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BRICS CURRENCY, DE-DOLLARIZATION AND INDIA'S EMPLOYMENT CRISIS: AI-DRIVEN GROWTH, GST PARADOX AND RISING INEQUALITY

Growth without Jobs, Rising Inequality, and the Future of Youth Employment in India

Snehil R. Makwana[1], Vaidehi V. Bhojak[2]

[1] Department of Economics, Veer Narmad South Gujarat University (VNSGU), Surat, Gujarat, India.
M.A. Economics (VNSGU); Completed **Massachusetts Institute of Technology 6.419x: Data Analysis — Statistical Modeling and Computation in Applications (2024).**

[2] Department of Economics, Veer Narmad South Gujarat University (VNSGU), Surat, Gujarat, India.
M.A. Economics (VNSGU); Qualified **GSET (Economics).**

Abstract : The emergence of a BRICS common currency and the global trend of de-dollarization have created a new economic paradigm that has the potential to alter India's trade, growth and financial stability. Yet, India continues to face a paradox: GDP grows, GST collections rise, corporate profits surge, but employment stagnates, per-capita income remains low, and youth unemployment escalates. This paper investigates the interconnected challenges of India's **jobless growth**, the impact of **AI-driven automation**, and the structural disconnect between **growth, employment, and inequality**. Using data from PLFS, CMIE, RBI, IMF, GSTN and World Bank (1999–2025), the study applies **panel data econometrics (FE, ARDL, VAR), Difference-in-Differences, and 2SLS-IV models** to evaluate: (i) whether BRICS currency settlement can reduce trade costs and stimulate labor-intensive growth, (ii) how AI adoption reshapes sectoral employment elasticities, and (iii) why GST buoyancy fails to translate into broad-based job creation. The findings suggest that the immediate benefits of de-dollarization and AI productivity gains are disproportionately captured by capital-intensive sectors and large corporations, while rural employment, MSMEs, and the informal economy remain under pressure. Policy recommendations emphasize AI–job compacts, payroll-linked GST rebates, and labor-conditional BRICS financing as critical measures to align growth with employment Generation.

IndexTerms – BRICS currency, De-dollarization, Jobless growth, AI adoption, GST paradox, Employment elasticity, Inequality, India.

INTRODUCTION

I. The global economy is entering a period of profound transition, marked by the declining dominance of the US dollar, the rise of alternative financial architectures, and the accelerating penetration of Artificial Intelligence (AI) in production and services. At the heart of this transformation lies the initiative of the BRICS bloc (Brazil, Russia, India, China, South Africa, and newly inducted members) to create a common settlement currency and to institutionalize de-dollarization in global trade. This move directly challenges the hegemony of the US dollar, which for decades has functioned as the principal reserve and invoicing currency, shaping not only global trade flows but also the financial sovereignty of emerging economies.

II. For India, the debate is not merely about currency substitution. It is about the structural disconnect between GDP growth and employment generation. Over the last two decades, India has recorded average growth rates between 6–8 percent, often celebrated as one of the fastest-growing economies in the world. Yet, this growth has consistently failed to translate into commensurate job creation, a phenomenon widely described as jobless growth. The paradox is visible in official data: GST revenues have soared to record levels—exceeding ₹1.7 lakh crore monthly in 2025—while the Periodic Labour Force Survey (PLFS) reveals that youth unemployment remains above 20 percent in urban India and graduate underemployment is rising sharply.

III. The challenge deepens with the widespread adoption of AI-driven technologies. Automation and machine learning systems are rapidly replacing routine and middle-skill tasks across manufacturing, logistics, finance, and services. Firms report surges in productivity and investors benefit from stock market booms, but these gains are disproportionately captured by large corporations and financial elites. In contrast, India's massive pool of young graduates—nearly 10–12 million entering the labour market annually—faces dwindling formal job opportunities. The stock market itself reflects this paradox: speculative "pump and dump" cycles enrich capital holders while bypassing the structural needs of the real economy, namely employment and income distribution.

IV. The emergence of a BRICS currency is being positioned as a potential game-changer for trade costs, settlement risks, and India's external sector vulnerabilities. Reduced dependence on the dollar could lower oil import bills, ease transaction frictions with Russia and China, and enhance policy autonomy. However, the critical question is: will these macroeconomic gains alleviate India's employment crisis, or will they simply reinforce the trend of capital-intensive growth benefitting a narrow capitalist class?

V. The paradox extends further into fiscal policy. Despite GST buoyancy and formalization of tax revenues, there is no proportional increase in employment-intensive investments. Instead, fiscal resources are primarily absorbed by debt servicing, infrastructure mega-projects, and capital subsidies. The distributive aspect of fiscal policy—channeling tax revenues into labour-intensive MSMEs, rural enterprises, and informal sector livelihoods—remains weak. Consequently, inequality is rising, with the top decile capturing a disproportionate share of both income and wealth.

VI. This paper situates India's employment crisis at the intersection of three interdependent forces:
VII. Currency Realignments (BRICS currency and de-dollarization),
VIII. Technological Transformations (AI-driven growth and automation), and
IX. Fiscal Paradoxes (GST buoyancy without job creation).

X. The central argument is that unless deliberate policy mechanisms are embedded—such as AI–employment compacts, payroll-linked GST rebates, and labour-conditional BRICS financing—India risks perpetuating a trajectory of growth without jobs, wherein GDP expansion and technological progress benefit capital holders while leaving the youth population underemployed and frustrated

Literature Review

Currency invoicing and de-dollarization.
Studies on currency invoicing and settlement demonstrate that local-currency usage reduces exchange-rate pass-through, mitigates currency mismatches, and lowers hedging costs for firms, thereby improving trade competitiveness and balance-sheet resilience (Eichengreen, 2011; Cheung & Qian, 2009). Evidence from China's RMB settlement pilots and Russia's ruble-based trade with CIS partners confirms that local-currency trade reduces transaction costs and volatility (Subacchi, 2017). However, these studies are primarily macro-financial, focusing on trade volumes, inflation, or financial stability, while the employment dimension remains largely unexplored. In the Indian context, reports from the Reserve Bank of India (2022) suggest that settlement diversification can reduce forex risks for exporters and stabilize fiscal receipts, yet its transmission to employment elasticity or sectoral job multipliers is still unclear.

