

Who Does the Work?

Gender and Caste in the Indian Workforce

In a field survey in rural West Bengal, the most commonly cited reason by women not engaged in paid work was that there was no work available in the area. Resistance from the family was not such an important reason. Nor was the fact that women did not feel the need to work because their needs were being provided for already.

- Talwar (2018)



Social identities such as caste, gender, and religion continue to play an important role in the Indian labour market. This chapter investigates the extent to which occupational and industrial segregation as well as identity-based income gaps have declined with economic growth. Several recent studies have addressed this question (Das and Dutta 2007; Deininger, Jin, and Nagarajan 2013; Agrawal 2016; Deshpande, Goel, and Khanna 2018). A recent survey of the literature examining both caste and gender dimensions of the Indian labour market is found in Papola and Kannan (2017).

5.1 / Measuring Caste and Gender Disparities

There are significant data constraints in addressing this question. Firstly, wage and income data are sparse. The quinquennial ('thick round') employment–unemployment surveys (EUS) conducted by the National Sample Survey Organisation (NSSO) provide wage information for those employed in casual and regular wage work. These surveys do not provide data on earnings from self-employment, which is a major omission given that nearly 50 per cent of the workforce is self-employed. Further, no data is available from this survey after 2011. Two rounds of the India Human Development Survey (IHDS) do provide wage and income data for all workers in the sample, including the self-employed. However, this data is also not available after 2011. The only recent nationally representative large sample survey of incomes is the employment–unemployment survey conducted by the Labour Bureau in 2015–16. But this survey did not collect data on exact rupee amounts and instead asked respondents to choose an income category. Usefully, it provides such information for self-employed workers as well as wage workers.

Secondly, in most surveys, 'caste' is categorised into large sub-groups such as scheduled tribes (ST), scheduled castes (SC), other backward

classes (OBC), and 'Others', the last one usually taken as a proxy for upper castes. Recent research confirms that such categories can hide important variation between jatis that constitute the broad official categories (Joshi et al 2018).

Thirdly, the LB-EUS does not include information on religious identity. This is a very important omission that does not allow us to examine the state of religious discrimination and segregation in the past few years. Absence of data compels us to focus only on caste and gender in this chapter. We emphasise, however, the need to study religious dimensions of the Indian labour market, which have, generally, been less well explored than caste and gender.

Household surveys can be supplemented with enterprise surveys at least for gender analyses. As we saw in Chapter Four, wage and income data are also available in enterprise surveys such as the ASI and the NSS establishment surveys for the unorganised sector. These surveys usually do not report on the caste of workers, but the ASI reports the gender of the worker, and NSS surveys report the gender of the working owner or entrepreneur in the unorganised sector.

We use all the above sources to construct a picture of occupational and industrial segregation as well as earnings gaps. The data for our analysis comes from LB-EUS (2015), NSS-EUS (2004 and 2011), ASI (2000 to 2014) and NSS enterprise surveys (1994, 2000, 2005, 2010, 2015).

We adopt two different methods to measure segregation. First, we look at the level of occupations or industries. There are two simple ways to measure the degree of gender segregation here: the share of men versus women within an industry or occupation as compared to the gender's share in the workforce, or the percentage of men or women in each industry/occupation as compared to the share of the total workforce in that industry or occupation.



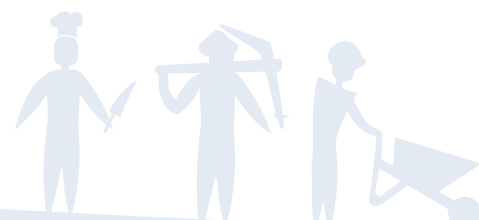
By the first measure, women are over-represented in those occupations or industries where their share is higher than their share in the overall workforce. And vice-versa for under-representation. Note, of course, that this measure does not take into account the low participation of women in the workforce as such. By the second measure women are over-represented if the proportion of women in a particular occupation or industry is larger than the proportion of the entire workforce found in that occupation or industry. The situation is conceptually identical for caste or religion, with the difference that more than two groups are involved. For example, as per the second measure SC groups are over-represented in a particular industry if their proportion in that industry exceeds the percentage of the overall workforce in that industry.

A second approach we take is to calculate a summary index of segregation called the Duncan Index of Dissimilarity (Duncan and Duncan 1955). Duncan Index is a measure of nominal segregation that provides estimates of the extent to which the distribution of men and women differ across industries (or other units of choice such as sectors, occupations and so on). The index does not depend on the ranking of the units. It measures the extent to which there is a larger or smaller than expected proportion of one group over another in a given occupation or industry. Thus the index will take the value zero when the share of a given group in an industry is equal to the group's share of employment as a whole; and it will take the value one for the case of complete segregation. The index can be interpreted as the percentage of either men or women who would have to move from their current industry so that the two groups have an identical distribution across industries. For example, a dissimilarity index of 0.2 for the distribution of women against the distribution of men would indicate that 20 per cent of the women would need to be redistributed across industries to equalise the distribution of men and women in all industries.

5.2 / Gender Disparities in the Indian Economy

Before we discuss patterns of segregation as well as earnings gaps, it is important to flag one key issue. Women's work in the economy is generally rendered invisible through male-biased concepts and definitions. Housework, care-work, and unpaid subsistence activities, such as collecting fuelwood and water, and growing produce for home consumption, are generally performed by women. If these activities are included in the definition of work on par with paid work, women put in far more hours of work per day than men. This also changes our perceptions of labour force participation and related concepts (Mondal et al. 2018).

Another caveat is that our analysis here is based mostly on secondary datasets. These have the advantage of being nationally representative. But detailed field studies can reveal important insights not always available from the secondary data. In the case of women's work, this becomes especially critical since much of their work is invisible to standard surveys. Field studies such as the one by Talwar (2018) in rural West Bengal reveal changes in women's work and women's time-use as well as connections that can be hard to spot in secondary data. For example, among the women in this survey who reported not doing paid work, opposition by the family was a distant fourth reason behind lack of work nearby (36 per cent), illness or disability (21 per cent), and other reasons (18 per cent). The author noted that, at least in this case, the lack of suitable employment opportunities compatible with responsibilities of unpaid work lies behind lack of labour force participation rather than improved rural incomes or social restrictions and honour of the family (see Box 5.1).



