

# Gender and Caste Nexus: Occupational Segregation across Indian Megacities

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# GENDER AND CASTE NEXUS: OCCUPATIONAL SEGREGATION ACROSS INDIAN MEGACITIES

**NCAER Working Paper**

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## **Abstract**

Ambedkar viewed urbanisation as an instrument for breaking down the rigid caste-based system prevalent in rural areas. However, the extent to which this holds true in contemporary India raises questions over whether people in urban settings can truly transcend the influence of the entrenched caste system. This paper examines the persistent issues of occupational segregation across gender and socio-religious groups in India's six megacities. First, the paper measures and analyses the levels of occupational segregation across different gender and socio-religious groups, using relevant indices and segregation curves. Second, it assesses the factors contributing to occupational segregation within local markets, with a focus on socio-economic and demographic variables based on regression models. The analysis reveals that caste and religion continue to exert a stronger influence on occupational segregation than gender per se, with the SC/ST and Muslim communities—particularly women—facing the highest levels of exclusion. The study underscores the need for intersectional approaches to policy-making for addressing structural barriers and promoting equitable access to economic opportunities in urban India.

**Keywords:** Occupational Segregation, Urban Labour Market Dynamics, Gender and Social Identity, Social Exclusion

**JEL classification :** J71, J16, J78, D63

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## 1. Introduction

Urbanisation has been hailed as a significant driver of social transformation, particularly in terms of breaking down the age-old rigid, hierarchical, exploitative caste based social system that has for long dominated the social, economic, and political spheres of India. Dr B.R. Ambedkar, one of the principal architects of the Indian Constitution and a leading advocate for social equality, posited that urban spaces could serve as “*emancipatory zones*”, where caste-based oppression and social discrimination would get blurred due to the opportunities and anonymity offered by cities. However, even after 75 years of Independence, to what extent urban India has truly transcended the traditional socio-religious boundaries continues to remain a subject of debate.

Despite a rapid pace of urbanisation, caste- and gender-based inequalities continue to persist across many Indian cities, particularly in the labour market. Occupational segregation, or the division of labour along the lines of gender, caste, and religion, remains a powerful force in terms of shaping the life-chances of marginalised communities, such as Dalits or Scheduled Castes (SCs) and Scheduled Tribes (STs), Muslims, and Other Backward Classes (OBCs). Historically, these groups have been condemned to perform menial or low-paid jobs, thereby depriving them of better-paying and prestigious occupations. Additionally, gender-based segregation compounds these inequalities, with women from the marginalised communities often facing a “double discrimination”, — due to both their caste/religious identity and their gender (Naik, 2021).

Given the topical background, this study builds on the methodological foundation laid by Agrawal (2016), who uses both overall and local segregation indices for assessing the occupational segregation by gender and social groups for the Indian labour market. Following his approach, this paper employs multigroup segregation measures, such as the Mutual Information Index (M), Gini Index (G), and Generalised Entropy (GE) indices for analysing the patterns of segregation. However, while Agrawal's study uses national data from NSS 2009–10, with a broader focus on rural–urban divide and social group variations, the present study extends this framework to a more contemporary urban context, specifically focusing on India's six megacities, using the 2022–23 PLFS dataset. Furthermore, this paper introduces a deeper intersectional lens by jointly analysing gender, caste and religion — a dimension largely unaddressed by earlier national segregation studies — thereby offering new insights into urban occupational stratification in the post-pandemic context.

The United Nations (UN, 2015) classifies megacities as urban areas with populations exceeding 10 million. These cities are not just large in size, but also serve as critical hubs of economic, social, and cultural activities. However, over the past few decades, a significant shift has been observed in their global distribution — while megacities were once concentrated in the Global North, the majority now lie in the Global South, including India. This demographic shift underscores the rising importance of cities in the developing world.

Indian megacities, in particular, are characterised by their diversity and density, making them strategic sites for examining urban labour market inequalities. This study focuses on India's six largest metropolitan areas as part of exploring how occupational segregation takes place along the lines of gender, caste, and religion. Megacities lend themselves to a better understanding of the broader patterns of social and economic exclusion in urban India.

## 2. Multigroup Context and Occupational Segregation

The majority of research studies on occupational segregation have traditionally emphasised binary comparisons of distinct groups—typically men and women, race, rural-urban, etc. However, these binary frameworks often fall short of explaining where multiple layers of inequality, including caste, religion, and gender, that intersect each other towards creating more intricate patterns of exclusion in societies like India. To address the limitations associated with such binary frameworks, various scholars have introduced multigroup indices that enable a simultaneous comparison of multiple social groups within a single model (Reardon and Firebaugh, 2002; Frankel and Volij, 2008; Alonso-Villar and del Rio, 2010). These indices provide a more comprehensive view of segregation by accounting for how various groups—such as those defined by caste, religion, and gender—are distributed across the labour market. This multigroup analytical approach offers a more nuanced understanding of how overlapping identities contribute to distinct patterns of inequality, thereby enhancing the scope for studying the occupational segregation in socially stratified societies like India.

Historically, the caste system in India has been a powerful determinant of an individual's life opportunities, social status, access to resources, and employment prospects. Despite legal protections and affirmative action policies aimed at improving the socio-economic conditions of marginalised groups, the deeply entrenched norms of caste-based exclusion persist. Urbanisation was expected to mitigate these disparities by offering marginalised groups greater access to education, employment, and economic opportunities. However, the persistence of occupational segregation in cities suggests that urban spaces may not be as transformative as initially believed.

Further, gender-based occupational segregation remains a significant challenge to India's pursuit of equitable development. While women in general face barriers to accessing formal labour markets, those from marginalised socio-religious groups, such as the SC/ST and Muslim communities, find themselves particularly disadvantaged, with a large proportion being confined to low-paid, informal, or precarious employment, highlighting the deep-rooted structural inequalities in the labour market. This paper builds on previous studies related to gender-based and caste-based segregation for examining how these two axes intersect, creating unique forms of disadvantage for women from marginalised groups.

