Health

Population health lies at the heart of Bihar's development challenge because it is both an intrinsic component of well-being and a fundamental determinant of human capital. A large body of evidence shows that health shocks during pregnancy and the first two years of life have lasting consequences for cognitive development, educational attainment, labour productivity, and

earnings.⁵³ Because skills are formed cumulatively, poor maternal and child health and malnourishment in early childhood reduce the returns to later investments in education and training. Improving maternal and child health is therefore not only a health objective but also one of the most effective strategies for reducing poverty and accelerating long-term economic growth.⁵⁴

This imperative is particularly important for Bihar, which has the youngest population among Indian states. Based on population projections from the 2021 Census, only about 8 percent of Bihar's population is aged 60 years or above, while approximately 31 percent is below the age of 15 (the highest among any Indian state).⁵⁵ This demographic structure presents a unique opportunity: investments that improve the health of today's children will shape the productivity, earnings, and economic growth of the state's future workforce.

Despite the substantial progress documented in Section III, Bihar continues to face major maternal and child health challenges, including undernutrition, widespread anaemia, elevated child mortality, and persistent gaps in healthcare quality. These challenges increasingly reflect not only shortages of facilities and health workers but also behavioural barriers that limit the uptake and effective use of proven interventions. Addressing these challenges requires looking beyond infrastructure and financial resources to both supply-side constraints in health service delivery and demand-side behavioural barriers that affect the uptake and effective use of health services. Supply-side factors include the availability and quality of facilities, frontline workers, medicines, and public health systems, and demand-side factors include household knowledge, behavioral biases, social norms, and the costs of accessing care. A growing body of evidence from behavioral economics shows that many highly effective interventions fail not because they are unavailable, but because households or providers do not adopt or deliver them consistently. Improving health outcomes, therefore, requires attention not only to what services are provided but also to how they are delivered and used by the people.

This section identifies the remaining constraints in maternal health, child health, and child survival and distinguishes between demand-side and supply-side barriers. Throughout, the emphasis is on identifying practical, evidence-based "low-hanging fruits"—policy interventions that can deliver large improvements in maternal and child health, nutrition, and human capital using existing institutional platforms and public programs.

V.2.1 Bihar's Progress in Population Health Relative to India

Table 9 shows Bihar's health progress over the past five years. The state has made notable improvements in several maternal and child health indicators. Fertility declined from 3.0 to 2.7 births per woman, child marriage became less common, institutional deliveries increased to more than 80 percent, and the share of mothers receiving four or more antenatal care visits rose substantially. Child nutritional status also improved, with declines in stunting, wasting, and underweight, reflecting sustained progress in expanding access to essential health services.

⁵³ Cunha and Heckman (2007) in their seminal work describe this process as “dynamic complementarity”, whereby early investments increase the productivity of later investments. This insight is illustrated by Heckman's well-known rate-of-return (J) curve, which shows that investments made during pregnancy and early childhood yield substantially higher economic returns than remedial interventions undertaken later in life. See Appendix VI *Health as Output and Input: A Conceptual Framework*

⁵⁴ See Appendix VI Poverty and Human Capital

⁵⁵ Population Projections based on 2021 census, by Rukmini S for [Data for India](#).

Despite these gains, Bihar continues to lag behind the national average on most health indicators. Utilisation of maternal healthcare remains low, with only 37.6 percent of mothers receiving four or more antenatal care visits⁵⁶ and just 21.9 percent consuming iron and folic acid supplements for at least 100 days, compared with national averages of 65.2 percent and 54.9 percent, respectively. Child mortality also remains substantially higher than the national average, while more than one-third of children continue to be stunted or underweight. Health insurance coverage remains well below national levels, further limiting improvements in health outcomes.

Table 9. Key health indicators: Bihar and India, NFHS-6 (2023-24) and NFHS-5 (2019-21)

Indicator	Bihar, NFHS-5	Bihar, NFHS-6	India, NFHS-6
Total fertility rate (children per woman)	3.0	2.7	2.0
Women 20-24 married before 18 (%)	40.8	34.6	20.1
Mothers with 4+ antenatal visits (%)	25.2	37.6	65.2
Mothers who consumed IFA 100+ days (%)	18.0	21.9	54.9
Institutional births (%)	76.2	81.1	90.6
Neonatal mortality rate		31	21
Infant mortality rate (IMR)		41	27
Under-five mortality rate (U5MR)		49	32
Children under 5 stunted (%)	42.9	35.6	29.3
Children under 5 wasted (%)	22.9	19.0	19.0
Children under 5 underweight (%)	41.0	35.7	31.8
Anemia among children 6-59 months (%)	69.4	-	-
Anemia among 15- 49-year-old women (%)	63.5	-	-
Health insurance coverage, households (%)	17.4	21.1	60.2

Source: NFHS-6 (2023-24) and NFHS-5 (2019-21), IIPS.

These indicators describe the conditions under which each new cohort in Bihar begins life. A child born in Bihar today is more likely than four years ago to be delivered in a health facility, to a mother who received some antenatal care and is herself literate but remains less likely than the average Indian child to receive the full course of preventive care that converts a safe birth into a healthy childhood.

V.2.2. Maternal Health: Improving the Quality of Care

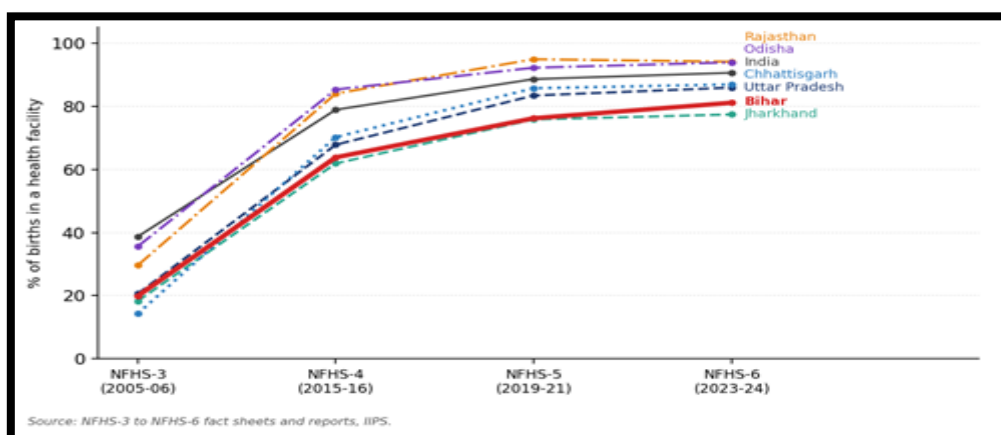
Maternal health is the first stage in the accumulation of human capital. Health and nutrition during pregnancy influence fetal growth, birth outcomes, and children's cognitive development, educational attainment, and productivity throughout life.⁵⁷ The principal maternal health challenge in Bihar is no longer bringing women into contact with the health system but ensuring that they receive high-quality care throughout pregnancy. Institutional deliveries have increased

⁵⁶ A large body of evidence shows that adequate antenatal care improves birth outcomes and reduces neonatal and infant mortality by enabling early detection and treatment of pregnancy complications, promoting maternal nutrition and iron supplementation, and increasing the use of skilled delivery and postnatal care (Carroli et al., 2001; Kuhnt and Vollmer, 2017; WHO, 2016).

⁵⁷ A large body of evidence shows that adequate antenatal care, maternal nutrition, iron and folic acid (IFA) supplementation, and skilled obstetric care reduce the risks of maternal mortality, low birth weight, preterm birth, neonatal mortality, and impaired child development.

dramatically, from less than 20 percent in 2005–06 to 81.1 percent in 2023–24 (Figure 18), largely driven by the Janani Suraksha Yojana (JSY) and the expansion of the National Health Mission. Skilled birth attendance now exceeds 80 percent, and nearly all pregnant women receive at least one antenatal care visit (94 percent). These achievements represent a major expansion in access to maternal health services.

Figure 18. Institutional births, NFHS-3 to NFHS-6



Source: NFHS-3 India report (Table 8.22) and later fact sheets, IIPS.

Note: Institutional births, Bihar and comparator states, NFHS-3 to NFHS-6. Jharkhand and Chhattisgarh are shown from NFHS-3 because they were created in 2000.

The remaining gaps, however, are concentrated in the quality and continuity of pregnancy care. Although antenatal contact is nearly universal, only 37.6 percent of mothers receive the recommended four or more antenatal visits, compared with 65.2 percent nationally. Adherence to iron and folic acid supplementation is even lower, with only 21.9 percent of women consuming IFA tablets for at least 100 days during pregnancy, less than half the national average of 54.9 percent. These shortcomings are reflected in Bihar's persistently high burden of maternal anaemia, affecting nearly two-thirds of women of reproductive age.⁵⁸

The distinction between access and quality is equally evident in maternal and newborn care. Although institutional deliveries have increased sharply, the corresponding improvements in neonatal mortality have been much smaller, reflecting persistent gaps in the quality of care (Powell-Jackson, Mazumdar, and Mills, 2015; Carvalho et al., 2014). Evidence from Bihar similarly documents large gaps between provider knowledge and clinical practice, indicating that the binding constraint has shifted from expanding access to improving the quality and continuity of pregnancy care. Ensuring that every antenatal contact delivers essential services, including screening for pregnancy complications, nutritional counselling, iron supplementation, and timely management of maternal anaemia, is therefore likely to generate substantial improvements in maternal and newborn health.

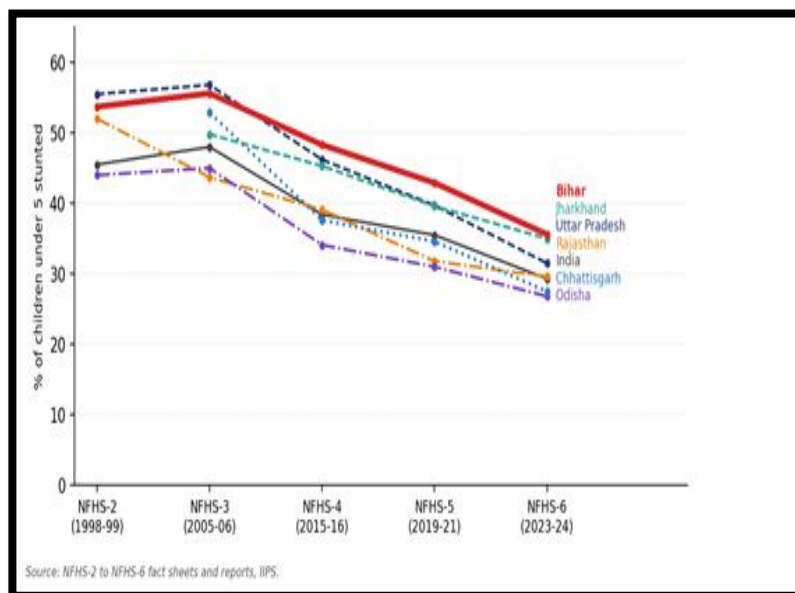
V.2.3. Child Health: Nutrition and Anaemia as the Binding Constraints

Undernutrition among under-five children remains one of Bihar's most important health challenges. Stunting, measured as low height-for-age (HAZ), captures long-term nutritional

⁵⁸ Maternal anaemia substantially increases the risk of low birth weight, preterm birth, maternal complications, and poor child development, making it one of the state's most important public health challenges.

deprivation and impaired physical development. Figure 19 compares trends in stunting across Bihar, five comparator states, and India from NFHS-2 (1998–99) to NFHS-6 (2023–24).⁵⁹

Figure 19. Stunting among children under 5: Bihar and Comparator States, NFHS-2 to NFHS-6



Stunting has declined from above 55 percent in NFHS-3 to 35.6 percent in NFHS-6, a reduction of roughly twenty percentage points. As Figure 19 shows, the downward trend is common across all states, with Bihar's rate of improvement broadly matching the national trend. Nevertheless, Bihar continues to record the highest prevalence of stunting among the comparator states, with

35.6 percent of children under five stunted compared with the national average of 29.3 percent. This persistent gap indicates that chronic undernutrition remains one of the state's most important child health challenges.

Similarly, wasting, measured as low weight-for-height, reflects recent or acute undernutrition. NFHS-6 reports that 19.0 percent of children under five are wasted and 35.7 percent are underweight (low weight for a given age, WAZ). While wasting is similar to the national average, the prevalence of underweight remains higher than the national average (31.8 percent), indicating persistent nutritional deficits among young children.

Furthermore, anaemia, mostly caused by iron deficiency, represents an equally important challenge. Table 10 shows the persistent burden of anaemia in Bihar. Nearly seven in ten children aged 6–59 months (69.4 percent) and almost two-thirds of women aged 15–49 years (63.5 percent) are anaemic, among the highest rates in India.⁶⁰ Child anaemia in Bihar is slightly higher than the national average of 67.1 percent and is among the highest in the comparison states. Anaemia among women is also substantially above the national average of 57.0 percent, although Jharkhand and Odisha record similarly high levels. The coexistence of widespread maternal and childhood anaemia suggests an intergenerational cycle of poor nutrition, with maternal iron deficiency increasing the risk of low birth weight and childhood anaemia impairing physical growth, cognitive development, school readiness, and future productivity.⁶¹

⁵⁹ Stunting and wasting are among the strongest predictors of child survival and future human capital. Stunting is associated with poorer cognitive development, educational attainment, and adult earnings, while wasting sharply increases the risk of childhood mortality by weakening immune function and increasing susceptibility to infectious diseases (Black et al., 2008, 2013; Victora et al., 2008; Hoddinott et al., 2013; Olofin et al., 2013).

⁶⁰ NFHS-6 no longer reports haemoglobin measurements and anemia prevalence.

⁶¹ A randomised trial in India found that treating it through iron supplementation combined with deworming raised preschool participation by close to six percentage points and reduced absenteeism (Bobonis, Miguel, and Puri-Sharma 2006).

The persistence of child undernutrition suggests that Bihar's remaining challenge is no longer expanding access to health services but improving nutrition during the first 1,000 days of life. Unlike immunisation or institutional delivery, reducing stunting, wasting, and anaemia requires sustained improvements in maternal nutrition, infant feeding, dietary diversity, and infection control. These outcomes are constrained by both demand-side factors, including poor feeding practices and limited caregiver awareness, and supply-side weaknesses, including gaps in growth monitoring, nutrition counselling, and ICDS (Integrated Child Development Services) delivery.⁶² Rather than creating new programmes, improving the implementation and quality of existing nutrition programmes offers one of the highest-return, low-hanging policy opportunities for Bihar.

Table 10. Bihar Vs All India: Prevalence of anaemia, NFHS-5 (2019-21)

State	Children 6-59 months anaemic (%)	Women 15-49 anaemic (%)
Bihar	69.4	63.5
Uttar Pradesh	66.4	50.4
Rajasthan	71.5	54.4
Jharkhand	67.4	65.3
Odisha	64.2	64.3
Chhattisgarh	67.2	60.8
India	67.1	57.0

Source: NFHS-5 India report, IIPS. NFHS-6 does not report anaemia prevalence.

V.2.4. Child Mortality: Closing the Immunisation Gap

Despite substantial progress, child survival remains one of Bihar's unfinished health challenges. NFHS-6 reports neonatal, infant, and under-five mortality rates of 31, 41, and 49 deaths per 1,000 live births, respectively, all substantially higher than the national averages. These persistent gaps indicate that many child deaths remain preventable. One important contributor is incomplete preventive healthcare. Although full immunisation among children aged 12–23 months has increased to 77.3 percent, nearly one in four children remains either unvaccinated or incompletely vaccinated, leaving them vulnerable to vaccine-preventable diseases.

Evidence from India shows that gaps in immunisation can be reduced through relatively low-cost delivery improvements. Mission Indradhanush and Intensified Mission Indradhanush increased vaccination coverage by identifying unvaccinated and partially vaccinated children and focusing resources on underserved areas. Rigorous evaluations also show that reliable immunisation camps, small incentives, community information networks, and SMS reminders can substantially increase immunisation uptake, especially where baseline coverage is low. In rural Rajasthan, reliable immunisation camps combined with small in-kind incentives increased full immunisation by more than six times relative to comparison areas (Banerjee and Duflo, 2010), while later evidence from Haryana found that information hubs and SMS reminders improved immunisations by 44 percent.

These findings suggest that Bihar can increase immunisation coverage by strengthening Intensified Mission Indradhanush, tracking zero-dose and partially immunized children, expanding outreach in low-coverage areas, and using ASHAs for household follow-up and digital

⁶² Improving adherence to iron and folic acid supplementation requires moving beyond tablet distribution to behaviourally informed delivery. Repeated counselling, ASHA follow-up, digital reminders, and monitoring tablet consumption rather than distribution can substantially improve adherence and reduce maternal anaemia at relatively low cost.

reminders through BHAVYA or U-WIN. Behavioural nudges, including SMS reminders, default appointment scheduling, community mobilisation, and small non-financial incentives, can further improve vaccine uptake. As these reforms build on existing delivery platforms, they represent one of Bihar's clearest low-hanging opportunities for reducing preventable child mortality.

V.2.5. Constraints to Quality Healthcare: The Supply and Demand Side Barriers

The analysis of maternal health, child nutrition, and child survival reveals a common pattern. Bihar's remaining health challenges are driven less by access than by the quality, continuity, and uptake of preventive health services. Bihar has made rapid progress in expanding the coverage of health services such as institutional delivery and immunisation. In contrast, slower improvements in maternal nutrition, child undernutrition, and child survival highlight the greater challenge of interventions that require sustained care, behaviour change, and high-quality primary healthcare. On the supply side, strengthening frontline service delivery through better staffing, provider quality, accountability, and implementation is critical. Evidence from India shows that improving the capacity of Anganwadi centres and frontline providers can substantially enhance child nutrition and health outcomes (Ganimian, Muralidharan, and Walters 2021; Das et al. 2016). On the demand side, low uptake, behavioural barriers, and misconceptions among both households and providers often limit the effectiveness of proven interventions, as demonstrated by studies on fortified salt and oral rehydration therapy in Bihar (Banerjee, Barnhardt, and Duflo 2018; Wagner et al. 2024). These findings suggest that Bihar's next phase of health improvement will depend less on expanding programmes and more on improving service quality, strengthening implementation, and increasing the effective utilisation of existing interventions.

V.2.5.1. Supply-Side Barriers

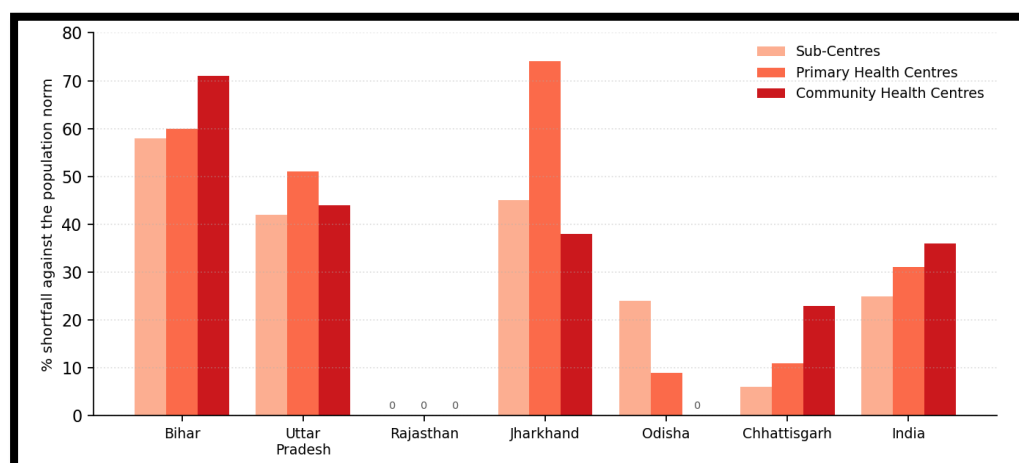
The first supply-side barrier is the shortage of public health facilities. Bihar has the largest health facility deficit of the comparator group, and the deficit widens at each higher tier. Against the population norm, Bihar was short of 58 percent of the Sub-Centres it required, 60 percent of Primary Health Centres (PHCs), and 71 percent of Community Health Centres (CHCs), in each case a larger gap than the national average (Figure 20). The shortfall is most severe at the CHC level which is meant to provide specialist and inpatient care: only 269 of the 924 CHCs required were in place. This shortfall cannot be explained by limited resources alone, as Rajasthan, Chhattisgarh, and Odisha have achieved substantially higher coverage under comparable fiscal conditions.

The shortage of qualified health workers is the second major supply-side constraint on health outcomes in Bihar. More than half (57 percent) of sanctioned doctor posts at Primary Health Centres (PHCs) remain vacant, while Community Health Centres (CHCs) face vacancy rates exceeding 80 percent for surgeons, paediatricians, and obstetrician-gynaecologists (Table 11). Shortages of pharmacists and laboratory technicians further constrain diagnostic and referral services. Although Bihar has around 90,000 Accredited Social Health Activists (ASHAs), their effectiveness depends on adequate training, supervision, and timely incentive payments. Overall, Bihar has only 5.9 government doctors per 100,000 population—among the lowest in India—underscoring the need to expand and strengthen the state's health workforce.