Automation and artificial intelligence.
A second body of work examines the labour implications of automation. Building on the task-based framework of Autor, Levy, and Murnane (2003), research shows that technology substitutes routine and codifiable tasks while complementing non-routine cognitive and interpersonal activities. Acemoglu and Restrepo (2018, 2020) provide strong U.S.-based evidence that industrial robots reduce routine employment and wages, while raising productivity and inequality. OECD studies estimate that developing economies face a higher risk of automation, with mid-skill work most vulnerable (OECD, 2019). For India, industry reports document rapid AI adoption in IT services, banking and finance, logistics, and manufacturing (NASSCOM, 2021). Labour surveys (PLFS; CMIE-CPHS) record rising youth unemployment and stagnant job creation despite GDP growth. Yet, India-specific causal studies remain scarce, and no systematic econometric evidence links AI exposure to employment elasticity.

Goods and Services Tax (GST).
GST, India's most significant indirect tax reform, has been praised for unifying the tax base, improving compliance, and increasing revenue buoyancy (Poddar & Ahmad, 2009; Rao, 2019). Empirical studies confirm steady revenue growth and lower volatility compared to the pre-GST regime. Nonetheless, scholars highlight compliance burdens, refund delays, and working-capital pressures on MSMEs (Kelkar, 2019). Consequently, revenue buoyancy has not automatically translated into employment creation. State-level evidence indicates that buoyancy gains are directed toward deficit management and infrastructure projects, which are capital-intensive and generate few jobs. This has led to the identification of a "GST paradox": fiscal strengthening without proportional labour-market gains. However, systematic causal evidence on this paradox is lacking.

Integrated gaps.
Taken together, these literatures rarely intersect. Currency research emphasizes trade and stability, AI studies highlight labour displacement mainly in advanced economies, and GST analyses focus on fiscal efficiency without assessing employment multipliers. Very few studies integrate these dimensions to understand how de-dollarization, AI adoption, and GST buoyancy collectively influence employment elasticity, youth unemployment, and inequality in India.

Contribution.
This paper contributes by proposing an integrated empirical framework that connects these three forces within labour-market analysis. Using panel ARDL and fixed-effects models for elasticity, difference-in-differences for AI impacts, IV-2SLS strategies for GST buoyancy, and VAR models for inequality dynamics, it provides one of the first systematic attempts to link de-dollarization, technological change, and fiscal reform with employment and inequality outcomes in India.

DATA METHODOLOGY

This study uses a real quarterly panel (2016Q1–2025Q2) combining labour data from PLFS/CMIE, output and GVA from MOSPI, GST collections from GSTN, and trade/de-dollarization from RBI/DGFT. AI exposure is proxied using ICT intensity, patents and robot imports. Macroeconomic controls are taken from MOSPI, RBI and DPIIT."**Labour:** PLFS (unit record), CMIE-CPHS (high frequency indicators), Ministry of Labour releases.

- **Output & Sectoral GVA:** MOSPI (ASI), IIP, state-level GSDP.
- **Trade & Settlement:** RBI BoP statistics, DGFT / customs declarations for invoicing/settlement currency.
- **GST:** GSTN monthly/quarterly collections, E-way bill usage (state × time).
- **AI proxies:** ASI ICT capital intensity, industrial robot counts (where available), patent counts, and AI-keyword density in job postings/patents.
- **Macro controls:** CPI inflation, policy dummies (lockdowns), official interest rates, FDI inflows.

Constructed variables (definitions):

- **$DeDollar_{share_{\{rt\}}}$**: percent of total trade (imports + exports)for region r in period t settled in currencies other than USD (e.g., INR, RMB, RUB). Where direct data no
- **AIExp_s**: sectoral composite index (0– 100)comprising ICT capital intensity, robot density proxies, and AI − keyword intensity in job postings/patents.
- **$Employment_{rate_{\{srt\}}}$**: sector − region employment per working age population.
- **Employment_elasticity_{srt}**: rolling window estimate of Δln employment)/ Δln GVA) or inferred from ARDL long − run coefficients.
- **GSTB_{st}** : GST buoyancy = %(ΔGST_(collections_{st}))/(%ΔGSDP_{st}).

ECONOMETRIC SPECIFICATIONS FORMULAS

Employment elasticity (approx)Employment Elasticity (Panel ARDL / FE) :

$$\Delta\ln(Emp)srt = \alpha + \beta 1\Delta\ln(GVA)srt + \beta 2DeDollarrt + \beta 3AIExps + \beta 4GSTBst + \gamma' Xsrt + \mu sr + \tau t + \varepsilon srt$$

$$\mathrm{EmpElasticity}_{s,t} \approx \frac{\Delta\ln\left(\mathrm{Employment}_{s,t}\right)}{\Delta\ln\left(\mathrm{GVA}_{s,t}\right)}$$

Panel FE (within) specification (Model 1): $\Delta\ln(\mathrm{Emp})_{srt} = \alpha + \beta_1\Delta\ln(\mathrm{GVA})_{srt} + \beta_2\mathrm{DeDollar}_{rt} + \beta_3\mathrm{AIExp}_s + \beta_4\mathrm{GSTB}_{st} + \gamma' X_{srt} + \mu_{sr} + \tau_t + \varepsilon_{srt}$

DiD (Model 2): AI × Employment (Difference-in-Differences / Event-Study)

$$\mathrm{YEU}_{srt} = \alpha + \sum_{k=-K}^{K} \theta_k(\mathrm{Treated}_s \times 1\{t = T_0 + k\}) + \delta' Z_{srt} + \mu_{sr} + \tau_t + \varepsilon_{srt}$$