Box 5.1 / Women's Work in Rural West Bengal

While in many states female labour force participation rates have been falling (see Chapter Two), in West Bengal, they have been rising. The Shramjivi Mahila Samiti (SMS) is a mass organisation of rural working women that has been actively involved in issues facing rural working women since its inception in 1990. SMS collected data on women's work and time-use in a survey covering about 692 respondents in four villages in four districts, Nadia, North 24 Parganas, South 24 Parganas and Paschim Midnapore. Purposive and snowball sampling techniques were used. The cohort was split evenly between women who undertook paid work (387) and those who did not (305).

Focus group discussions and interviews with employers and political leaders in rural communities revealed that more and more women were coming into paid work as men migrated out of the region. Among those who did not do paid work, lack of opportunities was the most common reason (36 per cent), while family opposition was a distant fourth (11 per cent) behind illness or disability (21 per cent), and other reasons (18 per cent).

Such micro studies help in a more nuanced interpretation of analyses of female labour participation rates based on NSS data. Recall that improved rural incomes and the resulting desire of men that their women withdraw from the workforce for the honour of the family has been cited as an important reason behind falling LFPRs (see Chapter Two).

The SMS study finds that the most common demand women have from the government after a better public distribution system (PDS) and closing of liquor shops, is creation of work opportunities, fixing minimum wages, and increasing MGNREGA work.

Time-use analysis shows that of the 387 women who reported that they were involved in paid work, the maximum (161) reported working for 8 to 10 hours a day. Of the women who do paid work, 64 per cent spend somewhere between 4 to 8 hours on unpaid housework. Case studies and focus groups reveal that men help with the housework only in a few instances. And, even in these cases, the women reported that

they extended help as and when it pleased them. So, the women could not count on their help.

Earnings were very low. 92 per cent of women earned less than ₹3000 per month. Low earnings are as much a function of non-availability of work as of low wages. Wages ranged from ₹70 per day for vegetable picking to ₹360 per day for working in a brick field. Even government programmes like mid-day meals only pay ₹300 to ₹450 per day to the cooks, and that too not for the whole year. Other occupations such as domestic work and Accredited Social Health Activist (ASHA) work offer more regular employment throughout the year, but pay only ₹1000–1500 per month.

Since no one occupation provides women with either full-time employment or a living wage, it is not uncommon for them to be working at multiple jobs. The survey revealed that 40 per cent of the women had two paid occupations and 22.5 per cent had three. The most frequently found occupations were daily labour and MGNREGA work, followed by animal husbandry, agricultural labour, and domestic work. Other occupations included work such as zari work, weaving, mid-day meal cooking, fishing, petty retailing, running tea shops, and so forth. A few examples of the actual mix of occupations that the survey discovered are as follows:

- a. Selling second-hand clothes and agricultural work (₹3000)
- b. Fritters shop, MGNREGA, and selling rice (₹2000)
- c. MGNREGA and daily labour (₹800)
- d. MGNREGA and handloom (₹1500)
- e. Brick kiln work, daily labour, sand mining, agricultural work (₹6800)
- f. Tailoring, brick kiln work, daily labour, cooking mid-day meal (₹2700)

'Daily labour' is really a set of occupations that vary depending on availability. This involves taking up whatever work is available on a given day: agricultural labour, paddy processing or making puffed rice, carrying bricks during construction work, clearing the jungle in someone's garden, collecting firewood for another household, or road work for a contractor.

In the study, the worker in the second to last category (e) was an eight standard pass Adivasi woman from Paschim Midnapore district, who was a single mother with three daughters.

When asked about social restrictions she noted:

I don't care about social restrictions. I have to

earn at any rate, because now the whole family's responsibility is on my shoulders. Now my family is female headed, and completely controlled by me alone. There is no one left from whom I have to take permission. Adivasi women are generally free from these kind of restrictions.

Sources and notes: *Talwar (2018)*

5.2.1 / Occupational and Industrial Segregation

Broadly speaking, economic growth in India has still not generated a process of employment diversification, especially for women. Women workers remain highly over-represented in the low value-added industries as well as occupations, such as agriculture, textiles, and domestic service.

Here we present data on the gender distribution within and across occupations as well as industries over the past ten years using the NSS-EUS and the LB-EUS. As we have noted before, these two surveys are sufficiently similar in the sampling method to warrant a comparison. We refer the interested reader to the chapter on Methods for details.

The online Data Appendix gives detailed tables for both occupations as well as for all manufacturing and service industries. Here we discuss the highlights.

We start with an analysis of occupational segregation at the one-digit level of the National Classification of Occupations (2004). The occupations are legislators and general and corporate managers, professionals in various services, associate-level professionals, clerks, service and sales workers, skilled agricultural workers, craft and tradespeople, plant and machinery workers, and elementary occupations, which consist of daily labour in various service, agriculture, and mining operations. The full distribution of male and

female workers across different occupations is given in online Appendix Table A5.1.

The Duncan Index of Dissimilarity does not indicate a high level of occupational segregation of gender in India. The value of the index in 2015 was 0.17. This means that around 17 per cent of the workers would need to change occupations to gain gender parity. Compared to industrial segregation (discussed later), this is a low number. However, two caveats are important. First, the occupational categories are very broad, and two, the index does not take into account the overall low level of women's participation in the economy. While women comprise 50 per cent of the population, they are only 22 per cent of the workforce. In other words, the segregation measures are premised on most occupations being heavily male-dominated.

Figure 5.1 shows the range of female representation across occupations and how it has changed from 2011 to 2015. The occupations are ordered from low to high representation in 2015. The reference line shows the overall share of women in the workforce (22 per cent).