A third constraint is the dominance of the informal private sector. Around four-fifths of outpatient care in Bihar is delivered outside the public system, largely by informal providers without formal

medical qualifications. For much of the rural population⁶³, these practitioners constitute the first point of contact with the health system. Any strategy to improve healthcare quality must therefore engage and strengthen this workforce rather than focus exclusively on expanding the formal public sector.

Figure 20. Shortfall in Public Health Facilities against the Population norm, 2021-22
(in percent)



Source: Shortfall in public health facilities against the population norm, Bihar and comparator states, 2021-22. States meeting or exceeding the norm are shown as zero shortfall. Source: Rural Health Statistics 2021-22, Ministry of Health and Family Welfare.

The fourth constraint is the quality of care. Even where providers are available, there is often a large gap between clinical knowledge and actual practice. Evidence from Bihar shows that although most providers report that they would prescribe oral rehydration salts for childhood diarrhoea, fewer than one in five actually do so. Weak supervision, poor adherence to treatment protocols, and provider absenteeism further reduce the effectiveness of public health services.

Table 11. Selected human-resource gaps in Bihar's public health system, 2021-22

Cadre and level	Sanctioned	In position	Vacant	Vacancy rate
Doctors at PHCs	3,595	1,538	2,057	57%
Surgeons at CHCs	230	42	188	82%
Paediatricians at CHCs	214	22	192	90%
Obstetricians-gynaecologists at CHCs	324	46	278	86%
Pharmacists at PHCs	1,212	261	951	78%

Source: Ministry of Health and Family Welfare (2023), Rural Health Statistics 2021-22. Vacancy is measured against sanctioned posts and is distinct from the shortfall against the population norm discussed in the text.

Finally, Bihar has made important progress in digital health infrastructure through the BHAVYA platform, but its potential remains underutilized. While the system has substantially improved administrative efficiency, it currently focuses on service registration rather than measuring clinical quality, continuity of care, or patient outcomes. Extending BHAVYA to track maternal and

⁶³ Much of this care is delivered by informal practitioners without formal medical qualifications. Surveys from rural Bihar estimate that nearly 80 percent of frequently visited providers lack formal medical training (Mohanani et al., 2016), while a statewide provider census found that only about 7 percent of rural practitioners held an allopathic medical qualification (Rao et al., 2021).

child health indicators and provide real-time performance feedback would strengthen accountability and improve programme implementation.

V.2.5.2. Demand-Side Barriers

Understanding demand-side barriers requires first recognising how the nature of Bihar's health problem has changed. Bihar's health challenge has undergone a structural shift. The earlier deficit was one of access — facilities absent, distances prohibitive, and services simply unavailable. The binding constraint today, for a growing share of the population, is not whether a service exists but whether it is sought, sustained, and used well enough to produce the health outcome it was designed to deliver.

Even where health facilities exist, a distinct set of demand-side constraints determines whether households actually utilise health services. The first is affordability. Most of the maternal and child health services are publicly financed. Transport costs, wage losses, and out-of-pocket expenditures continue to discourage care-seeking, particularly among poorer households (Ensor & Cooper, 2004). Demand-side financing has proven effective in relaxing these constraints. India's JSY, a conditional cash transfer scheme, for example, substantially increased institutional deliveries and antenatal care while reducing out-of-pocket spending (Powell-Jackson et al., 2015; Carvalho et al. 2014).

A second, and increasingly binding, constraint is limited information and behavioural barriers. Preventive interventions, including antenatal care, immunisation, iron and folic acid (IFA) supplementation, breastfeeding, and complementary feeding, require repeated household decisions and sustained adherence rather than one-time contacts with the health system. In Bihar, only 21.9 percent of mothers consumed IFA supplements for at least 100 days, less than half the national average of 54.9 percent, while studies also document very low uptake of iron-fortified salt despite its availability (Banerjee, Barnhardt, and Duflo, 2018). Frontline health workers can help overcome these barriers through home visits, counselling, reminders, and community engagement. Incentivising ASHA-ANM teams in Bihar increased antenatal home visits, counselling, and IFA uptake (Carmichael et al., 2019), while reminders and regular follow-up have been shown to improve adherence to preventive care more broadly (Joshi and Gumashta, 2013).

The third constraint is trust in the public health system. Households are less likely to seek care when public facilities are perceived to be understaffed, unreliable, or of poor quality, often opting instead for private and informal providers (Banerjee et al., 2004). This demand-side response is closely linked to supply-side failures. Evidence from Bihar shows substantial gaps between providers' knowledge and clinical practice, while absenteeism and inconsistent service delivery undermine confidence in public facilities (Mohan et al., 2015; Chaudhury et al., 2006). Improving service quality is therefore likely to increase both the utilisation and effectiveness of public health programs.

V.2.6. Policy Recommendations

Bihar runs health and nutrition programs in line with the main national schemes. For child nutrition, it runs the Integrated Child Development Services (ICDS) and the POSHAN Abhiyaan nutrition mission. For anaemia, it runs the Anaemia Mukta Bharat strategy and the Weekly Iron and Folic Acid Supplementation (WIFS) programme. For maternal and newborn care, it runs the Janani Suraksha Yojana (JSY), a cash transfer for facility delivery, and the Janani Shishu Suraksha Karyakram (JSSK), which makes maternal and newborn services free. Across all of these sits the

national Ayushman Bharat programme, which has two arms: the Pradhan Mantri Jan Arogya Yojana (PM-JAY), a publicly funded health-insurance scheme for poorer households, and the Ayushman Bharat Digital Mission (ABDM), which builds digital health records. Especially at the state level, the BHAVYA platform, which is a part of the Mukhyamantri Digital Health Yojana (MDHY), is an excellent initiative in using digital infrastructure in the health sector. The evidence in this section, taken together with the fact about existing programmes, points to a clear conclusion which is not about the absence of programmes, but their quality, staffing, uptake, and measurement.

Public health expenditure in Bihar is approximately 1.2 percent of GSDP (around 6.3% of the state budget), which is lower than in several better-performing states such as Himachal Pradesh and Odisha and comparable to Kerala. However, the experience of these states suggests that improved health outcomes require not only adequate financing but also effective service delivery, strong primary healthcare systems, investments in human resources, and better governance. Increasing health spending, while simultaneously improving the efficiency and quality of public health services, will be critical for Bihar to accelerate progress in maternal and child health. The recommendations below are shaped keeping these factors in mind.

Policy Recommendations: Health

- 1. Shift from institutional delivery to quality pregnancy care:** Increase the completion of four or more antenatal care (ANC) visits through conditional cash transfers linked to ANC completion, routine haemoglobin testing, and iron and folic acid (IFA) adherence. Strengthen the LaQshya initiative through clinical audits, supportive supervision, and monitoring of quality indicators, including high-risk pregnancy referral and essential newborn care.
- 2. Strengthen nutrition delivery through Anganwadi Centres:** Improve the quality of ICDS by deploying additional nutrition workers in high-burden blocks, allowing greater emphasis on growth monitoring, caregiver counselling, home visits, and early identification of malnourished children. Prioritise implementation under POSHAN Abhiyaan in districts with the highest stunting and anaemia.
- 3. Improve anaemia surveillance and IFA adherence:** To address the high rate of anaemia, the first priority should be to restore routine anaemia surveillance through point-of-care haemoglobin testing under Anaemia Mukht Bharat, with block-level reporting. The second priority is adherence. Instead of reporting the number of IFA tablets distributed, ASHAs and ANMs should monitor the number of tablets actually consumed during routine ANC visits and home visits. District dashboards should report IFA adherence rates alongside distribution. Make adherence an ASHA performance indicator: rather than rewarding only tablet distribution or pregnancy registration, ASHA incentives could include the proportion of women completing the recommended IFA course. Complement tablets with food fortification: because adherence to tablets is often imperfect, Bihar should continue expanding iron intake through double-fortified salt, fortified take-home rations, school meals, and Anganwadi supplementary nutrition, where consumption is more automatic.
- 4. Close the remaining immunisation gap:** Nearly one-fourth of children remain either unvaccinated or incompletely vaccinated. Strengthen Intensified Mission Indradhanush by identifying zero-dose children, using ASHAs for household tracking and reminders, expanding outreach sessions in low-coverage areas, and integrating BHAVYA with the

national U-WIN immunisation platform. Evidence from India shows that reliable immunisation camps, small in-kind incentives, community information networks, and reminders can substantially increase uptake.

5. Strengthen frontline service delivery: Expand Community Health Centres and Health and Wellness Centres, fill critical workforce vacancies, and strengthen provider accountability through training, supportive supervision, and attendance monitoring. Improve adherence to standard treatment protocols for common childhood illnesses and engage informal providers through training and referral networks while strengthening community awareness of appropriate treatments such as oral rehydration salts and zinc.

6. Use digital health systems to monitor outcomes: Expand BHAVYA from a registration platform to a longitudinal health information system that tracks ANC completion, anaemia, immunisation, child growth, and high-risk pregnancies. District dashboards should support real-time monitoring, targeted interventions, and accountability.

V.3. Governance and Law and Order

Bihar's turnaround in law and order since 2005 is real and worth re-emphasising. As Section III.5 documents, murders have fallen by roughly four-fifths from their late-1990s peak, dacoity has all but disappeared, and the Naxal violence that once hollowed out governance across large parts of the state has been largely contained. The restoration of basic order was among the clearest achievements of the post-2005 period and underpinned much of the economic recovery that followed. The question this section asks is what remains once that gain is acknowledged, because the improvement has been uneven. A different picture emerges when the lens shifts to violence against women, the deterrence capacity of the justice system, and the way insecurity continues to shape who invests in health, schooling, and enterprise. Bihar's law and order problem, in other words, is now less about the headline violence that has receded than about who still bears the cost of the violence that remains, and what that cost does to the investment behaviour of households, firms, and the state.

The cost of the remaining violence operates through three mechanisms at once. First, violence against women, spousal, domestic, and public, suppresses health-seeking, schooling, and economic agency across half the population. Second, caste-based violence and its near-total impunity channel the worst human capital outcomes to the most marginalised households. Third, low police density, chronic case pendency and trial delay, and frontline vacancies make the state an unreliable enforcer of the institutions, schools, health centres, and courts, on which human capital investment depends.

These are not crime problems in the conventional sense but symptoms of a state capacity deficit that runs through the health, education, and labour-market channels the literature treats as foundational. Acemoglu and Robinson (2012) and Besley and Persson (2011) tie persistent income gaps to institutional quality, the state's ability to enforce property rights and legal order; North, Wallis, and Weingast (2009) argue that the management of violence is integral to development, not peripheral. The biased access to legal recourse, in which legal machinery selectively reinforces social hierarchies, describes several features of Bihar's structure, even as post-2005 reforms mark a partial move toward more equitable arrangements.⁶⁴

⁶⁴ North, Wallis, and Weingast (2009) distinguish between limited access orders, in which violence is managed through restriction of economic and political competition to privileged elites, and open access orders, in which impersonal institutions manage violence broadly. Bihar exhibits several features of a limited access order following the partial reforms of the post-2005 period: selective enforcement that

The mechanisms work through two channels. The first is direct suppression: violence damages health, schooling, and the conditions of child development. The second is institutional substitution by second-best alternatives: when the state cannot protect the returns to formal institutions, households substitute away from them, girls are kept home, marriages are accelerated as a means of protection, mobile workers leave, and private health and education investment stays unattractive outside Patna. Besley and Persson (2011) formalises this phenomenon: low state capacity lowers the return to human capital investment for everyone at once. Becker (1968) provides the mechanism: it is the probability of punishment, not its severity, that deters. Section V.3.2 shows that a violence incident in Bihar almost never ends in a conviction, not because the courts acquit but because the overwhelming majority of cases never reach a completed trial; at that level the criminal law is not a deterrent but operationally absent.

These channels generate five pathways, discussed below. Violence against women drives Pathways 1 and 2: girls' education and mobility, and domestic violence's damage to maternal and child health. Caste violence drives Pathway 3: the deprivation of SC and ST households of security and institutional access. The broader governance deficit drives Pathways 4 and 5: the maldistribution of frontline workers and the suppression of private investment and export of human capital through migration. As Duflo (2012) frames it, where people cannot turn investments in their own capabilities into actual functioning, because markets, fair treatment, or working institutions are missing, the private return to making those investments falls for everyone at once.

The sections below describe the crime data, highlight where deterrence breaks down, trace the pathways, and set them in Bihar's structural governance constraints. Box V.3.5 summarises the policy implications, with the evidence base in the appendix.

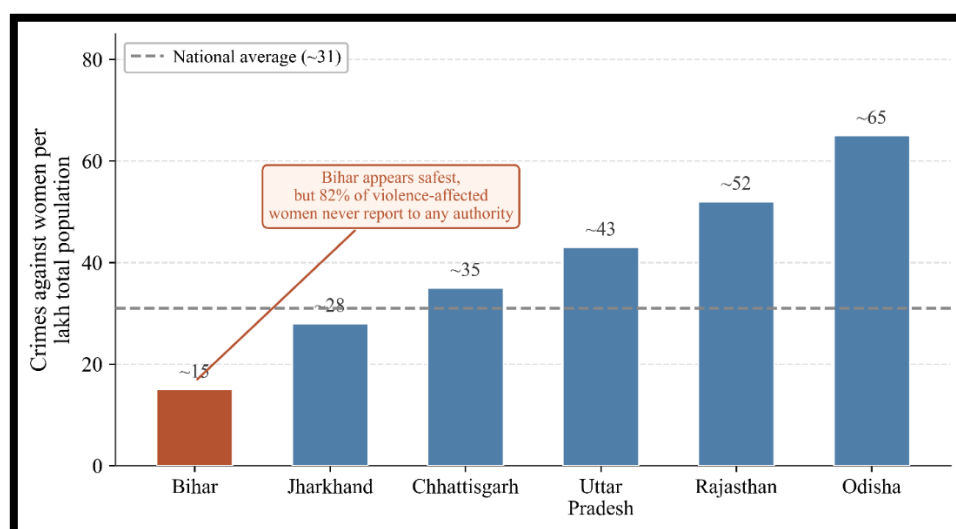
V.3.1. Crime Against Women: Reading the Data Correctly

Bihar looks like one of India's safer states for women, recording about 15 crimes against women per lakh in 2022, well below Rajasthan (around 52) and Odisha (around 65) (Figure 21). The appearance is very likely misleading.⁶⁵

reinforces existing social hierarchies, and formal institutions whose reach is contingent on existing power relations.

⁶⁵ The inference that low reported crime reflects low institutional access rather than low underlying incidence cannot be proved from observational data alone, but it rests on multiple converging indicators: the divergence between survey-measured prevalence (40 percent spousal violence) and administrative records; the pattern that crimes requiring victim initiative are underreported while crimes with physical evidence are not; and the causal evidence from Iyer et al. (2012) and Amaral et al. (2021) that institutional access, rather than underlying incidence, is the binding constraint.

Figure 21. Reported Crimes Against Women per Lakh Total Population, Bihar and Comparator States, 2022

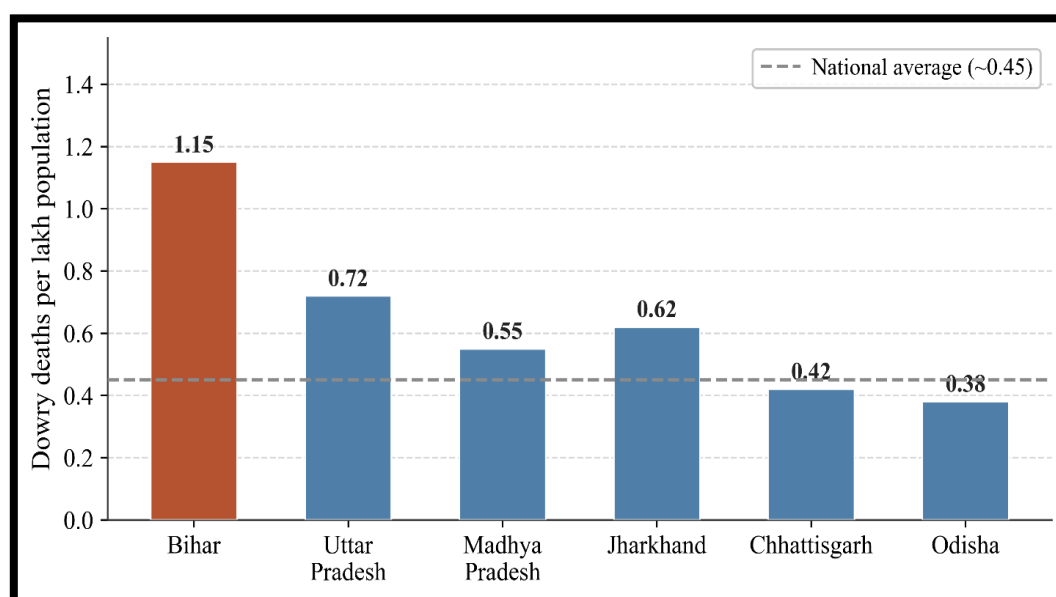


Source: National Crime Records Bureau, Crime in India 2022.

Note: Values show reported crimes against women per lakh total population in 2022. State values are based on NCRB Crime in India 2022 figures and rounded for presentation. The national average is calculated as 445,256 reported cases divided by an estimated population of 1.43 billion, multiplied by 100,000.

The test is to compare crimes whose reporting depends on victim initiative against crimes where physical evidence is unavoidable. Dowry deaths fall in the second category, and Bloch and Rao (2002) show they are systematically underreported yet leave observable traces. Bihar's dowry death rate has stayed among the highest in the comparator group from 2001 to 2022, between 1.0 and 1.3 per lakh and consistently above Jharkhand, Odisha, and Chhattisgarh (Figure 22). When evidence is inescapable, Bihar's numbers rise; when a crime depends on a victim walking into a police station they collapse, a convergence hard to explain other than as low reporting rather than low incidence.

Figure 22. Dowry Deaths per Lakh Population, Bihar and Comparator States, 2022



Source: National Crime Records Bureau, Crime in India 2022.

Note: Values show reported dowry deaths per lakh total population in 2022. Comparator-state values are rounded for presentation. Bihar's 2022 figure is consistent with its longer-run 2001–2022 NCRB series, where dowry deaths remain persistently high at roughly 1.0–1.3 deaths per lakh population.

Rape confirms the pattern: under one case per lakh every year from 2001 to 2022, the lowest of any comparator, and barely moving when the 2013 Criminal Law Amendment Act caused sharp spikes everywhere else. It is consistent with Iyer et al.'s (2012) finding that institutional access, not the legal text, binds reporting (see Appendix Figure 3). Within Bihar, the categories a complainant actively initiates, kidnapping and Section 498A cruelty, have risen since 2015 while rape stays flat (see Appendix Figure 4). Iyer et al. (2012) find that greater women's political representation causally raises reporting, and Amaral, Bhalotra, and Prakash (2021) confirm in Bihar that women's police stations raised reporting and cut domestic violence. The gap is one of access and trust, not prevalence.

NFHS-5 supplies the ground truth (IIPS 2021): 40 percent of ever-married women aged 18 to 49 have experienced physical or sexual spousal violence (of which, 3 percent during pregnancy), and surveys routinely reveal violence at multiples of administrative records (Garcia-Moreno et al. 2006; WHO 2013). Of those who experienced violence, 82 percent never disclosed it to anyone outside the household, only 2 percent approached the police, and among women facing both physical and sexual violence only 6.4 percent did. For most violence-affected women in Bihar, the justice system is simply absent.

V.3.2. Policing and Judicial Capacity

Police deployment: Bihar deployed about 75 police per lakh in 2022, the lowest among large states, against the central government norm of 122 and a national average of nearly 153, a shortfall of roughly 60,000 posts for 130 million people; Chhattisgarh deploys 215 and Jharkhand 152 (see Appendix Figure 5). Chalfin and McCrary (2018) and Di Tella and Schargrodsky (2004) both find police presence reduces crime through credible deterrence.

Sanctioned posts and vacancy: The shortfall is compounded by unfilled sanctioned posts: Bihar's officer vacancy rate is 53.8 percent, the highest among large and mid-sized states, against 22.1 percent nationally (see Appendix Figure 6). Recruitment runs every two to three years amid endemic examination irregularities. This pattern recurs across health, education, and policing alike, a signature of state capacity failure (Dasgupta and Kapur 2020; India Justice Report 2022).