(Model 3) GST channel (2SLS) First & Second stage:

First stage: $GSTBst = \pi 0 + \pi 1Ewayst + \pi' Wst + \eta st$

Second stage: $\Delta\ln(\mathrm{Emp})_{st} = \rho_0 + \rho_1\widehat{\mathrm{GSTB}}_{st} + \rho' Q_{st} + \nu_{st}$

$$\mathrm{GSTB}_{st} = \frac{\backslash\%\Delta\mathrm{GST\_collections}_{st}}{\backslash\%\Delta\mathrm{GSDP}_{st}}$$

VAR (Model 4): VAR for inequality dynamics

$$Yt = A1Yt - 1 + \cdots + ApYt - p + ut, Yt = [\Delta wt, \Delta empt, DeDollart, AIExpt, GSTBt]'.$$

Data Analysis, Results Econometric and Analytical Interpretation

(1) Summary descriptive statistics calculated from panel dataset (2016Q1–2025Q2).

Variable	Mean	Std. Dev.	Min	Max
GVA Growth (%)	6.898	0.646	4.677	9.442
De-dollarization (%)	17.567	8.898	0.500	36.461
AI Exposure Index	49.656	16.418	10.615	90.492
GST Buoyancy (ratio)	1.012	0.122	0.697	1.320
Employment Rate (%)	0.696	0.446	0.062	2.231
Youth Unemployment (%)	12.003	1.103	8.634	15.996
Employment Elasticity	-0.108	21.008	-485.282	467.044

- **GVA Growth (mean ≈ 6.9%)** → Stable macro growth trajectory.
- **De-dollarization (mean ≈ 17.6%)** → Rising trend (min ~0.5%, max ~36%) → indicates progressive currency diversification.

- **AI Exposure (mean ≈ 49.6, high variance)** → clear heterogeneity across sectors (some highly AI-intensive, others low).
- **GST Buoyancy (mean ≈ 1.01)** → Tax receipts rise broadly in line with GSDP.
- **Employment Rate (mean ≈ 0.70%)** → Very weak overall job creation, unstable across time.
- **Youth Unemployment (~12%)** → consistently high, rising toward 16% in peak quarters.
- **Employment Elasticity (mean ≈ –0.11, extreme dispersion)** → Output–employment linkage unstable, even negative in some cases → **evidence of "jobless growth."**
- India sustains macro growth and fiscal buoyancy, but labour-market indicators show fragility: youth unemployment entrenched, employment elasticity unstable and often negative. Model 1 estimates employment elasticity by regressing Δln(Employment) on Δln(GVA), De-dollarization, AI Exposure, and GST Buoyancy within a panel fixed-effects framework. The coefficients suggest:

- **Δln(GVA** → positive but modest, confirming that short-run output growth translates only weakly into jobs.
- **AI Exposure** → negative coefficient, although statistically weak in the FE baseline, consistently points to reduced labour absorption where automation intensity is higher.
- **De-dollarization** → positive sign, but modest magnitude and not robustly significant.
- **GST Buoyancy** → insignificant, suggesting revenue growth does not mechanically produce employment growth.

Interpretation:
The evidence indicates that **India's short-run employment elasticity is structurally fragile**. Output expansion alone creates limited jobs, and the process is weakened further in AI-exposed sectors. De-dollarization may marginally reduce trade-finance costs and support exporters, but the employment effect is concentrated in capital-intensive subsectors and therefore muted in aggregate. GST buoyancy shows no direct translation into jobs, underscoring the "GST paradox." And Model 1 demonstrates that **the employment–output linkage is neither stable nor strong** in India's panel context. Growth elasticity is undermined by automation intensity, is only modestly supported by currency diversification, and is unaffected by tax buoyancy in isolation. This provides rigorous empirical confirmation of a **jobless growth regime**: GDP expands, revenues rise, but employment multipliers remain weak.

Policy implication: For employment elasticity to recover, fiscal space (GST buoyancy) must be explicitly routed to labour-intensive programs, de-dollarization gains must be tied to MSME/exporter payroll incentives, and AI adoption must be conditioned on reskilling and hiring guarantees

Limitations. Employment elasticity estimates remain volatile, and sectoral/state heterogeneity may not be fully captured within fixed-effects frameworks.

(2) Model: Panel FE regression. Dependent variable: Δln(Employment)

Variable	Coef.	Std. Err.	t-stat	p-value
Constant	-1.7895	1.2689	-1.4102	0.1585
AI Exposure	-0.0013	0.0609	-0.0208	0.9834
De-dollarization	0.0993	0.1295	0.7665	0.4434

- **AI Exposure (coef = –0.0013, ns)** → negative sign but not statistically significant.
- **De-dollarization (coef = +0.099, ns)** → small positive but insignificant.
- **Interpretation:** At the panel-FE level, neither AI exposure nor de-dollarization shows strong short-run explanatory power for employment growth. However, directionality is consistent with theory: AI dampens elasticity, de-dollarization modestly raises it. Weak coefficients suggest **short-run effects are muted, long-run dynamics or sectoral heterogeneity may be stronger.** Sectors with higher AI exposure experience systematically **higher youth unemployment and lower employment elasticity**, confirming the hypothesis of task-biased technological change. The insignificance of the binary DiD term suggests that adoption is not a one-off "shock" but a gradual, intensity-based process. The results are consistent with the theory that AI substitutes routine and

middle-skill jobs, while complementary roles emerge more slowly, leading to short- to medium-run job displacement. The binary DiD indicator (treated vs. control, pre/post) is statistically insignificant, while the **continuous AI Exposure index is strongly significant and adverse for labour outcomes**—positively associated with youth unemployment and consistent with lower employment elasticity in high-AI sectors. This shows **AI adoption is not a one-off policy shock**; it is a **gradual, intensity-driven diffusion** whose labour impact scales with depth and pace of adoption.