The picture is a mixed one. Women continue to be heavily under-represented among senior officers, legislators and managers. That is, the female share of such occupations is lower than even the low overall female share in employment. The situation worsened during the time period shown, with the proportion falling from 13 per cent in 2011 to 7 per cent in 2015. Also, on a negative note, women continue to be

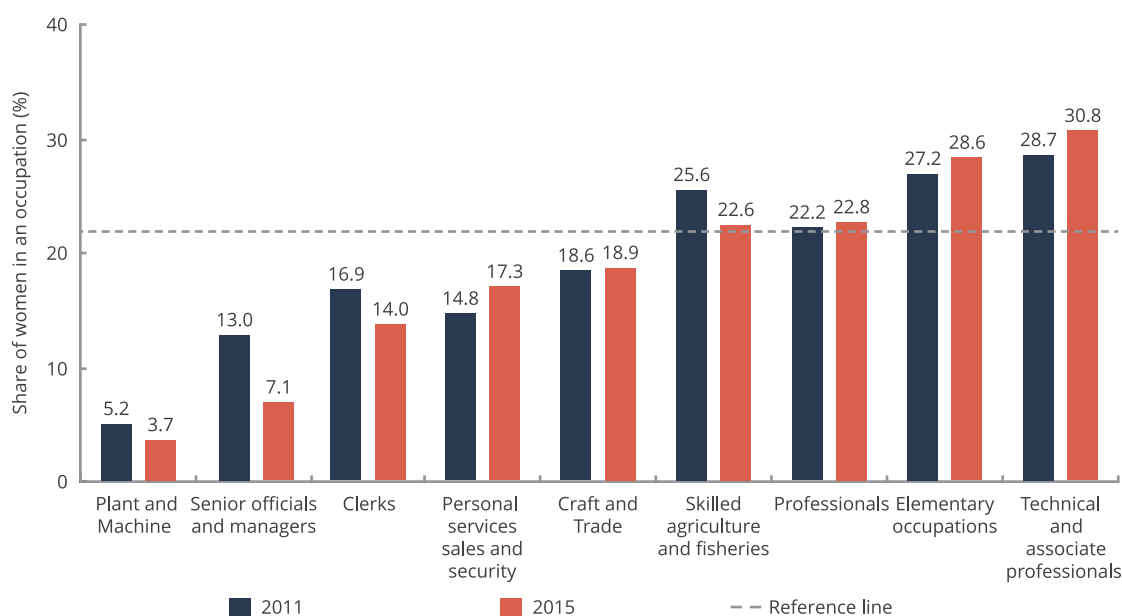
Women continue to be heavily under-represented among senior officers, legislators and managers, and over-represented in elementary occupations.

over-represented in elementary occupations, which are among the least well-paid. That is, their share in these occupations (29 per cent) exceeds their share in the overall workforce (22 per cent). There is also a shift in women's representation away from skilled agricultural work towards elementary occupations, which are generally less skilled. These shifts have obvious implications for the gender earnings gap, which we will explore in the next section.

On the other hand, female representation is on par with their overall presence in the workforce in relatively high-paying professional

jobs. Women are even over-represented among associate-level professionals. Further, the share of women working in these well-paying occupations has increased steadily since 1994 (data not shown). The caveat is that this has mostly been a result of increases in their participation in activities related to health and education (Mondal et al. 2018). The other observation is that women tend to occupy lower levels and hence less paid sub-occupations within a broad occupational category, for example, primary school instead of secondary school teachers, college instead of university lecturers, and so on (see Box 5.2).

Figure 5.1 : **Share of Women in Various Occupations**



Sources and notes: NSS-EUS 2011, LB-EUS 2015. Reference line indicates overall share of women in the workforce in 2015.

Box 5.2 / **Changing Patterns of Women's Employment**

A closer look at the changing occupational and industrial profile of women workers reveals some interesting trends. Traditionally, secondary education has had a higher absolute number of male teachers, while women have dominated primary level teaching. This is still the case, but recent increases in female teaching professionals have been led by secondary and higher secondary teachers. This has led to an increase in the female-male ratio for secondary teachers over

the period. However, this period also saw the rapid rise of private education facilities and contract work, offering much lower pay than public sector teaching jobs.

A second transformation of the labour market has been an increase in the absolute number of women, female shares, and female-male ratios of accountants, auditors, market research analysts, public relations officers,

personnel specialists, and financial analysts. Expectedly, though, these gains were confined to a small section of educated workers.

Among less skilled and unskilled women workers in urban areas, most were wage workers employed in sales, services, manufacturing, mining and construction sectors. Women working as salespersons dominated this category. Within personal services, the dominant occupations were of hairdressers, personal care, housekeeping and restaurant service workers and travel and tourism related work. The big increase (more than fivefold) was in the number of hairdressers and beauticians, of whom there were nearly a quarter of a million women workers in 2011, with the female-male ratio in this occupation increasing from 10.6 in 1993 to 47.3 in 2011.

Similar trends were evident for women in semi-skilled housekeeping and personal care, especially for janitors, cooks, home stewards, babysitters and governesses, tutoring services and other educational services, restaurant and cafeteria workers, catering services, and women working in hostels, boarding houses, and correctional homes. Such employment does not break the stereotypes associated with women's work as most of these services are extensions of care work, which women have been performing historically, and, in fact, reinforces the gender stereotypes in occupations in altered, more commercialised contexts.

In the rural areas, women's employment in teaching in both primary and secondary levels more than doubled over this period to reach nearly two million women workers in 2011. As in urban areas, women are, relatively, more frequently found among primary rather than secondary teachers. The female-male ratio in primary teaching rose from 23.5 per cent to 51.3 per cent and from 13.6 per cent to 33.3 per cent between 1993 and 2011. From the job creation point of view, it is worth pointing out that this coincided with the implementation of government flagship schemes for improving school enrolment and education outcomes. While this greatly increased the demand for teachers, a large number were on contract and not regular employees of the government.