## 3. Brief Literature Review

Occupational segregation by race, ethnicity and socio-religious groups in labour markets is a well-documented phenomenon across the world. This type of segregation occurs when members of certain racial, ethnic, or religious groups or caste, in the case of India, are disproportionately represented in specific occupations or sectors. Scholars have explored both the causes and consequences of such segregation through a variety of theoretical as well as empirical works.

### 3.1. Theoretical Review

The most prominent theoretical framework used for explaining occupational segregation is the Human Capital Theory, which posits that differences in education, skills, and experience influence differing occupational outcomes. According to this framework,

individuals who invest more in education and skills are expected to occupy higher-paying, higher-status jobs (Becker, 1964). The proponents of this theory argue that disparities in occupational outcomes in terms of race, ethnicity, or religion arise because of differential access to and accumulation of human capital, rather than direct discrimination based on any of these factors. However, critics of the Human Capital Theory point out that even when controlling for education and experience, significant disparities in occupational outcomes persist across racial, ethnic and socio-religious groups (Darity and Mason, 1998). For example, Black and Hispanic workers in the U.S. often find themselves under-represented in high-status occupations, despite holding similar qualifications relative to white workers (Moss and Tilly, 2001). Similarly, in the UK, ethnic minorities, including South Asians and Afro-Caribbeans, continue to face significant barriers to accessing professional jobs, despite exhibiting comparable human capital to their white counterparts (Heath and Cheung, 2007). This suggests that human capital by itself cannot explain occupational segregation by race and ethnicity.

The Discrimination Theory, on the other hand, suggests that occupational segregation arises from both explicit and implicit forms of bias prevailing in the labour market. This discrimination can be reflected at various stages, such as hiring, promotion, and wage-setting, leading to the exclusion of certain racial, ethnic, and religious groups from specific occupations or industries (Arrow, 1973). There are several perspectives within this theory, with one of the most notable being statistical discrimination, wherein employers make judgments regarding a worker's productivity or dependability based on group stereotypes rather than individual merit (Phelps, 1972). Another key aspect is taste-based discrimination, which occurs when employers or colleagues avoid interacting with certain racial, ethnic, or religious groups, regardless of their work-related competence (Becker, 1957). This type of bias contributes to occupational segregation by fostering hostile work environments, and discouraging minority participation in certain sectors. Research has shown that taste-based discrimination often leads to the over-representation of minorities in lower-status jobs, particularly in the service and manual labour industries (Pager and Shepherd, 2008).

The Social Closure Theory, developed by Max Weber, provides another viewpoint of occupational segregation by race, ethnicity, and religion. This theory suggests that dominant groups in society (such as white or upper-caste individuals) use social, legal, and cultural barriers to deprive minority groups of access to valuable resources, including high-status occupations (Weber, 1978). In India, for example, occupational segregation by caste is a well-established phenomenon. Despite affirmative policy interventions aimed at increasing the access of marginalised castes (Dalits and Adivasis) to higher-status occupations, these groups remain over-represented in low-paying, menial jobs (Thorat and Newman, 2012). Social closure mechanisms, such as exclusionary hiring practices and social networks, continue to prevent Dalits from accessing professional occupations in both the public and private sectors (Deshpande, 2011).

The Intersectionality Theory, proposed by Kimberlé Crenshaw (1989), highlights the importance of considering multiple, overlapping forms of identity, such as race, gender, and religion, while analysing occupational segregation. This approach acknowledges that individuals experience compounded forms of disadvantage or privilege based on their intersecting identities, leading to differing patterns of segregation in the labour market. For example, Black women in the U.S. face "double jeopardy" in the labour market due to their race and gender, leading to their concentration in low-wage, service-oriented jobs (Browne and Misra, 2003). Similarly, in India, Dalit women experience compounded

forms of discrimination, based on caste and gender, leading to their relegation to the most marginalised forms of labour, such as manual scavenging and agricultural work (Deshpande, 2011).

### **3.2. Empirical Review**

This section brings together the findings of key research related to occupational segregation in different countries, with a particular emphasis on how gender and socio-religious identity influence employment outcomes across diverse socio-economic and cultural settings.

#### **3.2.1. Occupational Segregation – The Global Scenario**

##### **i) Gender-based Occupational Segregation**

Globally, women are often concentrated in lower-paying, lower-status jobs, as compared to men, reflecting a gender-based occupational segregation. Research has consistently shown that women are more likely to be employed in sectors like education, healthcare, and clerical work, while men tend to dominate science, technology, engineering, and math (STEM) fields, as well as leadership roles (Blau and Kahn, 2017).

In developed countries, gender-based occupational segregation has persisted despite improvements in education and labour force participation of women. Goldin (2014) highlights that in the United States, women's participation in the workforce has increased over time, but women continue to remain under-represented in high-status and high-paying jobs, particularly in the STEM fields. Similarly, in Europe, Bettio et al. (2009) report that while more women have entered the labour force, they continue to be engaged in low-paying service sectors and are often excluded from managerial positions.

However, in the context of many developing countries, the division of labour is even more pronounced. Kabeer (2000) argues that in South Asia, women are mostly confined to informal sectors, including unpaid domestic work, limiting their economic mobility. Chant (2014) notes that in sub-Saharan Africa, women are often over-represented in agricultural and subsistence work, while men dominate formal employment sectors, further reinforcing economic inequalities.

##### **ii) Occupational Segregation by Socio-religious Identity**

Occupational segregation is driven not only by gender, but also by race, ethnicity, and religion. In countries with diverse socio-religious populations, like India, these identities often intersect towards creating layered disadvantages in the labour market.

