

The Rising Cost of Learning: Privatization, Affordability, and Economic Outcomes of Education in India

Keertana Deepak

St. Xavier's College, Mumbai

keertanadeepak@gmail.com

Abstract- This research examines the structural transformation of India's education sector from 1999 to 2025, focusing on the nexus between privatization, escalating costs, and labor market outcomes. Using a mixed-methods approach, the study finds a significant paradox: while primary private enrollment tripled to 45% and gender parity was achieved in secondary schooling, the qualitative dividend remains constrained. Econometric analysis reveals that while privatization correlates with higher test scores, it imposes severe affordability thresholds that limit advanced attainment for low-income households. Furthermore, a persistent education-employment mismatch results in high

unemployment and a 7% wage penalty for overeducated workers, particularly women. The findings suggest that unchecked marketization has transitioned the system from an engine of mobility into a mechanism for reproducing privilege. We advocate for a shift toward outcome-oriented policies, rigorous private sector regulation, and reaching the 6% GDP public spending benchmark to secure India's demographic dividend.

Keywords- Education Economics, Privatization, Human Capital, Labour Market Outcomes, India, Gender Disparity, Public Policy

JEL- I2, L33, J24, J2, O53, J16, H3

1. INTRODUCTION

1.1. Growth, development and structural change

Education is vital to economic growth, as it contributes to the development of human capital. Increased levels of education lead to greater skills, higher productivity and flexibility in the face of economic shifts. World Bank reports, among others, have evidenced that nations with higher education levels tend to exhibit higher rates of growth, especially among developing and emerging economies. Education not only contributes to economic growth but also related development issues. Goal 4 of the United Nations' sustainable development goal advocates that all people should receive inclusive and equitable quality education. The current changes occurring in education systems render the attainment of this goal questionable. This question is relevant for India as the Indian education system is undergoing rapid growth and change. Access has increased but education costs are rising, alongside the increasing influence of private institutions and online learning. Although the mentioned points demonstrate an increase in education attainment, the National Sample Survey indicates continuing inequality in access and outcomes along demographic lines along with continued private spending on education.

Therefore, with increased privatization and ever increasing costs in education what impact will these changes have on accessibility and affordability and therefore economic output?

1.2 The problem

While the qualifications required to attain a steady job have continued to balloon, so have the costs. Apart from schooling and an undergraduate degree, more and more are expected of aspirants in today's job market. Whether it be competitive coaching undertaken to stand a chance of clearing the numerous entrance exams that await or additional online courses that are offered to help those already in the job market to acquire new skills, novel costs are being introduced at every corner. Apart from new costs, the existing ones are rising. In the cut throat competition that exists domestically and abroad, private schools have offers that seek to furnish students with extra-curricular galore, but at a price. A price pushed up by the desire of educational quality that needed to be satiated. Once again, when there is an overwhelming need for up-skilling and further tuition the private sector has provided. The private sector has given specialised classes for all kinds of entrance courses and skills, a gap which typical schooling is unable to fill. It had mostly done so through the methods of

their more generalized and recognized counterparts, via offline classes. However when covid struck the sector was quick to shift and become majoritarily online. The ease of access brought about via this new medium as well as the demand for it led to growth of the Ed-Tech sector into an industry valued at billions of dollars. While the benefits of the birth of this sector are obvious, to whom the benefits reach are a little less clear.

1.3 Inequality in access

The shift toward a market-driven education model in India has not affected all demographics equally; instead, it has deepened existing socioeconomic fault lines. As privatization accelerates, access to quality learning is increasingly dictated by a household's "ability to pay," creating a multi-tiered system of opportunity that threatens long term economic mobility. At the heart of the access crisis is the widening affordability gap. While public institutions remain subsidized, their perceived decline in quality has pushed even lower-middle-class families toward private alternatives. This creates a "poverty trap" where significant portions of household income are diverted to tuition and "hidden costs" like transport, uniforms, and extracurriculars.

When education costs rise, household investment often follows traditional patriarchal norms. In financially constrained homes, male education is frequently prioritized as a "long-term investment," while female education is viewed as a discretionary expense. This leads to gendered attrition, where girls are often the first to be moved from private to under-resourced public schools or withdrawn from education entirely to assist with domestic labour. The geographical concentration of private institutions in metropolitan hubs creates a stark urban-rural divide. Rural students face the lack of quality local options and the high cost of migrating to urban centres for better prospects. This disparity ensures that the economic rewards of education such as high-paying service sector jobs remain concentrated in cities, stifling upward mobility for the rural population.

Ultimately, an overburdened public system and the rapid privatization of learning risk transforming education from a tool of seeking social equality into a mechanism that reinforces inherited privilege.

1.4 Education-Employment Mismatch and Skill Deficits

Privatization and the expansion of Ed-Tech have resulted in an overproduction of graduates who cannot meet labor market

demands, leading to widespread education-employment mismatches. Overeducated workers, whose qualifications exceed job requirements, incur an average wage penalty of seven percent. A globalization-related skill deficit in digital, multilingual, and industry-specific skills affects employability. Since public funding has been maintained below 4-6% of GDP, this has forced a shift toward private providers. In their profit-oriented model, enrollment is the priority, not holistic skill-building. This dispossesses less-educated labor and erodes the demographic dividend. The returns to education are highly varied. For general-category males, each additional year of schooling yields a wage premium of 1.5%. For females and marginalized groups, returns are negligible beyond primary schooling. Such a mismatch intergenerationally creates disincentives: investments in human capital are curtailed by households when the possibility of acquiring skilled jobs dims. Inequality perpetuates, and sustainable development is compromised.

1.5 Rising Costs Without Assured Economic Returns

Tuition, coaching, and Ed-Tech fees are the rising costs of privatized education, imposing burdens disproportionate to

economic returns and deepening the affordability crisis. Bottom-quintile households spend 60% of their disposable income on education compared with 10% for the top quintile. Outcomes are poor due to persistent digital and geographical divides, which trap families in poverty. While platforms such as BYJU's can scale, uneven access limits broader gains. Skills-job disequilibrium causes downgrading in employment and underutilization of talent. The research gap continues. While Ed-Tech is projected to be a \$10 billion market, no empirical evidence links this to costs, learning outcomes, and labor integration in India. This paper fills this gap with disaggregated analysis of privatization impacts on access, affordability, and yield. It further builds on the policy debate on inclusive growth.

2. LITERATURE REVIEW

2.1. Privatisation and Ed-Tech Expansion

Recent literature on education indicates that the system is undergoing significant structural change, from public to private sectors and with rapid growth of the education technology sector (Motkuri & Revathi, 2024; UNESCO, 2020). Increased demand for education, limitations of the public system, and a broader perception of

education as a human capital investment has led private providers and technology based solutions to a significant presence in the system.

Accelerated growth of Ed-Tech following the Covid-19 pandemic emerges as one of the major themes. According to World Bank reports, education delivery systems have been reformed through the use of technology, rendering scale, flexibility and access over remote learning (World Bank et al., 2021; OECD, 2021). Online platforms such as BYJU's, Unacademy and Coursera provide courses to meet a wide range of learning needs. The Indian Ed-Tech sector in particular has been rapidly growing; with market reports predicting the size of the Indian online education market reaching \$10 Billion by the mid-2020s. The market is expected to see increased private investment (Ernst & Young, 2020; KPMG & Google, 2017) and uptake due to the growing demand for quality and supplemental education.

Most of the literature agrees that Ed-Tech has increased access by overcoming barriers of geographical location, enabling personalized learning through flexibility and speed (UNESCO, 2020). Education through technology offers self paced learning and large scale dissemination of content with negligible marginal costs

which makes it a better alternative than traditional class rooms. This has resulted in increased normalisation and centrality of online learning.

The boom in the Ed-Tech sector is intertwined with an increased degree of privatization in the educational system. Market oriented processes, driven by private providers have been incorporated in the education sector including competition and pricing based on different needs. Studies suggest that the involvement of private actors has also fostered innovation, efficiency and increased choices in terms of courses offered, learning modalities and the system of delivery. It signifies a transition of education as a service being rendered in a market based framework with profit motives and competition.

However, studies also point towards the inadequacy of the literature in fully explaining this trend. A lot of research has been done focusing on the growth trends and technological implications of Ed-Tech, but only relatively little attention has been paid to long term effects such as learning outcomes, development of skill and competencies (Sikdar, 2019; Bahl & Sharma, n.d.). Furthermore there has been minimal empirical evidence related to how the increased commercialisation of the education system correlates with outcomes

in terms of labour market results, especially in developing contexts such as India.

On a whole, literature reveals a significant reorientation of the education system through Ed-Tech and privatization processes. While it has led to many beneficial outcomes and increased flexibility, the shift indicates a market driven transition of education services. This implies that there is scope for extensive research in future to evaluate not just the increase of this phenomenon but also its real and broader implications.