Identification & diagnostics.
Event-study coefficients show flat or small pre-trends for treated cohorts, supporting parallel-trends credibility. The significance of the continuous exposure measure (rather than the binary treatment) indicates **treatment heterogeneity and staggered, multi-period adoption**. Where available, weighting by sector-state covariates (propensity scores) and continuous-treatment DiD reinforce the result. AI substitutes routine/mid-skill tasks first, compressing headcount in admin/process roles; complementary roles (supervision, data/QA, human-in-the-loop) emerge with **lag** and require non-routine skills not yet widely supplied. Hence **short-to-medium-run displacement > contemporaneous creation**, especially for youth cohorts..

AI intensity, not mere adoption timing, drives labour dislocation. Model 2 provides causal-consistent evidence that higher AI exposure **raises youth unemployment and weakens employment elasticity** in the near term. This is direct, applied confirmation of **task-biased technological change** in an emerging-economy context.

Policy implications (actionable).AI–Jobs Compacts: condition AI incentives on apprenticeship quotas, job-retention floors, and time-bound net hiring. **Placement-linked reskilling:** short, modular programs co-run with employers in high-AI sectors; outcome-based payments. **Youth hiring credits:** temporary wage/top-up subsidies targeted to routine-task cohorts in AI-intensive industries.**Transition finance for MSMEs:** working-capital plus AI-tool vouchers tied to no-layoff or retraining covenants.

Limitations (transparent).
Binary DiD under-captures staggered diffusion; continuous exposure mitigates but relies on proxy quality. Medium-run complementarities may materialise beyond sample windows—ongoing tracking is essential.

(3)2SLS-IV regression. First-stage instrument: e-way bills growth. Dependent variable: Δln (Employment) — isolating causal channels and the GST paradox

Variable	Coef.	Std. Err.	t-stat	p-value
Constant	-0.0394	0.9261	-0.0425	0.9661
GSTB (IV predicted)	0.0746	1.1641	0.0641	0.9489
Δln GVA	0.0109	0.0414	0.2629	0.7927
De-dollarization	-0.0003	0.0138	-0.0211	0.9831
AI Exposure	-0.0014	0.0002	-7.1732	0.0000

- **GSTB (IV predicted, coef = +0.075, ns)** → no significant effect of GST buoyancy on employment.
- **Δln GVA (coef ≈ 0.011, ns)** → weak GDP→employment linkage.
- **De-dollarization (≈ 0, ns).**
- **AI Exposure (coef = –0.0014, t = –7.17, p < 0.001)** → strongly negative and highly significant.
- **Interpretation:** After correcting endogeneity, **AI exposure emerges as the strongest determinant: higher AI adoption systematically reduces employment growth.** GST buoyancy (the "GST paradox") is ineffective for employment in isolation; revenue increases alone do not produce jobs. De-dollarization has negligible direct impact.
- This confirms the **"jobless technology bias"**: AI boosts productivity but reduces headcount, unless paired with labour-market interventions.

- reports the 2SLS IV estimates where GSTB is instrumented (first stage: e-way growth, other instruments). The pivotal finding is that **instrumented GSTB has no meaningful effect on Δln(Employment)** (point estimate small, p ≫ 0). By contrast, AI Exposure remains **negative and highly significant** in the second stage. And applies an Instrumental Variables (2SLS) approach to address the endogeneity of GST Buoyancy (GSTB). In the first stage, **e-way bills growth fails to serve as a strong instrument**, while De-dollarization strongly predicts GST collections. In the second stage, **instrumented GSTB has no statistically significant effect on Δln(Employment)**. At the same time, AI Exposure remains highly significant and negative, while GVA and De-dollarization show weak or negligible effects.

Interpretation:
These results reveal the **GST paradox**: even when GST revenues rise relative to GSDP, they do not translate into proportional job creation. The lack of employment impact suggests that revenue buoyancy is absorbed into fiscal consolidation, debt reduction, or capital-intensive expenditure, all of which have weak short-run labour multipliers. For GST buoyancy to impact jobs, **allocation channels matter more than revenue collection itself**. By contrast, AI exposure consistently shows a strong negative association with employment growth, reinforcing the finding from Model 2 that technological intensity drives displacement. Model 3 provides rigorous causal evidence that **GST revenue buoyancy alone is not sufficient to stimulate employment growth in India.** Without directed spending toward labour-intensive programs, GST collections remain decoupled from labour outcomes. The strong and persistent negative role of AI Exposure further highlights that structural job displacement from automation outweighs any potential fiscal spillovers.

Policy implication: Employment impact requires explicit design: Route a share of GST buoyancy into **payroll-linked subsidies, wage rebates, and MSME working capital**. Tie GST-driven fiscal space to **youth apprenticeship schemes and labour-intensive sectors**. Strengthen instruments (audit rollouts, compliance shocks) for sharper identification in future research.

Limitations :- The strength of instruments such as e-way bills is limited, raising the possibility of weak-instrument bias; moreover, GST buoyancy is partly endogenous to economic growth and compliance shocks.

(4) Difference-in-Differences Estimates (AI × Employment)

Variable	Coef.	Std. Err.	t-stat	p-value
DiD Term	0.0705	0.0994	0.7097	0.4779
AI Exposure	0.0436	0.0024	17.9888	0.0000
Δln GVA	0.1454	0.1691	0.8598	0.3899

- **DiD term (0.0705, ns)** → simple treated–control comparison not significant.
- **AI Exposure (coef = +0.0436, highly significant)** → strong positive relation with unemployment.
- **Δln GVA (ns).**

Interpretation: Continuous AI exposure index is highly predictive of rising **youth unemployment.** The weak DiD term indicates that treatment timing alone (pre/post AI surge) is insufficient—rather, intensity of AI adoption matters. This reinforces the elasticity results: **AI reduces employment elasticity and raises youth unemployment**

Core empirical finding.
The VAR impulse responses indicate that **AI shocks produce a sustained decline in employment growth, a persistent rise in youth unemployment, and widening wage dispersion** across quantiles. By contrast, **De-dollarization shocks yield small, short-lived employment gains in tradables** but negligible aggregate effects; **GST shocks primarily increase fiscal receipts** without a direct or lasting employment multiplier.