Sources and notes: *Mondal et al. (2018)*

As with teaching, there were large increases in the number of women professionals in health, with a doubling in the number to 2.88 lakh workers in 2011. Once again, it had important implications for job quantity and quality. A large number of jobs were created as a result of public programmes in health, such as the National Rural Health Mission (NRHM) that relied on ASHA health workers. But these were volunteers who were again paid stipends well below minimum wages.

Thus government expansion in public services in health and education without an increase in public spending to fund regular salaried jobs has created a vast rural workforce of women possessing a basic level of skills. In the concluding chapter we have offered some thoughts on how future policy can build on this workforce.

As we have noted before in this report, the largest non-farm employer in rural areas for both men and women is the construction sector. This has again partly been a consequence of public policy (in this case MGNREGA). Almost 5.8 million women workers were added to the rural construction sector over the period 2004 to 2011, out of which more than 50 per cent were in public construction work. There were also increases in women workers as head-loaders in brick kilns and wholesale markets. Note that many of these activities are an extension of what are seen as women's traditional household chores, which include teaching children, taking care of the sick, cooking, fetching water and fuel, and so forth.

Thus, whatever occupational dynamism did occur for women workers in rural areas was primarily created by the government, both directly and indirectly. MGNREGA resulted in women workers in rural areas venturing into construction, albeit in unskilled activities, while the use of low-paid women workers in public health and education services meant an increase in supposedly high-skilled activities that were nevertheless poorly remunerated. However, a large middle segment of occupations requiring medium skills, that engaged a substantial share of non-farm women workers, continued to reflect segregated occupational patterns, with negligible changes over almost two decades.

While women have shifted away from agriculture, they have not moved into construction; rather, they have withdrawn from paid employment.

Important changes, with respect to gender, have also been occurring across the three major sectors of the economy. As of 2015, 60 per cent of women workers are in agriculture as opposed to only 42 per cent of male workers. The sector-wise share of women shows an over-representation in agriculture, representation proportional to their share in the workforce for manufacturing, and under-representation in construction and services (Figure 5.2). Recall that the overall share of women in the workforce is 22 per cent.

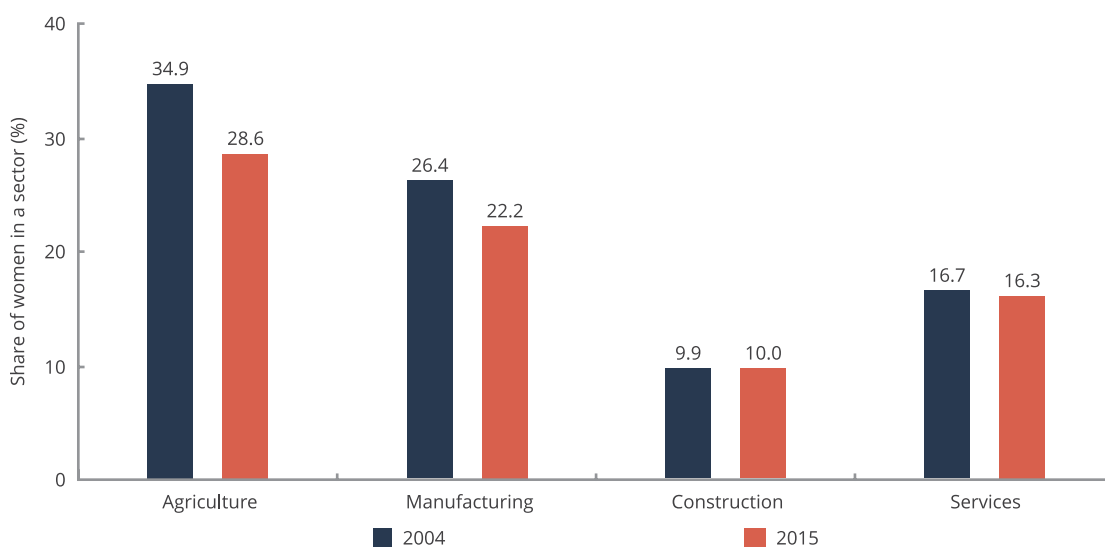
Interestingly, in the decade between 2004 and 2015, the declining participation of women in the labour force (discussed in Chapter Two) has resulted in a lower representation of women in both agriculture and manufacturing, while the share of women in construction and services has remained the same (though, of course, it is much lower than their share in the other two sectors). This means that the experience of structural change has been markedly different for women as compared to men. While they have shifted away from agriculture (slower than men), they have not moved into construction; rather, they have withdrawn from paid employment.

When we delve further into the manufacturing and service sectors at the NIC two-digit level,

we find that both sectors remain heavily gender segregated. For example, while only 5.4 per cent of the overall manufacturing workforce is in the tobacco industry, nearly 20 per cent of women are employed there. Similarly, the overall share of apparel in manufacturing employment is 18.2 per cent, but it accounts for 31.5 per cent of women workers. In 2015, only tobacco, textiles, and apparel had a higher female share of employment than the overall manufacturing average (22.2 per cent). There is also evidence that the segregation may be increasing.

Figure 5.3 reports the share of women workers within each manufacturing industry over a ten-year period. Most industries are very heavily male-dominated (>80 per cent male workers), while in those industries that have a sizeable share of women workers, this share tends to be not more than 50 per cent (with the exception of tobacco). Additionally, industries with a high initial share of female workers are the ones in which the share has increased even further. On the other hand, in generally male-dominated industries such as chemicals and pharmaceuticals, non-metallic minerals, and computers and electronics, the share of women in the workforce has declined. Once again, the online Appendix provides detailed data on share of male and female workers (Table A5.2).

