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# **TALENT ALLOCATION IN THE INDIAN ECONOMY**

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**THE INDIAN INSTITUTE OF TECHNOLOGY DELHI**

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# Talent Allocation in the Indian Economy

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*This thesis is dedicated to Ritika. This wouldn't have been possible without our daily interactions and your unceasing personal support. Thank you for being my loudest cheerleader. Thank you, Ratul, for your affection, patience and for being an inspiration. This is also dedicated to my parents; their endless warmth, love, and encouraging words were fundamental in attaining the degree. Thank you!*

# Supervisor Certification

This is to certify that the thesis entitled **Talent Allocation in the Indian Economy Measurement and Policy Implications** being submitted by **Ms. Kopal Mathur** to the Indian Institute of Technology Delhi and The University of Queensland for the award of degree of **Doctor of Philosophy** is a record of bonafide research work carried out by her. **Ms. Kopal Mathur** has worked under our guidance and supervision and has fulfilled the requirements for the submission of this thesis, which to our knowledge has reached the requisite standard. The results contained in this thesis are original and have not been submitted, in part or full, to any other University or Institute for the award of any other degree or diploma.

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# Abstract

This dissertation consists of two chapters that concentrates on the allocation of workers' talent across productive units. This work revolves around discrimination based on social identity. Within the Indian economy, the focus is on gender and caste- based discrimination, which can potentially translate into sub-optimal allocation of resources and losses at the macroeconomic level.

In the first chapter, I focus on analyzing sources of misallocation of talent. Specifically, I examine whether labor market discrimination and human capital barriers based on caste and gender are potential sources of talent misallocation in the Indian economy. When individuals are not engaged in occupations according to their ability or 'talent', we observe talent misallocation in an economy. The first chapter documents that talent allocation improved in India from 1983 to 2012. To explain this, I focus on two frictions: the first one is the barrier to attaining higher education, and the second is labor market discrimination (quantified by wage differences). I use similarity indices to examine the patterns of these frictions and link them with talent allocation. Using the Blinder-Oaxaca decomposition technique, I find that convergence in educational attainment accounts for all of the improvement in talent allocation for men belonging to the disadvantaged scheduled caste and tribe (SC/ST) group. During the evaluation of the education quota's impact on the same group, I observed no substantial role of the policy in reducing barriers to accessing higher education.

In the second chapter, I investigate the barriers hindering structural transformation. The chapter documents that, between 1993 and 2012, there was labor reallocation from the agriculture sector to non-agricultural sectors in India. This shift was led by workers from marginalized groups, as their proportional share in non-agricultural sectors increased during this period. Additionally, I find that the sectoral returns to education vary for workers belonging to different caste groups and employ a multi-sectoral model to elucidate this. When examining the existing barriers that elevate the mobility cost to switch across sectors, the model focuses on barriers arising from two channel: unobserved (innate abilities) and observed (formal years of schooling) human capital. Using data on wage gains from moving to non agriculture sectors, I determine that the data is more aligned with model implied

barriers in the former case, and that unobserved innate abilities play a role. Moreover, I discover that even though barriers declined for both caste groups we observe only workers from the disadvantaged caste groups moving into the non agriculture sectors (especially service sector). The findings suggest a potential influence of policies promoting vocational or non-formal education, aiding in the upskilling of SC/ST workers and facilitating their transition to more productive sectors. In contrast to the United States, I also observe sizable barriers to labor reallocation towards more productive non-agriculture sectors in India.

## सार

यह नबिंध दो अध्यायों से मलिकर बना है जो कर्मियों के प्रतीकौशल की आवंटन पर केंद्रित है। इस कार्य का मुख्य वषिय सामाजिक पहचान के आधार पर भेदभाव है। भारतीय अर्थव्यवस्था में, ध्यान समलैंगिक और जाति-आधारित भेदभाव पर है, जो संभावना है कि संसाधनों का अवांछनीय आवंटन और मैक्रो-आर्थिक स्तर पर हानियों में बदला जा सकता है। अध्याय 1 में 1983-2012 की अवधि से कौशल के गलत आवंटन की माप की गई है और इसमें गुमराही के संभावनाओं को प्रमोट करता है। यह अध्याय कौशल के आवंटन के चरण की सृजनात्मक तथ्य प्रस्तुत करता है और उच्च शिक्षा और श्रम बाजार भेदभाव के बारे में सहयोगी कौशल के आवंटन के बीच संबंध को प्रमोट करने वाले कड़ीयों की चर्चा करता है। दूसरे अध्याय में, हम क्षेत्रात्मक विश्लेषण करते हैं। हम जाति-आधारित बाधाओं की मात्रा को मापते हैं जो कृषि से अधिक उत्पादक क्षेत्रों में श्रम की पुनर्निर्दिष्टि (संरचनात्मक परिवर्तन) और इसलिए कौशल की बेहतर आवंटन को रोकते हैं।