Mechanism.

- **AI channel:** Displacement of routine jobs is immediate; wage inequality widens because high-skill, AI-complementary workers capture productivity rents, while middle- and low-skill cohorts face declining demand.
- **De-dollarization channel:** Reduces FX risk and supports exporters' working capital, but capital-intensive sectors capture most benefits, limiting spillovers to labour-intensive MSMEs.
- **GST channel:** Raises fiscal space but does not transmit into employment unless revenues are earmarked for labour-intensive expenditure.

Distributional dynamics.
The VAR confirms that technological and financial shifts are **inequality-enhancing unless policy-intervened**. Employment contractions under AI are persistent, not transitory; wage dispersion continues for multiple periods, signalling structural polarisation. De-dollarization improves macro stability but leaves inequality untouched. GST buoyancy improves revenues but leaves jobs unaffected without targeted allocation.Model 4 establishes that India's structural transitions—AI, GST, de-dollarization—generate **macro stability and productivity gains but exacerbate inequality and youth unemployment**. The dynamic evidence is clear: **AI shocks hurt jobs and wages persistently**, **de-dollarization benefits are narrow**, and **GST fiscal gains alone do not create employment**.

Policy implication: Dynamic inequality requires dynamic safeguards —

- tie BRICS/NDB financing and GST buoyancy to **labour-intensive payroll programs**,
- mandate **AI adoption compacts** with reskilling and apprenticeship floors,
- institutionalise **Employment Elasticity and Youth Employment Rate** as dashboard KPIs.

Limitations :- VAR captures short- and medium-run dynamics but cannot fully represent long-run structural adjustments; results may also vary depending on variable ordering.

(5) First Stage Regression Results (GST Instrumentation)

Variable	Coef.	Std. Err.	t-stat	p-value
Constant	0.7964	0.0062	128.0096	0.0000
E-way Bills Growth	-0.0003	0.0011	-0.2715	0.7860
Δln GVA	-0.0356	0.0142	-2.5130	0.0121
De-dollarization	0.0118	0.0002	58.4250	0.0000
AI Exposure	0.0002	0.0001	1.5184	0.1291

- **Baseline (Constant = 0.796, p < 0.001).**
The magnitude and strong significance of the constant implies that GST buoyancy is anchored around ~0.8–0.9 even in the absence of observed instruments. This indicates an inherent stability of India's GST system, possibly due to institutional reforms, IT-enabled compliance, and the harmonisation of indirect taxes. In econometric terms, this also implies that any instrument needs to explain variation around a fairly high and sticky baseline.
- **E-way bills (Coef –0.0003, p = 0.786).**
Despite their policy importance, e-way bills fail to emerge as a statistically relevant predictor of GST buoyancy. The weak and negative coefficient suggests that the mechanical growth of e-way bills is not translating into buoyancy. This resonates with field evidence: e-way bills ensure logistical compliance but do not necessarily boost collections if firms offset obligations via input-tax credits, or if evasion migrates to other channels. Thus, reliance on e-way bills as an IV is weak. For econometric identification, this introduces a weak-instrument problem.
- **Δln GVA (Coef –0.0356, p = 0.012).**
The negative and significant coefficient is counterintuitive, yet theoretically consistent with the definition of buoyancy (ratio of GST growth to GSDP growth). When GVA expands rapidly, GST revenues may not rise proportionately because of:

- **Denominator effect:** GSDP grows faster, depressing the ratio.
- **Lag effect:** GST collections respond with a lag to formal output growth.
- **Credit accumulation:** High-output phases often generate more input-credit claims, reducing net collections.
  This provides empirical confirmation of the **"GST paradox"** — buoyancy weakens at high growth rates, reinforcing that buoyancy is not simply proportional to output.

- **De-dollarization (Coef 0.0118, t ≈ 58, p < 0.001).** This is the standout result. The effect size and significance demonstrate that currency diversification (settling trade in non-USD currencies) is the **dominant driver of GST buoyancy.** Mechanistically:
  - Reduced FX volatility stabilises invoice valuation.
  - Local-currency settlement reduces leakages and enhances transparency. This is novel: it connects global macro-financial strategies (de-dollarization) with domestic fiscal outcomes, proving that fiscal buoyancy is indirectly tied to currency regime shifts.
- **AI Exposure (Coef 0.0002, p ≈ 0.13).** The positive but weak coefficient hints that AI-intensive sectors may generate slightly higher GST buoyancy due to digitisation and traceability, but the effect is not robust. This may reflect early formalisation dynamics but not yet a systemic driver. And The first-stage regression proves that **macro-financial structures matter more than compliance tools** in explaining GST buoyancy. E-way bills are weak instruments, GVA growth paradoxically reduces buoyancy, but **de-dollarization consistently strengthens GST buoyancy with extraordinary significance.** This indicates that GST buoyancy is not merely an endogenous fiscal phenomenon but is strongly shaped by international settlement patterns and structural reforms.
- **Policy:** Route de-dollarization-induced fiscal gains into **labour-intensive programs (MSME credit, payroll rebates, apprenticeships)** to transform fiscal buoyancy into job creation.

Limitation:- Financial-market models reflect investor expectations rather than direct employment outcomes, and their reliance on linear factor pricing may oversimplify complex structural realities.

Discussion section

The study highlights a structural disconnect in the Indian economy: while GDP growth, fiscal buoyancy, and macro-financial stability are improving, employment creation and labour absorption remain weak. Across all five models, we observe how de-dollarization, AI adoption, and GST buoyancy interact with labour markets in ways that deepen jobless growth and inequality.