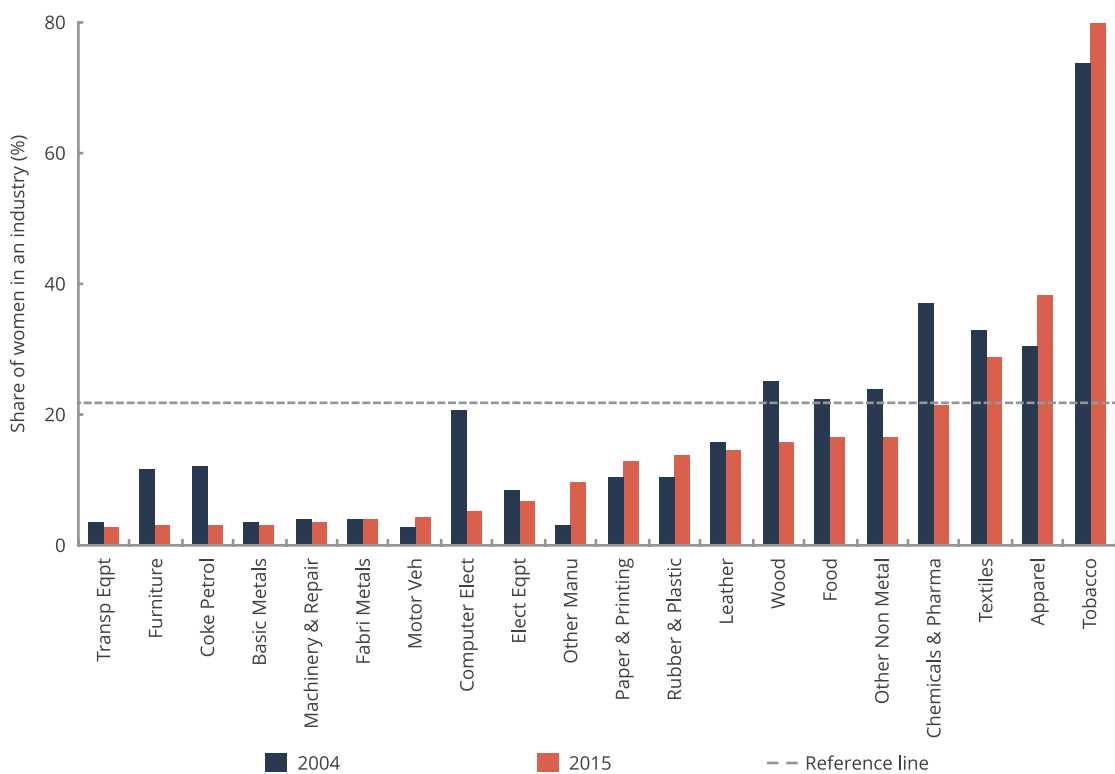
Figure 5.2 : *Share of Women in Various Sectors*



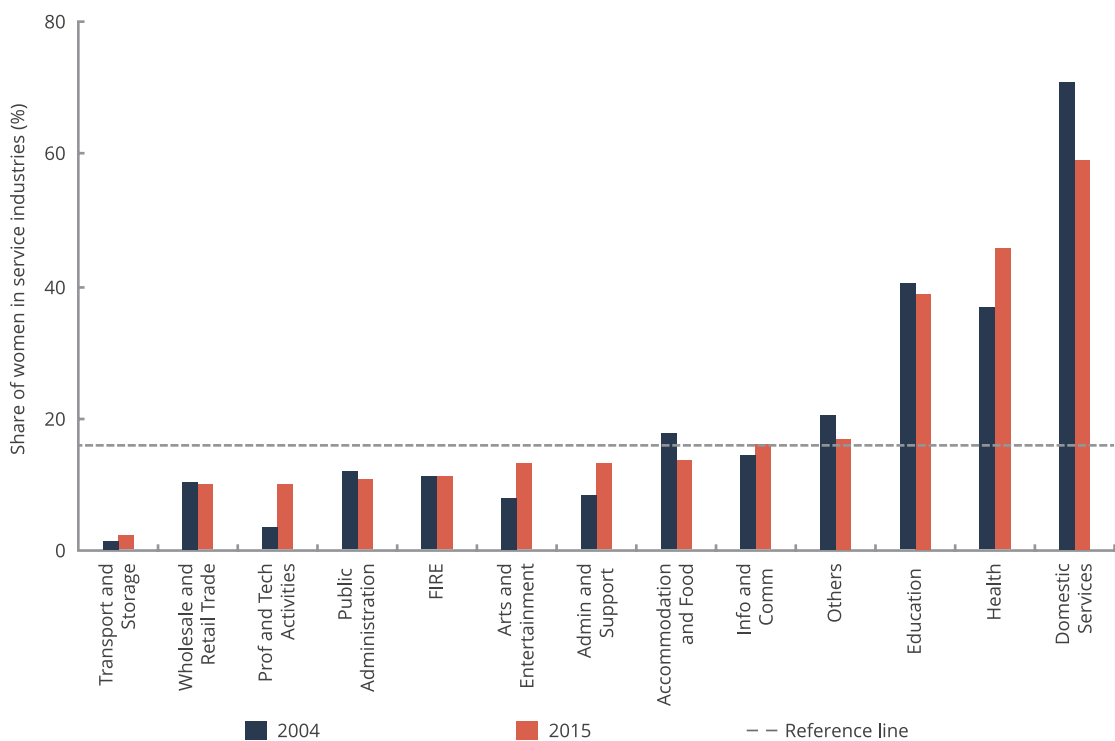
Sources and notes: NSS-EUS 2004, LB-EUS 2015.

Figure 5.3 : Share of Women in Various Industries

a) Manufacturing



b) Services



Sources and notes: NSS-EUS 2004, LB-EUS 2015. Reference line indicates overall share of women in the manufacturing or services workforce respectively, in 2015.



While women constituted just over 22 per cent of the manufacturing workforce in 2015, they made up only 16 per cent of the service sector workers. Women's share in a service industry substantially exceeds this number in only three industries: education (39 per cent), health (46 per cent), and domestic service (59 per cent). However, it must be noted that the degree of over-representation of women in domestic services has steadily fallen. While in 2004 around 70 per cent of the domestic workers were women, this had fallen to 59 per cent by 2015.