In the case of the United States, studies by Bertrand and Mullainathan (2004) and Pager and Shepherd (2008) reveal significant racial and ethnic disparities in occupational outcomes, with African Americans and Hispanic workers being disproportionately concentrated in low-wage, low-skill jobs. The role of religion has also been studied; Pew Research Centre (2013) point out that Muslims in the U.S. face higher unemployment rates as compared to other religious groups, partly due to religious discrimination followed in hiring practices.

In the context of the United Kingdom, McGuinness et al. (2022) find that ethnic minorities, particularly those from South Asian backgrounds, are disproportionately represented in low-paying occupations. Muslims, in particular, experience higher levels of occupational segregation, as compared to other religious groups, due to both racial and religious

discrimination. Heath and Cheung (2007) argue that these patterns reflect historical legacies of immigration and racial hierarchies, compounded further by contemporary prejudices against visible religious minorities, especially those wearing religious attire.

In France, occupational segregation by religion is also notable, especially concerning Muslim women, who face multiple layers of exclusion due to both their gender and religious identity. Adida et al. (2010) demonstrate that Muslim women, who wear *hijab*, face significant barriers to employment in formal sectors and that they are more likely to be employed in informal or precarious jobs. This is also mirrored in the case of Germany, where Muslim women experience higher unemployment rates and are often relegated to low-status jobs, despite attaining similar educational levels as their non-Muslim peers (Selod, 2015).

### iii) Intersectionality of Gender, Race and Religion related to Occupational Segregation

The concept of intersectionality, introduced by Crenshaw (1989), has become a critical framework for understanding how multiple social identities, such as gender, race, ethnicity, and religion, intersect in producing unique experiences of discrimination and exclusion in the labour market.

In the context of Canada, Block and Galabuzi (2011), while examining the intersectionality of race, gender, and immigrant status, observe that women, particularly those from Muslim, Black, and indigenous backgrounds, face significant disadvantages in the labour market and that they are more likely to be concentrated in low-wage informal sectors, with no possible access to professional jobs as compared to white men and women.

In respect of South Africa, Posel and Casale (2019), while analysing the intersection of gender and race, observe that Black women, particularly those from rural areas, are over-represented in informal sectors and domestic work, while White men dominate formal, high-paying jobs. The study also shows that the legacy of apartheid continues to shape labour market outcomes, with racial and gender hierarchies deeply entrenched in the occupational structure.

#### *3.2.2. Occupational Segregation – The Indian Context*

India's labour market remains highly gendered, with women often being concentrated in informal and lower-paying sectors, such as agriculture, domestic work and caregiving, while men dominate formal and higher-paying sectors (Klasen and Pieters, 2015). Similarly, Unni (2001) shows that women are disproportionately employed in unorganised sectors, which offer little security or benefits and that these trends have persisted over time despite improvements observed in education and skills. Agrawal (2016) finds that even in urban areas, women are less likely to participate in high-status jobs and are more likely to be engaged in low-paying sectors. Desai et al. (2021) observes that gender-based occupational segregation in India is linked to cultural norms that define women's roles in the household, restricting their social mobility and access to better-paying jobs. Additionally, women's unpaid domestic labour contributes to significant time poverty, limiting their ability to participate in the formal workforce (Hirway and Jose, 2011).

Deshpande (2011) and Thorat and Attewell (2007), while exploring how caste and religion intersect with gender to produce significant occupational segregation in India, observe that Dalit women, in particular, face "triple discrimination", based on their caste, gender, and often religious identity, confining them to the most marginalised and low-paying jobs in agriculture and manual labour. Similarly, Muslim women experience

exclusion from formal employment due to both religious and gender-based discrimination.

Caste-based occupational segregation is deeply rooted in India's socio-cultural history. The Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs) have historically been relegated to low-status and menial jobs. Thorat and Attewell (2007) demonstrate that despite affirmative action policies, SCs and STs continue to face significant barriers to accessing high-status occupations and are often limited to lower-end jobs in agriculture, construction and manual labour. Dalits and Adivasis, in particular, experience exclusion from modern and formal sector employment (Deshpande and Newman, 2007). Studies also reveal that the labour market disadvantages experienced by socio-religious groups, especially Muslims, are compounded by both caste - and religion-based discrimination. Shariff (2009) highlights that Muslims, despite forming a significant proportion of India's population, exhibit a lower representation in formal jobs and an overrepresentation in informal and self-employment sectors. Sachar Committee (2006) further emphasises that Muslims suffer from a limited access to education and discrimination in job markets, restricting their upward mobility.

Recent scholarship has increasingly focused on the intersectionality of gender and socio-religious identity, examining how caste, religion and gender interact in terms of producing compounded disadvantages in the labour market. Deshpande (2011) argues that Dalit women, in particular, face a "*double burden*" of caste and gender discrimination. They are more likely to be concentrated in the most marginalised and precarious forms of employment, such as manual scavenging and low-paying agricultural labour and are less likely to benefit from affirmative action relative to their male counterparts.

Muslim women experience a similar dual burden of religious and gender-based discrimination. Hasan and Menon (2005) show that Muslim women are not only underrepresented in the formal labour market but are also socially and culturally constrained from participating in paid work, leading to high rates of unemployment and underemployment. Studies by Kabeer and Mahmud (2004) highlight that socio-cultural norms regarding purdah (seclusion) further restrict Muslim women from accessing public spaces and economic opportunities, particularly in rural areas.

Rural and urban differences also play a significant role in shaping the patterns of occupational segregation. Rural women, particularly from lower castes and tribal groups, are often found engaged in agricultural labour, a sector that offers low wages, minimal benefits, and high vulnerability (Sundaram and Tendulkar, 2003). Rural men from upper castes, on the other hand, are more likely to be employed in supervisory roles in agriculture or to migrating to urban areas in search of better opportunities.

In contrast, urban women, particularly those from higher socio-religious groups, have a better access to education and formal employment, but still face significant gender-based segregation in the workforce. Neetha (2013) finds urban women being concentrated in sectors like teaching, nursing and clerical work, perceived as an extension of their caregiving roles. The formal sector in urban areas remains dominated by upper-caste men, with lower-caste men and women being largely confined to lower-end service sector jobs (Chakraborty, 2003).