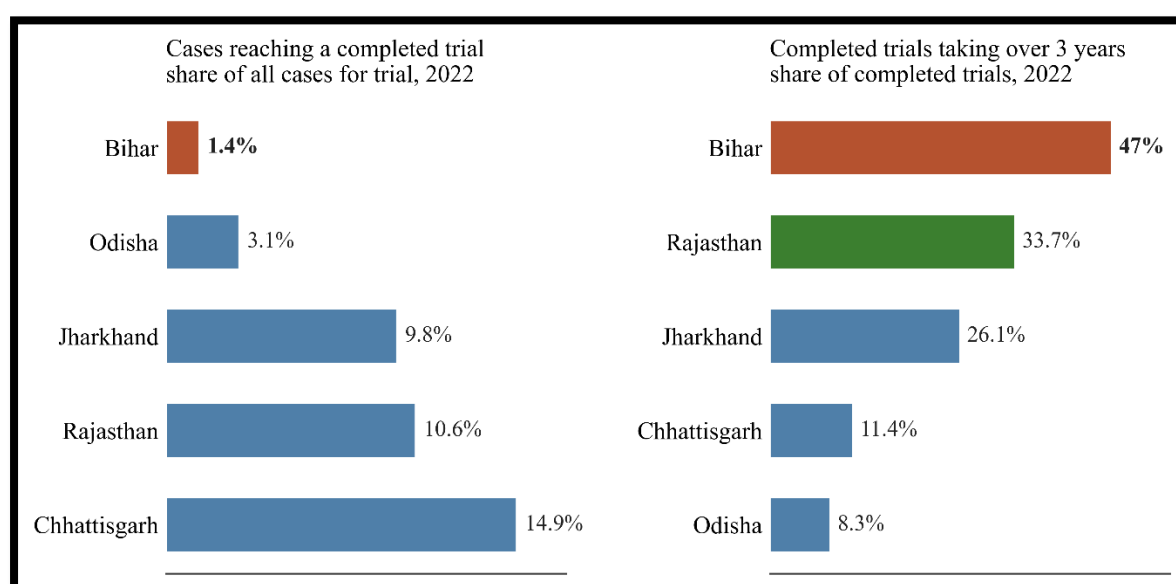
Women's police stations and help desks: Bihar went from zero women's police stations in 2010 to 40 by 2023, and Amaral, Bhalotra, and Prakash (2021) show causally, from Bihar's own districts, that each station raised reporting and cut domestic violence (see Appendix Figure 7). But 40 women's police stations across 534 blocks is only one per 13 blocks; Tamil Nadu had 196 by 2010. In the largest police-reform randomised controlled trial (RCT) to date, Sukhtankar, Kruks-Wisner, and Mangla (2022), across 180 stations serving 23.4 million people in Madhya Pradesh, find that case registration for crimes against women rose only where female officers ran the help desks (+26.4 percent), not where male officers did (+2.5 percent, indistinguishable from zero) (see Appendix Figure 8). Female officer presence, not the desk, is the mechanism, a key implication for scale-up; Miller and Segal (2019) likewise find that women report abuse more readily to female officers.

Officer attitudes: Structure alone cannot shift the attitudes of the median officer. A baseline survey across 419 Bihar stations within an RCT in the state's own force found large majorities holding victim-blaming attitudes that help explain why only 2 percent of affected women approach the police (Amaral, Borker, Prakash, and Sviatschi 2025; full statistics in the appendix). A three-day expressive arts training left treated officers 15 percentage points less likely to blame victims a year later, cut FIR registration time by 41 percent, and raised complaint volumes, with

gains persisting when officers transferred, indicating internalised change (see Appendix Figure 9).⁶⁶

The deterrence collapse, cases that never reach a verdict: Where deterrence fails in Bihar is not where it is usually assumed. Police charge-sheet at 75.4 percent of disposed cases, above the national average of 71.3 percent, and Bihar’s courts convict at 59.1 percent of completed IPC trials, also above the national 54.2 percent (NCRB 2022, Table 18A.2): neither policing nor the verdict itself is the weak link. The collapse is in between, in whether a case is ever brought to a verdict at all. In 2022 only 1.4 percent of the IPC cases before Bihar’s courts reached a completed trial, the lowest share among comparator states, while 98.4 percent remained pending at year end. And of the small number that did conclude, 47 percent had taken more than three years and about one in twelve more than a decade, the longest delays of any comparator (Figure 23; NCRB 2022, Tables 18A.2 and 18A.5). A case in Bihar is not defeated at trial; it simply never reaches one, and on the rare occasion it does, the verdict arrives years too late to deter.

Figure 23. Case throughput and trial delay, Bihar and comparator states, IPC 2022



Source: National Crime Records Bureau, Crime in India 2022.

Note: Left panel, cases reaching a completed trial as a share of all cases for trial in 2022 (for Bihar, 22,799 of 1,608,346); the remainder were still pending at year end. Right panel, the share of completed trials that took more than three years. The two panels draw on different tables and measure different things: case disposal (18A.2) and duration of the trials that concluded (18A.5). Bihar brings the smallest share of its caseload to a verdict and, of the cases it does decide, the largest share drag beyond three years.

The cumulative effect on deterrence is severe (Table 12). Becker (1968) and Drago, Galbiati, and Vertova (2009) establish that it is the probability of sanction, not its severity, that drives behaviour. In Bihar that probability is driven toward zero far upstream of the verdict: most violence is never reported, most cases that are registered never reach a completed trial, and justice for the few that do arrives years later. No single reform, improving reporting or court throughput alone, is sufficient.

⁶⁶ The one dimension where training gains attenuate over time without reinforcement is legal knowledge, suggesting that periodic refresher modules on new legal provisions, including the BNS 2023, should be built into the curriculum. The study notes that long-run persistence of attitude change beyond the one-year audit window and effects in non-urban policing contexts remain open questions for future evaluation.

Table 12. Attrition in the response to violence against women, Bihar

Stage in pipeline	Rate	Base	Source
Sought help from anyone	11%	Bihar women 18–49 ever experiencing physical/sexual violence	NFHS-5
Sought help from the police	2%	Bihar women 18–49 ever experiencing physical/sexual violence	NFHS-5
Trial completion (share of all cases for trial)	1.4%	Cases for trial, 2022 (22,799 of 1,608,346)	NCRB 18A.2
Conviction conditional on trial completion	59%	Completed IPC trials, 2022	NCRB 18A.2

Note: Each rate is conditional on the base named; the columns are not multiplicative, because the survey (victim-based) and administrative (case-based) denominators differ. The pattern is nonetheless clear. Attrition is concentrated at two points: only 11 percent of women who experience violence seek help and only 2 percent approach the police, and of registered cases 98.4 percent remain pending at year-end while just 1.4 percent reach a completed trial. Conviction conditional on adjudication is high (59 percent, versus 54 percent nationally), so the near-total absence of sanction is not caused by acquittal. The binding constraints are reporting and case throughput, not the propensity of courts to convict; interventions targeting conviction alone would leave the aggregate probability of sanction near zero.

The proximate causes are a vast pending caseload, with disposal routinely beyond three years (National Judicial Data Grid 2024; NCRB 2022, Table 18A.5), and an 85 percent forensic laboratory vacancy, the second highest nationally (India Justice Report 2025). Forensic vacancy is an operational cause of the delay and the evidence gap: cases wait years for support, witnesses disengage, and trials that do conclude do so long after the events (see Appendix Figure 10).⁶⁷

V.3.3 How Law and Order Failure Feeds Back into Human Capital

Law and order failures are not a separate problem from Bihar’s health and education gaps; they are a contributing cause. The five pathways combine causal and quasi-experimental evidence with mutually reinforcing descriptive patterns; not every link is identified within Bihar, but the combined evidence is coherent and strongly supported.

Pathway 1: Girls’ education and women’s mobility

Bihar’s upper-primary-to-secondary transition rate is 31.5 percent against a national 83.3 percent (UDISE+ 2023-24), concentrated among rural girls. Muralidharan and Prakash (2017), in a triple-difference study of Bihar’s bicycle scheme, find it raised age-appropriate secondary enrolment by 32 percent and cut the gender gap 40 percent, with effects largest far from schools, because it lowered the safety and distance cost of a risky journey; Borker (2021) and Adukia (2017) document the same safety mechanism. Amaral et al. (2025), in a Hyderabad police RCT, find visible patrols in harassment hotspots cut severe harassment 27 percent and left women 30 percent less likely to vacate the area, while undercover patrols did nothing, confirming visibility as the effective mechanism; they value the gain from improved female educational choices alone at Rupees 1.2 billion and find officer attitudes moderate the effect, tying the officer-attitudes evidence in Section V.3.2 directly to schooling. A system with no deterrence also gives families reason to marry girls early for protection, and Field and Ambrus (2008) show earlier marriage cuts

⁶⁷ The Bharatiya Nyaya Sanhita (BNS), in force from July 2024, introduces mandatory three-year trial completion timelines under the BNSS and makes electronic records explicitly admissible, removing a ground on which prosecutions previously collapsed. These provisions create a more favourable legal architecture. But Bihar’s conviction rate failure was never primarily a problem of legal text. The constraint is institutional: prosecution capacity, forensic infrastructure, and witness protection. The BNS creates the opportunity; the investments described here are what convert it into outcomes. A data note: NCRB crime statistics shift to new BNS section numbering from 2024, requiring careful adjustment before comparison with the 2001 to 2022 series used in this paper.

schooling and later bargaining power. Bihar's 40.8 percent child marriage rate, over 1.7 times the national average (IIPS 2021), plausibly reflects this in part as well (Duflo 2012).

Pathway 2: Domestic violence, maternal health, and child nutrition

Forty percent of ever-married women in Bihar have faced physical or sexual spousal violence and 3 percent during pregnancy (IIPS 2021). The link to maternal and child outcomes rests on three layers. Causal: Aizer (2011), instrumenting with gender wage gaps, finds violence cuts birth weight, and Bobonis, Gonzalez-Brenes, and Castro (2013) find reducing abuse improved nutrition via household bargaining power. Associational: Silverman et al. (2007) link partner violence to child morbidity in India, with a wider literature that finds reduced antenatal care and health-seeking (Jejeebhoy 1998; Pallitto et al. 2013; Garcia-Moreno et al. 2006; WHO 2013).⁶⁸ Bihar-descriptive: the 40 percent violence rate, 25.2 percent ANC 4+ coverage, and 42.9 percent stunting rate co-occur in one population at magnitudes consistent with that literature, though violence's specific contribution cannot be isolated from Bihar data. The 82 percent who sought no help are the same women whose health indicators will not move. The harm compounds across generations: women who witnessed violence in their childhood are likelier to be in abusive marriages (Pollak 2004; Abramsky et al. 2011), 37 percent of Bihar's women consider wife-beating justified in some circumstance (IIPS 2021), and children raised amid violence develop under stress with lasting cognitive and economic costs (Shonkoff and Phillips 2000; Almond and Currie 2011).

Pathway 3: Caste-based violence and the deprivation of the most marginalized

Bihar's worst human capital deficits concentrate in SC and ST households, not merely as a function of income. There are three layers. First, those directly measured: SC/ST (Prevention of Atrocities) Act crimes run persistently above several comparators across 2001 to 2022 (see Appendix Figure 11), and Bihar's conviction rate for these cases, 43.1 percent, is well below its 59.1 percent for IPC crime overall, so the justice system is least responsive to the most vulnerable (NCRB 2022, Tables 7A.6 and 18A.2). That these registrations read high while crimes against women read suppressed is not a contradiction: the Act carries mandatory-registration provisions and organised Dalit advocacy presses filing, whereas the crimes-against-women series relies on individual victim initiative, so the two cannot be read on one scale. Second, those causally identified elsewhere: Pande (2003) shows SC/ST political reservation shifts spending toward these groups and improves outcomes, and Iyer (2010) ties weaker inherited institutions to lower public-goods access. Third, supported hypothesis: Banerjee and Somanathan (2007) link social fragmentation to lower public-goods provision and Deshpande (2011) documents caste-based occupational barriers beyond poverty. Together these suggest a self-reinforcing cycle: impunity suppresses the participation and trust of SC and ST households, which weakens their political leverage, which in turn lowers their access to public goods.⁶⁹ The consequences show in NFHS-5: SC and ST households fare substantially worse on stunting, anaemia, ANC utilisation, and institutional delivery even after controlling for income (see Appendix Figure 12).

Pathway 4: Frontline worker deployment and the geography of service delivery

⁶⁸ The scale-up of women's police stations should be accompanied by the officer debiasing training (Amaral et al. 2025) as a prerequisite. The Sukhtankar et al. (2022) finding that station infrastructure without female officer presence and attitude change does not improve FIR filing implies that physical expansion alone is insufficient.

⁶⁹ Each step in this cycle is supported by evidence from Indian contexts, cited above. The cycle as a whole is a synthesis of that evidence rather than a relationship estimated directly for Bihar, and we present it as a coherent interpretation rather than a causal finding.

Bihar's health workforce is severely understaffed, with regular nurse postings 86.7 percent vacant, Lady Health Visitors 62.3 percent vacant, and doctors 52.3 percent vacant. This is the baseline in which every stressor operates. Chaudhury et al. (2006) find working environment, including the habitability and security of remote postings, predicts worker absence, and Finan, Olken, and Pande (2017) show that without compensating differentials or binding rules, remote-area quality deteriorates. The law-and-order channel runs partly through insecurity: remote postings are genuinely unsafe and the state cannot credibly guarantee safety without enforcement. Direct within-India evidence on this specific channel is limited, so it is best read as a plausible contributing factor. Connected workers cluster in district headquarters, leaving the highest-need periphery underserved. The private sector compounds this. Fajnzylber, Lederman, and Loayza (2002) tie crime to lower private investment and Monteiro and Rocha (2017) find organised crime lowers school attendance and scores. Bihar's near-absence of private health infrastructure outside Patna reflects a governance environment that deters such investment.

Pathway 5: Investment suppression and the out-migration equilibrium

Bihar's very high out-migration is multi-causal, driven mainly by wage gaps, networks, and the location of industry elsewhere. The narrower argument: weak contract enforcement, insecurity, and governance unpredictability depress the within-state return to human capital. When property can be seized, workers can be extorted, and contracts can be left unenforced, firms do not build capacity, and the within-state skill premium falls below what leaving offers, a governance wedge between social and private returns above the wage gap (Duflo 2012). Law and order is not the proximate driver of migration, the wage gap is, but it blocks the private-sector development that would narrow that gap, so the two reinforce each other.

V.3.4. Governance Capacity: The Structural Underpinning

All five pathways share a structural root. Bihar's state capacity, in Besley and Persson's (2011) sense of enforcing legal order and raising the revenue to sustain it, is inadequate to support the institutions human capital development needs. The vacancy crisis, the courts' near-total inability to bring cases to a verdict, the maldistribution of workers, and suppressed private investment are not independent failures but expressions of a single underlying deficit in state capability and political incentive.

Bihar is heavily transfer-dependent, with one of the lowest own-tax-to-GSDP ratios in the country (Bihar Economic Survey 2025-26), so building legal capacity needs sustained funding it cannot raise itself. Central Fast Track Special Courts and One-Stop Centres help only at the margin; the policing vacancy crisis remains an unresolved state-level failure.

Why these failures persist despite two decades of evidence is a question of political economy. In the limited access orders described by North, Wallis, and Weingast (2009), an impersonal rule of law threatens incumbent interests; it is not merely hard to build.⁷⁰ Vacancy tolerance is not just administrative failure: an under-resourced, dependent force stays useful for selective enforcement, and the lower SC/ST conviction rate fits a pattern where legal protection reaches the politically connected first. Dasgupta and Kapur (2020) document non-enforcement as a governance instrument in rural bureaucracy, and Finan, Olken, and Pande (2017) show that political capture of deployment is the equilibrium absent binding rules. Reform is not impossible, and the gains in women's police stations, fast-track courts, and debiasing prove otherwise; but

⁷⁰ Limited access orders are social and political systems in which elite groups control valuable resources and restrict access to them, maintaining stability by managing violence rather than by impersonal rule of law.

reforms that threaten discretionary enforcement meet organised resistance. Sustained progress therefore needs commitment beyond the electoral cycle, backed by external accountability, Finance Commission incentives, judicial monitoring, and civil society audit, that makes reversal costlier than continuation.

Three reforms are foundational, and Box V.3.4 sets them out in full alongside the rest. Filling sanctioned police vacancies is administrative rather than fiscal; matching the Fast Track Special Courts with prosecution and forensic capacity is what would convert their throughput into convictions;⁷¹ and scaling women's police stations, whose effect is identified in Bihar's own districts (Amaral, Bhalotra, and Prakash 2021), is a distance the state can straightforwardly close. Each rests on evidence, an Indian precedent, and a within-Bihar proof of concept.

Running health and education programmes while leaving law and order unreformed will yield less than the sum of their parts, because these pathways are the channels through which law and order failure erodes the returns to those investments. What separates the states that made the transition is not the availability of solutions but the political architecture that makes reversal costlier than continuation.

Policy Recommendations: Strengthening Law, Order, and Governance in Bihar

Each recommendation is grounded in the evidence in this section and benchmarked against demonstrated practice in Indian states and comparable international contexts. Every item has an evidence base, an Indian precedent, and a within-Bihar proof of concept; what has been missing is not knowledge of what to do but the institutional architecture that makes reversal costlier than continuation.

(A) Police capacity and deployment. Bihar deploys about 75 police per lakh against a national norm of 122, and its officer vacancy rate of 53.8 percent is the highest of any large state (IJR 2022). Launch mission-mode recruitment under an independent, examination-board-run commission to end the two-to-three-year irregularity cycles that keep posts frozen, targeting the sub-25-percent officer vacancy that Tamil Nadu and Andhra Pradesh sustain. Filling sanctioned posts is administrative, not fiscal: the posts and budget lines already exist. Reserve at least a third of new hires for women, since female officer presence, not station infrastructure alone, is what raises reporting (Sukhtankar, Kruks-Wisner, and Mangla 2022).

(B) Women's safety infrastructure. Women's police stations in Bihar's own districts causally raised reporting and cut domestic violence (Amaral, Bhalotra, and Prakash 2021), yet 40 stations across 534 blocks is roughly one per thirteen, against Tamil Nadu's 196. Scale to at least 150 over five years, toward the Tamil Nadu benchmark, prioritising the blocks with the highest dowry-death and child-marriage rates, and pair every scale-up with the officer debiasing training in Recommendation C, since infrastructure without attitude change does not move FIR filing. Fully staff the district One-Stop Centres on the Telangana Bharosa model, and deploy visible anti-harassment patrols at identified hotspots, which cut severe harassment 27 percent in a Hyderabad RCT (Amaral et al. 2025).

(C) Officer attitudes. A baseline survey across 419 Bihar stations found large majorities of officers holding victim-blaming attitudes, which helps explain why only 2 percent of violence-affected women approach the police (Amaral, Borker, Prakash, and Sviatschi 2025). Embed the three-day expressive-arts debiasing curriculum in the Bihar Police Academy as mandatory pre-service training and roll it out in service, since it left trained officers 15 percentage points less likely to blame victims a year later, cut FIR registration time 41 percent, and produced change that persisted when officers transferred.

(D) Judicial capacity and case throughput. Bihar's police charge-sheet at 75.4 percent and its courts convict at 59.1 percent of completed trials, both above the national average; the failure is not the verdict but that only 1.4 percent of cases reach a completed trial and those that do take years (NCRB 2022,

⁷¹ Bihar's 47 Fast Track Special Courts as of 2024 include courts established under the national scheme for POCSO and rape cases. The gap between establishing a court and making it function, with staffed public prosecutors and forensic support, remains significant.

Tables 18A.2 and 18A.5). The binding constraint is throughput. The proximate operational cause is an 85 percent forensic-laboratory vacancy (IJR 2025), so filling forensic posts is the single highest-return investment, improving every category of case at once. Build a dedicated cadre of specialist public prosecutors for crimes against women and SC/ST atrocities on the Telangana model, operationalise the Witness Protection Scheme 2018, and hold the 47 Fast Track Special Courts to time-bound disposal targets with public quarterly reporting.

(E) Caste-based violence. Bihar's conviction rate for SC/ST atrocity cases, 43.1 percent, is below its 59.1 percent for IPC crime overall, so the justice system is least responsive to the most vulnerable (NCRB 2022, Tables 7A.6 and 18A.2). Fully staff the exclusive special courts mandated under the SC/ST (Prevention of Atrocities) Act, several of which remain merged with general sessions courts or unstaffed; establish district-level atrocity-prevention cells with real-time registers of habitual offenders and pending cases on the Maharashtra vigilance-committee model; and activate the victim-compensation provisions, whose utilisation has been negligible relative to registered cases.

(F) Systemic governance and accountability: Individual reforms revert to the equilibrium of selective enforcement unless the incentive architecture changes. Publish a quarterly, district-disaggregated performance dashboard covering vacancy rates, charge-sheet and conviction outcomes by crime category, One-Stop-Centre utilisation, and forensic turnaround, on the Andhra and Telangana precedent. Establish a Bihar Violence Reduction Unit on the Scotland model, treating violence as a public health problem across police, health, education, and welfare. Link Finance Commission performance grants to measurable rule-of-law outcomes, giving the fiscal architecture a set of law-and-order metrics to condition on.

(G) Upgrade data and technology, sequenced by state capacity: Bihar already operates CCTNS, the interoperable ICJS, eSakshya, and Dial-112; the constraint is activation and audit, not acquisition. The decisive evidence is within-India variation in use: Haryana paired eSakshya with training and procedure and reports near-complete digital recording, while in Gautam Buddh Nagar (Noida) digital evidence was uploaded in only about 1 percent of FIRs under the same legal mandate.¹ Prioritise the record-and-evidence systems that address the delay and evidence gaps directly, and tie station and body-worn cameras to supervision and review, since cameras alone show null effects (Yokum, Ravishankar, and Coppock 2017). Where predictive tools are used, target places rather than individuals, and check any map of high-risk areas against survey evidence of where violence actually occurs, not against crime records alone.² Keep mass surveillance and facial recognition to a minimum, narrow in scope and governed by strict limits on data retention and by independent audit. Sequence adoption by the capacity the state has actually built, not by how visible the procurement is.