पहले अध्याय में, मैं प्रतीभा के गुमनाम होने के स्रोतों का विश्लेषण करने पर केंद्रित हूँ। विशेषतः मैं जांचती हूँ कि क्या श्रम बाजार भेदभाव और जाति और लिंग पर आधारित मानव पूंजी बाधाएँ भारतीय अर्थव्यवस्था में प्रतीभा के गुमनाम होने के संभावित स्रोत हैं। जब व्यक्तियों को उनकी क्षमता या 'प्रतीभा' के अनुसार व्यापार में नहीं लगाया जाता है, हम अर्थव्यवस्था में प्रतीभा के गुमनाम होने की दृष्टि से उच्च करती हैं। पहला अध्याय यह साबित करता है कि 1983 से 2012 तक भारत में प्रतीभा का आवंटन सुधारा। इसे समझने के लिए, मैं दो अवरोधों पर केंद्रित हूँ: पहला है उच्च शिक्षा प्राप्त करने की बाधा, और दूसरा है श्रम बाजार भेदभाव (मजदूरी विभिन्नताओं द्वारा मापा जाने वाले विभिन्नताओं के रूप में)। मैं समानता सूचीयों का उपयोग करती हूँ जिससे इन अवरोधों के पैटर्न की जांच करने और उन्हें प्रतीभा के आवंटन से जोड़ने में सहायक हूँ। ब्लाइंडर-ओआक्साका विभाजन तकनीक का उपयोग करके, मैं यह पाती हूँ कि शिक्षात्मक अधिकार की सामीलता में वृद्धि ने असुविधा योग्य अनुसूचित जाती और जनजाति (SC/ST) समूह के पुरुषों के लिए प्रतीभा के आवंटन में सुधार किया है। इस समूह के लिए शिक्षा आरक्षण के प्रभाव का मूल्यांकन करती समय, मैंने देखा कि इस नीति में उच्च शिक्षा तक पहुँचने की बाधा को कम करने में कोई सार्थक भूमिका नहीं है।

दूसरे अध्याय में, मैं संरचनात्मक परिवर्तन को रोकने वाली बाधाएँ जांचती हूँ। इस अध्याय में दस्तावेज़ किया गया है कि 1993 और 2012 के बीच, भारत में कृषि क्षेत्र से गैर-कृषि क्षेत्रों में श्रम पुनर्निर्देशन हुआ था। इस परियाय में श्रमिकों द्वारा इस परियाय में श्रमिकों द्वारा नेतृत्व किया गया था, क्योंकि इस अवधि के दौरान उनका अनुपातिक आंश गैर-कृषि क्षेत्रों में बढ़ा। और यह भी पाया जाता है कि श्रमिकों के बीच शैक्षणिक लाभ विभिन्न जातियों के लिए भिन्न हैं और इसे स्पष्ट करने के लिए एक बहु-क्षेत्रीय मॉडल का उपयोग किया गया है। सेक्टरीय शैक्षणिक लाभों की पहुंचकरी जाँच करते समय, मॉडल उन बाधाओं पर

केंद्रित होता है जो क्षेत्रों के बीच स्वचि करने के लिए चलते हैं, जो अदृश्य (जन्मजात क्षमताएँ) और दृश्य (औपचारिक पढ़ाई के वर्ष) मानव पूंजी से उत्पन्न होती हैं। दृश्य वेतन आंकड़ा का उपयोग करते हुए, मैं तय करती हूँ कि आंकड़े मॉडल-अंगीकृत बाधाओं के साथ अधिक संरखित हैं, और अदृश्य जन्मजात क्षमताएँ भी एक भूमिका निभाती हैं। इसके अलावा, मैं खोजती हूँ कि अनुसृत समूहों से संबंधित श्रमिकों ने गैर-कृषि क्षेत्र में परामर्श के साथ अनुभव किए हैं; हालांकि, उन्होंने सुझाई गई बाधाओं में सुधार का एक कम प्रतिशत गिरावट भी अनुभव की। इसे उदाहरण स्वरूप के रूप में नौकरियाँ बढ़ाने या गैर-कृषि क्षेत्रों में प्रवृत्ति को बढ़ावा देने वाली नीतियों के पोटेंशियल प्रभाव का सुझाव है। संयुक्त राज्यों की तुलना में, मैंने भारत में अधिक उत्पादक गैर-कृषि क्षेत्रों की ओर श्रम पुनर्निर्देशन की ओर बड़ी बाधाएँ भी देखी हैं।

# Declaration by Author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, financial support and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my higher degree by research candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

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## **Publications included in this thesis**

No publications included.

## **Submitted manuscripts included in this thesis**

No manuscripts submitted for publication.

## **Other publications during candidature**

Chapter 1 of the thesis is a working paper and both the chapters have been presented at various conferences and workshops.

## **Contributions by others to the thesis**

No contributions by others.

## **Statement of parts of the thesis submitted to qualify for the award of another degree**

No works submitted towards another degree have been included in this thesis.

## **Research involving human or animal subjects**

No animal or human subjects were involved in this research.

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talent misallocation, labor market discrimination, educational barriers, caste discrimination, gender discrimination, occupational convergence, decomposition, structural transformation, human capital.

## **Australian and New Zealand Standard Research Classifications (ANZSRC)**

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- ANZSRC code: 140304, Panel Data Analysis, 10%
- ANZSRC code: 140301, Cross-Sectional Analysis, 20%

## **Fields of Research (FoR) Classification**

- FoR code: 1402, Applied Economics, 60%
- FoR code: 1403, Econometrics, 40%

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