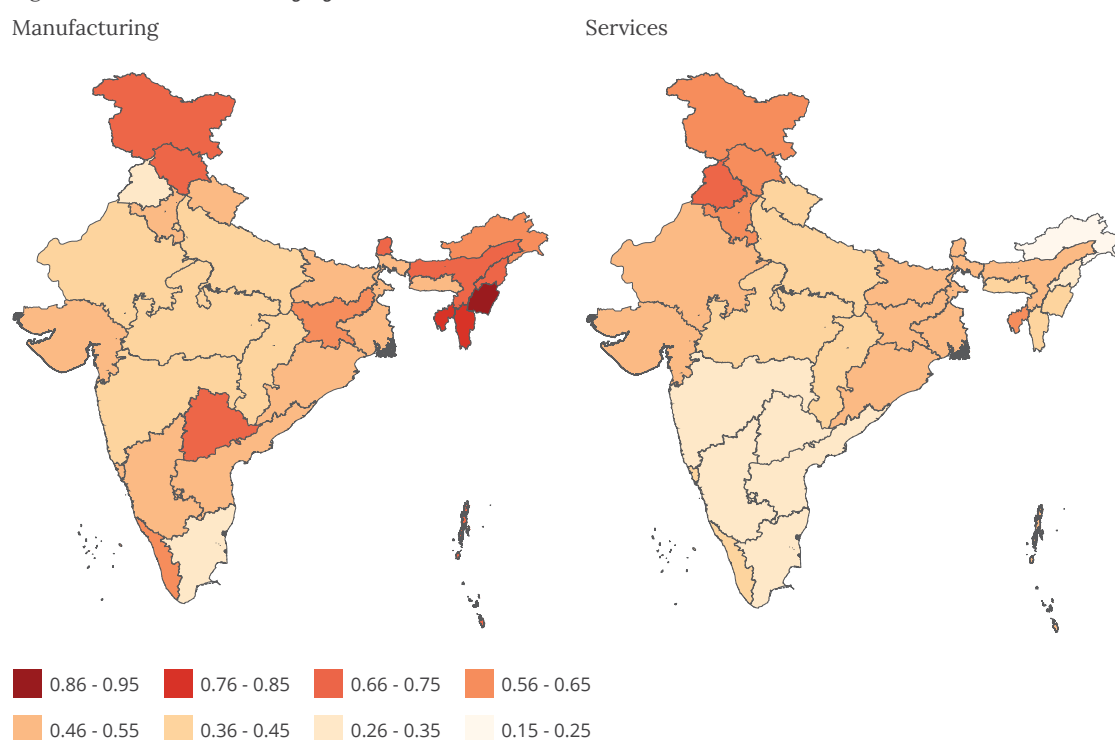
Further, women are very poorly represented in well-paying industries such as finance, insurance, and real estate (FIRE), professional and technical services, and public administration, and one must keep in mind that their participation in services is already low. Thus, while the overall share of women in the service sector in 2015 was 16 per cent, their share in the above three industries was just 10 per cent. The years between 2005 and 2011 saw some improvement but, since then, the trend has reversed. Once again, the online Appendix gives a comprehensive picture of the distribution of men and women across all service industries (Table A5.3).

The data suggest that overall gender segregation in the Indian economy may have worsened over the past few years. This can be measured directly with the Duncan Segregation Index, which represents the overall level of group segregation across any relevant unit (occupations, industries, neighbourhoods and so on).

In 2015, the index was 0.4 in manufacturing and 0.38 in services. That is, around 40 per cent of women would have to change their industries so that gender parity could be achieved. As noted earlier, compared to segregation in services or manufacturing, the level of occupational gender segregation is relatively low at 0.17. Segregation has increased substantially over time in manufacturing from 0.3 in 2005 to 0.4 in 2015 and declined marginally in the service sector from 0.4 to 0.38.

The summary measure is also useful for direct comparisons of the degree of gender segregation across Indian states. Figure 5.4 shows maps of the Duncan Index in 2015. As noted before, the overall level of segregation is higher in manufacturing than in services. However, there are large variations across

Figure 5.4 : **Gender-Based Segregation across States**



Sources and notes: LB-EUS 2015. Scale indicates the Duncan index of segregation. See text for description. See Appendix Table A5.4 online for data.

states, from values as high as 0.7 for services in Punjab, Haryana, and some north-eastern states, and even 0.8 for manufacturing in Himachal Pradesh, to as low as 0.2 in Tamil Nadu (for both manufacturing and services). Recall that a value of 0.8 means that 80 per cent of women would have to change the industry they work in to achieve gender parity.

Interestingly, it is not necessary that states with high female labour force participation rates (LFPRs) also show low levels of segregation. For example, the southern and north-eastern states generally have higher female LFPRs than the northern and western states (see Chapter Two). But they also have higher levels of segregation in their manufacturing industries, indicating that women participate to a greater extent in the workforce, but in a gender-segregated way. The exception is Tamil Nadu which shows a high LFPR for women alongside a low segregation index.

For the service industries though, the pattern is somewhat different. Here, the southern states are generally less segregated than the northern states.

The foregoing analysis suggests that it may be worthwhile to think of a composite measure of the status of women in the workforce that takes into account both the overall LFPR and the level of gender segregation across industries.

5.2.2 / Earnings Gaps

It is well known that women earn a fraction of what men earn almost everywhere in the world. The extent to which female earnings fall short of male earnings is conventionally referred to as an 'earnings gap'. That is, the lower the female to male earning ratio, the higher the 'gap'. In a detailed analysis of the gender wage gap in their SWI background paper, Mondal et al. (2018) use NSS-EUS data to show an increase in real wages for both regular and casual workers, with the rate of increase being faster among women. As a result, the aggregate gender wage gap has declined in both rural and urban areas for casual as well as regular workers.

It is, however, still large in size. As of 2011, the gap stood at 80 per cent for urban regular workers and at 61 per cent, for urban casual workers. That is, women in the urban regular wage market earned 80 per cent of what men earned, while in the casual wage market they earned 61 per cent of male wages. The corresponding gaps in rural areas were 62.5 and 61 respectively. Deshpande, Goel, and Khanna (2018) report similar values for 2010.