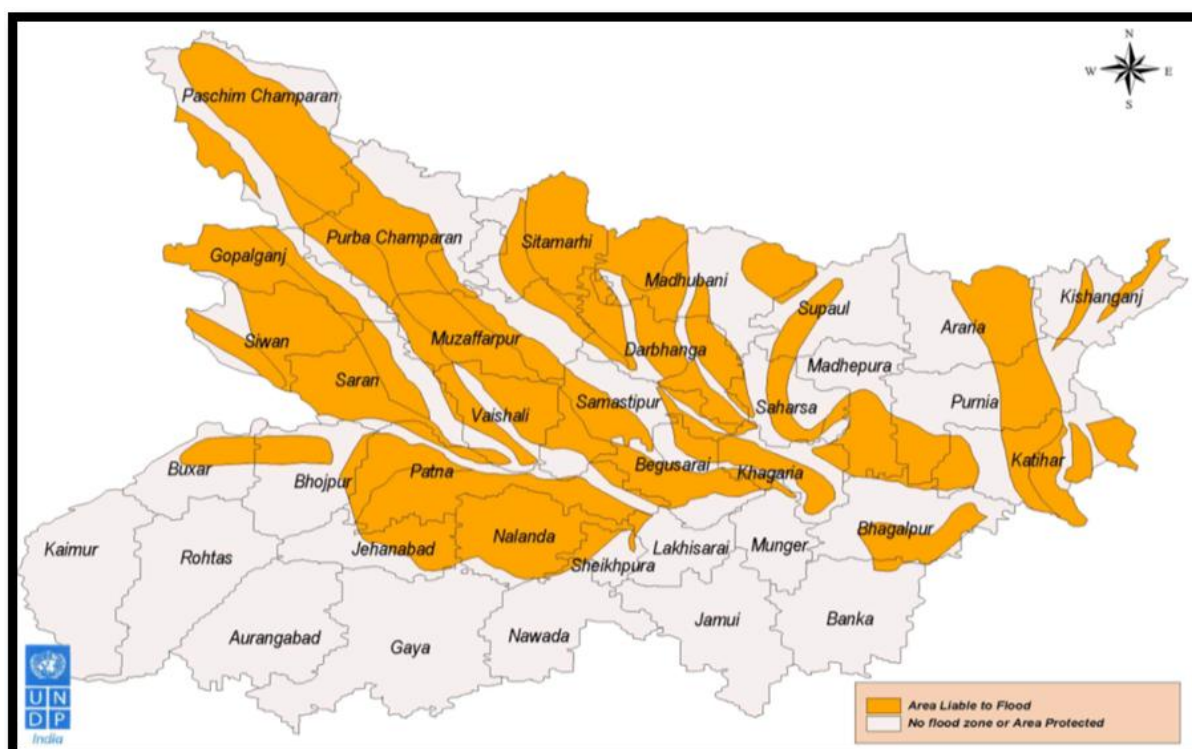
V.4. Recurring and Devastating Floods

Flooding represents one of the most significant structural constraints on Bihar's economic development. Following the state's bifurcation in 2000, approximately 73 percent of Bihar's geographical area (68.8 lakh hectares) became flood-prone, making it the most flood-vulnerable state in India by share of land area. Of Bihar's 38 districts, 28 experience recurrent flooding, with 15 classified as severely flood affected. Roughly 76 percent of Bihar's population reside in these 28 districts.⁷² Floods devastate lives of people, crops, livestock, homes, and buildings.

Figure 24 illustrates the spatial extent of Bihar's flood vulnerability. The flood-prone belt stretches across much of northern and eastern Bihar, covering districts such as West Champaran, East Champaran, Muzaffarpur, Sitamarhi, Darbhanga, Supaul, Saharsa, Purnia, Katihar, and Kishanganj. These districts coincide with some of the state's most densely populated and economically vulnerable regions.

⁷² The Bihar Flood Hazard Atlas (1998–2019), National Remote Sensing Centre (NRSC), ISRO

Figure 24. Bihar: Flood Zones



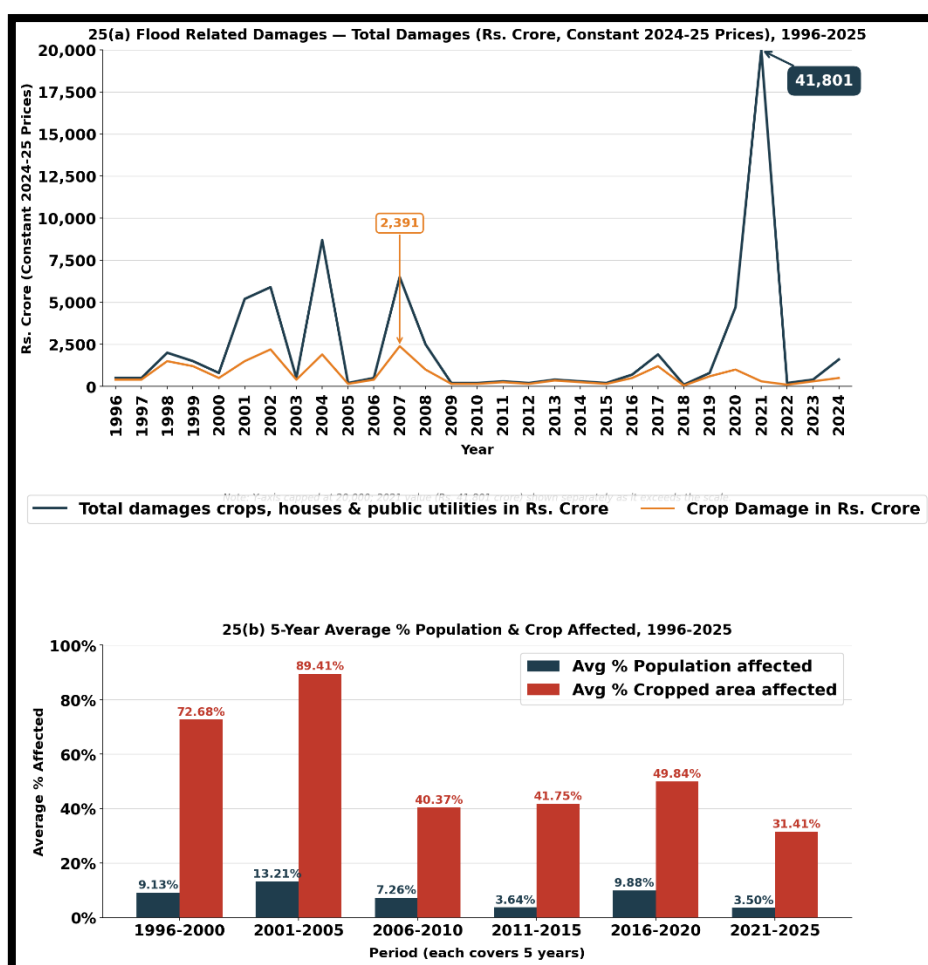
Source: Government of India, reproduced in UNDP India publication.

The vulnerability of the 28 districts stems from Bihar's unique geographical location. Major Himalayan rivers such as the Kosi, Gandak, and Bagmati enter the state from Nepal, carrying enormous volumes of water and sediment during the monsoon season. Peak flows can reach up to fifty times dry season discharge levels, while heavy sediment deposition continuously alters river channels and raises riverbeds. These characteristics make flood control exceptionally challenging and have historically exposed large areas of agricultural land and human settlements to recurrent inundation.

The economic costs of recurrent flooding in Bihar have been substantial. Figure 25(a) shows that flood-related damages to crops, houses, and public infrastructure have fluctuated widely, peaking at over ₹41,800 crore (2024–25 prices) in 2021, while crop losses alone exceeded ₹2,390 crore in 2007. Figure 25(b) shows that floods affected 31–89 percent of the cropped area and 3.5–13.2 percent of the population across successive five-year periods. Even during 2016–2020, nearly 10 percent of Bihar's population was affected, highlighting the persistent agricultural, economic, and human costs of recurrent flooding.⁷³

⁷³ The 2008 Kosi flood illustrates the scale of disruption that floods can impose. The disaster destroyed more than 350,000 acres of paddy, 18,000 acres of maize, and approximately 240,000 acres of other crops, directly affecting nearly 500,000 farmers.

Figure 25. Bihar: Damage Trends and Relief Allocation



Source: Bihar Disaster Management Department, Govt. of Bihar.

Policy Recommendations: Flood Management

Recurring floods impose substantial economic, and social costs. Climate adaptation should therefore become an integral component of Bihar's development strategy.

Priority Reforms

- 1. Modernize flood control infrastructure:** Strengthen embankments, reservoirs, drainage systems, and river management through long-term basin-level planning. (*World Bank; National Disaster Management Authority*).
- 2. Improve flood forecasting and early warning systems:** Expand real-time monitoring and community-based early warning systems to reduce loss of life and property. (*NDMA; World Meteorological Organisation*).
- 3. Promote climate-resilient agriculture:** Encourage flood-tolerant crop varieties, improved irrigation, crop diversification, and climate-smart farming practices. (*FAO; ICAR; World Bank; Gulati (2023)*).
- 4. Strengthen disaster preparedness and post-disaster recovery systems:** Improve institutional coordination, emergency response, and resilient infrastructure planning. (*Sendai Framework for Disaster Risk Reduction; NDMA*).
- 5. Restore wetlands and natural floodplains:** Nature-based solutions complement engineering interventions by improving water retention and reducing flood intensity. (*UNEP; World Bank*).
- 6. Promote climate-resilient infrastructure:** Roads, bridges, schools, hospitals, and public utilities should be designed to withstand more frequent extreme weather events. (*World Bank; NDMA*).
- 7. Expand crop insurance and disaster risk financing:** Better insurance coverage and contingency financing can reduce income shocks for vulnerable households and farmers. (*PMFBY; World Bank*).
- 8. Strengthen inter-state river basin coordination:** Closer coordination with neighbouring states and Nepal can improve flood forecasting, reservoir management, and long-term river planning. (*Central Water Commission; World Bank*).

V.5. The Missing Private Sector

There is sufficient evidence across the world that shows that the private sector is the primary engine of sustained growth. The high growth rates in recent decades in Bihar were mainly driven by public sector investments. While there is an abundance of cheap labour and land, several constraints, as described below, have hindered private sector development.

V.5.1. Structure of the Economy

Three interrelated constraints continue to impede the emergence of a dynamic private economy: extremely low levels of private investment and foreign direct investment (FDI), limited intermediation of local savings into productive credit within the state, and a persistently weak business environment relative to other Indian states. The absence of a vibrant private sector has, in turn, constrained the pace of structural transformation and the creation of productive employment opportunities.

Low Private Investment and Negligible FDI

The most visible manifestation of Bihar's weak private sector is its inability to attract foreign investment. In FY 2024–25, Bihar lagged behind every other state, receiving FDI equity inflows of only ₹10.02 crore (~\$1.20 million), a negligible share of India's total FDI inflows of ₹4.22 lakh crore (~\$50.7 billion).⁷⁴ In comparison, Maharashtra and Karnataka attracted more than half of the inflows to India. Beyond capital inflows, low FDI also limits technology transfers, managerial expertise, and integration into national and global value chains, constraining long-term productivity growth.

Investment Climate: Persistent Underperformance on Ease of Doing Business

Bihar has consistently been assessed as one of the weaker-performing states by the Department for Promotion of Industry and Internal Trade's (DPIIT) Business Reform Action Plan (BRAP) established in 2015. While changes in methodology over time make direct comparisons difficult, the broad pattern is unmistakable: Bihar has remained in the lower tiers of performance across successive assessment cycles. This sustained underperformance points to structural weaknesses in the state's investment climate. Investors continue to face challenges related to the speed and effectiveness of regulatory approvals, land acquisition and titling, infrastructure and logistics bottlenecks, and limited institutional capacity for investor facilitation. Such constraints increase the cost and uncertainty of doing business, discouraging private investment and industrial development.

V.5.2. Agrarian Dependence and Low Agricultural Productivity

Agriculture continues to play a central role in Bihar's economy, supported by one of the highest proportions of cultivable land in India. Nearly 70 percent of the state's geographical area is arable, compared to about 55 percent at the national level (Table 13). This comparative advantage has been underutilized, in large part due to a lack of irrigation facilities and low

Table 13. Bihar Vs All India: Arable Land Availability

Year	Region	Arable Land as % of Geographical Area
2009–10	Bihar	70.1
	All India	55.4
2014–15	Bihar	69.9
	All India	55.1
2023–24	Bihar	69.6
	All India	54.6

Source: Land Use Statistics Report, Directorate of Economics and Statistics, Government of Bihar.

agricultural productivity. Recent trends, however, indicate substantial improvements in crop yields, with some notable exceptions, and a gradual narrowing of productivity gaps.

Table 14 below shows that yields across all major crops have increased since 2004-05. Wheat and rice have recorded the most notable improvement, converging considerably towards the national average by 2024-25. Interestingly, pulse productivity in 2004-05 was higher in Bihar than

⁷⁴ DPIIT, Ministry of Commerce, Govt. of India. 2024-25

the national average, but fell behind by 2024-25, as the gains were much faster in other states. Pulses, oilseeds and sugarcane productivity remain well below the national average.

Table 14: Crop Yield - (Kg per hectare)

		Rice	Wheat	Pulses	Oilseeds	Sugarcane
2004-05	Bihar	792	1609	710	887	39,460
	India	1984	2602	577	885	64,752
2014-15	Bihar	1948	1851	859	1093	55,179
	India	2391	2750	728	1075	71,511
2024-25	Bihar	2561	3145	879	1162	63,091
	India	2929	3595	926	1412	83,416

Source: Reserve Bank of India Handbook of Statistics; Note: Authors' calculations based on RBI data.

Several factors explain the stagnation of the agriculture sector. The net irrigated area barely expanded from 3.0 million hectares in 2004–05 to 3.4 million hectares in 2023–24. This implies that more than 50 percent of arable land does not have access to irrigation facilities. Second, fragmentation of land holdings over time has produced an agrarian structure dominated by very small farms, limiting economies of scale and constraining mechanisation and productivity growth. Third, low farm productivity is also constrained by inadequate access to electricity. Agriculture accounted for only 4.4 percent of Bihar's total electricity consumption, down sharply from 28.7 percent in 2005–06. In contrast, agriculture accounted for more than 30 percent of total electricity consumption in states such as Haryana, Punjab, Rajasthan, Madhya Pradesh, and Karnataka. Fourth, the lack of storage facilities and connectivity limits diversification and market access.⁷⁵ Fifth, limited access to institutional credit remains a major constraint on agricultural investment, despite the expansion of the Kisan Credit Card (KCC) scheme. Informal sources continue to account for an estimated 42 percent of agricultural credit, charging interest rates of around 35 percent - more than three times those charged by institutional lenders.

Beyond staple crops, Bihar possesses significant comparative advantages in horticulture and high-value agricultural products. However, the development of agro-industries remains constrained due to a lack of cold storage, warehousing, and transportation facilities. Agricultural extension services (Krishi Vigyan Kendras, block-level offices) are underfunded and understaffed. Bihar dominates national production of *litchi* and *makhana*, but much of the higher value addition associated with processing, packaging, storage, and marketing continues to take place outside the state. Strengthening agro-processing infrastructure, cold-chain logistics, and food-processing industries would enable Bihar to capture a larger share of the value generated by its unique agricultural products, while creating non-farm employment opportunities in rural areas.

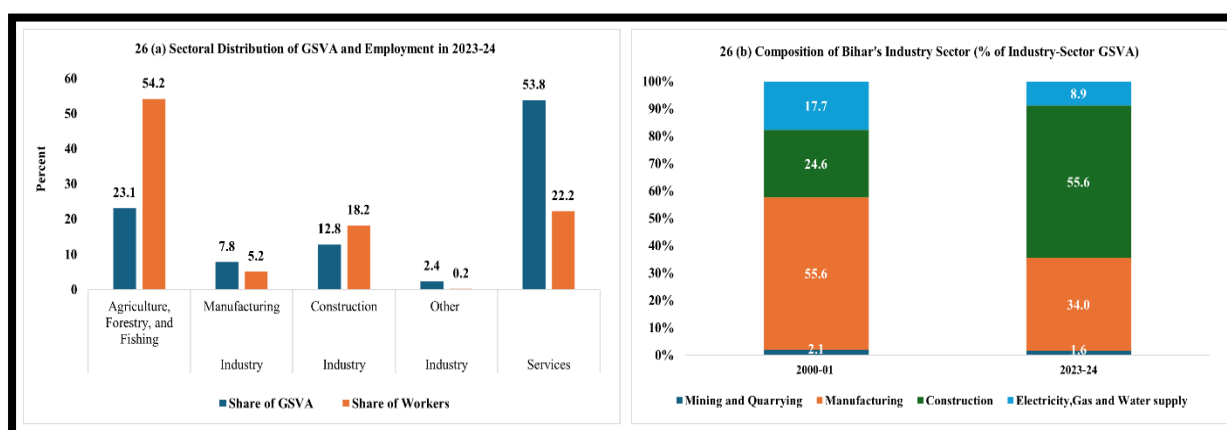
Overall, Bihar has high potential in increasing agricultural productivity and developing agro-processing industries. To achieve these objectives, action is needed in the following areas: flood control, expansion of irrigation facilities, acceleration in the adoption of modern technology, and the development of ancillary services supporting agriculture.

⁷⁵ Gulati (2025)

V.5.3. Industrial Underdevelopment and Structural Transformation Constraints

Among the most striking features of Bihar's economy is the relatively small size of its manufacturing sector and the incomplete structural transformation of its workforce away from agriculture (Figure 26 (a)). By 2023–24, agriculture, forestry and fishing accounted for only 23.1 percent of Bihar's Gross State Value Added (GSVA), while manufacturing contributed just 7.8 percent. In contrast, services at nearly 53.8 percent and construction at 12.8 percent emerged as major drivers of economic activity. Agriculture dominates employment, accounting for 54.2 percent of the workforce, followed by services (22.2 percent), construction (18.2 percent), and manufacturing (5.2 percent).

Figure 26. Bihar: Sectoral Distribution of GSVA and Employment



Source: PLFS, MoSPI, Govt. of India

Figure 26(b) highlights the changing composition of Bihar's industrial sector. The share of manufacturing in industrial GSVA declined sharply from 55.6 percent in 2000–01 to 34.0 percent in 2023–24, while that of construction activity rose substantially. Within the services sector, trade, hotels and restaurants have emerged as the largest component, with their share increasing from less than 22 percent in 2000–01 to nearly 28 percent in 2023–24. In contrast, the share of public administration declined from 13 percent to around 10 percent over the same period. Overall, the composition of Bihar's service sector indicates that growth has been driven primarily by trade-related and other traditional service activities, with relatively limited expansion in modern, high-value-added business, financial, and professional services.

The formal manufacturing sector contributes less than 8 percent to GSVA. Although the number of factories almost doubled from 1,775 in 2008–09 to 3,386 in 2023–24 (Table 15), the share of operational factories declined from 87 percent to below 80 percent. This points to persistent challenges in sustaining industrial activity, including inadequate infrastructure, limited access to finance and skilled labour, and weak supply-chain linkages.

Table. 15 Bihar: Registered and Operational Factories

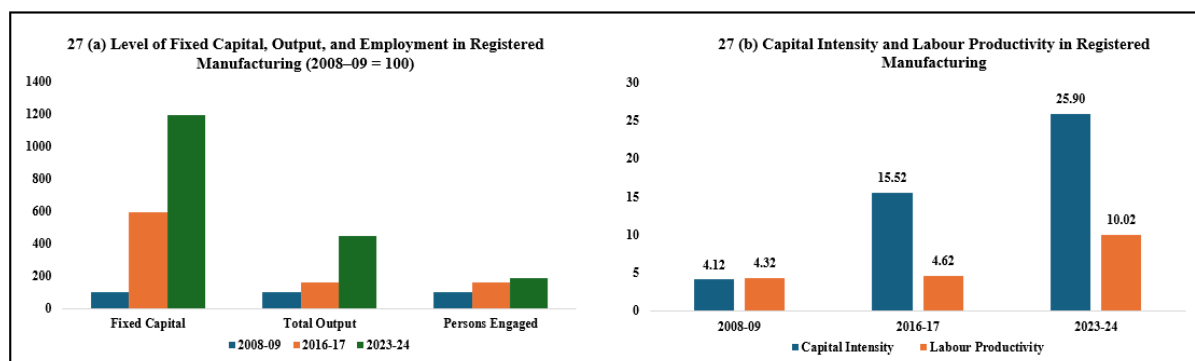
Indicator	2008-09	2023-24	Change
Total Factories	1,775	3,386	1,611
Operational Factories	1,549	2,692	1,143
Operational Efficiency (%)	87.27	79.50	-7.8 percentage points
Bihar's Share of India's Total Factories (%)	1.14	1.3	0.16 percentage points
Bihar's Share of India's Operational Factories (%)	1.04	1.26	0.22 percentage points

Source: Annual Survey of Industries (ASI), MoSPI.