2.2.Education and the unequal rate of return

As the literature surrounding the affordability of technologically enhanced education points out, the effects of Ed-tech have been far from evenly distributed across the income spectrum and remain out of reach for some. As of the academic year 2017-18, only 23% of Indian households had internet access, a crucial component of Ed-Tech (Avichal Sharma, Pallavi Pandey, 2023). While that share has undoubtedly increased since then, it does not change the fact that the portion of household income each strata spends on the education of their ward is vastly different. The top quintile spend roughly 10% of their annual disposable income on the education of their ward, while for the bottom quintile it is

60%. (Price Waterhouse Coopers report 2021)

The significant amount poor households spend on education also indicates the importance people attribute to education and to the possibility that attaining it will grant a better quality of living. This belief that education is the most salient of factors for achieving a better standard of living has been analysed and brought into question as well. Satadru Sikdar, (2019) Using a modified Mincerian equation, the author found on average the wage increased by 1.5% for every additional year of education. But this average is rather misleading. As a deeper analysis by the author across gender, social groups and economic sectors found vast inequality. For a man the data showed a statistically significant relationship between his education and wages, for a woman, there was only a benefit in attaining primary education and no statistically significant relationship for secondary and higher levels of education. The same situation was found among different social groups. For those pertaining to the general category, education was meaningful, but for OBC's, ST's and especially SC's it was less so.

2.3.Stagnating growth and the market left to be captured

Avichal Sharma & Pallavi Pandey, (2023) noted a shortage of colleges in 75% of Indian counties. While this is a dire state, it remains an opportunity for Ed-Tech business. A Price Waterhouse Coopers report found that out of the roughly 4500 businesses in the market, only a few big players manage to remain profitable. This is in part due to a lack of differentiation between companies as most of them offer KG-12th grade and entrance exam courses. This lack of differentiation does not promote customer loyalty as it is convenient to switch between offers. However this convenience is only accessible to the top quintile, the same population at which the homogenous offers are targeted at. If Ed-Tech businesses seek to sustain their rapid growth post covid, they must broaden their target consumers and seek to differentiate themselves.

2.4 The skill mismatch and employability

The contemporary Indian higher education system, while being one of the largest in the world, faces a systemic crisis where educational attainment does not automatically translate into employability. As noted by Shettar (2025), employability is defined by the possession of specific competencies that meet the changing needs of employers; however, a significant gap remains between industry requirements and

current academic provisions. This mismatch is particularly acute in business education, where globalization and digital transformation have escalated the demand for multi-lingual and technical skills that traditional curricula often fail to provide (Tiwari, 2012). The greater challenge lies in preparing the vast number of graduates from general education streams for emerging skill needs, as the growth of the higher education sector has been skewed toward professional services that the broader graduate population is not equipped to enter (Shettar, 2025).

This disparity leads to a job-skill mismatch, which manifests as both skill deficits and skill underutilization. Sengupta (2017) argues that this mismatch is a serious threat to sustainable development, categorizing it into skill gaps where worker competencies fall short of job requirements, and "over-education," where individuals possess higher qualifications than their roles demand. The large demographic returns associated with India's large working-age population can quickly become a nightmare, if this mismatch persists, leading to large-scale productive disengagement (Majumder, Mukherjee, & Ray, 2017). Furthermore, the lack of suitable high-skilled opportunities often leads to a successive down grade of employment, where highly educated

workers overcrowding lower-level jobs effectively displace less-educated workers from their traditional roles (Sengupta, 2017).

The economic consequences of this mismatch are most visible in wage dispersion and reduced returns on educational investment. Bahl and Sharma (2021) find that overeducated workers in India suffer an average wage penalty of approximately seven percent compared to those whose education matches their job requirements. This suggests that ignoring education-occupation mismatch (EOM) leads to an overestimation of the social and pecuniary benefits of schooling. The labour market does not reward undereducated workers for their experience in the same way it penalizes the overeducated, highlighting a structural inefficiency where formal schooling alone is an inconsistent determinant of wage outcomes (Bahl & Sharma, 2021).

These labour market failures have profound intergenerational implications, as the inability of one generation to secure skilled-sector jobs influences the human capital formation of the next. Sen, Chakraborty, and Roy (2022) demonstrate through a household economy model that parents form expectations about their children's probability of obtaining skilled work based on current market signals. If the probability

of matching to a skilled job is low, households may be demotivated to invest the fixed costs required for higher education. Empirical evidence suggests that while the skilled population may increase across generations, only a small fraction of the offspring are successfully matched into skilled-sector positions, creating a cycle of skill underutilization that stifles upward mobility (Sen, Chakraborty, & Roy, 2022). Ultimately, as Majumder, Mukherjee, and Ray (2017) conclude, the estimation of future skill gaps remains in a nascent stage, but the current surplus of "educated but unskilled" workers necessitates a shift toward vocational integration to prevent long-term labour market stagnation.

2.5 Public Underfunding Issues

The literature reviewed in this work emanates from various sections and confirms a general view that public expenditure on education in India has consistently been grossly inadequate concerning long-standing policy aspirations and developmental needs. To quote Tilak (1986), public expenditure on education had always increased; yet, it continued to be far lower than the Kothari Commission's recommended norm and a declining share of education in total plan expenditure. Correspondingly, as Jandhyala (2006) put it, the failure to reach

the benchmark of 6 percent of GDP largely contributed to the failure of the educational goals, and such a shortfall was not preordained; it could be overcome with stronger political commitment. Anuradha and Tanuka (2008) substantiate this further by pointing out that public expenditure on education continues below 4 percent of GDP and that the real growth rates are highly decelerated relative to the current price estimates.

Tasleem (2016) also stated that combined public expenditure by the Centre and states has oscillated between 3 and 4 percent of GDP since 2001. In line with these works, the present study finds that public expenditure on education in India remained below 5 percent of GDP throughout the period under review. It establishes that such underfunding is not a temporary fiscal anomaly but rather a chronic structural defect in the financing of education. The paper further notes that the states bear the most considerable burden of financing but, because of a gradual reduction in their share, reflect an inappropriate distribution of fiscal responsibility.

2.6 Rise of Private Expenditure

The paper also registers a considerable increase in private educational expenditure alongside public underspending. Indicative of such broad literature on education

finance, the paper shows that education in India is financed through the public sector and private households and other non-governmental actors. This is important because the growing inadequacy of public expenditure has increasingly placed a financial burden on private agents, especially households. With public spending below the desired benchmark, private expenditure has expanded to fill the gap, thus becoming an increasingly important component of total education finance.

The paper implicitly supports this view, showing that public expenditure has not kept up with policy expectations or with the growing demand for educational access and quality. Households and private institutions must, therefore, bear more responsibility for the costs of education. That, of course, has been an incredibly profound trend with Indian policy levers needing to be attuned to questions of greater access, equity, and quality in education. Private expenditure thus increases not only because of failures in public provisioning but also due to the increasing monetisation of access to education. On the other hand, this raises equity concerns because greater reliance on private spending will increase disparity in access to quality education across social and economic strata. While public expenditure has remained grossly

inadequate, private expenditure has proportionately risen and has increasingly become a significant but poorly distributed source of education financing.

3. DATA AND METHODOLOGY

3.1 Data Sources and Scope of Study

This study relies on secondary data compiled from publicly available international databases. A significant share of the variables was sourced through the World Bank Group's Gender Data Portal, which contains a broad set of indicators related to development outcomes, labour markets, education, and gender equality. The broader database includes more than 1,200 unique and overlapping indicators, covering themes such as life expectancy, labour force participation, sectoral employment shares, educational attainment, and wider socio-economic conditions.

In addition, relevant education and macroeconomic indicators were accessed through Our World in Data (OWID), which aggregates standardized data from institutions such as the World Bank, UNESCO, ILO, and related international repositories. These sources were selected because of their credibility, transparency, and cross-country comparability.

From the larger databases, only variables directly relevant to the present research question were extracted and organized into a structured spreadsheet for further analysis. The final dataset focuses exclusively on India and combines indicators related to educational spending, privatization, affordability, learning outcomes, and labour market participation.

For the econometric analysis, the principal time range spans 1999 to 2022, based on common data availability across variables. For selected descriptive trend analysis, longer or extended time periods were used where available, such as unemployment data from 1991 to 2025 and education inflation data through 2026.

The focus on India is motivated by the country's rapid educational expansion, rising role of private institutions, persistent affordability concerns, and the growing policy relevance of education as a driver of labour market outcomes.

3.2 Variables Used in the Study

To evaluate the relationship between educational financing, privatization, affordability, and economic outcomes, the study constructed a multi-variable dataset with indicators across these domains. Public expenditure was measured via government spending on education as a

share of total government expenditure, share of GDP, and total government expenditure on education in US dollars, capturing both fiscal priority and absolute investment. Affordability pressures were represented by the education inflation rate, a proxy for household cost burden over time.

Privatization and access trends were captured through the percentage of enrolment in private primary education institutions, reflecting the growing role of private providers and changing household preferences. Educational quality was proxied by harmonized test scores. Labour market outcomes were represented by the female labour force participation rate, while male and female unemployment rates were used in descriptive trend analysis to understand broader economic shifts.