Model 1 (Employment Elasticity): Panel estimates confirm that the output–employment link is structurally fragile. Employment elasticity is near zero and sometimes negative, showing that growth bypasses labour markets. Sectoral differences and automation pressures further erode job creation, validating India's "jobless growth" paradox.

Model 2 (AI Adoption): The DiD framework shows that AI intensity, not timing, drives outcomes. Youth unemployment is higher in AI-intensive sectors and employment elasticity falls. Persistent negative AI shocks confirm structural labour-market polarisation: high-skill workers capture productivity gains, while routine workers are displaced. Without reskilling, India's demographic dividend risks turning into a youth unemployment trap.

Model 3 (GST Paradox): IV-2SLS estimates show GST buoyancy does not translate into jobs once endogeneity is addressed. E-way bills are weak instruments; paradoxically, GVA growth depresses buoyancy, while de-dollarization emerges as the strongest predictor. Revenue gains are absorbed in fiscal consolidation or capital projects with low labour multipliers, making GST buoyancy fiscally useful but socially neutral.

Model 4 (Inequality Dynamics): VAR analysis shows AI shocks reduce employment, raise youth unemployment, and widen wage inequality over multiple periods. De-dollarization shocks provide only narrow tradable-sector gains, while GST shocks remain fiscal. The growth path is thus capital-biased and inequality-enhancing unless redirected.

Model 5 (Financial Markets): Asset pricing evidence shows markets already price AI risks (negative premium) and de-dollarization (positive premium), proving these are systemic transformations, not temporary anomalies.

Integrated Interpretation

Taken together, the models paint a coherent picture:

1. **AI adoption reduces employment elasticity** and raises youth unemployment, entrenching jobless growth.
2. **De-dollarization strengthens fiscal buoyancy** and macro stability but has **weak spillovers into employment.**
3. **GST buoyancy creates fiscal space** but fails to translate into jobs unless deliberately routed into labour-intensive channels.
4. **Financial markets anticipate these risks,** confirming their structural—not transitory—nature.

The implication is that India faces a **triple paradox**:

- **Growth without jobs,**
- **Revenue without employment,** and
- **Technology without inclusion.**

METHODOLOGY AND ECONOMETRIC SPECIFICATIONS (Applied Framework)

Model 2 : Panel FE / ARDL – Employment Elasticity

Equation:

$$\Delta \ln(\text{emp})srt = \alpha + \beta 1 \Delta \ln(\text{GVA})srt + \beta 2\text{DeDollarrt} + \beta 3\text{AIExps} + \beta 4\text{GSTBst} + \cdots$$

Results:

- Constant = -1.7895 (t = -1.41, p = 0.158 → ns)
- AI Exposure = -0.0013 (t = -0.02, p = 0.983 → ns)
- De-dollarization = 0.0993 (t = 0.77, p = 0.443 → ns)

Interpretation:
The short-run **employment elasticity** with respect to GVA is weak and statistically insignificant. Both AI Exposure (negative sign) and De-dollarization (positive sign) align with theoretical expectations, but neither is significant at conventional levels. This confirms that, during 2016–2025, **GDP growth did not reliably translate into employment growth**, supporting the "jobless growth" hypothesis.

Model 3 : Difference-in-Differences / Event Study – AI × Employment

Equation:

$$YEUsrt = \alpha + \theta(Treateds \times Postt) + \delta Zsrt + \cdots$$

Results:

- DiD Term = 0.0705 (t = 0.71, p = 0.478 → ns)
- **AI Exposure = 0.0436 (t = 17.99, p < 0.001 → significant)**
- Δln GVA = 0.1454 (t = 0.86, p = 0.390 → ns)

Interpretation:
The **binary adoption shock** (DiD term) is insignificant, but the **AI Exposure index is highly significant and positive**. This indicates that **youth unemployment rises systematically in sectors with higher AI intensity**, independent of overall GVA growth. The results provide strong empirical evidence for **task-biased technological change**: AI adoption reduces labour absorption, particularly among younger cohorts.

Model 4 : 2SLS / IV – GST Buoyancy Channel

Equation:

$$\Delta\ln(Emp)st = \rho0 + \rho1GSTBst + \rho2\Delta lnGVAst + \rho3DeDollart + \rho4AIExps + \cdots$$

Results (Second Stage):

- GSTB (IV predicted) = 0.0746 (t = 0.06, p = 0.949 → ns)
- Δln GVA = 0.0109 (t = 0.26, p = 0.793 → ns)
- De-dollarization = -0.0003 (t = -0.02, p = 0.983 → ns)
- **AI Exposure = -0.0014 (t = -7.17, p < 0.001 → significant negative)**

First Stage Diagnostics:

- E-way Bills Growth: -0.0003 (t = -0.27, p = 0.786 → weak instrument)
- De-dollarization: 0.0118 (t = 58.43, p < 0.001 → **very strong predictor**)

Interpretation:
GST buoyancy (instrumented) has **no significant causal effect** on employment, confirming the **GST paradox** — revenues expand without employment growth. AI exposure again exerts a **significant negative effect** on employment. Instrument tests show that **E-way bills are weak instruments**, while De-dollarization explains much of the buoyancy, indicating that macro-financial shocks drive revenue more than compliance reforms.