Capital deepening without adequate employment creation

A closer examination of Bihar's registered manufacturing sector shows that industrial growth has been driven more by capital accumulation than employment creation. Between 2008–09 and 2023–24, fixed capital increased sharply, while employment grew only modestly despite higher output (Figure 27(a)). Figure 27(b) further shows that capital intensity has risen much faster than labour productivity, indicating that manufacturing expansion has relied primarily on investment in fixed assets rather than job creation. As a result, the sector continues to generate limited employment despite its growth, a significant concern for a labour-abundant state such as Bihar.

Figure 27. Bihar: Capital deepening, Employment creation, and Labour Productivity



Source: Annual Survey of Industries (ASI), MoSPI.

Based on the gaps identified in the analysis, the following policy recommendations are proposed:

Policy Recommendation - Accelerating Private Sector Development and Structural Transformation

The primary impetus to reviving the private sector will come from reforms discussed in other sections on education gaps, health deficits, governance reforms, flood control that devastates large parts of Bihar frequently, and lack of empowerment of women. Still, some additional supportive measures are offered below.

Priority Reforms

- 1. Improve the business and investment climate:** Simplify regulations, improve contract enforcement, and strengthen investor facilitation to encourage private investment. (*World Bank Enterprise Surveys; DPIIT*).
- 2. Develop industrial clusters and logistics infrastructure:** Promote industrial parks, logistics hubs, and better transport connectivity to reduce production costs and improve competitiveness. (*NITI Aayog; World Bank*).
- 3. Build supportive structures in agriculture and strengthen value chains:** Promote agro-processing, storage, food processing, and market integration to increase rural incomes and support structural transformation. (*World Bank; FAO; ICAR; ICPP Annual Growth Conference, Prachi Mishra et al. (2026)*).
- 4. Invest in urbanisation and secondary cities.:** Invest in urban infrastructure, housing, and municipal services to facilitate industrialisation and employment growth. (*World Bank; UN-Habitat*).
- 5. Improve access to finance for MSMEs.:** Expanding credit guarantees, venture finance, and digital lending can support entrepreneurship and employment generation. (*RBI; SIDBI; World Bank*).

- 6. Promote export competitiveness.:** Supporting export-oriented industries through quality standards, logistics improvements, and trade facilitation can diversify Bihar's growth drivers. *(WTO; Ministry of Commerce; World Bank)*.
- 7. Promote innovation and technology adoption:** Encouraging technology diffusion, digitalisation, and research partnerships can improve productivity across firms. *(OECD; World Bank)*.
- 8. Further develop tourism and cultural industries:** Bihar's rich historical, religious, and cultural heritage offers substantial opportunities for employment-intensive tourism development. *(Ministry of Tourism; UNESCO)*.

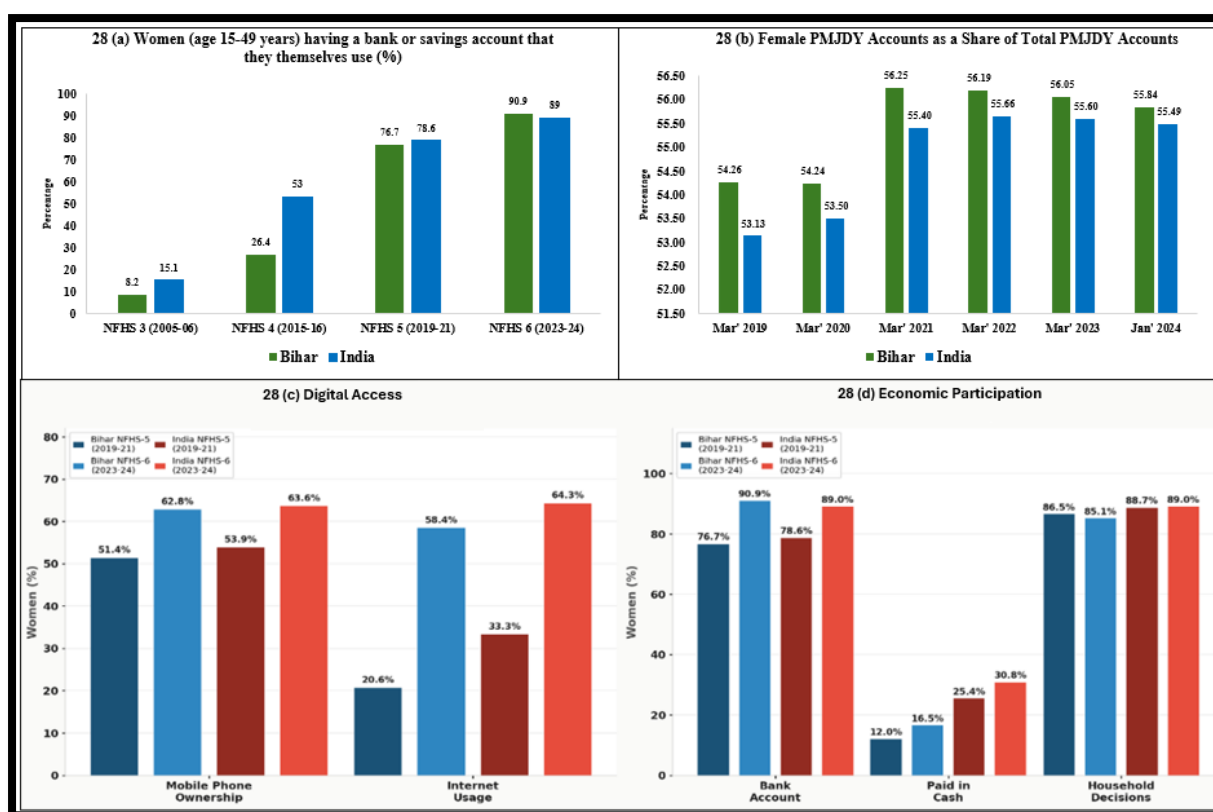
V.6. Gender Discrimination and Empowerment

The goal of Viksit Bharat cannot be achieved without empowering nearly half of the state's population. There are many ways to measure gender gaps, and we look at the following areas: access to traditional banking, digital access, political empowerment measured by voter turnout of women in elections and political leadership, female labour force participation in rural and urban regions, and violence against women. Violence against women has been highlighted in the previous section under law and order. Substantial progress has been made in the areas of access to traditional banking, digital access, and voter turnout of women in elections. There is a long way to go in the remaining three areas—political leadership, female labourforce participation, and violence against women. Violence against women is particularly egregious.

Access to financial services

Driven by the spectacular success of the India Stack (Aadhar, PAN, and digital banking), access to and usage of bank and digital accounts by women in Bihar has risen rapidly. The share of women aged 15–49 who have a bank or savings account that they themselves use increased from 8.2 percent in NFHS-3 (2005–06) to nearly 90 percent in NFHS-6 (2023–24), similar to the national average (Figure 28 (a)). Women also account for over half of PMJDY account holders (Figure 28 (b)). Access to digital technologies has expanded substantially, with mobile phone ownership among women rising from 54 percent to 64 percent and internet use nearly doubling from 33 percent to 64.3 percent between NFHS-5 and NFHS-6 (Figure 28 (c), 28 (d)). These developments have strengthened women's access to formal financial services and enhanced their ability to participate in the digital economy.

Figure 28. Bihar and All India: Women's economic empowerment indicators



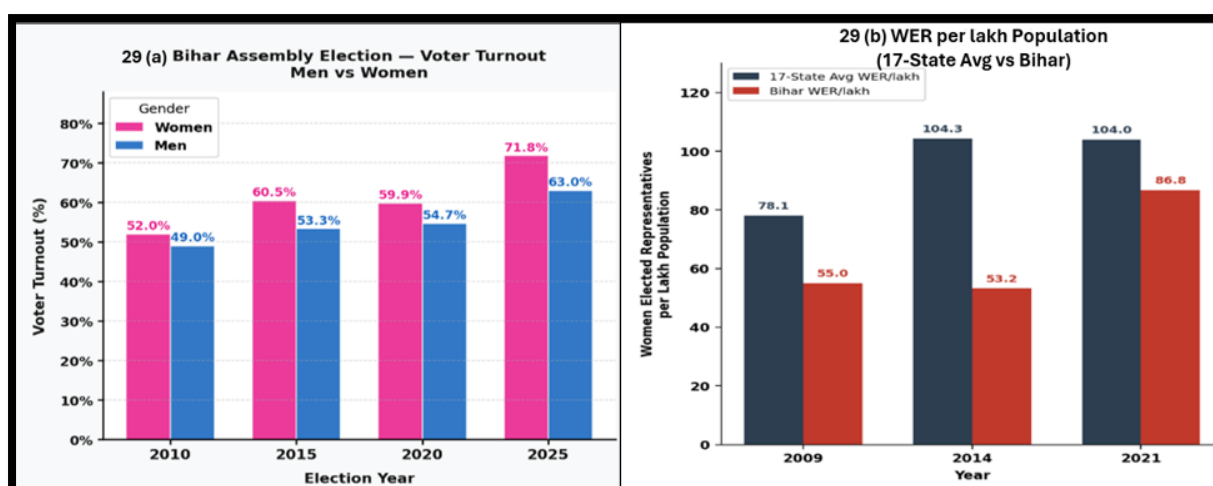
Source: NFHS; Ministry of Finance, Govt. of India; Author's calculations.

Voter turnout of women & Female leaders in local government

Voter turnout of women in national general elections has remained on par with men during three elections (Figure 29 (a)) On the other hand, women's voter turnout in state elections has always been higher since 2010, surpassing men's by nearly 9 percentage points in 2025. These trends reflect growing political awareness and agency among women, facilitated by the rise in education levels, welfare outreach, and signals from the central government to reduce gender gaps that are reaching the states.

Due to the relatively early adoption of a 50 percent reservation for women in local governments in Bihar, female representation in Panchayati Raj Institutions (PRIs) was among the highest in India in 2009 at 54 percent. However, since then, the share of women holding political leadership positions has fallen compared to other large states, and in absolute per capita terms, they are also smaller than other large states (Figure 29 (b)). Research has shown that women leaders in Panchayats serve as role models for young girls in their career aspirations and greater women's political representation raises reporting of crime against women generally.

Figure 29. Bihar: Female Political Empowerment



Source: Election Commission of India Dataset; PRI Election Reports: Author's Calculations.

Labour Market

Women's participation in the labour market in Bihar is extremely low, lower than national averages, and gender gaps are large. Still, they have been rising steadily especially in rural areas. As of 2023-24, the female labour force participation rate (FLFPR) is 32 percent in rural areas and 16.7 percent in urban areas, compared to the national averages for women at 48 percent and 28 percent, respectively.

In 2023-24, gender gaps in Bihar were nearly 45 percentage points in rural areas and over 50 percentage points in urban areas. These large gaps reflect limited availability of suitable jobs, unpaid care responsibilities, social norms restricting women's mobility, concerns about workplace safety, and inadequate childcare support. With increasing access to education, financial services, and self-help groups, FLFPR in rural areas have risen from 4.5 percent in 2018-19 to 32.0 percent in 2023-24, and in urban areas from 6.7 percent to 16.7 percent during the same period.

Based on the gaps identified in the analysis, the following policy recommendations are proposed.

Policy Recommendation - Women's Economic Empowerment

Women's empowerment matters for building an inclusive and productive economy, and a just society.

Priority Reforms

- 1. Expand Employment Opportunities for women:** Expand employment opportunities through skill development, entrepreneurship support, and greater access to formal wage employment. Policies should also focus on demand side job-creation by expanding employment opportunities in manufacturing, modern services, agro-processing, and care economy, where female employment has the greatest potential to grow. (*Dev - Sahay, 2026; ILO, 2023, World Bank Gender Strategy*).
- 2. Improve access to childcare, safe transport, and workplace safety:** Reducing barriers to labour market participation can substantially increase women's employment and earnings. (*ILO; World Bank; OECD*).
- 3. Expand women's access to finance and entrepreneurship:** Strengthen credit access, self-help groups, digital finance, and business development services for women-owned enterprises. (*NABARD; World Bank; NRLM*).
- 4. Strengthen women's digital and financial capability:** Improving digital literacy and financial capability can increase productivity, entrepreneurship, and labour market opportunities. (*World Bank; OECD; Digital India Mission*).
- 5. Reduce unpaid care work by investing in the care economy:** Expanding access to quality childcare, eldercare, safe drinking water, clean energy, and public transport can reduce women's unpaid domestic responsibilities and enable greater participation in paid employment. (*Dev and Sahay, 2016; World Bank, 2024*).
- 6. Strengthen women's economic assets and entrepreneurship:** Improve women's access to land, credit, digital finance, producer organisations, and markets to enable the transition from subsistence activities to productive enterprises. (*Dev and Sahay, 2026; NABARD; World Bank*).
- 7. Promote gender-responsive infrastructure and workplace safety:** Investments in safe public transport, hostels for working women, street lighting, and effective implementation of workplace safety regulations can reduce mobility constraints and improve labour market participation. (*Dev and Sahay, 2026; ILO; OECD*). See recommendations on Law and Order and Governance in the previous section on how to address women's safety and reduce violence against women.

VI. Financing the Reforms

Given the large development needs of Bihar, it is not sufficient to point to what the unfinished agenda is, without discussing how to finance the reforms. In this section, we conduct a debt sustainability exercise, allow for higher development spending, suggest ways to raise resources, make such spending more efficient, and ensure that debt remains manageable. Maintaining fiscal discipline while expanding development expenditure is essential for sustaining long-term

growth (Ahluwalia 2014)⁷⁶, whose analysis emphasizes that stronger public finances are a prerequisite for sustaining Bihar's long-term development strategy.

VI.1. Debt Levels and Fiscal Sustainability

Countries or regions that are relatively poorer have higher financing requirements and can be expected to have higher debt-to-GDP (or GSDP) ratios during their development phase. Table 16 presents the debt ratios of Bihar and the average of 17 large other states (those with populations exceeding 3 crore) for the year 2023-24.

Table 16: States with Population > 3 Crore, Sorted by Per Capita Income, 2023-24

State	Per Capita Income (Rs)	Debt-to-GSDP Ratio (%)	Population (Crore)
Bihar	66686.57	38.97	12.79
Average of all states (excluding Bihar)	245626.52	29.76	7.01

Source: RBI, State Finances: A Study of Budgets (SFR); MoSPI; EPWRF.

Note: Based on the authors' calculations. FY 2023–24 refers to the revised estimates.

Bihar's debt burden at 39 percent is higher than both the high- and low-income groups, with the exception of Punjab (nearly 47 percent) and Bengal (which is similar). As noted in Section III, in the case of Bihar, revenues have been on the rise, but expenditures have increased at a faster pace, with a rising proportion devoted to capital spending, as it should be. Hence, higher levels of debt may well be warranted in Bihar, if they are sustainable. We look at this question next by conducting a debt-sustainability analysis. In very simple terms, *ceteris paribus*, debt ratios fall when growth rates rise, when primary deficits (fiscal deficit minus interest payments) improve, and real interest rates fall. Appendix I describes the model we use, the assumptions we make in the debt sustainability exercise, and what the projections are under different scenarios.

To conduct this exercise, we need a starting point for growth and fiscal indicators as representative of their historical path. Debt sustainability exercises are notoriously difficult when large unanticipated events (for example, wars, civil conflicts, floods, pandemics) occur close to or during the period under consideration. COVID-19 shock was one such event that derailed the growth and fiscal trajectories of not just Bihar but all countries or regions globally. Even though the shock lasted for 3 years between 2020-2022, the large growth rates in the following three years represent recovery after bottoming out and not a longer-term growth trajectory of the past. Hence, we cannot use only the most recent years numbers as representative of the trajectories of the macroeconomic indicators.

The approach we take in conducting the debt sustainability exercise (Figure 30 below) is to present two cases that could reasonably be expected to serve as starting points: in the first benchmark case, which we call “*Past Decade Trajectory*” we take the averages of the last 10 years to smooth out the recent volatility of growth due to COVID-19. In the second benchmark case, which we call “*Pre-Covid Trajectory*”, we assume that the five years before COVID-19 fairly represent Bihar’s historical growth and fiscal trajectories. In each of the two cases, we project what growth and fiscal indicators would be under 3 different reform scenarios for the next five

⁷⁶ Ahluwalia, Montek Singh. Chapter 3. In *The Story of New Bihar: Rekindling Governance and Development*. Edited by N. K. Singh and Nicholas Stern.

years 2025-2030. We assume that the real effective interest rate remains unchanged in both cases and under all scenarios.⁷⁷

Baseline 1 and 2 Scenarios: In these scenarios, we assume fiscal policies and growth rates will continue as under the two benchmark cases - *Past Decade Trajectory* and *Pre-Covid Trajectory*.

Reform 1 Scenario: This is the growth-only scenario, where real GSDP growth is increased by half a standard deviation, while the primary deficit and real effective interest rate remain unchanged, relative to the Baseline Scenario.

Reform 2 Scenario: This scenario combines higher growth with fiscal consolidation: real GSDP growth is increased by half a standard deviation, and the primary deficit is reduced by half a standard deviation, while the real effective interest rate remains unchanged, relative to the Baseline Scenario.

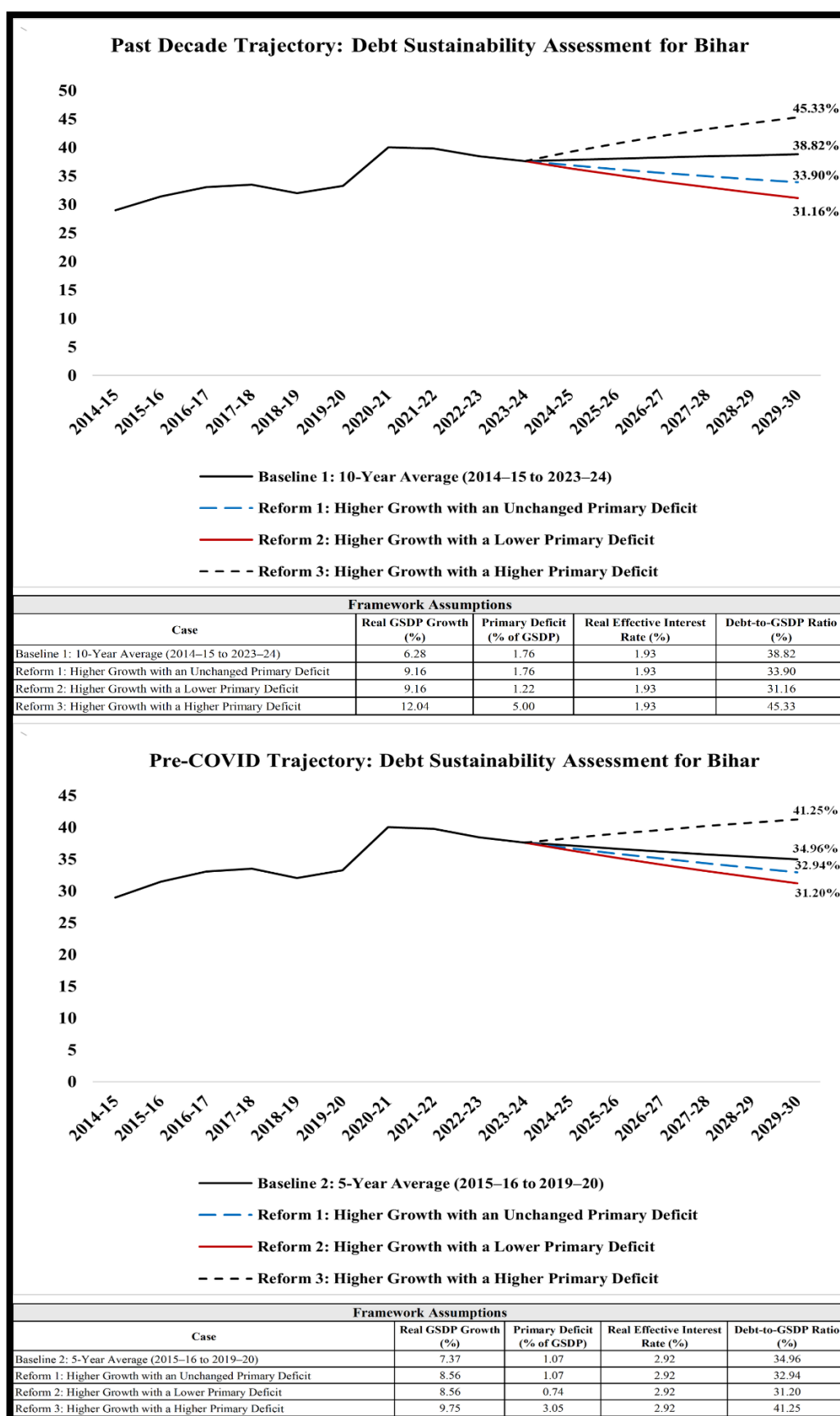
Reform 3 Scenario: This scenario is an expansionary scenario, where real GSDP growth is increased by one standard deviation and the primary deficit is increased by three standard deviations, with the real effective interest rate unchanged, relative to the Baseline Scenario.

The baseline and projections under the reform scenarios are presented in Figure 30 under both benchmark cases.⁷⁸

⁷⁷ Interest payments as a share of GDP in the last 2 decades declined marginally initially and have remained constant in subsequent years.