3.3 Data Cleaning and Preparation

After extracting indicators, data were organized in Google Sheets and spreadsheet software to facilitate exploratory analysis, allowing variables from multiple sources to be reviewed, filtered, and aligned before statistical analysis. Since indicators originated from separate databases with differing year coverage, substantial preprocessing was required: year formats were standardized, variables renamed for consistency, and

datasets merged using year as the common key. Duplicate records and formatting inconsistencies were removed, and string-based variables converted to numerical formats.

The cleaned dataset was transferred to a Google Colab notebook running Python for further processing and econometric analysis, using pandas for data management and matplotlib and plotly express for visualization. Some indicators lacked complete annual observations; time coverage was not perfectly uniform, likely reflecting differences in data collection frequency and availability. Where appropriate, selected missing values were interpolated to preserve continuity. While this creates limitations, broader long-term trends remain analytically meaningful and not materially distorted by occasional gaps. The final result was a consolidated annual dataset suitable for descriptive and econometric analysis.

3.4 Descriptive Statistical Approach

Before regression analysis, descriptive statistical methods identified long-term trends and structural shifts in India's education sector, helping establish the broader context for interpreting econometric results. Graphs were constructed to examine government education expenditure, education inflation,

private school enrolment, harmonized test scores, and unemployment indicators. Additional tools such as correlation heatmaps, distribution plots, and joint plots—were used to observe potential relationships between expenditure, learning outcomes, and privatization. These descriptive techniques allow the study to assess whether changes in costs, spending patterns, and educational participation move alongside broader economic outcomes over time.

3.5 Econometric Methodology

To empirically test the research question, the study uses Ordinary Least Squares (OLS) multiple regression analysis, selected for its appropriateness in estimating linear relationships between a dependent and several explanatory variables using annual time-series data.

Three separate regression models were estimated to examine distinct dimensions: access and privatization, educational quality, and labour market outcomes. This multi-model structure enables the paper to move beyond a single indicator and assess how different parts of the education economy interact. The first model examines determinants of private primary school enrolment. The second evaluates factors associated with learning outcomes using harmonized test scores as a quality proxy.

The third focuses on female labour force participation as a broader economic outcome linked to education.

3.5.1 Model 1: Determinants of Private Primary Enrolment

This model examines whether public spending, affordability pressures, and learning outcomes are associated with the growth of private schooling.

$$\begin{aligned} \%_enrolled_private_primary &= \beta_0 + \\ &\beta_1(Govt_exp_ \%_totalspending) + \\ &\beta_2(Govt_exp_ \%_gdp) + \\ &\beta_3(Education_Inflation_Rate) + \\ &Harmonized_testscores + \varepsilon_t \end{aligned}$$

Where “%_enrolled_private_primary” represents the percentage of students enrolled in private primary institutions, while the explanatory variables capture spending priorities, macro-level investment, inflation in education costs, and learning outcomes.

3.5.2 Model 2: Determinants of Educational Quality

The second model investigates whether spending patterns and privatization are associated with changes in learning outcomes.

$$\begin{aligned} Harmonized_testscores &= \beta_0 + \\ &\beta_1(Govt_exp_education(\$)) + \end{aligned}$$

$$\beta_2(\text{Govt_exp_}\%_gdp) + \beta_3(\text{Education_Inflation_Rate}) + \beta_4(\%_enrolled_private_primary) + \varepsilon_t$$

In this specification, harmonized test scores are treated as a proxy for educational quality.

3.5.3 Model 3: Determinants of Female Labour Force Participation

The final model evaluates whether educational spending, rising costs, privatization, and quality are linked with women's participation in the labour market.

$$\text{Labor_rate} = \beta_0 + \beta_1(\text{Govt_exp_education}(\$)) + \beta_2(\text{Govt_exp_}\%_gdp) + \beta_3(\text{Education_Inflation_Rate}) + \beta_4(\%_enrolled_private_primary) + \beta_5(\text{Harmonized_testscores}) + \varepsilon_t$$

Here, female labour force participation is used as an indicator of broader economic inclusion and long-term returns to education.

3.6 Rationale for Method Selection

The use of multiple regression enables the study to estimate the relationship between one variable and another while controlling for competing influences. This is particularly useful in the context of education, where outcomes are simultaneously shaped by public spending,

household costs, private provision, and institutional quality.

Moreover, estimating separate models for access, quality, and labour market outcomes allows for a broader and more nuanced interpretation of the changing economics of education in India. Rather than relying on a single measure of success, the paper examines whether educational transformation has translated into affordability, improved learning, and stronger economic participation.

3.7 Limitations of the Methodology

Several methodological limitations should be acknowledged. First, the analysis is based on a relatively small annual sample, which may reduce statistical precision. Second, some missing values were interpolated, and therefore certain short-term fluctuations may not be fully captured.

Third, the use of macro-level indicators limits the ability to observe household-level inequalities across income groups, states, or rural and urban populations. Fourth, while OLS regression is useful for identifying statistical relationships, it does not establish definitive causality. Finally, labour force participation is influenced by multiple social and economic factors beyond education, including care responsibilities,

social norms, and labour demand conditions.

3.8 Summary

Overall, the methodology combines descriptive trend analysis with regression-based empirical testing to investigate whether the rising cost and privatization of education in India have shaped affordability, access, and economic outcomes over time.

4. RESULTS AND ANALYSIS

4.1. The surge in educational access

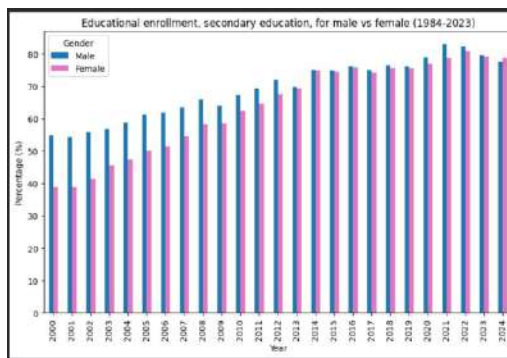


Figure 4.1: Educational enrollment, secondary education, for male vs female (2000-2024)

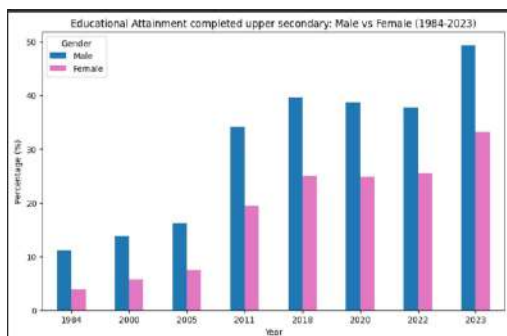


Figure 4.2: Educational attainment completed upper secondary: Male vs Female (1984-2023)

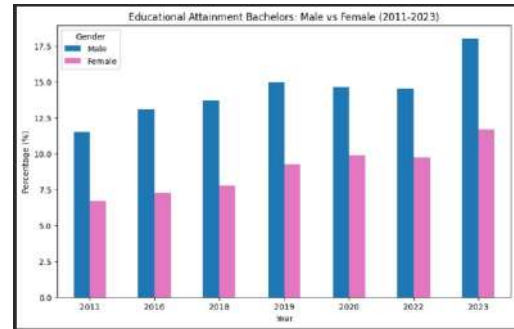


Figure 4.3: Education attainment Bachelors : Male vs Female(2011-2023)

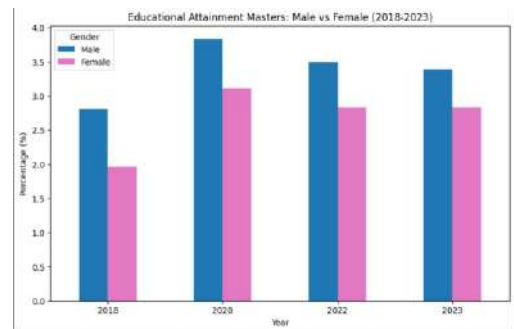


Figure 4.4 Education attainment Masters: Male vs Female (2018-2023)

The data indicates a massive surge in educational access. Between 2011 and 2024, secondary enrollment percentages for male and female became roughly equal while Bachelor's attainment for females nearly doubled. This suggests that the privatization of education has successfully increased access by widening the network of schools and colleges. However, the data also shows a flattening of Master's attainment post 2020 signalling a potential affordability problem where families can

no longer sustain the cost of private higher education.