## 4. Methodology

This paper utilises a multigroup comparison approach to studying occupational segregation across 6 Indian megacities (Delhi, Mumbai, Kolkata, Hyderabad, Chennai, Bengaluru). The methodology draws on the framework proposed by Alonso-Villar and Del Río (2010), who developed theoretical frameworks and indices for studying segregation in multigroup contexts. This approach focuses on how different demographic groups occupy various job positions, emphasising that all groups contribute to shaping the employment structure of the economy. It facilitates easy comparison of these groups. The segregation metrics used in this method, known as “*local segregation*”, are directly linked to overall segregation metrics. When these local measures are combined, weighted by the population share of each mutually exclusive subgroup, they add up to the total segregation. This method, therefore, identifies the contribution of each demographic group to overall segregation, enabling a more detailed and in-depth analysis of segregation patterns. By moving beyond traditional binary methods, this approach allows for a more in-depth analysis of how various groups experience segregation in the labour market.

The analysis relies on several key indices of segregation:

1. **Mutual Information Index (M)**: This index measures the overall level of segregation in the labour market, taking into account the distribution of all groups across different occupations.
2. **Multigroup Index of Dissimilarity (Ip)**: This index quantifies the extent to which different groups are unevenly distributed across occupations. Higher values indicate a greater level of segregation.
3. **Multigroup Gini Index (G)**: This index measures inequality in the distribution of occupations across groups. A higher Gini coefficient reflects a more uneven distribution, indicating a higher level of segregation.

In addition to these indices, *segregation curves* are employed to visualise the extent of segregation for different groups. The segregation curve plots the cumulative proportion of employment (on the x-axis) against the cumulative proportion of workers from the target group (on the y-axis). The further the curve from the 45-degree line, the greater is the degree of segregation.

### 4.1 Data Source and Variables

The empirical analysis is based on data from the National Sample Survey Organisation’s (NSSO) PLFS 2022-23-unit level data, which provide a detailed information on employment, occupation, socio-religious identity and gender. The sample focuses on six Indian megacities, where the effects of urbanisation on labour market segregation can be observed for various demographic groups.

The analysis utilises the two-digit NCO classification, which covers 39 occupations. A more detailed three-digit classification, consisting of 118 occupations, has not been used because it would be problematic in respect of some states due to the relatively small sample sizes.

The key variables examined in the analysis include:

- **Gender:** Male and female workers are analysed for identifying the differences in occupational distribution.
- **Socio-religious identity:** Workers are categorised into five major groups: Hindu SC/ST, Hindu OBC, Hindu UR (Unreserved), Muslim and Others (including other religious groups such as Christians and Sikhs, etc.).
- **Demographic and Socio-economic factors:** Age, education, household income and city of residence are included as control variables in the regression analysis.

## 5. Occupational segregation: Difference by gender and socio-religious group

Table 1 shows the overall segregation indices, mutual information index (M), multi-group index of dissimilarity (Ip), multi-group Gini index (G) for gender groups and Socio-religious groups. While various studies from developed countries such as the USA (Blau et al., 2001; Alonso-Villar et al., 2012 show that occupational segregation by gender is more intense than by ethnic groups. However, in the case of urban India, the segregation by socio-religious groups is stronger than segregation by gender (Agrawal, 2016). The results of this paper correspond to the findings of Agrawal (2016) that in the case of megacities in India, the occupational segregation intensity is high among socio-religious groups, as compared to gender groups. A higher level of socio-religious segregation, as compared to gender-based discrimination, can be attributed to factors such as historical and structural caste-based discrimination, social capital, educational inequalities and other related issues.

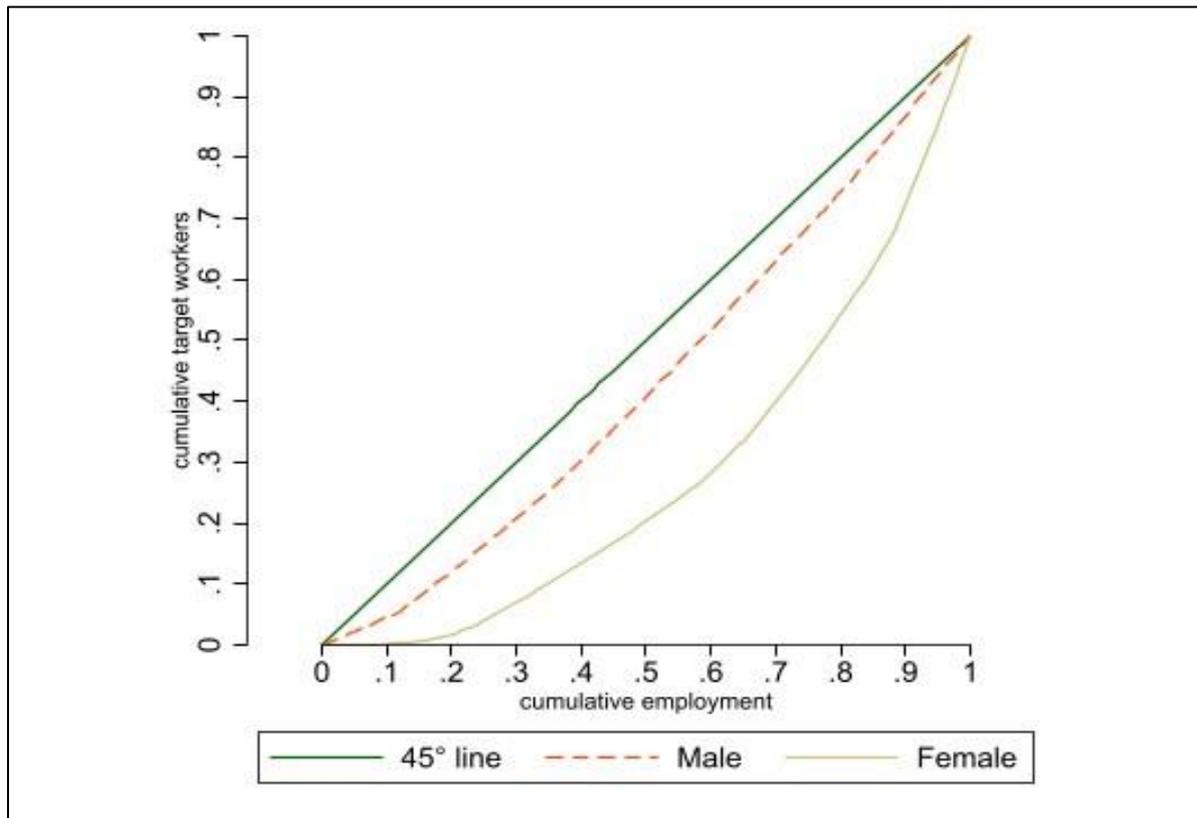
Figure1 shows the local segregation curve for male and female in the labour market. The x-axis represents the cumulative proportion of employment, while the y-axis represents the cumulative proportion of target workers (either male or female). The further the line from the 45° line, the greater is the degree of segregation. First, the graph indicates that female workers are more segregated, as compared to male workers, highlighting gender-based occupational segregation.