⁷⁸ There are other scenarios that can be presented that are much worse from a debt sustainability perspective. This is a scenario where expenditure rises, implementation is only partially successful, and growth does not accelerate materially — since this is clearly a bad outcome and is obvious, we do not present it in this paper but it is available upon request from the authors.

Figure 30: Debt Sustainability Analysis for Bihar



Source: RBI, State Finances: A Study of Budgets (SFR); MoSPI; EPWRF; Based on authors' calculations. Please see Appendix 1 for details.

VI.2. Quantifying the Fiscal Measures in the Reform Scenarios

Based on the two benchmark cases and the reform scenarios presented in Figure 30, we now take a deep dive in Table 17 to unpack what the implications are for the different components of revenue and expenditures measures for financing the reforms in the 5 key areas outlined in the previous section. For illustrative purposes, we consider 2 of the 3 reform scenarios: Reform Scenario 1 and Reform Scenario 3.

Table 17. Alternate Scenarios for Financing Reforms

Financing the Reform Scenarios, FY 2024–25 to FY 2029–30 (Share of GSDP)						
Items	Past Decade Trajectory			Pre-COVID Trajectory		
	FY 2014–15 to FY 2023–24	FY 2024–25 to FY 2029–30		FY 2015–16 to FY 2019–20	FY 2024–25 to FY 2029–30	
	Historical Average	Reform Scenario 1	Reform Scenario 3	Historical Average	Reform Scenario 1	Reform Scenario 3
Total Revenue Receipts	23.69	26.96	24.73	24.46	27.30	26.32
Own Revenue Receipts	6.45	7.29	7.29	6.64	7.48	7.48
of which:						
Land Revenue	0.10	0.10	0.10	0.14	0.14	0.14
Stamps and Registration Fees	0.79	0.87	0.87	0.80	0.88	0.88
Tax on Commodities and Services	4.88	5.64	5.64	5.00	5.77	5.77
of which:						
Tax on Liquor	0.18	0.94	0.94	0.17	0.94	0.94
Transfers from Centre	17.24	19.67	17.43	17.83	19.82	18.83
Share of Central Taxes	12.51	12.51	12.51	12.84	12.84	12.84
Grants-in-Aid	4.73	7.16	4.93	4.99	6.98	6.00
Non-Debt Capital Receipts	0.10	0.10	0.10	0.07	0.07	0.07
Total Expenditure	27.52	30.79	31.79	27.52	30.36	31.36
Current Expenditure	22.79	23.79	23.79	22.36	23.36	23.36
Capital Expenditure	4.73	7.00	8.00	5.16	7.00	8.00
Fiscal Balance	-3.73	-3.73	-6.97	-2.99	-2.99	-4.97
Primary Balance	-1.76	-1.76	-5.00	-1.07	-1.07	-3.05
<i>Memorandum Items:</i>						
Average Real GSDP Growth (%)	6.28	9.16	12.04	7.37	8.56	9.75
Debt-GSDP Ratio (End Period)	34.81	33.90	45.33	32.64	32.94	41.25
Interest Payments (Share of GSDP)	1.97	1.97	1.97	1.92	1.92	1.92

Source: RBI, State Finances: A Study of Budgets; MoSPI; and authors' calculations. The numbers in this table are consistent with the DSA framework.

In all scenarios in the two benchmark cases, we maintain the assumptions made in the DSA exercise with regard to the primary balance, the real GDP growth rate, and the interest payments. These assumptions are shaded in green in Table 17. We will now assume that to finance the reforms in the 6 key areas—namely, education, health, flood control and climate resilience, strengthening governance and state capacity, private sector development, and increasing women's economic empowerment—expenditures will need to rise in all the reform scenarios. These represent our recommendations on spending.

Expenditure measures

We believe, as explained below, that both current and capital expenditures need to increase as a share of GDP to finance the reforms. On the other hand, we believe that there is scope to reduce power subsidies, which are extremely large.

Raise current expenditures: In both benchmark cases (the *Past Decade Trajectory* and the *Pre-COVID Trajectory*), we increase current expenditures by one percentage point relative to the Baseline Scenario, as they are needed to strengthen state capacity, for example, by improving the quality (via training, higher salaries to attract better teachers, doctors, nurses, experts in flood control) and number of public officials who are tasked with delivering the reforms. The assumed increase in current expenditure is shaded in orange.

Raise capital expenditures: In both benchmark cases, capital expenditures need to rise by substantially more than current expenditures for the types of reforms we have recommended. For example, by spending on flood control infrastructure, developing industrial hubs, hostels for women, quality childcare centres, expansion of roads in rural areas, better sanitation etc. These increases in expenditures are expected to raise economic growth by raising productivity, crowding in private investment, broadening the revenue base, and strengthening economic resilience. As Table 17 indicates, in both benchmark cases, capital expenditures rise to 7 and 8 percent, respectively, in the reform scenarios—they rise more in Reform Scenario 3 as higher capital expenditures lead to higher growth in both cases. The assumed increase in capital expenditure is shaded in orange.

Reduce expenditures on power subsidies: Without diving deeper into each expenditure item, it is not possible to identify what expenditures should be reduced or rationalized and by how much. However, one item stands out—power subsidies, which have grown into one of the largest components of the state’s expenditure (26 percent of own revenues and nearly 6 percent of current expenditure in 2024-25)⁷⁹. We recommend a gradual phasing out of the subsidies in the next decade. If the impact on the lowest income groups is large, they should be compensated by direct cash transfers. Increasing the tariff rates on households would also encourage the efficient use of power.

Increase Efficiency, Transparency, and Effectiveness of Expenditures. A key instrument for improving expenditure efficiency and transparency is a robust Public Financial Management System (PFMS). Bihar was an early pioneer in reforming MGNREGA fund flows by transferring funds directly from the state to Gram Panchayats, eliminating intermediate approval layers while enabling online reporting and direct bank transfers to workers. This reform reduced programme expenditure by about 24 percent without reducing employment or wages and was subsequently scaled up nationally. While Bihar has since adopted the broader PFMS and Direct Benefit Transfer (DBT) architecture across most government schemes, further gains are likely to come from strengthening implementation, monitoring, and outcome-based expenditure management.⁸⁰ In addition, strengthening expenditure prioritisation and performance-oriented budgeting in sectors such as power and infrastructure can improve the productivity of public spending, as evidence from India’s power sector reforms suggests that fiscal resources generate better

⁷⁹ EPWR; based on author’s calculations

⁸⁰ E-governance, Accountability, and Leakage in Public Programs: Experimental Evidence from a Financial Management Reform in India By Abhijit Banerjee, Esther Duflo, Clement Imbert, Santhosh Mathew and Rohini Pande (2020).

outcomes when accompanied by stronger governance, institutional accountability, and incentives for efficiency (Bhattacharya & Patel, 2008).⁸¹

There is scope to increase the efficiency of spending in health and education. Figure 13 in Appendix 3 shows that spending on education and health had increased substantially by 2024. Yet, as the section above on education highlights, across states, the share of the budget devoted to education shows no systematic relationship with the share of children who can read, including in Bihar. This points to lower efficiency in spending. We recommend monitoring regularly both increases in spending and outcomes over time and taking corrective actions if outcomes do not improve.

Revenue Measures

To finance the rising expenditures and ensure that the primary deficits are consistent with the debt sustainability exercise, revenues would need to increase in each of the reform scenarios. There are primarily two sources of revenue: own (the state's) revenue receipts and transfers from the central government. Given the nature of Centre-State fiscal federalism in India, raising additional resources at the state level remains limited. Still, we believe there is scope to increase the state's own revenues. There are also compelling reasons for the central government to provide additional transfers to Bihar which we also outline below.

Raise Own Revenue Receipts: There are three potential areas where more revenues can be raised: Tax on Commodities and Services, Tax and Registration Fees, and Land Revenue. We believe that the main potential for raising revenues at the state level is on one single item under Tax on Commodities and Services: removing the liquor ban and reintroducing the excise duty on liquor, as justified below. We also believe there might be scope to raise tax and registration fees by about 10 percent relative to the baseline scenario. These increases are reflected in Table 17 and highlighted in orange.

We do not believe further Land Revenues can be raised. As Table 4 in Section IV indicates, due to the continuous subdivision of land through inheritance, 99 percent of households own less than 2 hectares. In fact, 95 percent own less than 1 hectare. These households represent small and marginal farmers who barely earn enough to feed their families. Hence, in Table 17, we do not change the historical ratio in any of the reform scenarios in both cases (highlighted in orange).

Remove the Liquor Ban and Re-introduce Excise Duty on Alcohol: One of the primary motivations for introducing the ban in April 2016 was the belief that alcohol consumption was a significant contributor to domestic violence and that household resources could be better spent on more productive activities. Women's groups and activists strongly supported the prohibition, arguing that it would lead to a decrease in alcohol-related abuse. We now have sufficient data and information to assess if the ban was effective. As shown in Figure 31, reported crimes against women in Bihar have not declined following the introduction of prohibition. Instead, total reported crimes against women increased over the post-2016 period.⁸² Overall, the available evidence does not indicate a broad-based reduction in crimes against women following prohibition. At the same time, the prohibition regime has been accompanied by concerns regarding the expansion of the illicit liquor trade, increased enforcement challenges and

⁸¹ Bhattacharya, S., & Patel, U. R. (2008). The power sector in India: An inquiry into the efficacy of the reform process. In *India Policy Forum* (Vol. 4, No. 1, pp. 211-283). National Council of Applied Economic Research.

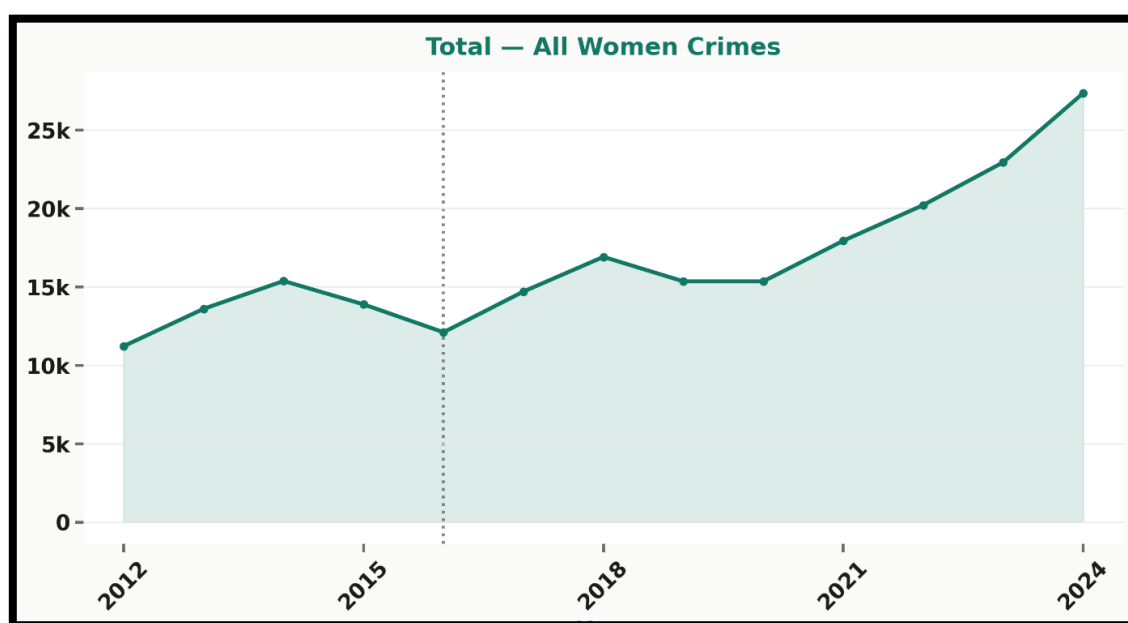
⁸² Although some of the increase may reflect higher reporting rather than an increase in crimes themselves.

corruption, and the growing use of alternative intoxicants, including illicit drugs. In tandem, there was a significant rise in illegal liquor trade leading to higher alcohol consumption, increased crime and corruption, and an increase in the use of alternative additive substances, such as illicit drugs.⁸³

The economic consequences of the liquor ban were significant. Before the ban, excise duty on alcohol was an important source of state revenues (14 percent in the 3 years leading up to the ban.⁸⁴ Moreover, enforcement expenditures on monitoring and anti-smuggling operations increased, widening the fiscal deficit further.

In short, the introduction of the ban has not served its intended purpose; instead, it has coincided with higher violence against women, loss of state revenues, and higher expenditures. We believe it's time to reintroduce the excise duty at historical levels to achieve 14 percent of state revenues. We include this increase in excise duty in Table 17 (highlighted in orange) in both reform scenarios under both benchmark cases.

Figure 31: Crime Against Women: Pre Vs. Post Liquor Ban



Source: National Crime Records Bureau (2012- 2024).

Increase Transfers from the Centre: As Table 17 indicates, raising state revenues are insufficient to finance the reforms, given the States’s limited taxing capacity. Additional transfers from the centre are needed, depending on the reform scenario. Transfer from the centre has two components: “share of central taxes” and “grants in aid.” Under all reform scenarios, we assume that “share of central taxes” are predetermined by the Finance Commission and the central government—the ratio (as a proportion of Bihar’s GSDP) has varied very little in previous years. Hence, we keep the same ratio as the historical one under all reform scenarios in both benchmark cases, also highlighted in orange in Table 17.

⁸³ Sharma and Reddy (2026).

⁸⁴ RBI, State Finances: A Study of Budgets; CAG, Finance Accounts-II.

The second component of transfers from the centre is “grants in aid” where discretionary increases are possible. The increase in “grants in aid” ranges from less than one percentage point to no more than 2.5 percentage points of the state’s GSDP across the two benchmark cases in both the Reform scenarios. The fewer grants in aid are given, the more the state will have to borrow from the market. There is clearly a trade-off between financing the reforms from the centre or borrowing from the market in that in the latter case (Reform Scenario 3), debt would rise to 41-45 percent of GDP in 5 years. These are not high levels of debt for a developing region, since we expect the reforms to yield higher growth rates and ensure debt sustainability.

We believe; however, it would be prudent not to allow the debt ratios to increase by receiving additional transfers from the centre. There are several justifications for Bihar to receive additional transfers.

First, Bihar has consistently received among the lowest levels of intergovernmental transfers in per capita terms relative to other major states (see Table 18).⁸⁵ This outcome is particularly striking given the state has the lowest per capita income and has significant development needs. In fact, successive Finance Commission formulas have further decreased the weight of per capita income.

Table 18. Per Capita Finance Commission Transfers to Bihar Relative to Other States across the 11th–16th Finance Commissions

State	11th FC (2000–05)	12th FC (2005–10)	13th FC (2010–15)	14th FC (2015–20)	15th FC (2020–26)	16th FC (2026–31)
Bihar	210	857	1384	2259	4232	5762
Bihar's rank	14/15	8/17	15/17	17/18	17/18	16/18
Average of all states (excluding Bihar)	337	927	1862	3332	7529	6580

Source: Authors' calculations based on 11th to 16th Finance Commission reports.

Second, there has been an inadequate recognition by the Centre of Bihar's exceptional exposure to natural disasters, notably floods. As noted in Section V, apart from human and livestock cost, post-disaster financial costs are large—for both the centre and the state. Given these structural disadvantages, Bihar merits special consideration from the centre to fund disaster-resilient infrastructure. As flood-control infrastructure, drainage systems, embankment management, and disaster preparedness mechanisms improve over time, the magnitude of this additional allocation will naturally decrease over time. This approach would provide Bihar with the resources necessary to address a long-standing structural constraint, reduce the volatility of output, and increase Bihar’s growth potential.

And finally, without the upliftment of Bihar which has the second highest population and the lowest per capita income in India, Viksit Bharat by 2047 will remain a dream. The case for higher central transfers is also grounded in the theory of Indian fiscal federalism. As Indira Rajaraman (2007)⁸⁶ notes, India's fiscal architecture creates a vertical fiscal imbalance whereby the Centre has greater revenue-raising powers while states bear much of the expenditure responsibility. Transfers are therefore the primary mechanism for equalising fiscal capacity across states. Given

⁸⁵ With the exception of the 12th Finance Commission.

⁸⁶ Rajaraman, I. (2007). The political economy of the Indian fiscal federation. In *India policy forum* (Vol. 4, pp. 1-35).

Bihar's limited tax base, persistent development gaps, and large expenditure needs, enhanced central support would be consistent with the equity and equalisation objectives of India's fiscal federation rather than an exception to them. Based on the preceding analysis, the following policy reforms are recommended:

Policy Recommendation - Fiscal Reforms for Sustainable Growth

Bihar has made remarkable progress in fiscal management since the mid-2000s, supported by stronger revenue mobilisation, prudent debt management, and higher development expenditure. Nevertheless, the state's own tax revenues remain relatively low, and fiscal dependence on central transfers remains high. Sustaining high growth will require creating additional fiscal space while improving the efficiency and quality of public expenditure.

Priority Reforms

1. Strengthen own-source revenue mobilisation

Expand the state's tax base by improving GST compliance, modernising tax administration, strengthening property tax systems, and rationalising user charges where appropriate. Higher own revenues will reduce dependence on central transfers and enhance fiscal autonomy. (*RBI, State Finances; Finance Commission; World Bank*).

2. Increase transfers from the Union Government

Additional transfers are needed to permanently mitigate the recurrent flooding problem.

3. Improve the quality and efficiency of public expenditure

Shift expenditure towards high-return investments in infrastructure, education, health, irrigation, and climate resilience while strengthening outcome-based budgeting and expenditure evaluation. Better spending quality generates higher long-term growth than simply increasing expenditure levels. (*World Bank; IMF Fiscal Monitor; OECD*).

4. Maintain prudent debt and fiscal sustainability

Continue adhering to fiscal responsibility principles while ensuring that borrowing finances productive capital investment rather than recurrent expenditure. Maintaining a sustainable debt trajectory preserves fiscal space for future development priorities. (*FRBM Framework; RBI; IMF*).

5. Expand public-private partnerships (PPPs) for infrastructure.

Leverage private investment in transport, logistics, renewable energy, water supply, and urban infrastructure through transparent and well-designed PPP frameworks. (*World Bank; NITI Aayog; Department of Economic Affairs*).

6. Strengthen local government finances.

Provide Panchayati Raj Institutions and Urban Local Bodies with greater fiscal autonomy, predictable transfers, and improved financial management to strengthen local service delivery. (*Fifteenth Finance Commission; World Bank; OECD*).

7. Enhance transparency and digital public financial management.

Expand integrated financial management systems, digital procurement, open budget portals, and real-time expenditure monitoring to improve accountability and reduce leakages. (*PEFA Framework; World Bank; OECD*).

8. Build fiscal resilience to climate and disaster risks.

Establish contingency funds and climate-responsive budgeting to strengthen the state's capacity to respond to floods and other natural disasters without disrupting long-term development expenditure. (*World Bank; IMF; Coalition of FMs for Climate Action*).

VII. Concluding Remarks and Reasons for Optimism

In this paper, we documented and analysed Bihar's economic development trajectory from a macroeconomic perspective. We found that Bihar's initial conditions at the start of India's independence in 1947 were dismal. Under the British Raj that lasted nearly a century, central grants were unfavourably biased against Bihar, even though it was one of the poorest states. The *zamindari* system in agriculture and the de-industrialisation policies profoundly and adversely impacted agricultural productivity, land use, and industrial production. As a consequence, the living standards of the overwhelming majority of the population had fallen during the Raj and widespread abject poverty was the norm in Bihar.

Following India's independence, land reforms were poorly implemented and the Green Revolution in the agricultural sector largely escaped Bihar. The Centre's Freight Equalisation Policy disadvantaged the resource-rich state financially and in developing its manufacturing sector. The opportunities presented by the central government's launch of major economic reforms in 1991 were wasted by successive state governments that focused primarily on caste-based politics, rather than governance and economic and social development. It was not until 2005 that a reform-minded government was elected to power, in protest against the existing high levels of corruption, poor delivery of public services, politicisation of the health and education sectors, violent crimes, and caste-based strife.

Since 2005, there has been an impressive turnaround in Bihar's development. State public finances were consolidated, and expenditures were largely geared towards developmental spending. Access to road, electricity, and drinking water expanded exponentially, spending on education and health increased sharply, and special judicial courts for speedy convictions were set up. As a result, per capita income increased, poverty declined to a large extent, violent crimes fell to remarkably low levels, and socio-economic indicators on education and health improved to some extent. Out-migration and remittances augmented households' incomes.

Despite the recent economic recovery, the delay in reform initiatives relative to other states has disadvantaged Bihar's economic progress. It still has the lowest per capita income, with uneven within-state development, high income volatility due to recurrent floods and droughts, and a substantial proportion of the population remains poor.

To make rapid progress towards *Viksit Bharat* by 2047 and given the large development needs, we proposed a comprehensive package of reforms that should be initiated simultaneously. We identified six priority areas, which in our view, are fundamental because they reinforce each other and have large positive spillovers across all sectors in the economy. These are education, health, governance and law and order, private sector revival, flood control, and women's economic and social empowerment. We proposed specific policy and structural reform measures in the six priority areas. We then identified revenue and expenditure measures to finance the reforms, while ensuring state debt sustainability. Many of our proposals are "low hanging fruits" that can be implemented easily.