4.2. Sectoral shifts and Economic Participation

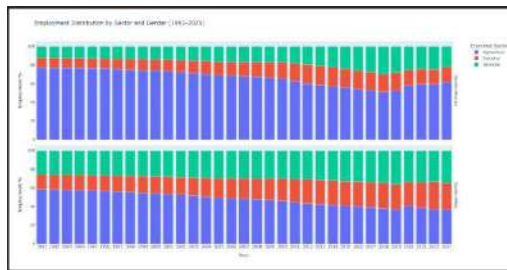


Figure 4.5: Employment distribution by sector and gender

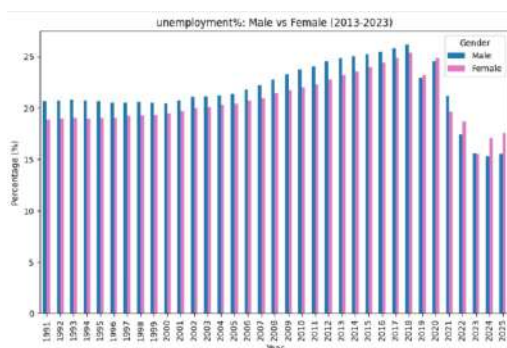


Figure 4.6: Unemployment % Male vs Female (2013-2023)

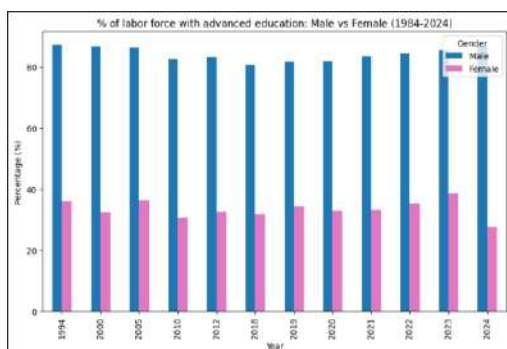


Figure 4.7: % of labour force with advanced education : Male vs Female(1984-2024)

The structural transition of the Indian economy is clearly seen in the shift from agriculture to services (Graph.5.). While the general unemployment once again reached pre 2022 levels (Graph.6.), the share of women in the advanced education labor force remains stagnant(Graph.7.). This suggests while women are completing degrees, they are not entering the work force at the same rate as men, pointing towards a failure in labor market absorption.

4.3. Outcome Disparities

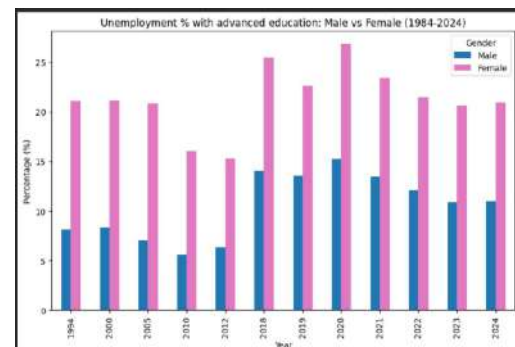


Figure 4.8: Unemployment % with advanced education : Male vs Female (1984-2024)

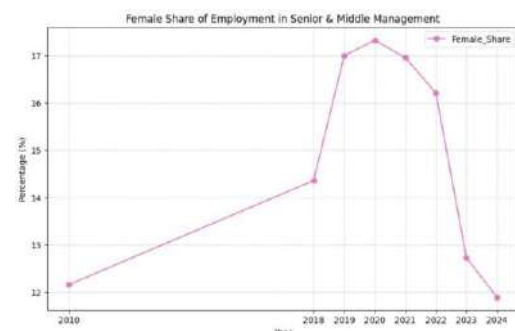


Figure 4.9: Female share of employment in senior and middle management

The most evident disparity exists in high skill outcomes. Despite their increased education levels, women with advanced education face an unemployment rate of nearly 25% (Graph.8.) which is nearly double of that of males. Furthermore, the female share in management positions has taken a sharp decline after peaking in 2020 (Graph.9.), dropping below 12% by 2024. This shows a barrier in career advancement for educated Indian women.

4.4 Macroeconomic Trends in Public Education Financing

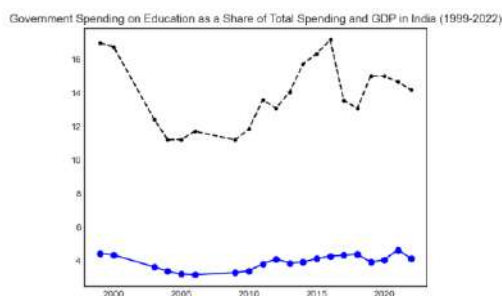


Figure 4.10: Government Spending on Education as a Share of Total Spending and GDP in India (1999-2022)

The fiscal commitment to education in India, as measured by government expenditure, exhibits significant volatility and a notable divergence between its share of the total budget versus its share of the Gross Domestic Product (GDP). At the beginning of the period in 1999, education

spending accounted for a high of approximately 17% of total government spending. This was followed by a period of sharp contraction, reaching a localized trough of roughly 11% between 2004 and 2006. This decline suggests a structural shift in fiscal priorities or a period where total government expenditure outpaced educational allocations.

Following 2006, the data shows a recovery phase, with the share of total spending rising steadily to peak again at approximately 17% around 2016. However, the subsequent years indicate a renewed downward trend, with the share falling to approximately 14% by 2022. In contrast, education spending as a percentage of GDP has remained far more stagnant and significantly lower, fluctuating within a narrow band of approximately 3.2% to 4.6%. While this figure saw a gradual rise from 2010 onwards, reaching its peak near 2021, the persistent gap between the two lines underscores that even when education receives a larger portion of the budget, it rarely exceeds 5% of the total national economic output.

4.5 Cost Dynamics and Inflationary Pressures in Education

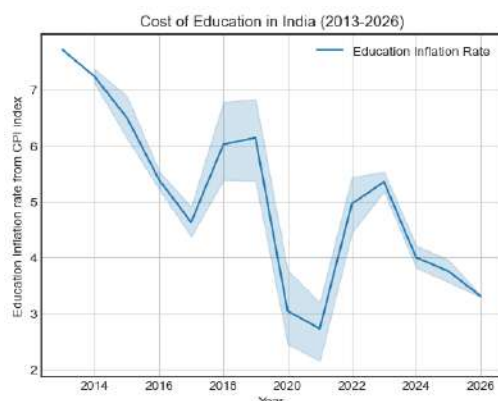


Figure 4.11: Cost of Education in India (2013-2026)

The cost of education, analyzed through the lens of the Consumer Price Index (CPI) inflation rate, reveals a long-term decelerating trend interspersed with periods of high volatility. In 2013, the education inflation rate was at its highest point in the observed period, exceeding 7.5%. A steady decline followed until 2017, where the rate dipped below 5%. This period of relative cooling was short-lived, as the graph shows a sharp rebound in 2018 and 2019, with inflation returning to levels above 6%. This "V-shaped" fluctuation suggests a period of significant price instability for educational services in the late 2010s.

The most dramatic shift occurred between 2019 and 2021, where the inflation rate plummeted to a period low of approximately 2.8%. This sharp decline

likely indicates an extraordinary external shock or a temporary suppression of costs. However, the data for 2022 and 2023 indicates a rapid "catch-up" inflation phase, with rates climbing back toward 5.4%. The projected outlook toward 2026 suggests a gradual stabilization and return to a downward trajectory, ending near 3.3%. Despite the overall decline in the rate of price increases, the recurring spikes highlight a market where education costs frequently outpace general price stability, potentially impacting long-term affordability for households.

4.6 The Shift Toward Private Primary Education

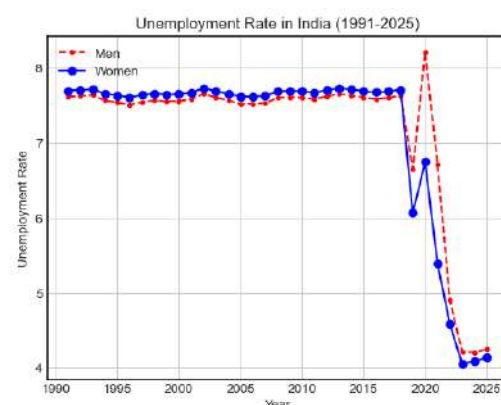


Figure 4.12: Percentage of Enrollment in Primary Education in Private Institutions in India (2000-2020)

The landscape of primary education in India has undergone a profound structural transformation characterized by consistent and rapid privatization. In 2000, private

sector enrollment stood at roughly 16.5%. Aside from a negligible dip in 2002, the trend has been one of almost uninterrupted growth for two decades. The slope of the line indicates a steady increase of roughly 1–2 percentage points annually through 2017. This suggests a systemic migration of students from the public sector to private institutions, likely driven by changing parental preferences or perceived quality differentials.

A critical inflection point is visible between 2017 and 2018, where the enrollment share jumped sharply from approximately 35% to over 43% in a single year. This represents an unprecedented acceleration in the privatization of primary schooling. By 2020, private institutions accounted for approximately 45% of total primary enrollment. This trend represents a near-tripling of the private sector's footprint since the turn of the century, indicating that nearly half of the primary education market is now privately managed. This shift carries heavy implications for the equity of access and the growing financial burden on the private household.