Delving further into various occupations and industries, Mondal et al. (2018) show that women were paid 60 to 70 per cent of male wages across most agricultural occupations. This is the case even for tasks conventionally carried out by women such as transplanting, weeding, and harvesting. Though these gaps have declined for several tasks, there are important exceptions such as ploughing, a traditionally male occupation.

The gender wage gap has also declined across all occupations in general, but remained high among service and domestic workers as of 2011. There was a significant reduction in the gap when it came to factory and home-based workers in female-dominated industries like food, tobacco, textiles, and wearing apparel, and for construction labourers.

Labour economists usually think of earnings gaps as being composed of two distinct components. Part of the gap is accounted for by differences in endowments or characteristics of workers. These include skills, education, and experience. The rest of the gap that is not explained by these observable characteristics is often thought of as resulting from discrimination. Mondal et al. (2018) show that gender wage gaps were explained primarily by the discrimination component, which steadily increased over 1993 to 2011. The unexplained part of the gap was larger than the endowment component in both rural and urban areas. In fact, there has been a sharp decline in endowment effect because of increasing educational attainment among women. While this has led to a decline in the gap, a significant proportion of the wage gap still remains unexplained. This suggests that gender wage discrimination is high and persistent.

It is not necessary that states with high female labour force participation rates (LFPRs) also show low levels of segregation.

Deshpande, Goel, and Khanna (2018) similarly find that an overwhelming part of the wage gap for regular wage or salaried workers cannot be explained by worker characteristics. Further, consistent with the findings of Mondal et al. (2018), they also find that the discriminatory part of the average wage gap has increased between 2000 and 2010. The authors conclude that, given the improvement in endowments (especially education levels) over the decade, if women's endowments had been valued at the same rate as men, they would have earned a higher average wage than men.

In the previous section, we have described trends in the Indian economy towards greater segregation, particularly in the manufacturing sector. However, this is balanced by decreasing segregation in services. There is also an increase in the representation of women in some relatively highly paid occupations and a decrease in over-representation of women in poorly paid occupations such as domestic service. What is the impact of these trends on the gender earnings gap?

Since NSS-EUS data are only available until 2011, we cannot use it for more recent estimates. The more recent LB-EUS only gives monthly earnings of workers (self-employed as well as wage workers) by broad categories, and so, is not

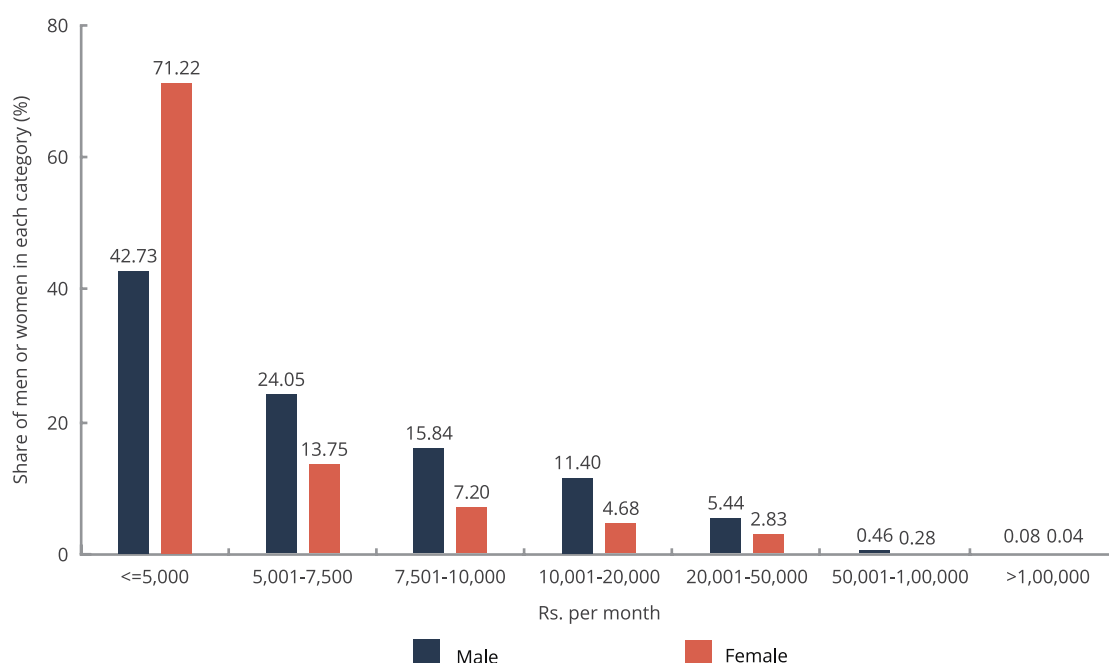
comparable with NSS wage data. However, the gender penalty clearly shows up as a leftward shift in the distribution of women's earnings. In 2015, the percentage of men reporting earnings up to ₹5000 or less was 43 per cent, far less than the 71 per cent of women whose earnings fell in the same bracket. 82 per cent of male and 92 per cent of female workers earned less than ₹10,000 a month (Figure 5.5).

It is possible to provide some rough estimates of the gender gap if we approximate monthly earnings by assigning the mid-point value of an income range to every worker in that category. While it is not comparable to earlier estimates using NSS data, it nevertheless allows us to see that, at the aggregate, all-India level, monthly earnings for women workers were 65 per cent of male earnings (₹5212 versus ₹8000 per month) in 2015.

The aggregate gender gap varies across types of work, level of education, occupation, as well as industry. Figure 5.6 shows the female-to-male earnings ratio across type of employment. While the gap was the largest among employers (that is, self-employed workers hiring other workers), it was almost absent for agricultural workers. The high gender penalty among self-employed workers is consistent with data from the unorganised enterprise sector discussed

The percentage of men reporting earnings up to ₹5000 or less was 43 per cent, far less than the 71 per cent of women whose earnings fell in the same bracket.