**Table 1: Overall Segregation Indices**

Overall Segregation	M	Ip	G
Gender (2 groups)	0.10	0.15	0.20
Socio-Religious (5 Groups)	0.11	0.17	0.24

*Source:* Author's calculation based on PLFS 2022-23

**Figure 1: Gender-wise Segregation Curves**

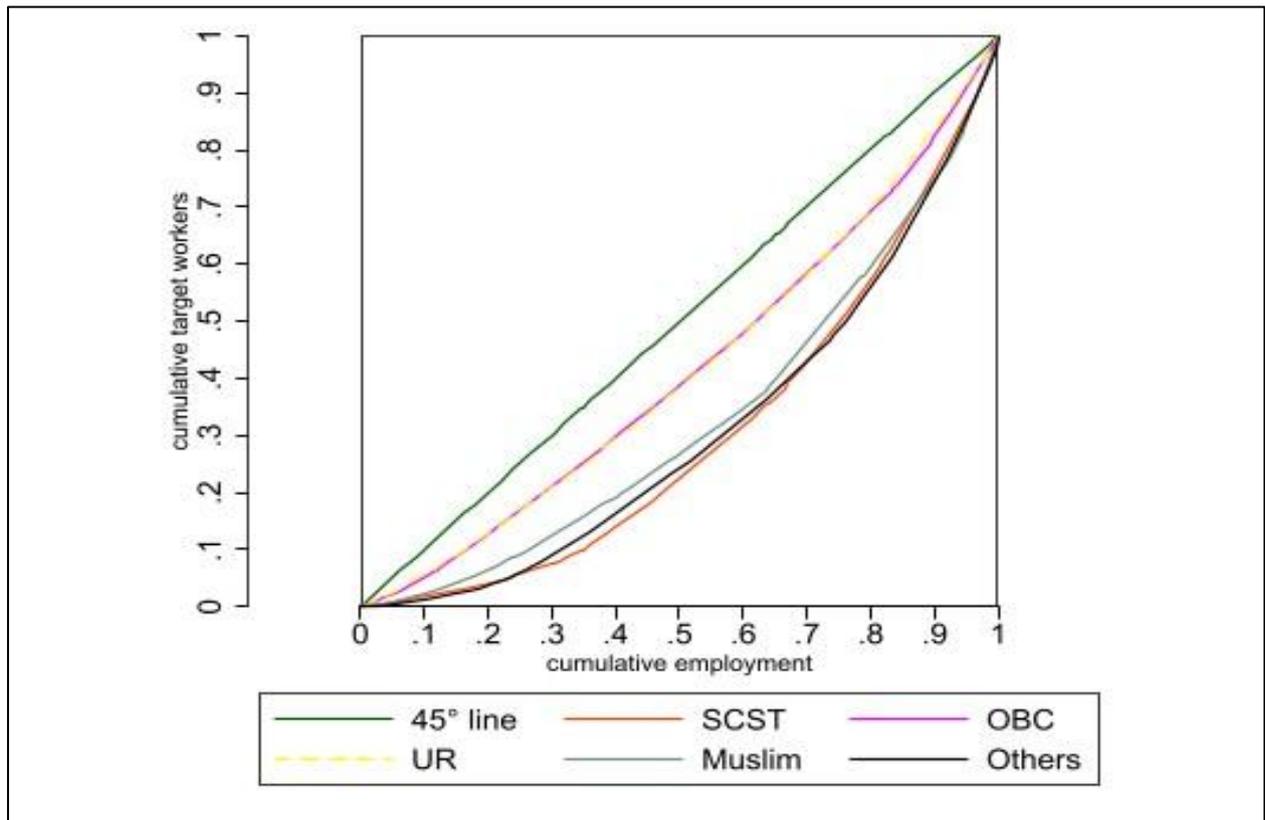


**Source:** Plotted by author based on PLFS 2022-23

In Indian society, socio-religious identity plays a complex and significant role in shaping how individuals from various groups engage with the labour market. The next section explores the occupational segregation in megacities across caste and religious lines, providing a deeper analysis of how these identities influence employment distribution.

Figure 2 reveals a marked occupational segregation, particularly for SC/ST groups, who are concentrated in fewer types of jobs, indicating a higher level of segregation, as compared to other groups. OBCs and Muslims also experience a moderate segregation, with their curves showing some deviation from the 45° line. On the other hand, the "Unreserved" and "Other religious" groups demonstrate the least segregation, suggesting a more even distribution across various occupations, indicating a greater inclusivity in the labour market for these groups.