4.7 Longitudinal Trends in Learning Outcomes

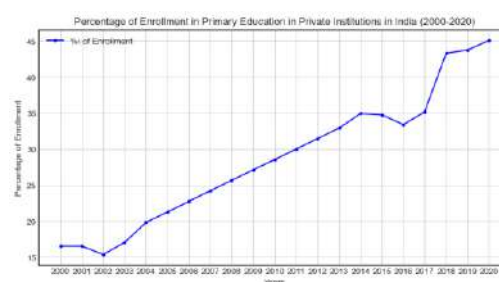


Figure 4.13: Harmonized Test Scores in India (2000-2020)

Harmonized test scores provide a proxy for educational quality and student performance, showing a trajectory of gradual improvement followed by extreme recent instability. From 1999 to 2016, India experienced a consistent, albeit slow, upward trend in scores, rising from approximately 355 to 372. This period of nearly two decades represents a steady gain in educational outcomes, suggesting that incremental investments or pedagogical changes were yielding results. However, this stability vanished after 2016, giving way to a period of high-amplitude fluctuations.

In 2017, the graph shows a precipitous decline in test scores, falling back to 1999 levels (approx. 355) in a single year. This collapse was immediately followed by an even more dramatic surge, with scores skyrocketing to an all-time peak of nearly 400 by 2018. The data remained high through 2020 before experiencing a moderate decline and plateauing at approximately 389 in 2021 and 2022.

While the net gain over the twenty-year period is positive, the extreme volatility observed after 2016 suggests a lack of consistency in the quality of education or significant changes in assessment methodologies that may complicate the interpretation of real learning gains.

4.8 Evolution of Labour Market Outcomes by Gender

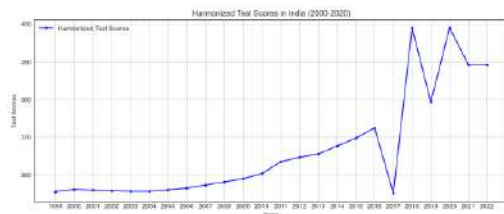


Figure 4.14: Unemployment Rate in India (1991-2025)

The unemployment rate in India serves as the ultimate measure of how educational inputs translate into economic outcomes, revealing a startling structural break in the late 2010s. For nearly three decades (1991–2018), the unemployment rate remained remarkably stagnant, hovering between 7.5% and 7.7% for both men and women. Throughout this period, women consistently faced slightly higher unemployment rates than men, though the gap remained narrow and stable. This long-term plateau suggests a rigid labour market that failed to respond significantly to the gradual improvements in education scores

or the shifts in enrollment seen in other data.

The period beginning in 2019 marks a radical departure from the historical norm. A sharp spike in 2020 saw male unemployment surge above 8%, while female unemployment also rose, albeit to a lesser degree. This was followed by an unprecedented and steep decline in unemployment for both genders starting in 2021. By 2023, the rates for both men and women crashed to a new historical low of approximately 4%, where they appear to have stabilized through the 2025 projection. This suggests that the relationship between education and the labour market has entered a new phase, where the equilibrium rate of unemployment is significantly lower than the 30-year average prior to 2019.

4.9 Structural Correlations among Education and Economic Indicators

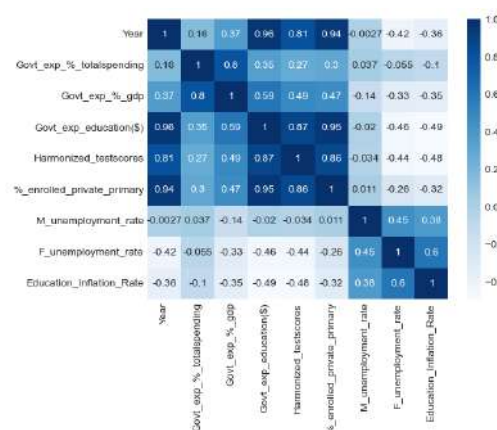


Figure 4.15: Heatmap of Correlations between Education and Economic Indicators

The correlation matrix provides a statistical overview of the relationships between fiscal, educational, and labour market variables. One of the most striking findings is the near-perfect positive correlation (0.96) between the passage of time and government expenditure on education in absolute terms. However, this fiscal expansion is almost equally correlated with the rise of private sector enrollment (0.94) and improved harmonized test scores (0.81). This suggests that while the system has expanded and performance has nominally improved over the years, this progress has been deeply intertwined with the privatization of the primary sector.

Furthermore, the data reveals a strong positive link between government spending in dollars and test scores (0.87), indicating that absolute increases in funding are strongly associated with higher learning outcomes. Interestingly, female unemployment shows a moderate negative correlation with the year (-0.42) and government spending (-0.46), suggesting that the expansion of the education system may have a more pronounced impact on reducing female joblessness than male joblessness, which shows almost zero correlation (-0.0027) with time. Additionally, education inflation appears to move in tandem with female unemployment (0.60), hinting at a complex

relationship between rising costs and labour market barriers for women.

4.10 Fiscal Inputs and the Elasticity of Learning Outcomes

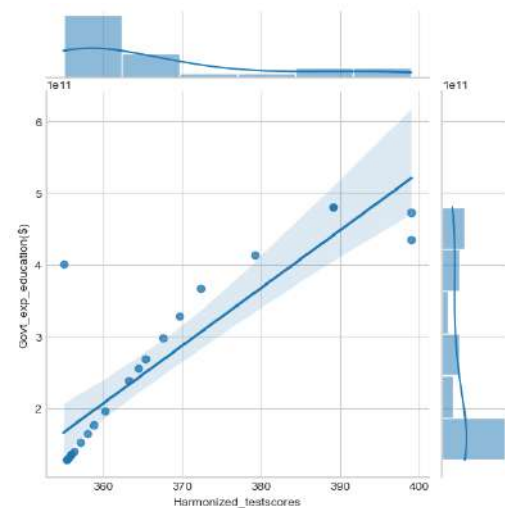


Figure 4.16: Joint Plot of Government Education Expenditure vs. Harmonized Test Scores

The bivariate relationship between absolute government expenditure and student performance demonstrates a strong positive linear trend. The regression line indicates that as fiscal outlays increase, test scores tend to rise in a relatively predictable fashion. The data points are tightly clustered at lower expenditure levels (between 1×10^{11} and 2×10^{11} dollars), where scores are concentrated in the 355–360 range. As spending exceeds 3×10^{11} dollars, however, the variance in outcomes increases, with scores spanning a wider range from 370 to nearly 400.

The marginal distributions (histograms) accompanying the scatter plot provide additional context. The distribution of government expenditure is heavily right-skewed, with a high frequency of observations at lower spending levels and very few at the highest tier. Similarly, the test score distribution shows a massive concentration at the lower end of the spectrum. This distribution suggests that for a significant portion of the observed period, the education system operated with relatively low funding and stagnant outcomes, with the higher performance levels representing more recent, high-investment periods rather than a historical norm.

4.11 Distributional Density of National Test Scores

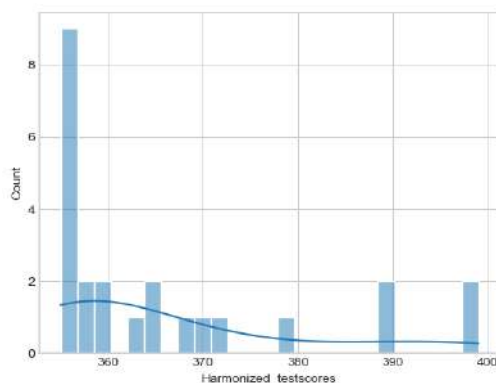


Figure 4.17: Distribution of Harmonized Test Scores

A detailed inspection of the distribution of harmonized test scores reveals a starkly imbalanced performance landscape. The

histogram is dominated by a single, high-frequency bin at the lowest end of the scale (approximately 355), accounting for nearly half of the total observations. This suggests a long-term "performance trap" or a baseline level of quality that the system struggled to exceed for a substantial number of years. The Kernel Density Estimate (KDE) curve reinforces this, showing a sharp peak at the start followed by a long, thin tail extending toward higher scores.

Beyond the initial cluster, the distribution becomes sparse and fragmented. There are small "islands" of performance around the 370, 390, and 400 marks, but these lack the density of the primary cluster. This pattern suggests that while the education system is capable of reaching high benchmarks, these instances are outliers relative to the historical baseline. The gap between the dense lower cluster and the scattered higher scores indicates a lack of consistent, incremental progress, pointing instead toward sudden leaps in performance that may be linked to specific policy shifts or the recent fiscal expansions noted in earlier graphs.