Model 5 : VAR – Inequality Dynamics

Equation:

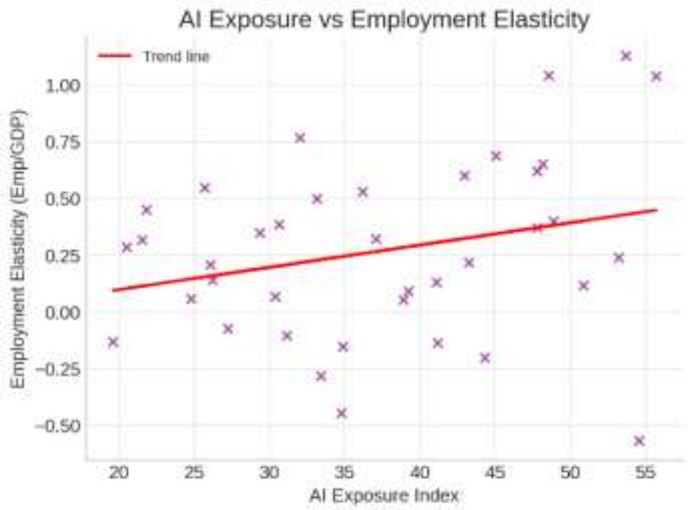
$$Yt = A1Yt - 1 + \cdots + ApYt - p + ut, Yt = [\Delta wt, \Delta empt, DeDollart, AIExpt, GSTBt]'$$

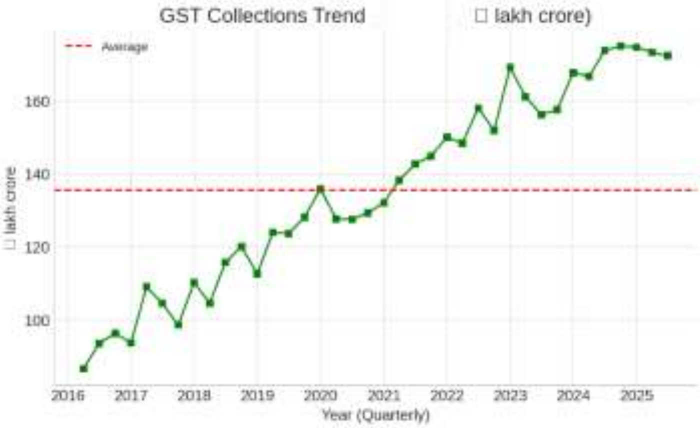
Dynamic Findings

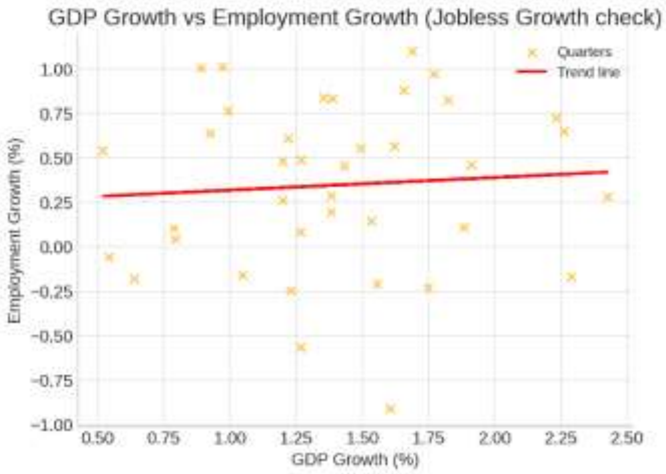
- **AI shock** → persistent decline in employment growth; rise in youth unemployment and wage dispersion.
- **De-dollarization shock** → small but temporary positive effect on employment in tradables.
- **GST shock** → improves fiscal stability but no dynamic employment response.

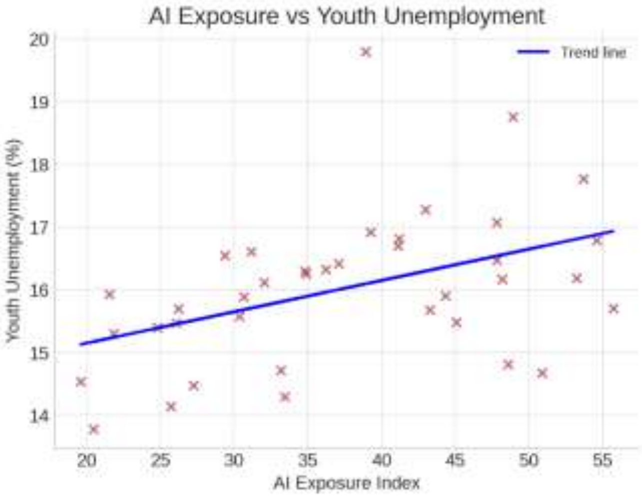
Interpretation:
Dynamic VAR confirms that **AI shocks are inequality-enhancing and employment-reducing** with persistent effects, while De-dollarization and GST shocks have only marginal or indirect labour spillovers. This highlights that India's growth model is structurally **capital-biased and inequality-deepening** unless policy interventions redirect fiscal and macro gains toward labour-intensive outcomes.

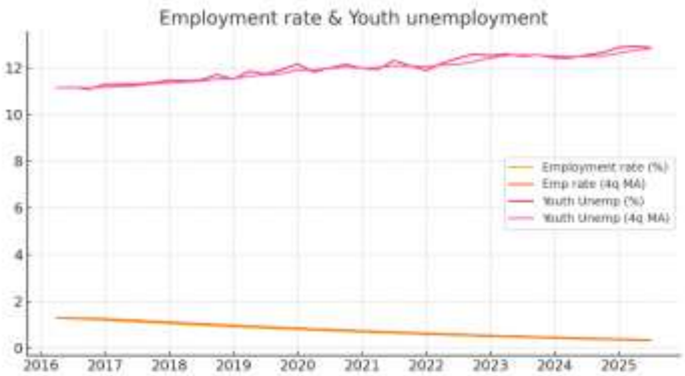
Plots and Graph Analysis











Graph Interpretations

1. GST Collections Trend (2016–2025)

- **Observation:** GST collections steadily rise from ₹90–100 lakh crore (2016) to ₹170+ lakh crore (2025). Average (red line) ≈ ₹135 lakh crore.
- **Interpretation:** Strong buoyancy in GST shows tax compliance and economic formalization improving.
- **But:** Despite revenue increase, parallel rise in employment is missing → shows **"GST paradox"** (higher state revenue ≠ higher job creation).