We believe that if the reforms outlined in this paper are implemented, Bihar will be on its way to achieving high, inclusive, and sustainable growth. There are several reasons for this optimism. First, the state government's initiatives to focus on development since 2005 have already begun to bear fruit as discussed in the paper. Second, Bihar is on the right side of the demographic dividend—the working age population of Bihar at over 60 percent is a huge potential waiting to be tapped. Third, there is nothing inherent in the land, climate, and the people which are inimical to

political, economic, and social progress as its glorious history aptly demonstrates. Fourth, the advent and spread of social media combined with the spectacular performance of the western and southern states has undoubtedly created a demonstration effect and raised the aspirations of Bihar's youthful population. If the focus then shifts to increasing economic opportunities and employment in Bihar, it could also bring about a shift in the mindset of the politicians and its people away from caste-based politics and entitlements towards focusing on education, jobs, and self-reliance. Fifth, as the economy grows and offers vast and high-quality job opportunities, there is substantial scope for reversing the out-migration trend. The educated and skilled Bihari diaspora outside the state—in India and abroad—would likely be willing to contribute to Bihar's development via labour and capital, apart from sending remittances to their families.

Equally important, if the economic possibilities are not expanded in Bihar, it will further entrench caste divisions, create more social unrest, and prolong the pressures on the government to spend more simply to preserve social cohesion.

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Appendix

1. Bihar's Debt Sustainability Analysis (DSA)

This section examines whether current and projected public debt levels remain sustainable over time and whether the state government can meet its debt obligations without significant fiscal stress.

The debt dynamics equation used in the analysis is:

$$\Delta b_t = d_t + b_{t-1} \left(\frac{\hat{e}_t - g_t}{1 + g_t} \right)$$

where:

Δb_t refers to the change in the Debt-GSDP ratio in year (t). It captures whether the debt burden is increasing or decreasing relative to the size of the state economy.

b_t refers to the Debt-GSDP ratio in year (t), while b_{t-1} refers to the Debt-GSDP ratio in the previous year. The Debt-GSDP ratio is calculated as total outstanding liabilities as a percentage of Gross State Domestic Product (GSDP).

d_t refers to the primary deficit as a share of GSDP. The primary deficit is calculated as fiscal deficit minus interest payments. It captures the borrowing requirement of the government excluding interest payments on past debt.

$\hat{e}_t$ refers to the real effective interest rate. It is calculated as the difference between the effective nominal interest rate and inflation. The effective nominal interest rate is calculated as interest payments in year (t) divided by total outstanding liabilities in year (t-1), multiplied by 100.

g_t refers to the real GSDP growth rate. It is calculated as the percentage growth in real GSDP between year (t-1) and year (t).

The equation shows that the change in the Debt-GSDP ratio depends on two broad factors: the primary deficit, which directly adds to the debt burden, and the interaction between the real effective interest rate and the real growth rate. When the real growth rate is higher than the real effective interest rate, the existing debt burden tends to decline relative to GSDP, whereas when the real effective interest rate exceeds the real growth rate, the existing stock of debt adds to the Debt-GSDP ratio.

Using this framework, two DSA exercises are carried out for Bihar. The first benchmark case is based on the past decade trajectory, using the ten-year average for 2014-15 to 2023-24 as the baseline. The second benchmark case is based on the pre-COVID trajectory, using the five-year average for 2015-16 to 2019-20 as the baseline. In both exercises, the Debt-GSDP ratio for 2023-24 is taken as the starting point, and the debt dynamics equation is applied annually to forecast the debt path up to 2029-30.

We conduct 3 Reform Scenarios for each of the benchmark cases, as described below. Together, these scenarios assess how sensitive Bihar's debt trajectory is to changes in growth and the primary deficit under the two alternative historical benchmarks.

Baseline Scenario: The baseline assumes that the primary deficit, real effective interest rate and real GSDP growth rate remain at their respective historical averages. In the *Past Decade Trajectory* case, average real GDP growth will be 6.28 percent, primary deficit will be 1.76 percent, and debt ratio will remain around 38.82 percent. In the *Pre-Covid Trajectory* case, average real GDP growth will be 7.37 percent, primary deficit will be 1.07 percent, and debt ratio will fall to 34.96 percent because growth is higher and primary deficit is lower than in the *Past Decade Trajectory* case.

Reform Scenario 1: This is the growth-only scenario, where real GSDP growth is increased by half a standard deviation, while the primary deficit and real effective interest rate remain unchanged, relative to the Baseline Scenario. In the *Past Decade Trajectory* case, average real GDP growth will be 9.16 percent,

primary deficit will remain unchanged at 1.76 percent, and debt ratio will fall to 33.90 because growth rates are higher than in the Baseline Scenario. In the *Pre-Covid Trajectory* case, average real GDP growth will be 8.56 percent, primary deficit will remain at 1.07 percent, and debt ratio will fall to 32.94 percent because growth is higher than in the Baseline Scenario.

Reform Scenario 2: This scenario combines higher growth with fiscal consolidation: real GSDP growth is increased by half a standard deviation, and the primary deficit is reduced by half a standard deviation, while the real effective interest rate remains unchanged, relative to the Baseline Scenario. In the *Past Decade Trajectory* case, average real GDP growth will be 9.16 percent, primary deficit will fall to 1.22 percent, and debt ratio will fall to 31.16 because both the growth rates are higher and primary deficit lower than in the Baseline Scenario. In the *Pre-Covid Trajectory* case, average real GDP growth will be 8.56 percent, primary deficit will fall to 0.74 percent, and debt ratio will fall to 31.20 percent because both the growth rates are higher and primary deficit lower than in the Baseline Scenario.

Reform Scenario 3: Reform 3 is an expansionary scenario, where real GSDP growth is increased by one standard deviation and the primary deficit is increased by three standard deviations, with the real effective interest rate unchanged, relative to the Baseline Scenario. The growth is higher than Reform Scenarios 1 and 2 also because the higher primary deficit allows for higher developmental spending that raises growth even more. In the *Past Decade Trajectory* case, average real GDP growth will be 12.04 percent, primary deficit will rise to 5 percent, and debt ratio rises to 45.33 percent. The debt rises mainly because primary deficits have increased substantially. In the *Pre-Covid Trajectory* case, average real GDP growth will be 9.75 percent, primary deficit will rise to 3.05 percent, and debt ratio will rise to 41.25.

Assumptions for Alternate Reform Financing Scenarios

Items	Assumptions for Reform 1 and 3
Land Revenue	Land revenue is held at the respective historical average in both reform scenarios, reflecting the limited scope for additional mobilisation due to fragmented landholdings.
Stamps and Registration Fees	Stamps and registration fees are assumed to increase by 10 per cent over the respective historical average in both reform scenarios.
Tax on Liquor	Liquor tax revenue is restored to its pre-ban level, measured by its 2014-15 share in GSDP.
Share of Central Taxes	The share of central taxes is held at the respective historical average, as this component is determined by the Finance Commission and the Union Government.
Grants-in-Aid	Grants-in-aid are adjusted relative to the historical average to ensure consistency with the financing requirements implied by the DSA reform scenarios.
Non-Debt Capital Receipts	Non-debt capital receipts are held at the respective historical average in both reform scenarios.
Current Expenditure	Current expenditure is assumed to increase by one percentage point over the respective historical average in both reform scenarios.
Capital Expenditure	Capital expenditure is set at 7 per cent of GSDP in Reform 1 and 8 per cent of GSDP in Reform 3.
Primary Balance	The primary balance is aligned with the corresponding DSA scenario assumption.
Memorandum Items:	
Average Real GSDP Growth (%)	Real GSDP growth is aligned with the corresponding DSA scenario assumption.

Interest Payments (Share of GSDP)	Interest payments are held at the respective historical average in both reform scenarios.
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2. Methodologies Used for Growth Regressions and Steady State Calculation

We test for beta-convergence across 17 major Indian states over the period 2001 to 2023. The states are Punjab, Haryana, Rajasthan, Uttar Pradesh, Bihar, Assam, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu. We use two complementary specifications for this.

The first regression tests for absolute beta-convergence using a cross-sectional approach. For each state, we compute aggregate growth as the change in log per capita GDP between the initial and final years of the sample, divided by the period length, expressed in percentage terms. This single growth observation per state is regressed on the log of initial per capita GDP, with standard errors clustered at the state level. A negative and significant coefficient would indicate that states starting with lower income grew faster on average, converging toward a common steady state. This specification imposes the strong assumption that all states share the same long-run equilibrium.

The second regression tests for conditional beta-convergence using a panel structure. The data are organised into five non-overlapping periods (2001–05, 2006–10, 2011–15, 2016–20, and 2021–23), and average annual growth is computed within each state-period cell. Growth is regressed on initial log per capita GDP with both state and period fixed effects absorbed, again clustering standard errors at the state level. The state fixed effects absorb all time-invariant structural differences across states, including geography, institutions, infrastructure, allowing each state to converge toward its own steady state rather than a common one. The period fixed effects absorb common shocks affecting all states in a given period, such as national business cycles or central policy changes. The convergence coefficient is therefore identified from within-state variation in initial income over time.

The steady state is calculated only from the fixed effects specification, since it is the specification that allows for state-specific steady states. The steady state is defined as the income level at which growth equals zero. Setting the estimated regression equation to zero and solving for log per capita GDP gives:

$$\ln(y^*) = -\frac{(\alpha + \alpha_{state} + \lambda_{period})}{\beta}$$

where α is the estimated constant, α_{state} is the state fixed effect, λ_{period} is the period fixed effect, and β is the convergence coefficient. We evaluate this expression using the mean of the period fixed effects across the sample, so that the steady state reflects the average national environment over 2001–2023 rather than the conditions of any single period. The steady state in levels is recovered by exponentiating:

$$y^* = \exp(\ln(y^*))$$

We average the steady state levels across 16 out of the 17 states (excluding Bihar), and compare this level to Bihar's steady state. We also derive the gap between current income and the steady state for Bihar and the group of 16 states, and the percentage of the steady state achieved (actual per capita GDP divided by steady state income, times 100), which together summarise how far the states remain from their long-run equilibrium on average, and how rapidly they are closing that gap.

3. Tables and Charts on Education, Health and Law and Order

Appendix Table 1. School Infrastructure: Share of Schools with Each Facility Bihar & India, 2024-25 (%)

Facility	Bihar	India
Drinking water	99.7	99.3

Functional girls' toilet	98.0	93.3
Electricity	97.5	93.6
Library / book bank / reading corner	66.7	89.5
Playground	51.0	83.0
Ramps with handrails	49.3	54.9
Computer facility	25.2	64.7
Internet facility	84.8	63.5
Digital library	3.4	6.9

Source: UDISE+ 2024-25; Figures are the share of schools reporting each facility.

Appendix Table 2. Middle-to-secondary transition and retention to secondary, Bihar and comparison states, 2024-25 (%)

State / India	Middle-Secondary Transition	Retention to Secondary (Class 1 base)
Bihar	66.7	25.3
Jharkhand	81.3	35.1
Uttar Pradesh	78.1	42.8
Chhattisgarh	88.3	46.8
West Bengal	91.9	49.7
Rajasthan	90.2	51.9
Odisha	91.7	53.1
India	86.6	47.2

Source: UDISE+ 2024-25. Transition rate = the share of the previous stage's enrolment progressing to the next stage. Retention to secondary = enrolment at the secondary stage as a share of the Class 1 cohort. Comparison states are sorted by retention; India is shown as the benchmark. Bihar's preparatory-to-middle transition (71.8 percent, against 92.2 percent for India) is discussed in the text.

Appendix Table 3. Per Capita Finance Commission Transfers: 11th–16 Finance Commissions

State	11th FC (2000–05)	12th FC (2005–10)	13th FC (2010–15)	14th FC (2015–20)	15th FC (2020–26)	16th FC (2026–31)
Bihar	210	857	1384	2259	4232	5762
Andhra Pradesh	444	1087	2726	7216	11902	6844
Assam	337	1530	1643	3640	10510	6290
Chhattisgarh	-	842	2363	2882	5696	6216
Gujarat	266	659	1576	2872	5191	7048
Haryana	299	603	1646	2755	5596	6194
Jharkhand	-	1011	2157	2721	5033	5688
Karnataka	211	708	1876	2558	5671	6564
Kerala	252	990	1876	5283	15547	6184
Madhya Pradesh	279	753	1876	2925	5803	6895
Maharashtra	197	515	1876	2957	5559	9038
Odisha	460	1316	1876	3315	6747	7458

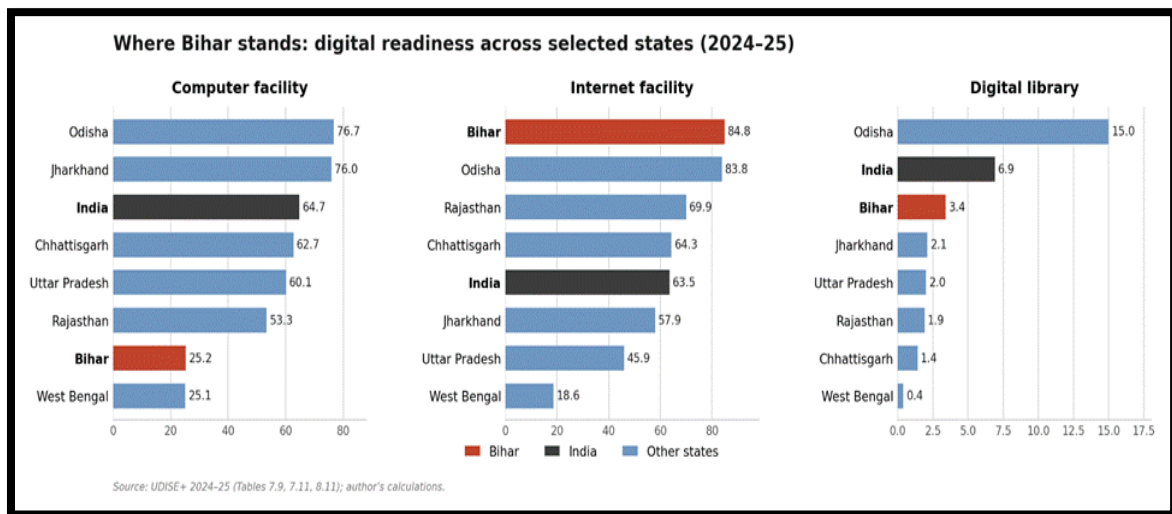
Punjab	443	1787	1876	2877	13847	6175
Rajasthan	513	725	1876	3206	7311	6579
Tamil Nadu	211	628	1876	2761	5247	6847
Telangana	-	-	-	2749	5505	6469
Uttar Pradesh	234	808	1305	2253	4112	5526
West Bengal	572	874	1368	3666	8720	5850
<i>Memorandum items:</i>						
Bihar's rank	14/15	8/17	15/17	17/18	17/18	16/18
Average of all states (excluding Bihar)	337	927	1862	3332	7529	6580

Note: Grants are expressed in nominal rupees per capita. Population refers to the average population over each Finance Commission award period.

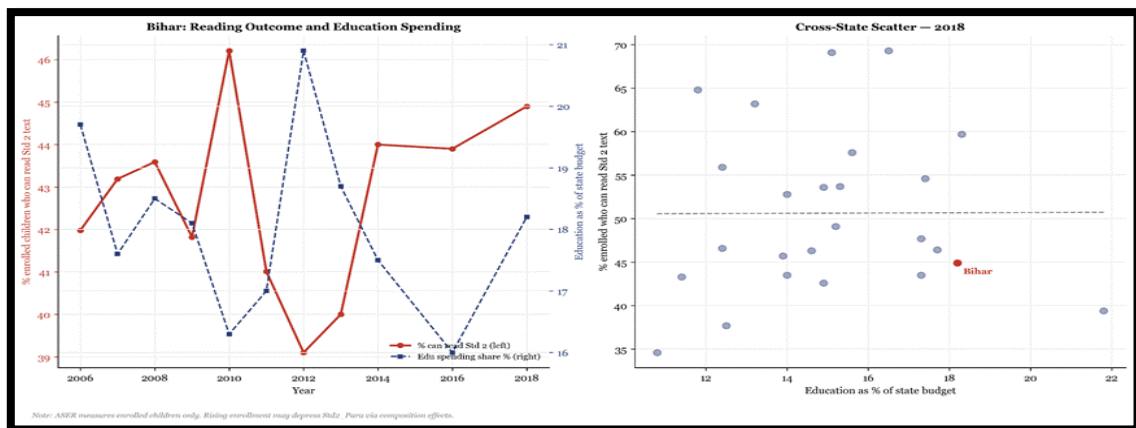
Appendix Table 4: States with Population > 3 Crore, Sorted by Per Capita Income, 2023-24

State	Per Capita Income (Rs)	Debt-to-GSDP Ratio (%)	Population (Crore)
Telangana	383,535.69	26.86	3.82
Karnataka	376,402.56	24.86	6.79
Haryana	356,829.26	30.86	3.04
Tamil Nadu	353,482.85	31.12	7.70
Gujarat	336,875.11	18.29	7.20
Maharashtra	319,473.76	18.28	12.70
Kerala	316,010.71	37.37	3.61
Andhra Pradesh	266,994.70	34.75	5.33
Punjab	228,232.92	46.66	3.27
Rajasthan	186,610.45	37.27	8.15
Odisha	185,733.52	15.79	4.64
Chhattisgarh	168,567.31	27.81	3.04
West Bengal	166,196.04	39.47	9.94
Assam	159,001.93	27.01	3.59
Madhya Pradesh	147,646.78	32.02	8.72
Jharkhand	115,959.97	26.74	3.98
Uttar Pradesh	108,097.29	30.77	23.71
Bihar	66,686.57	38.97	12.79

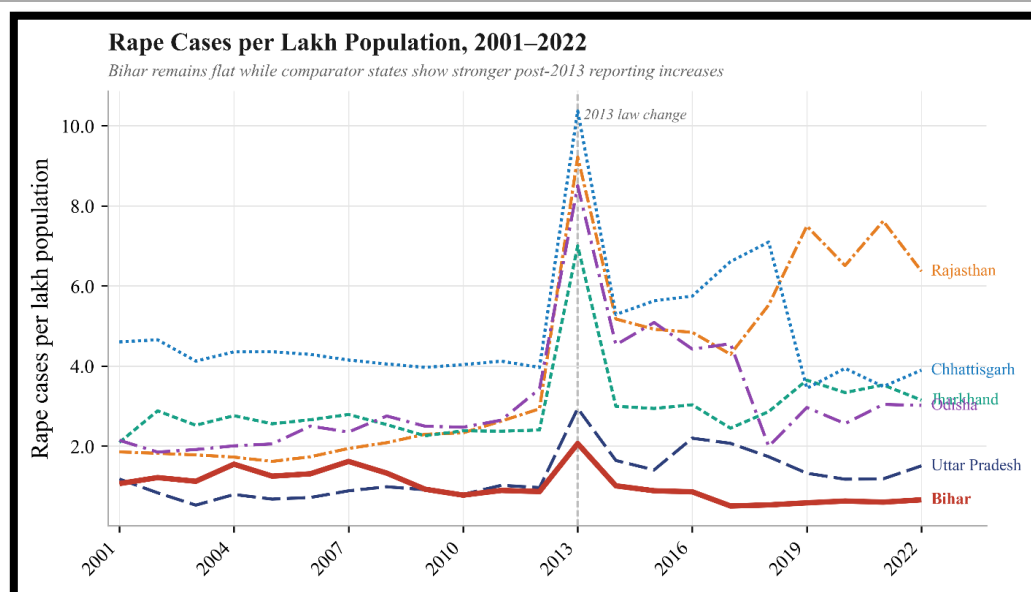
Appendix Figure 1. Digital Infrastructure: Share of Schools with Selected Facilities



Appendix Figure 2. Relationship Between Learning Outcomes and Education Budget



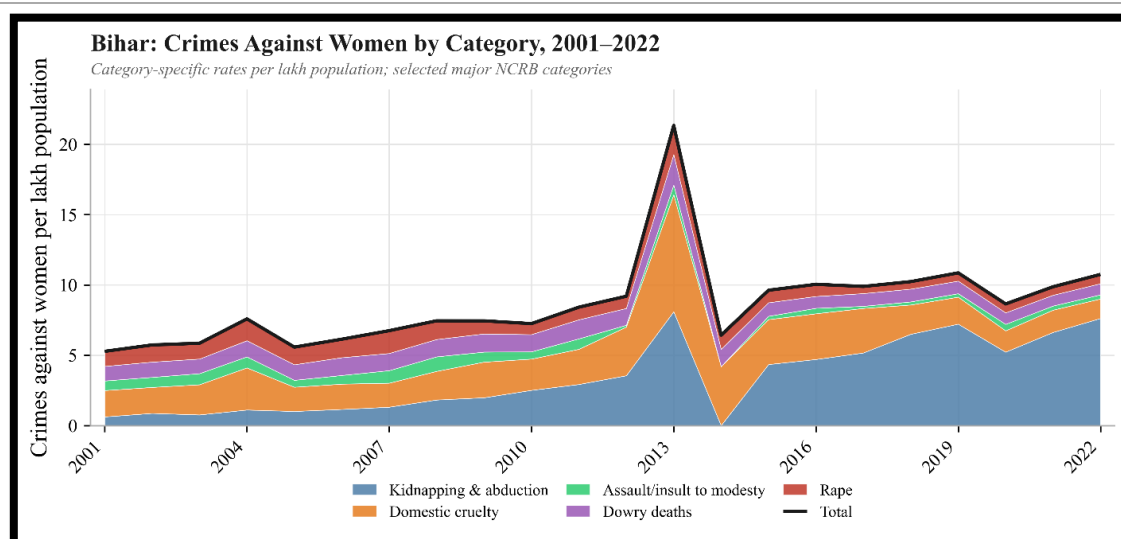
Appendix Figure 3. Rape Cases per Lakh Population, Bihar and Comparator States, 2001–2022



Note: Values show reported rape cases per lakh total population. The vertical reference line marks the 2013 legal/reporting break following changes to India's sexual-violence law. Population denominators are based on Census 2001 and Census 2011, extrapolated using the 2001–2011 compound annual growth rate.