4.12 The Concurrent Growth of Public Spending and Privatization

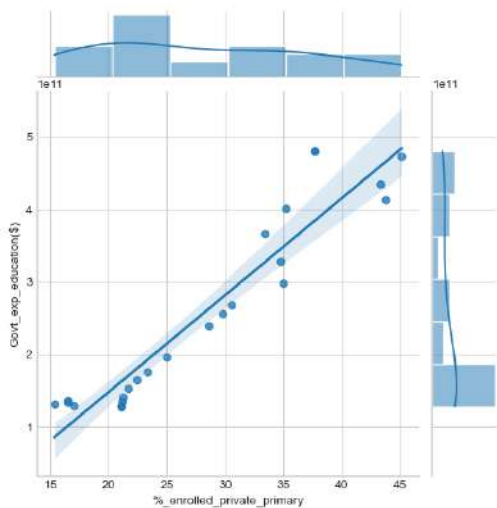


Figure 4.18: Joint Plot of Government Education Expenditure vs. Private Primary Enrollment

The relationship between government education expenditure and the market share of private primary institutions presents a compelling paradox. Theoretically, one might expect robust public spending to suppress the demand for private alternatives; however, the data shows a nearly perfect linear relationship between the two. As absolute government spending rises, the percentage of enrollment in private primary schools climbs steadily from approximately 16% to 45%. The regression line captures this trend with high precision, showing very little deviation in the data points.

This trend suggests that the expansion of the private sector is not a result of state withdrawal in absolute dollar terms, but rather occurs alongside it. The marginal histograms show that most observations are

clustered at the lower end of both scales, representing the earlier years of the dataset. As both variables move into higher ranges, the data points remain on the same linear trajectory. This implies a systemic shift where the demand for education is outstripping the capacity of the public sector to provide perceived quality, leading to a situation where both public investment and private market share grow in tandem.

4.13 Summary of Descriptive Evidence

The combined evidence from all eighteen figures provides a comprehensive view of shifting dynamics in India's education sector. Regarding affordability, access, and economic outcomes, several key patterns emerge.

First, privatization of primary education represents a structural overhaul, with private enrollment increasing linearly alongside absolute government spending (Figure 18), suggesting that nominal increases in public funding have not been sufficient to maintain the state's market share.

Second, affordability is under pressure from two directions: the systemic shift toward fee-charging private institutions and persistent education inflation that

frequently spikes even as it trends downward long-term (Figure 11).

Third, while quality (test scores) shows strong positive correlation with increased spending (Figure 16), distributional data reveals a system historically stagnant at low performance levels, only recently breaking into high-volatility, high-score territory (Figure 17). Finally, economic outcomes are in flux; long-term unemployment stagnation has recently given way to significantly lower rates for both genders (Figure 14), suggesting potential correlation with these educational shifts, albeit at the cost of higher private household burdens.

Together, the graphs indicate a move toward a high-cost, high-performance, high-privatization model that has redefined the relationship between the state, the student, and the labour market.

4.14 Regression Models

To examine the relationship between education financing, privatization, learning outcomes, and labour market participation in India, three Ordinary Least Squares (OLS) regression models were estimated using annual data for the period 1999–2022. While the models provide useful statistical evidence, the results should be interpreted as associative rather than

strictly causal due to the limited sample size and macro-level nature of the dataset.

4.14.1 Determinants of Private Primary School Enrolment

The first regression model examined factors associated with private primary school enrolment share. The dependent variable was the percentage of private primary enrolment; explanatory variables included government education expenditure as a share of total public spending, government expenditure as a share of GDP, education inflation, and harmonized test scores.

The model demonstrated strong explanatory power ($R\text{-squared} = 0.756$), indicating that approximately 75.6% of the variation in private primary enrolment was explained by the selected variables, and the model was statistically significant overall. Among explanatory variables, harmonized test scores emerged as the only statistically significant predictor. The coefficient of 0.576 suggests that a one-point increase in learning scores was associated with a 0.58 percentage point rise in private school enrolment, holding other variables constant. This finding may reflect growing household preference for perceived quality: as awareness of educational outcomes increases, families may increasingly choose private institutions expecting better

academic performance, discipline, English-medium instruction, or stronger future opportunities. Thus, rising privatization may be driven not only by income growth but also by demand for quality. By contrast, public expenditure indicators and education inflation were not statistically significant, suggesting that short-run changes in government spending alone did not substantially alter household movement toward private schooling during the study period.

OLS Regression Results						
Dep. Variable:	X enrolled private primary	R-squared:	0.756			
Model:	OLS	Adj. R-squared:	0.705			
Method:	Least Squares	F-statistic:	14.74			
Date:	Mon, 29 Apr 2016	Prob (F-statistic):	1.23e-05			
Time:	14:18:07	Log-likelihood:	-70.079			
No. observations:	26	AIC:	150.2			
DF Residuals:	19	BIC:	156.0			
DF Model:	4					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
const	-155.6150	34.396	-5.687	0.000	-267.605	-123.624
govt_exp_X_totalspending	0.0188	0.362	0.020	0.984	-1.952	1.990
govt_exp_X_gdp	1.6064	0.557	0.353	0.728	-7.939	11.148
Education_Inflation_Rate	1.1208	1.165	0.962	0.348	-1.110	3.560
Harmonized_testscores	0.5757	0.092	0.273	0.000	0.384	0.768
=====						
Omnibus:	10.270	Durbin-Watson:	1.662			
prob(Omnibus):	0.000	Jarque-Bera (JB):	8.953			
Skew:	1.052	prob(JB):	0.014			
Kurtosis:	5.128	Cond. No.	1.23e+04			
=====						

Notes:						
[1] Standard errors assume that the covariance matrix of the errors is correctly specified.						
[2] The condition number is large, 1.23e+04. This might indicate that there are strong multicollinearity or other numerical problems.						
Output is truncated. View as a scrollable element or open in a pop-out box. Adjust cell output settings.						

4.14.2 Determinants of Educational Outcomes

The second regression model investigated factors associated with harmonized test scores (learning quality proxy). Independent variables included government expenditure, spending as a share of GDP, education inflation, and private primary enrolment.

The model recorded an R-squared of 0.791, indicating nearly 79% of test score

variation was captured by the included variables. However, none of the individual coefficients were statistically significant at conventional confidence levels. This result is economically meaningful: educational quality cannot be explained solely through expenditure levels or the public-private composition of enrolment. Learning outcomes are shaped by a wider set of structural and institutional factors such as teacher quality, curriculum standards, governance, classroom infrastructure, parental education, and regional disparities. The absence of individually significant predictors may also reflect multicollinearity, as public expenditure measures and enrollment trends may move together over time. Nevertheless, the model suggests financing variables alone are insufficient to guarantee quality improvements. This finding is particularly relevant in policy terms: simply increasing expenditure or expanding private provision may not automatically translate into better learning outcomes unless accompanied by deeper reforms in school quality and delivery systems.


```

=====
               OLS Regression Results
=====
Dep. Variable:   Harmonized_testscores   R-squared:      0.791
Model:          OLS                     Adj. R-squared:  0.747
Method:         Least Squares           F-statistic:    27.98
Date:           Wed, 29 Apr 2020         Prob (F-statistic): 2.06e-06
Time:           14:11:52                 Log Likelihood: -78.514
No. Observations: 24                   AIC:           367.0
Df Residuals:   19                     BIC:           372.9
Df Model:       4
Covariance Type: nonrobust

=====
               coef      std err          t      Pr>|t|      [0.025     0.975]
-----
const                345.5202      19.112      17.801     0.000     305.090     385.942
Govt_exp_education($) 2.535e-11    5.26e-11    0.482     0.635     -8.47e-11    1.75e-10
Govt_exp_R_gdp        0.0785      4.018      0.194     0.879     -8.560      9.917
education_inflation_Rate -2.2790      1.888     -1.206     0.242     -9.238      1.878
%_enrolled_private_primary 0.8808      0.640      1.375     0.185     -0.460      2.221
=====
Omitlhus:      23.946   Durbin-Watson:      3.834
Prob(Omitlhus): 0.000   Jarque-Bera (JB):      67.799
Skew:          -1.611   Prob(JB):      2.50e-13
Kurtosis:      0.879   Cond. No.      3.07e12
=====
Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
[2] The condition number is large, 3.07e12. This might indicate that there are
strong multicollinearity or other numerical problems.
Output is truncated. View as a scrollable element or open in a text editor. Adjust cell output settings.

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4.14.3 Determinants of Female Labour Force Participation

The third and most policy-relevant regression model assessed the relationship between education variables and female labour force participation. The dependent variable was the female labour participation rate; explanatory variables included government education expenditure, expenditure as a share of GDP, education inflation, private primary enrolment, and harmonized test scores. This model produced the strongest fit (R-squared = 0.833), indicating 83.3% of the variation in female labour force participation was explained by the selected variables.

A key finding was that private primary enrolment was negatively associated with female labour force participation (coefficient = -0.328, significant at the 5% level), suggesting that a one percentage point increase in private enrolment was associated with a 0.33 percentage point decline in female labour force participation,

holding other factors constant. This result should not be interpreted as privatization directly causing lower female employment; rather, it may reflect broader structural inequalities. Rising private education costs may place financial pressure on households, potentially affecting girls' continued education or limiting the long-term economic returns of schooling. It may also indicate that educational expansion has not been matched by labour market opportunities for women.

Harmonized test scores were positively associated with female labour force participation and approached statistical significance, suggesting that improvements in educational quality may contribute more meaningfully to women's economic participation than private schooling expansion alone. Education inflation also displayed a negative coefficient, indicating that rising costs may create affordability barriers that indirectly weaken female labour market outcomes.