**Figure 2: Segregation Curves by Socio-Religious Groups**



**Source:** Plotted by author based on PLFS 2022-23

The segregation curves offer a snapshot of the occupational segregation prevalent among various socio-economic groups in megacities. However, as most of the curves are closely aligned, it becomes challenging to draw clear distinctions between the levels of segregation each group experiences. To gain a more precise understanding of occupational segregation and to identify which group faces the highest degree of disparity, it is essential to employ different indices, that provide a more detailed analysis.

Table 2 reveals that Hindu SC/ST, "Others," and Muslims experience highest levels of occupational segregation, while Hindu URs show least segregation. Higher segregation values for Hindu SC/STs and Muslims often indicate concentration in fewer, and typically lower-paying, occupations, reflecting the historical socio-economic marginalisation of these groups. In contrast, Hindu URs and "Others" demonstrate lower segregation levels, suggesting a more balanced distribution across various occupations, which likely includes both high-paying and low-paying jobs.

**Table 2: Local Segregation Indices by Socio-religious Groups**

Socio-religious Group	GE0.1	GE0.5	GE1	GE2	D	G
Hindu STSC	0.305	0.269	0.251	0.256	0.284	0.390
Hindu OBC	0.079	0.056	0.053	0.055	0.121	0.172
Hindu UR	0.047	0.047	0.047	0.048	0.123	0.169
Muslim	0.240	0.199	0.196	0.223	0.257	0.340
Others	0.393	0.277	0.257	0.292	0.272	0.384

**Source:** Author's calculation based on PLFS 2022-23.

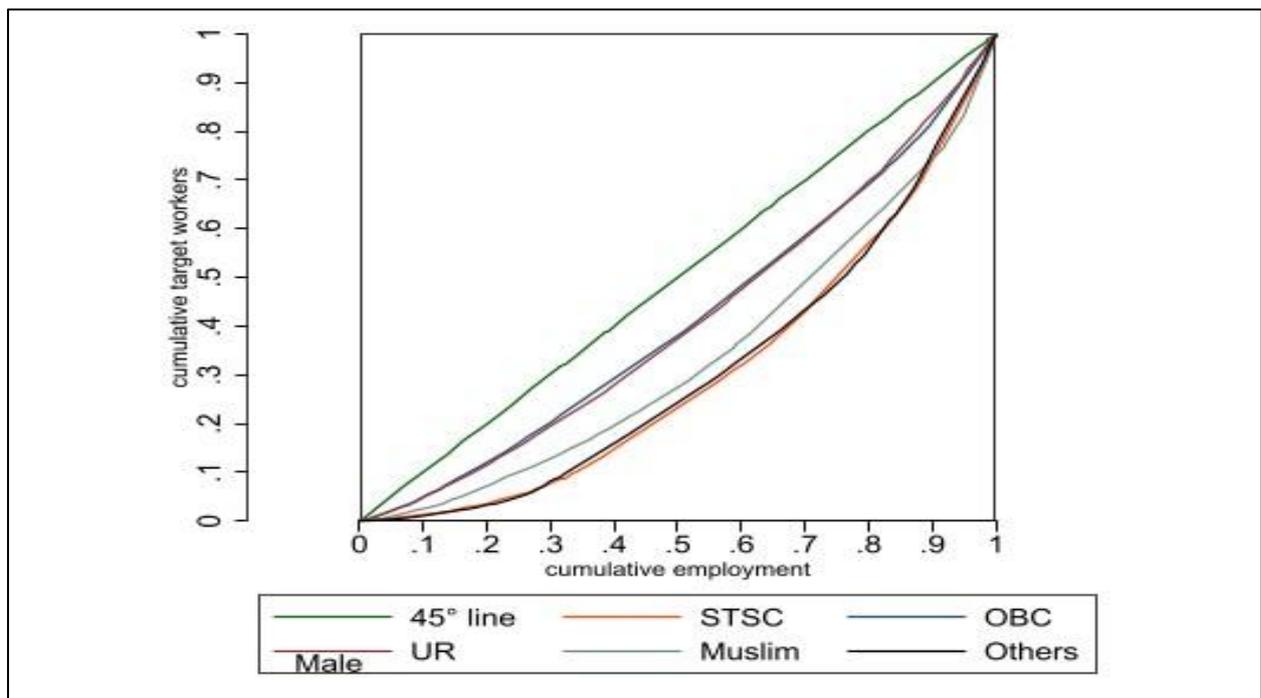
**Note:** GE, D and G are generalised entropy, multi-group index of dissimilarity and Gini Index, respectively.

## 6. Intersection of gender and socio-religious identities in the labour market

The intersection of socio-religious position and gender is a significant social stratification, which is quite critical to understanding the Indian labour market. This section compares the occupational segregation of male and female from different socio-religious groups as part of understanding whether disparity due to social position affect male and female in a different manner. To achieve this, 10 groups are compared, with a separate segregation curve has drawn for male and female. Unlike various studies, which report higher occupational segregation among male, as compared to female among different ethnic groups (Reskin et al., 2004; Spriggs and Williams, 1996), the case of mega cities in India is completely different. Figures 3 and 4 show that the occupational segregation is much higher among female workers, as compared to male workers. These figures also reveal that, SCST and others - male as well as female workers - are not represented in all the occupations, and that this is more intense for females. For SCST and others group, we find that there are almost no members from the group working in at least 10 percent of jobs in the sample—the first decile of the total employment distribution—and there are only a few in the second decile.

It is interesting to note that at the disaggregated level, segregation curve for male workers appears less deep, whereas, in the case of female workers, the segregation curve appears deeper, which shows increased occupational segregation, as compared to the overall segregation curves as shown in figure 2. This suggests that socio-religious identity is a significant factor in influencing occupational segregation in Indian labour markets. However, while considering the intersection with gender, women are found more disadvantaged, as their representation in occupational segregation is higher across all socio-religious groups as compared to men.