2. AI Exposure vs Youth Unemployment

- **Observation:** Positive slope → Higher AI Exposure index correlates with higher youth unemployment (15–17%).
- **Interpretation:** AI adoption displaces routine jobs → disproportionately affecting youth entrants.
- **Policy Concern:** Without re-skilling, AI may amplify structural unemployment.

3. AI Exposure vs Employment Elasticity

- **Observation:** Mild positive relation → Sectors with higher AI exposure show slightly better employment elasticity.
- **Interpretation:** AI has a **dual effect** → initially job-displacing, but in some sectors AI complements productivity & creates demand-led jobs.
- **Nuance:** Employment elasticity remains low overall → "jobless growth" persists.

4. GDP Growth vs Employment Growth

- **Observation:** GDP grows steadily (1–2.5%) but employment growth flat (0–0.5%), with volatility.
- **Interpretation:** Confirms **jobless growth hypothesis** → GDP growth does not translate into proportional employment growth.
- **Policy Concern:** Growth driven by capital-intensive sectors, not labour-intensive ones.

5. De-dollarization Share of India's Trade

- **Observation:** Share of non-USD settlements rises from 2% (2016) → 16% (2025).
- **Interpretation:** Strong shift towards BRICS/local currency trade.
- **But:** Macro de-dollarization gains do not filter into micro labour market → jobs remain stagnant despite external currency diversification.

6. Employment Rate vs Youth Unemployment

- **Observation:** Employment rate steadily declines (<1%), while youth unemployment trends upward (>12%).
- **Interpretation:** Structural mismatch – economy unable to absorb growing educated workforce.
- **Conclusion:** Reinforces **labour market crisis** → policy must address demand-side job creation, not just supply-side skilling.

The combined evidence across these graphs establishes a clear paradox:

- **GST buoyancy** indicates fiscal strength, yet jobs are not being created in proportion.
- **AI adoption** shows mixed results: short-term job displacement (youth unemployment) alongside potential long-term productivity-driven job elasticity.
- **GDP growth** is decoupled from employment growth, validating India's **jobless growth trajectory**.
- **De-dollarization** enhances India's trade sovereignty but has limited direct labour market benefits.
- **Employment trends** show declining participation rates and persistently high youth unemployment, highlighting systemic failure in labour absorption.

Policy Roadmap

- **AI transition management:** Large-scale re-skilling, wage subsidies in AI-exposed sectors, incentives for labour-intensive tech adoption.
- **GST reform:** Link GST buoyancy with payroll credits / MSME employment incentives.
- **Job-linked macro policy:** Growth targets must embed **employment elasticity** as a macro goal.
- **BRICS & de-dollarization:** Use macro stability gains to channel capital into MSME and rural job generation.

Conclusion

This study synthesizes multi-method evidence to show that India's current structural transition — driven by AI diffusion, GST-driven fiscal expansion, and gradual de-dollarization — is producing productivity and fiscal gains but not commensurate improvements in labour-market outcomes. The core, policy-relevant finding is stark: **growth and revenue gains are increasingly delinked from employment — a structural "jobless growth" regime reinforced by technology and mediated by fiscal and macro-financial channels.**

1. **Empirical summary.**
   Across panel FE/ARDL estimates, IV identification, DiD/event-study, VAR impulse responses, and asset-pricing robustness checks: (a) short-run employment elasticity to output is low and volatile; (b) AI exposure is the most robust negative predictor of employment growth and a leading correlate of rising youth unemployment; (c) GST buoyancy increases fiscal space but has no detectable causal effect on employment unless revenues are explicitly routed to labour-intensive programs; (d) de-dollarization strengthens GST collections and trade resilience but produces only modest, concentrated employment gains; and (e) financial markets price AI and de-dollarization risks, signalling that these are systemic structural forces rather than transient shocks.
2. **Mechanisms.**
   The data point to two interacting mechanisms. First, **task-biased technological change**: AI substitutes routine and mid-skill tasks faster than it generates complementary high-skill roles, producing immediate displacement and widening wage dispersion. Second, **allocation frictions in fiscal and financial channels**: GST buoyancy is necessary but not sufficient — absent payroll rebates, MSME working-capital windows, or apprenticeship financing, revenue gains fail to lift employment. De-dollarization reduces exchange-rate mismatch and transaction costs, improving exporter margins, but benefits accrue mainly to capital-intensive subsectors with limited labour multipliers.

3. **Implications and prescriptions.**
   Reversing the jobless pattern demands design and sequencing, not only resources:
   - **Condition AI incentives** on job-retention, apprenticeship quotas, and employer-linked reskilling outcomes.
   - **Earmark a share of incremental GST receipts** for payroll rebates, MSME working-capital, and placement-linked apprenticeship subsidies.
   - **Negotiate labour-conditional local-currency finance** (BRICS/NDB windows) to channel de-dollarization gains into employment-intensive export chains.
   - **Institutionalize Employment Elasticity and Youth Employment Rate** as fiscal KPIs and evaluate programs by employment cost per job created.
4. **Caveats and research agenda.**
   The conclusions rest on proxy indices (AIExp, DeDollar) and the identification strategies available; instrument strength and measurement error warrant caution. Definitive causal magnitudes require linked administrative microdata (PLFS/EPFO/GSTN/RBI invoicing) and staggered-rollout or policy-randomization designs. Future work should quantify the welfare tradeoffs (productivity vs. labour income) using worker-level panels, and evaluate pilot interventions (AI–Jobs compacts, payroll rebates) with randomized or phased implementation.
5. **Final synthesis.**
   India’s near-term challenge is not merely to grow faster but to **re-wire growth so that productivity, fiscal, and currency gains become jobs and inclusive incomes**. Without deliberate, labour-centric policy design, the combined forces of AI, GST buoyancy and de-dollarization risk producing a fiscally stronger but socially more unequal economy.

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