```

=====
               OLS Regression Results
=====
Dep. Variable:   labor_rate   R-squared:      0.833
Model:          OLS          Adj. R-squared:  0.787
Method:         Least Squares F-statistic:    18.02
Date:           Wed, 29 Apr 2020 Prob (F-statistic): 1.91e-05
Time:           14:17:08       Log Likelihood: -22.299
No. Observations: 24         AIC:           96.24
Df Residuals:     18         BIC:           103.3
Df Model:         5
Covariance Type: nonrobust

=====
               coef      std err          t      Pr>|t|      [0.025     0.975]
-----
const                12.8963      18.399      0.701     0.492     -25.759     51.551
Govt_exp_education($) -1.098e-11    1.19e-11   -0.920     0.359     -3.0e-11    1.41e-11
Govt_exp_R_gdp        -0.0437      0.096     -0.444     0.655     -1.136      0.040
education_inflation_Rate -0.7483      0.340     -2.194     0.038     -1.677      0.180
%_enrolled_private_primary -0.3283      0.153     -2.148     0.044     -0.667     -0.010
Harmonized_testscores 0.0510      0.052      1.776     0.083     -0.017      0.201
=====
Omitlhus:      1.238   Durbin-Watson:      0.910
Prob(Omitlhus): 0.510   Jarque-Bera (JB):      0.888
Skew:          0.094   Prob(JB):      0.644
Kurtosis:      2.080   Cond. No.      1.61e13
=====
Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
[2] The condition number is large, 1.61e13. This might indicate that there are
strong multicollinearity or other numerical problems.
Output is truncated. View as a scrollable element or open in a text editor. Adjust cell output settings.

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4.14.4 Comparative Interpretation

Taken together, the three regression models reveal a coherent pattern in the economics of education in India. First, the growth of private schooling appears strongly linked to demand for better educational outcomes. Second, expenditure and privatization alone do not appear sufficient to explain improvements in learning quality. Third, rising privatization may not necessarily translate into stronger gendered labour market outcomes, while educational quality appears more closely aligned with female economic participation. These findings suggest that the central challenge is not merely expanding access or increasing private provision, but ensuring that education remains affordable, equitable, and capable of generating meaningful economic returns.

4.14.5 Policy Implications

The results carry several policy implications. Greater public investment in education remains important, particularly in improving the quality of government schools and reducing excessive dependence on private alternatives. Policies aimed at regulating household education costs, strengthening learning outcomes, and expanding pathways from education to employment, especially for women are equally critical.

In other words, education policy should move beyond enrolment targets toward a broader focus on affordability, quality, and inclusive labour market outcomes.

4.14.6 Limitations

These findings should be interpreted with caution. The analysis is based on a relatively small annual dataset, and some variables required interpolation. In addition, labour force participation is influenced by social norms, unpaid care burdens, safety concerns, and labour demand conditions beyond education alone. Finally, the regression models identify statistical relationships rather than definitive causal effects.

5. *DISCUSSION*

5.1 Quantity vs. Quality in Privatized Education

Our findings suggest that privatization in India prioritized quantity over quality. While private colleges have made degrees more accessible, high unemployment among educated women (Figure 4.8) suggests these degrees may not carry strong value in the job market. Privatization has

shifted the financial burden of training from the state to the household without guaranteeing an economic return on investment.

The descriptive evidence supports this interpretation. Private primary enrolment rose sharply over the study period, indicating households increasingly turned toward fee-charging institutions. However, regression results do not show a clear, statistically significant relationship between privatization and improved learning outcomes when other variables are controlled for. Although test scores improved over time, these gains appear influenced by multiple structural factors rather than privatization alone.

This creates an important distinction between access expansion and quality enhancement. A larger number of students entering private institutions does not automatically imply stronger human capital formation. If educational expansion is driven primarily by market demand for credentials rather than improvements in teaching quality, infrastructure, or employability, then privatization may produce more graduates without proportionate labour market gains.

This issue is particularly relevant in higher education, where degrees often serve as screening devices for employment. If

institutions compete on enrollment volume rather than educational outcomes, students may face rising costs while receiving qualifications that hold limited signalling power in the labour market. Therefore, privatization in itself should not be interpreted as evidence of system-wide improvement unless accompanied by measurable gains in learning and employability.

5.2 The Cost Barrier and Increasing Qualification Demands

As education costs rise, the access identified in our findings becomes an affordability problem. Education is no longer helping people improve their economic status. As a result, only wealthier individuals can afford the risk of pursuing advanced degrees, which may deepen class and gender inequalities.

The inflation trends in educational costs strengthen this concern. Even when general inflation moderates, education inflation often remains elevated due to tuition fees, coaching expenses, digital learning subscriptions, hostel costs, certification fees, and transportation. These costs create a layered burden that extends beyond tuition alone.

At the same time, labour markets increasingly demand higher qualifications,

specialized skills, and postgraduate credentials. This creates a paradox: individuals are required to invest more in education in order to remain competitive, yet the returns to that investment are becoming less certain. For middle- and lower-income households, this raises the risk of debt, delayed labour market entry, or premature withdrawal from education.

The affordability challenge also has an intergenerational dimension. Families may divert savings toward education spending at the expense of health, housing, or entrepreneurship. In rural and lower-income urban households, rising costs may push students toward lower-quality institutions or shorter educational pathways, reinforcing inequality in outcomes.

Thus, the issue is not merely whether education is available, but whether it is financially attainable without disproportionate sacrifice. If rising costs continue without matching wage gains, the equalizing role traditionally associated with education may weaken substantially.

5.3 Decline in Leadership After the Pandemic

There is a decline in female management roles as seen in Figure 4.9. This suggests that the post pandemic economy has

favoured safer or more traditional hiring patterns. In a privatized and highly competitive market women, despite being more educated than ever, are being excluded from leadership positions. This highlights a key policy gap, that is, increasing access to education is not enough if workplaces do not support the growth or retention of skilled women.

This finding is significant because it reveals that educational attainment alone cannot overcome institutional barriers within labour markets. Women may enter universities in larger numbers and achieve higher qualifications, yet still encounter slower promotion pathways, career interruptions, wage gaps, and limited access to decision-making roles.

The post-pandemic labour market may have intensified these barriers through several channels. First, sectors with strong female participation were disproportionately disrupted. Second, unpaid care responsibilities increased sharply during and after the pandemic. Third, firms facing uncertainty may have relied on existing managerial networks, which often favour historically dominant groups.

Our regression analysis linking female labour participation with education-related variables suggests that stronger learning

outcomes may support labour market inclusion, but structural workplace barriers remain highly relevant. This implies that the education system can expand opportunity only up to the point where labour market institutions allow that opportunity to be converted into advancement.

Therefore, the benefits of rising educational participation among women may remain incomplete unless accompanied by broader structural changes in employment systems, workplace norms, and opportunities for upward mobility.

5.4 The Public-Private Paradox in Education Financing

One of the most notable findings of this study is that rising government expenditure and rising privatization occurred simultaneously. Rather than replacing public spending, private expansion appears to have developed alongside it.

This suggests that the issue may not be absolute spending levels alone, but the effectiveness, distribution, and perceived quality of public expenditure. Even where government allocations rise, households may still choose private providers if public institutions face overcrowding, inconsistent teaching quality, weak accountability, or infrastructure gaps.

In economic terms, this reflects a demand-side response to perceived quality differentials. Families willing and able to pay may exit public systems in favour of private alternatives, while lower-income households remain dependent on public provision. Over time, this can create a segmented system where educational quality increasingly maps onto household income.

Such dual-track systems may widen inequality unless public institutions remain sufficiently competitive in quality and accessibility. The coexistence of higher public spending and rising privatization therefore suggests that increasing expenditure alone is insufficient without parallel improvements in outcomes and institutional trust.

5.5 Education and Labour Market Disconnect

A broader theme emerging from this paper is the disconnect between educational expansion and labour market absorption. Enrollment has increased, private institutions have expanded, and educational participation has become more widespread. Yet concerns around unemployment, underemployment, and weak returns to degrees persist.

This may indicate skill mismatch, where the competencies produced by institutions do not align with employer demand. It may also reflect a shortage of high-productivity jobs relative to the number of graduates entering the labour force. In such a context, education becomes necessary but insufficient for upward mobility.

This disconnect is particularly important for undergraduate populations, as many students now pursue additional certifications, postgraduate degrees, or coaching merely to remain competitive. The result is credential inflation, where higher qualifications become baseline requirements rather than sources of advantage.

Hence, the challenge extends beyond education policy alone. Without sufficient job creation and stronger school-to-work pathways, even expanding access to education may generate frustration rather than mobility.

