

ESSAYS ON LABOUR ECONOMICS

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DECLARATION

I hereby declare that this dissertation is my original research work. Wherever others' ideas or words have been included, I have indicated it clearly with proper reference to the literature and have acknowledged related research and discussions. I have adhered to the principles of academic honesty and integrity and have not misrepresented any fact or source in my written submission.

ABSTRACT

This thesis examines three critical dimensions of labour market dynamics in developing economies: human capital formation through higher education policy, the role of spatial mobility in shaping social outcomes, and the impact of technological change on wage structures.

The first essay addresses the literature on school-to-work transition using a natural experiment: the Fee Reimbursement Scheme (FRS) implemented in Andhra Pradesh, a state in India. The policy was initiated in 2008, in which tuition fees for socially and economically disadvantaged students were reimbursed directly to the educational institutes. While the existing literature documents first-order evidence such as an increase in colleges (Mathew, 2017) however, there is a lack of understanding on second-order outcomes related to education and employment. Using the triple difference methodology, the study examines whether a conditional education policy aimed at improving higher education led to favourable labour outcomes. The study utilises four rounds of Employment-Unemployment surveys (EUS): 1999-2000, 2004-2005, 2011-12, and 2017-18. The analysis indicates two broad findings. First, FRS significantly increased the likelihood of graduation for the target individuals with reduced private tuition fee expenditure as a potential mechanism. The policy was also successful in generating backward linkage (trickle-down effect) on improved years of schooling. Secondly, the study does not find evidence of education outcomes translating into better labour market opportunities in terms of employment, type of employment, and industry. This disconnect is explained through education-occupation mismatch (overeducation) and out-migration. The results remain robust post considering alternative methodology (semi-parametric difference-in-difference), falsification tests, and other robustness checks. This essay contributes by identifying why improvements in higher education do not necessarily translate into improved labour market outcomes under conditional education schemes.

The second essay explores how geographic mobility of individuals shapes educational assortative mating (EAM) in India. Geographic mobility fundamentally shaped both economic and social outcomes. In the field of labour economics, the geographical location of individuals and workers shapes their access to education, job opportunities, and social networks, thus, having influence on lifelong careers, income, social trajectories, and intergenerational outcomes (Chetty & Hendren, 2018). Meanwhile, in Sociology and Demography, geographical location is closely tied to social relations and family formation (South & Crowder, 1999). This study examines how migration impacts EAM, specifically, whether the decision to migrate leads to educational homogamy (wife's and husband's education are equal) as compared to non-migrants in India. Using the nationally representative dataset, the Periodic Labour Force Survey (PLFS) 2020-21 data, the study establishes causal estimates of how internal migration impacts education matching. The results indicate migrants are less likely to be in a homogamous union as compared to non-migrants, with female migrants showing higher odds of marrying up educationally (hypergamy). The findings remain consistent after instrumental variable analysis using migrant network, crime, and unemployment rate as instruments along with heteroskedasticity-based instruments (Lewbel, 2012). To identify the potential mechanisms, the study examines how cohabiting in-laws influence marriage preferences and analyses the relative sex differentials between migrants' origin and destination states to explore the potential marriage pool. Since higher homogamy is associated with rigid social boundaries while heterogamy suggests openness (Schwartz, 2013), greater heterogamy among migrants may reduce barriers across educational and social groups.

Lastly, the third essay assesses the impact of artificial intelligence (AI) on the Indian labour market. Existing literature highlights differential effects of technological change on workers based on the level of automation (Autor et al., 2003; Acemoglu & Autor, 2011), robots (Webb, 2020), machine learning (Brynjolfsson & Mitchell, 2017), software (Webb, 2020), and so on.

This study provides a developing country perspective by exploring how AI exposure impacts wages and comparing results across different measures of AI and related technologies (robots and software). The study uses the nationally representative dataset, PLFS (2022-23), and the AI Occupational Impact index (Felten et al., 2018; 2021) as the primary indicator for measuring AI exposure, with alternate measures from Webb (2020) and India-specific measures, suitability of machine learning (Mani et al., 2020) for robustness. The analysis reveals two key findings. First, workers exposed to AI experience positive wage returns, while exposure to robots is associated with negative wage returns. Second, based on skill levels, the impact of AI favours the skilled workers, whereas exposure to software and robots favours unskilled workers. The results are consistent after considering robustness checks using alternate AI measures, shift-share instruments, heteroskedasticity-based instruments, and placebo tests. This study helps in identifying the beneficiary and vulnerable groups in the labour market in the wake of exposure to AI and related technologies.

Collectively, these essays provide comprehensive evidence on supply-side interventions, geographic mobility, and demand-side shocks shaping labour market outcomes in India.

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ABBREVIATIONS

AI – Artificial Intelligence

AIOI – Artificial Intelligence Occupational Impact

AIGE – Artificial Intelligence Geographical Exposure

ATT – Average Treatment effect on the Treated

CCT – Conditional Cash Transfer

CQR – Conditional Quantile Regression

DID – Difference-in-difference

EAM – Education Assortative Mating

EOM – Education Occupation Mismatch

EFF – Electronic Frontier Foundation

EUS – Employment and Unemployment Survey

FRS – Fee Reimbursement Scheme

ILO – International Labour Organization

IMR – Inverse Mills Ratio

LATE – Local Average Treatment Effects

PLFS – Periodic Labour Force Survey

MPCE – Monthly Per Capita Expenditure

NCO – National Classification of Occupation

NCRB – National Crime Records Bureau

NIC – National Industrial Classification

NSO – National Statistics Office

NSSO – National Sample Survey Office

OBC – Other Backward Classes

OLS – Ordinary Least Squares

ONET – Occupational Information Network

SBTC – Skill Biased Technological Change

SC – Scheduled Castes

ST – Scheduled Tribes

SCO – Standard Classification of Occupation

SDID – Synthetic Difference-in-difference

SML – Suitability of Machine Learning

SNP – Semi-non-Parametric

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