Source: National Crime Records Bureau, Crime in India, district-wise crime statistics, 2001–2022.

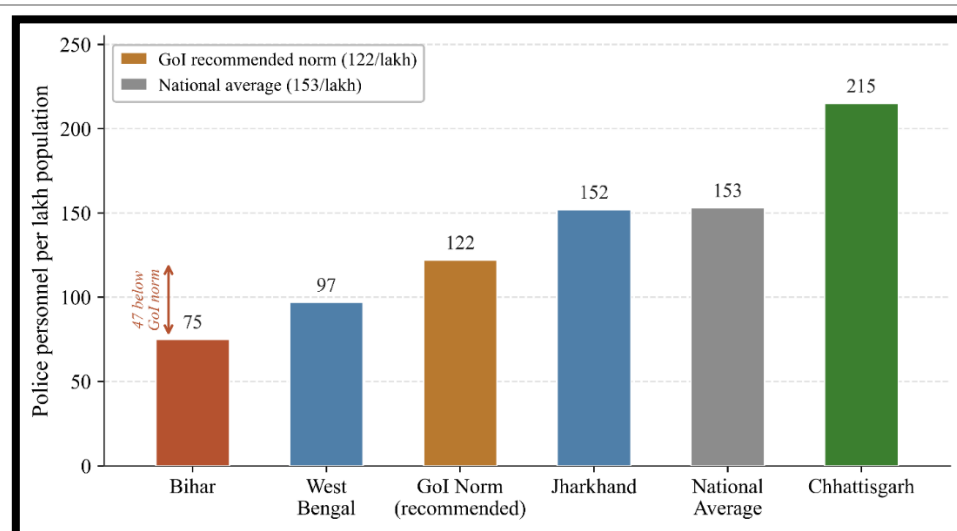
Appendix Figure 4. Bihar: Crimes Against Women by Category, 2001–2022



Note: The figure shows category-specific reported crimes against women per lakh total population in Bihar. Categories include selected major NCRB crime heads: rape, kidnapping and abduction, dowry deaths, domestic cruelty, and assault/insult to modesty. Population denominators are based on Census 2001 and Census 2011, extrapolated using the 2001–2011 compound annual growth rate.

Source: National Crime Records Bureau, Crime in India, district-wise crime statistics, 2001–2022.

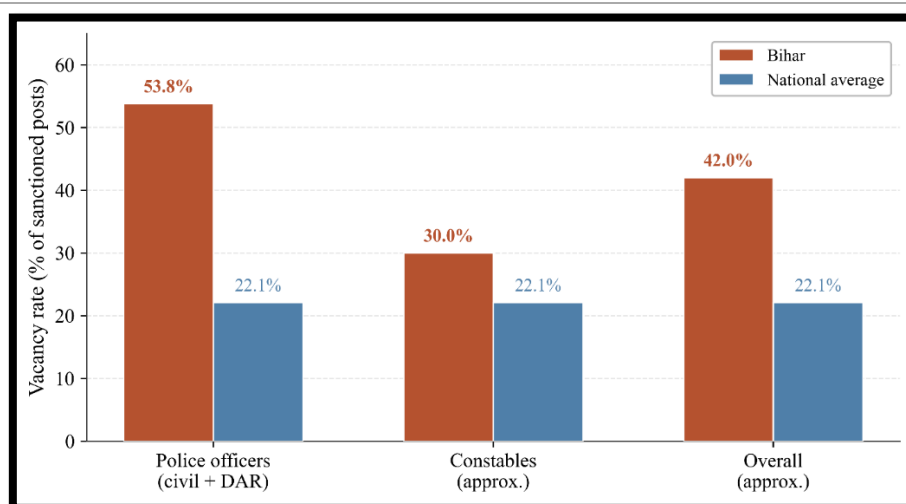
Appendix Figure 5. Police Personnel per Lakh Population, Bihar and Comparator States, 2022



Note: GoI recommended norm = 122 per lakh (National Police Commission recommendation). West Bengal value approximate.

Source: Bureau of Police Research and Development, Data on Police Organisations 2022; India Justice Report 2022.

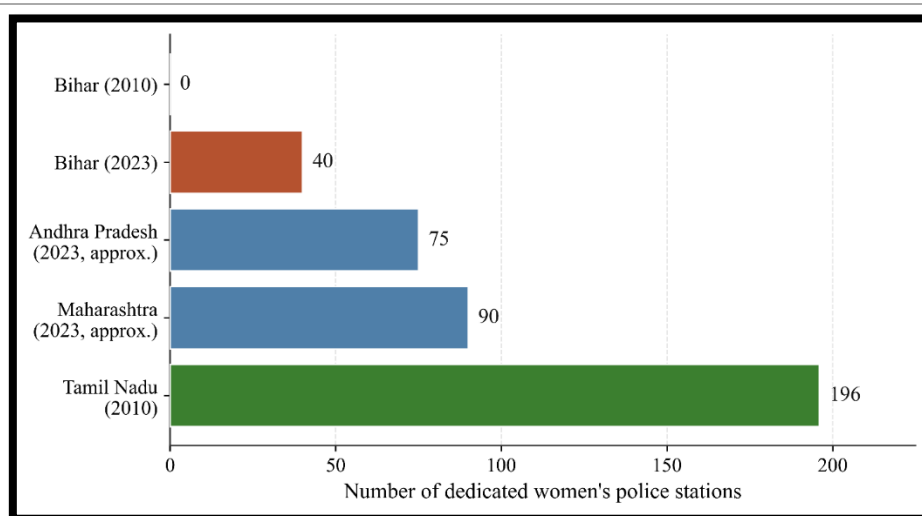
Appendix Figure 6. Police Vacancy Rates, Bihar vs. National Average, January 2022



Note: Constable and overall vacancy figures approximate. Bihar officer vacancy rate (53.8%) confirmed as highest among large and mid-sized states.

Source: India Justice Report 2022; Bureau of Police Research and Development, Data on Police Organisations.

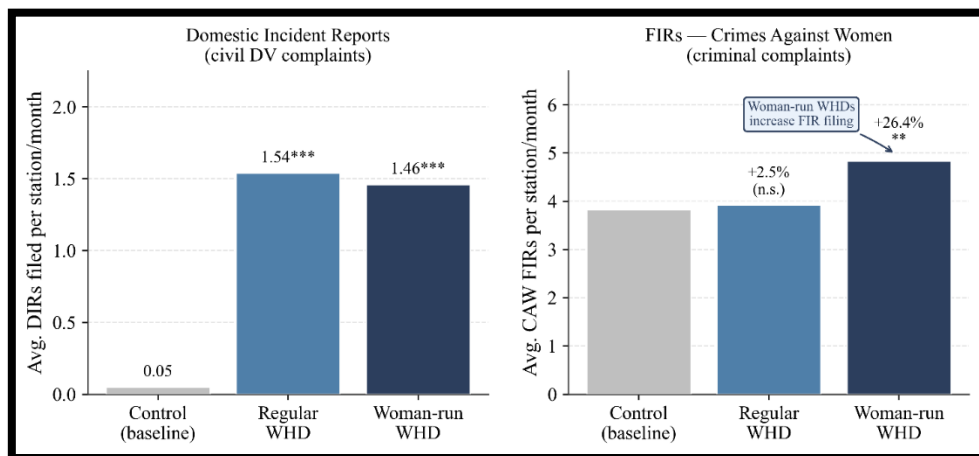
Appendix Figure 7. Dedicated Women's Police Stations, Bihar and Comparator States, 2010 and 2023



Note: Andhra Pradesh (2023) and Maharashtra (2023) figures approximate, derived from IJR data. Tamil Nadu benchmark year is 2010 (BPRD).

Source: India Justice Report 2022; Bureau of Police Research and Development, Data on Police Organisations. Bureau of Police Research and Development, Data on Police Organisations (various years); India Justice Report 2022.

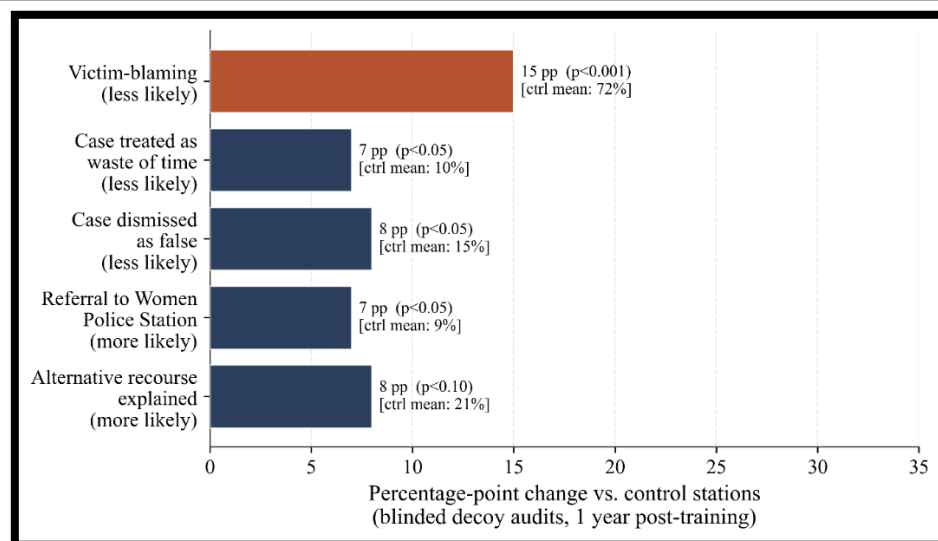
Appendix Figure 8. Impact of Women’s Help Desks on Case Registration, Madhya Pradesh RCT (Sukhtankar, Kruks-Wisner, and Mangla 2022)



Note: $N = 180$ stations serving 23.4 million people. *** $p < 0.01$; ** $p < 0.05$; n.s. = not significant. Control mean shown above baseline bar. Effects estimated from Table 1 of the published paper.

Source: Sukhtankar, S., Kruks-Wisner, G., and Mangla, A. (2022), *Science* 377(6602): 191–198.

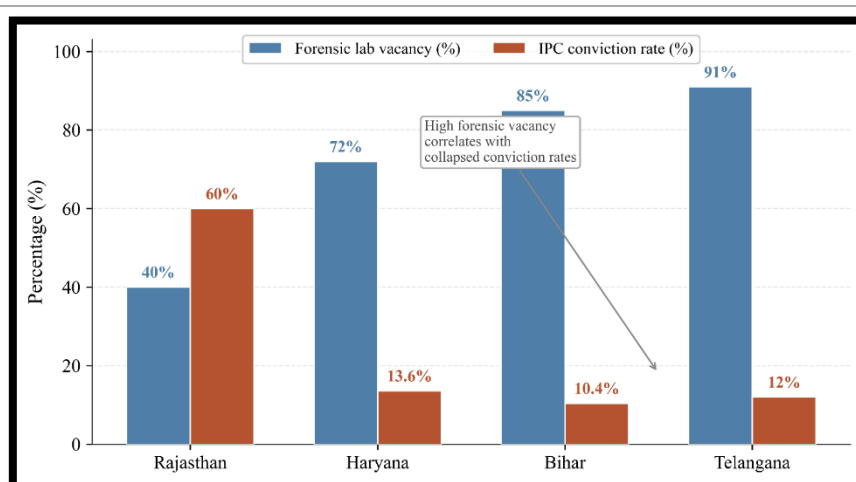
Appendix Figure 9. Effects of Expressive Arts Debiasing Training on Officer Behaviour, Bihar Police RCT (Amaral et al. 2025)



Note: Blinded decoy audits conducted one year post-training. $N = 549$ audited cases across 183 stations. Control means shown in square brackets. Five of six effects statistically significant at $p < 0.05$.

Source: Amaral, S., Borker, G., Prakash, N., and Sviatschi, M.M. (2025). Pre-registration: AEARCTR-0013270.

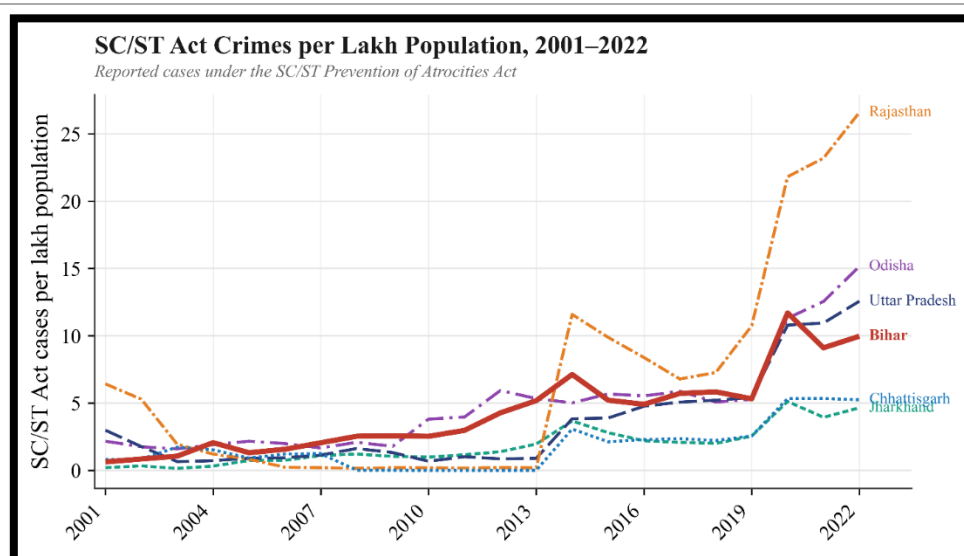
Appendix Figure 10. Forensic Laboratory Vacancy Rates and IPC Conviction Rates, Selected States



Note: Values approximate. Haryana and Telangana IPC conviction rates from NCRB 2023; Bihar and Rajasthan from NCRB 2022. Relationship is illustrative; not a regression estimate.

Source: India Justice Report 2025 (forensic vacancies); National Crime Records Bureau, Crime in India 2022–23.

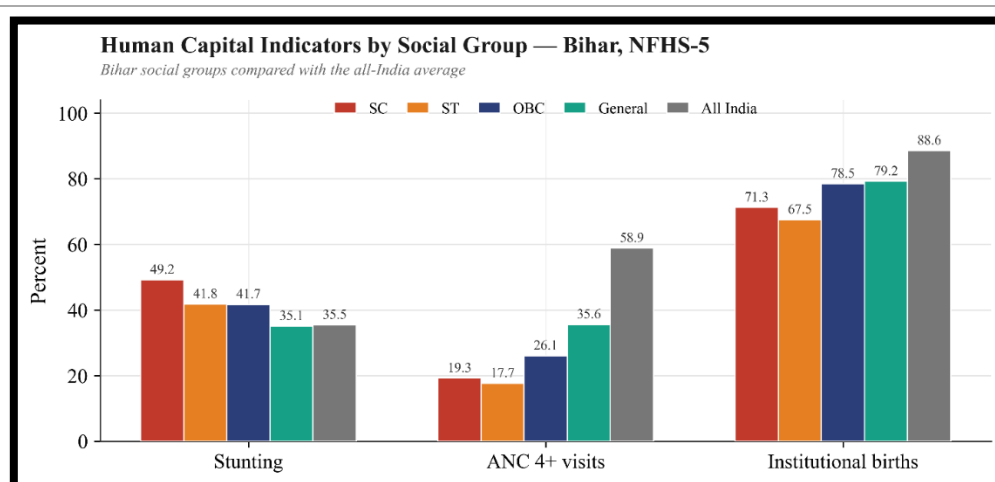
Appendix Figure 11. SC/ST Act Crimes per Lakh Population, Bihar and Comparator States, 2001–2022



Note: Values show reported cases under the SC/ST Prevention of Atrocities Act per lakh total population. Rates use total state population as the denominator, not SC/ST population. Population denominators are based on Census 2001 and Census 2011, extrapolated using the 2001–2011 compound annual growth rate.

Source: National Crime Records Bureau, district-wise crimes against Scheduled Castes and Scheduled Tribes, 2001–2022.

Appendix Figure 12. Human Capital Indicators by Social Group, Bihar, NFHS-5

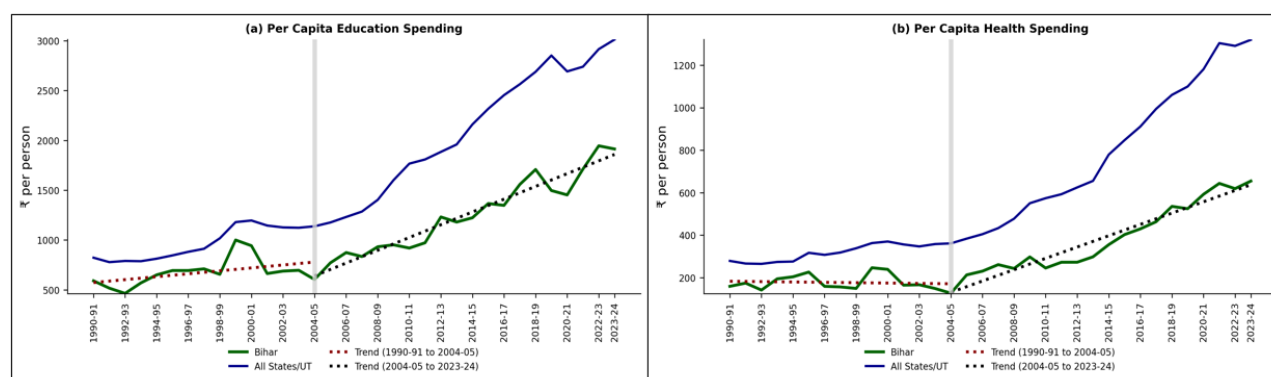


Note: Values show weighted percentages. Bihar estimates are disaggregated by NFHS social-group categories: SC, ST, OBC, and General/none of them. The all-India bar pools all social groups nationally. Stunting is defined as height-for-age z-score below -2 SD; ANC 4+ visits are based on reported antenatal-care visits; institutional births are based on place-of-delivery labels.

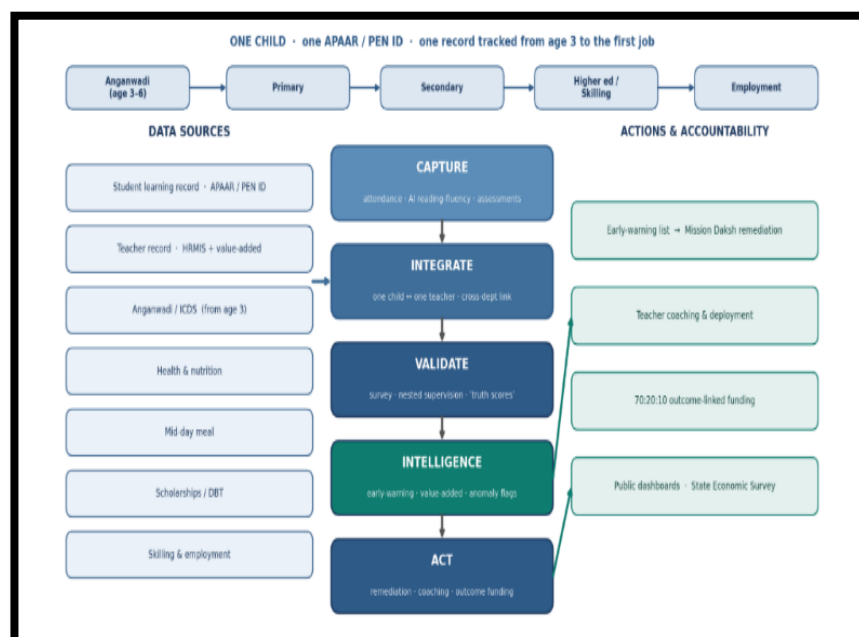
Source: NFHS-5 microdata, KR kids recode. Estimates use NFHS sample weights.

- The baseline survey referenced in Section 4.5.3 covered 3,526 officers across 419 Bihar stations. It found that 84 percent of officers believed women's complaints were more credible when accompanied by a family member, 83 percent blamed women travelling alone for harassment, and 46 percent placed the burden of proof on the victim. The debiasing intervention was a three-day expressive arts programme delivered across 217 treatment stations; effects were measured through blinded decoy audits one-year post-training (see Figure 9).

Appendix Figure 13. Per Capita Education and Health Spending



Appendix Figure 14. An Integrated Education Data Management





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