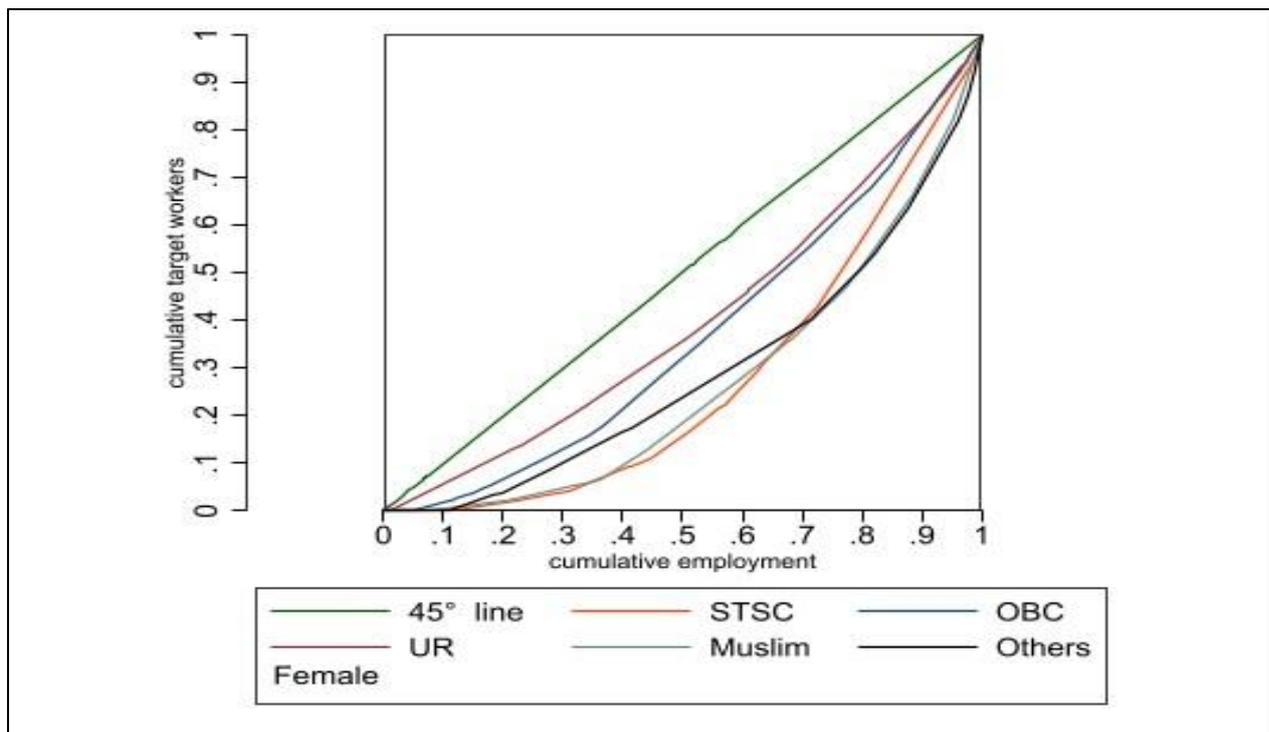
**Figure 3: Segregation Curve by Socio-religious groups - Male workers**



**Source:** Plotted by author based on PLFS 2022-23

Further, the ranking of males, based on segregation curve, follows that pattern in figure 2 (socio-religious segregation), excepting that the curves of SCST and others cross that of Muslim. The GE and Gini indices for male Hindu STSC and Muslim workers indicate a significant segregation, with a Gini coefficient of 0.392 and 0.322, respectively, showing that SCST and Muslim males are relatively concentrated in specific occupations. While Unreserved and OBC males exhibit lower Gini values, suggesting they are the least segregated among males and thus enjoying a broader occupational representation. This suggests that the level of occupational segregation for females is significantly higher across all groups, as compared to males

**Figure 4: Segregation Curve by Socio-religious groups - Female workers**



**Source:** Plotted by author based on PLFS 2022-23

Additionally, the ranking of male segregation curve follows a similar pattern as shown in Figure 2, excepting the SCST and Others curves that cross that of Muslim males. The GE and Gini indices for male Hindu STSC and Muslim workers highlight a significant level of segregation (Table 3), with Gini coefficients of 0.392 and 0.322, respectively, indicating their concentration in specific occupations. On the other hand, Unreserved and OBC males display lower Gini values, showing they are the least segregated among males, with a broader occupational representation. In the case of female segregation curve, apart from women in the unreserved category, women from all other groups exhibit values far from zero on the cumulative employment axis. This indicates that women from these groups occupy a more constrained position in the labour market, with higher levels of occupational segregation and limited access to diverse job opportunities. The segregation curve of women from SCST, Muslim and other categories throw up an intriguing pattern. Initially, SCST and Muslim women face highest levels of occupational segregation, while women from the other category experience least segregation. However, in respect of

approximately 30% of jobs, Muslim women appear to have an advantage over SCST women.

**Table 3: Local Segregation Indices by socio-religious groups and Gender**

Socio-religious Groups	GE0.1	GE0.5	GE1	GE2	D	G
<b>Male</b>						
Hindu STSC	0.332	0.280	0.258	0.265	0.281	0.392
Hindu OBC	0.088	0.059	0.056	0.057	0.119	0.177
Hindu UR	0.055	0.054	0.053	0.054	0.127	0.181
Muslim	0.207	0.185	0.186	0.222	0.231	0.322
Others	0.460	0.290	0.255	0.252	0.268	0.384
<b>Female</b>						
Hindu STSC	1.093	0.461	0.363	0.344	0.347	0.445
Hindu OBC	0.454	0.175	0.136	0.120	0.190	0.264
Hindu UR	0.103	0.069	0.066	0.068	0.148	0.198
Muslim	1.051	0.457	0.379	0.399	0.323	0.462
Others	1.302	0.432	0.360	0.469	0.310	0.421

*Source:* Author's calculation based on PLFS 2022-23.