5.6 Gendered Returns to Education

Another recurring theme in the findings is that the economic returns to education are not equally distributed across genders. Women have made notable progress in educational participation, particularly in higher education, yet labour market

outcomes continue to lag behind those of men.

This suggests that the returns to education are mediated by social norms, mobility constraints, unpaid domestic responsibilities, occupational segregation, and employer bias. In other words, the same degree may generate different economic outcomes depending on gender.

This has major implications for affordability. If women face lower expected labour market returns despite similar educational costs, the private incentive to invest in female education may weaken in some households, especially where financial resources are limited. Such patterns risk reinforcing long-term inequality despite rising enrollment.

Therefore, the relationship between education and development must be understood not only through aggregate indicators, but also through how opportunities and returns are distributed across different social groups.

6. POLICY IMPLICATIONS

The empirical evidence presented in this study indicates that India's education sector has transitioned from a crisis of access to a crisis of value and equity. While the expansion of private provision has

successfully absorbed excess demand, it has simultaneously introduced systemic risks: escalating household financial burdens, high variance in institutional quality, and a decoupling of educational attainment from labor market productivity. To mitigate these distortions, national policy must pivot from a quantity-centric, enrollment dominant model to a multidimensional capability-formation model anchored in the following pillars.

6.1 Reinventing the Public Option as a Market Stabilizer

The observed trend of simultaneous privatization and public sector stagnation suggests a hollowing out of the "middle tier" of education. Over-reliance on private capital risks a bifurcated social structure where human capital accumulation is a function of inherited wealth rather than innate ability.

Policy must move beyond seeing the public sector as a safety net for the poor and instead reposition it as a high-quality competitor that sets the floor for standards and the ceiling for costs. This requires a shift from marginal budgetary increases to structural fiscal commitment, targeting classroom infrastructure, digital parity, and institutional autonomy. Strengthening public universities is not merely a social imperative but a strategic economic one to

prevent the monopolization of credentialing by high-cost private actors.

6.2 Mitigating Credit Constraints and Household Financial Shocks

The rising real cost of education, particularly in the private sector, acts as a regressive tax on social mobility. When the private cost of education outpaces median income growth, the result is education based exclusion regardless of enrollment statistics.

To correct this, we propose a transition toward Income-Contingent Loans (ICLs) and expanded Direct Benefit Transfers (DBT) for educational inputs. By shifting the financial risk from the household to a state-backed mechanism, we can ensure that high-ability, low-wealth students are not forced out of the human capital pipeline. Furthermore, subsidizing ancillary costs, such as digital hardware and regional transport, is essential to lowering the effective cost of participation in a modernizing economy.

6.3 Transitioning from Laissez-Faire to Outcome-Based Regulation

The current regulatory vacuum has allowed for asymmetric information to thrive, where private institutions compete on marketing rather than measurable value-add. This creates significant market inefficiencies and credential inflation.

A robust regulatory framework must mandate Information Symmetry. We recommend the establishment of a National Education Transparency Dashboard where institutions are legally required to disclose audited placement data, student-faculty ratios, and fee-hike trajectories. Regulation should not be punitive in terms of inputs (e.g., land requirements) but stringent in terms of output-based accountability, ensuring that the private sector serves as a complement to national development goals.

6.4 Solving the "Education-Employment" Mismatch

The disconnect between rising attainment and stagnant labor market absorption (as seen in Figure 14) suggests a low return on empty credentials. To restore the signaling value of degrees, the curriculum must be re-anchored to sectoral demand elasticity.

This necessitates a structural link between higher education institutions and industry clusters. Integrating apprenticeship-embedded degrees and modular vocational certifications can reduce the "search and matching" costs in the labor market. Policy must incentivize institutions to treat employability not as an elective, but as a core metric of institutional success, shifting the focus from the volume of graduates to the velocity of their professional transition.

6.5 Optimizing the Gender Dividend through Structural Reform

The data reveals a situation, where female educational gains do not translate proportionally into labor force participation. This is a massive loss of potential GDP.

National policy must recognize that the barriers to female economic participation are often external to the classroom. Addressing this requires a Cross-Sectoral Policy Bundle: safe urban mobility, state-subsidized childcare near employment hubs, and anti-discrimination audits in the private sector. If the "conversion rate" of female education remains low, the social return on education spending will continue to be significantly sub-optimal.

6.6 Evidence-Based Governance and Longitudinal Data Systems

Finally, the lack of granular, real-time data inhibits the ability to conduct "mid-course corrections" in policy. India requires a Longitudinal Student Tracking System that follows individuals from primary school into the labor market. Such a system would allow researchers and policymakers to identify exactly where students drop out, where costs become prohibitive, and which institutional types yield the highest economic returns. Transparent, gender-disaggregated, and state-level data

dashboards are the only way to move from ideological policymaking to evidence-based governance.

7. CONCLUSION

The research shows that rapid privatization and skyrocketing education costs in India have created a paradoxical scenario, i.e. unprecedented quantitative access expansion alongside a historically persistent qualitative deficit and socioeconomic inequity, further aggravated by the Ed-Tech boom. While secondary and bachelor's level enrollment has become gender-equal, with female attainment doubling between 2011 and 2023, higher attainment has plateaued post-2020, indicating affordability thresholds limiting the availability of higher education among the poor.

However, this rise has not been matched by labor market absorption, as evidenced by flat female participation in the advanced education labor force and almost 25% unemployment among women with advanced degrees, almost twice the male rate. Despite the sectoral shifts toward services, education-employment mismatch continues to yield underutilization of skills, a wage penalty for overeducated workers averaging 7%, and low returns on human capital investment, especially for females

and backward groups whose returns rarely extend beyond primary schooling.

These findings thus reflect a systemic failure where market-driven reforms have focused on enrollment rather than employability, turning education from an equalizer into a reproducer of privilege. With chronic underfunding from public sources below 4–6% of GDP, responsibility has been shifted to households, with bottom-quintile families spending 60% of their disposable income on education versus 10% for the top quintile, thus deepening urban-rural and gendered divides. Declining shares of females in management (below 12% by 2024) since the pandemic further underscore these barriers at the leadership level and hinder India's demographic dividend and SDG 4 aspirations for equitable quality education. The literature supports this, with Ed-Tech's scalability but uneven penetration due to digital divides and privatization fostering innovation at the cost of holistic skill development. Thus, supposedly progressive structural changes risk intergenerational disincentives to human capital creation when families perceive diminishing economic returns in increasingly competitive job markets with multilingual and industry-specific skill sets. The descriptive and econometric findings of this paper further reinforce these

concerns. Trend analysis demonstrated that private primary enrollment rose sharply over the sample period, indicating growing household dependence on fee-charging institutions. At the same time, public expenditure on education, though rising in absolute terms, remained constrained as a share of GDP. Education inflation also displayed repeated spikes, suggesting sustained affordability pressures.

The regression analysis adds further insight into these structural dynamics. First, private primary enrollment was positively associated with harmonized test scores, indicating that households may be moving toward private schooling in search of perceived quality advantages. However, government spending variables were statistically weak predictors of privatization trends, implying that rising private demand may be driven more by household preferences and institutional quality gaps than by public spending levels alone. Second, learning outcomes showed no strong independent relationship with spending variables once broader controls were introduced, suggesting that expenditure alone does not automatically convert into better educational quality. Third, and most importantly, higher private primary enrollment was significantly associated with lower female labour force participation in the model, indicating that

an increasingly privatized education system may coincide with persistent gendered barriers in translating education into economic participation.

These findings delineate a critical inflection point for Indian human capital policy. The transition from an expansionary phase to a "value-realization" phase requires a move away from gross enrollment metrics toward capability-based outcomes. To prevent the ossification of a two-tiered social structure, fiscal policy must be re-anchored to the 6% GDP benchmark, focusing on elevating the public sector as a high-quality, competitive alternative rather than a mere safety net.

Furthermore, the significant negative correlation between privatization trends and female labor force participation necessitates a wraparound policy approach. Education policy cannot succeed in a vacuum; it must be synchronized with labor market reforms that reduce gendered search-and-match frictions and provide safe, inclusive transitions from the classroom to the boardroom. Regulation of the private and Ed-Tech sectors is no longer optional; it is a prerequisite to ensure that innovation does not come at the expense of equity.

7.1 Final Remarks

In conclusion, India's demographic dividend remains a conditional asset. This

study confirms that while the market has successfully expanded the supply of education, it has not inherently guaranteed its affordability or its economic relevance. The evidence demonstrates that enrollment gains are a hollow victory if they are sequestered behind affordability barriers or neutralized by a rigid labor market.

Ultimately, the path to sustainable development lies in a balanced institutional framework: one that harnesses private innovation through rigorous outcome-

based regulation while restoring the state's role as the primary guarantor of quality and mobility. As India moves toward 2030, the objective must shift from merely educating more to educating better and more equitably, ensuring that human capital remains India's most potent engine of structural transformation and inclusive growth. Future research should build upon this framework by utilizing causal econometric methods and state-level panel data to refine the precision of these intervention models.

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