## 7. Regression Models

While the earlier sections demonstrate clear patterns of occupational segregation across caste, religion and gender, it is important to recognise that these patterns may vary significantly depending on the urban context in which individuals are situated. Local labour market characteristics—such as sectoral composition, the prevalence of informal work, access to services and broader social dynamics—can influence the degree of inclusion or exclusion experienced by different socio-religious groups.

To account for these variations, two regression models are estimated using OLS, wherein the dependent variable is the segregation index calculated for each socio-religious group within each mega city, following the methodology used by Alonso et al. (2012).

### Model Specifications:

- Model 1 includes 10 group identity dummies for assessing the average differences in occupational segregation across caste, religion and gender.
- Model 2 introduces city fixed effects ( $\gamma_i$ ) to control for unobserved city-level structural factors

Model 1 (without fixed effect)

$$SegScore_i = \alpha + \sum_k \beta_k Group_{ik} + \varepsilon_i$$

Model 2 (With city fixed effect)

$$SegScore_i = \alpha + \sum_k \beta_k Group_{ik} + \gamma_i + \varepsilon_i$$

Where:

- ***SegScore<sub>i</sub>***: Occupational segregation score for individual *i*
- ***Group<sub>ik</sub>***: Dummies for caste-religion-gender group combinations (reference = Hindu General Male)
- **$\gamma_i$**  = city-fixed effect
- **$\varepsilon_i$** : error term

These specifications allow us to isolate the role of social identity in shaping the segregation outcomes, net of structural and contextual differences across cities. By comparing the coefficients across the two models, we assess whether observed segregation disparities are systematically driven by caste, religion and gender, or whether they are substantially shaped by the structure of the urban labour market itself.

Table 4 presents the results of these regression models, estimating the effect of caste, religion and gender on individual-level occupational segregation scores across Indian megacities.

In Model 1, all social groups—when compared to the reference category of Hindu General Males—show statistically significant and positive coefficients, indicating higher levels of occupational segregation. Notably, Muslim females (0.557), "Other" females (0.583) and SC/ST females (0.503) exhibit highest levels of segregation, pointing to the compounded disadvantage faced by women from marginalised caste and religious groups. Even among males, SC/ST and Muslim groups show substantially higher segregation levels (0.319 and 0.231, respectively), suggesting persistent structural barriers, that prevent an equal occupational integration.

Model 2 introduces city fixed effects, which control for differences in economic structure, labour market composition and social dynamics across the six megacities studied. The inclusion of these controls improves the model's explanatory power, as evidenced by an increase in R-squared from 0.459 to 0.542. Once city-specific factors are accounted for, the coefficients for most groups remain statistically significant, but generally decline slightly in magnitude. For example, the coefficient for SC/ST females decreases from 0.503 to 0.494, while for OBC females from 0.145 to 0.130. This suggests that part of the observed segregation in Model 1 may be due to city-level differences in job distribution or demographic composition. However, the persistence of large and significant coefficients, even after accounting for these effects, confirms that social identity—particularly the intersection of gender, caste and religion—continues to play a powerful role in shaping access to occupational opportunities.

Overall, a comparison of the two models underscores the importance of both individual-level social identity and city-level context in understanding the nature of occupational segregation. While megacities may offer a greater level of diversity and economic opportunities, what is important to note is that they are not immune to the reproduction of entrenched social inequalities.

**Table 4 : Regression Results of Factors Affecting the Occupational Segregation across Indian Mega Cities**

VARIABLES	(1)	(2)
<b>Reference Category: Hindu General Male</b>		
Hindu SCST Male	0.319*** (0.013)	0.312*** (0.011)
Hindu SCST Female	0.503*** (0.0321)	0.494*** (0.0254)
Hindu OBC Male	0.0334*** (0.00513)	0.0192** (0.00818)
Hindu OBC Female	0.145*** (0.0170)	0.130*** (0.0220)
Hindu General Female	0.0388*** (0.00624)	0.0417*** (0.00575)
Muslim Male	0.231*** (0.00394)	0.232*** (0.00408)
Muslim Female	0.557*** (0.0285)	0.559*** (0.0277)
Others Male	0.431*** (0.0197)	0.428*** (0.0174)
Others Female	0.583*** (0.0286)	0.584*** (0.0279)
Constant	0.0967*** (0.00211)	0.101*** (0.003)
City Fixed effect	-	yes
Observations	4,935	4,935
R-squared	0.459	0.542

**Source:** Author's calculation based on PLFS 2022-23.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 8. Discussion

The findings of this study underscore the persistence of occupational segregation across Indian megacities, even in the face of rapid urbanisation and economic development. While urbanisation was expected to create more inclusive labour markets, the evidence suggests that caste, religion, and gender continue to shape individuals' employment prospects. Higher levels of segregation experienced by SC/ST and Muslim workers, particularly women, point to the enduring barriers to social mobility that marginalised groups face in urban India.

These findings have important implications for policy interventions. While affirmative action policies have sought to improve the socio-economic standing of marginalised groups, the persistence of segregation suggests that these policies may have to be re-evaluated and expanded. In particular, targeted interventions towards improving access to education and training for women from marginalised communities could help reduce, to a large extent, their exclusion from better-paying, higher-status occupations.

Policy interventions must go beyond general affirmative action and specifically target the challenges faced by marginalised socio-religious groups. Measures to promote workplace diversity and inclusion—such as targeted support for education, skill development, employment opportunities, anti-discrimination laws and corporate diversity policies—can help reduce the degree of labour market segregation. However, these policies must be carefully tailored to addressing the compounded challenges faced by women from marginalised socio-religious backgrounds, as they face multiple layers of discrimination in the labour market. Without such intersectional approaches, the potential of urbanisation as a facilitator of equality may remain unrealised, with entrenched inequalities continuing to shape India’s urban labour markets.

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