Figure 5.5 : 82 per cent of Male and 92 per cent of Female Workers Earn Less than Rs. 10,000 a Month



Sources and notes: LB-EUS 2015.

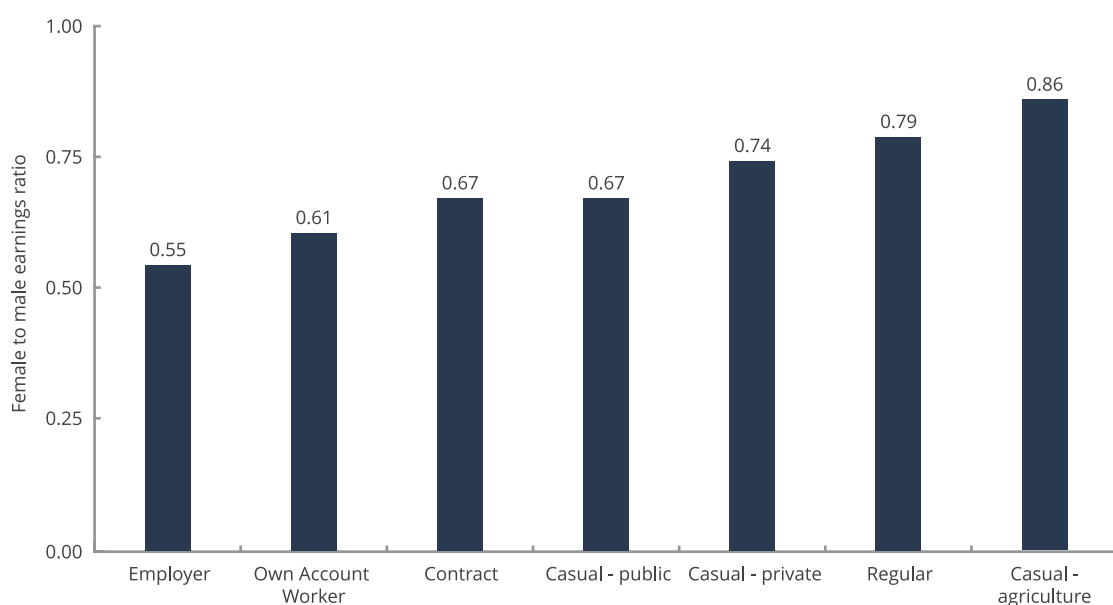
later in the chapter. One possible explanation for this is that, unlike wage-workers who face discrimination only in the labour market, self-employed women may be disadvantaged in the markets for capital and land, and in product markets as well.

The low level of gender penalty for casual agricultural workers is likely to be a 'floor effect' in that monthly earnings for casual agricultural workers were ₹3535 for men and ₹3030 for women, and perhaps cannot fall much lower. The gap for regular workers (0.8) is comparable

to that found by Mondal et al. (2018) as well as Deshpande, Goel, and Khanna (2018).

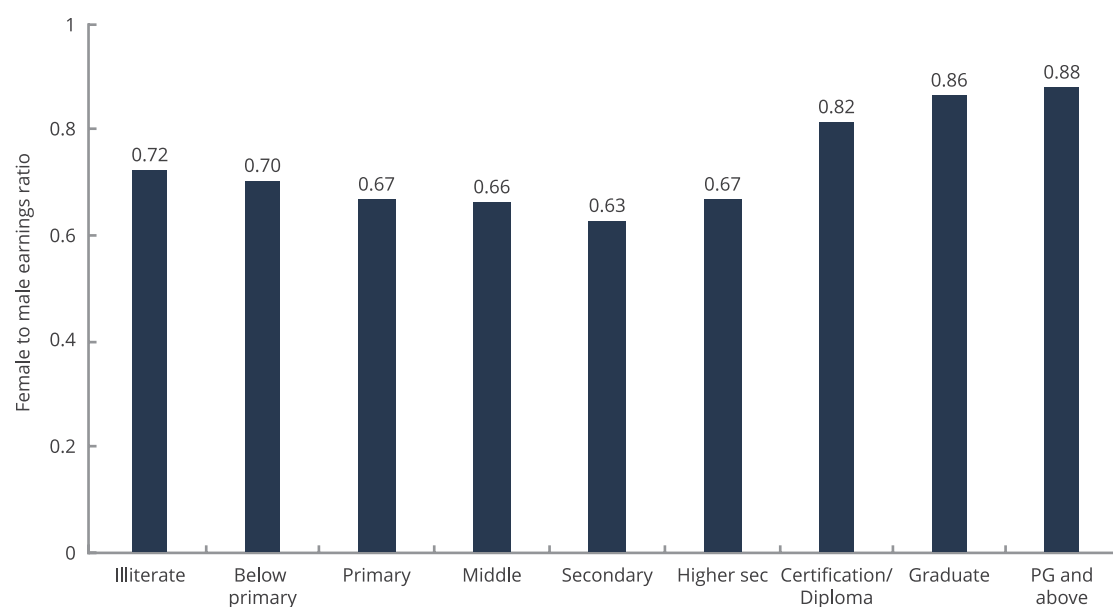
Figure 5.7 shows the same ratio by educational qualification. Interestingly, a U-shaped pattern is observed, wherein the gender penalty is most severe for intermediate levels of education. If we consider the relatively lower levels of the gap in the case of poorly educated workers as a floor effect, as in the case of casual agricultural workers, then it seems that the gap reduces with level of education from secondary schooling onwards.

Figure 5.6 : **Women Earn 50 to 80 per cent of Men's Earnings across Employment Types**



Sources and notes: LB-EUS 2015. The earnings gap is defined as the ratio of female to male earnings. A higher ratio indicates a smaller gap.

Figure 5.7 : **The Gender Earnings Gap Narrows Significantly with Education beyond the Higher Secondary Level**



Sources and notes: LB-EUS 2015. The earnings gap is defined as the ratio of female to male earnings. A higher ratio indicates a smaller gap.

Corroborative evidence on gender earnings gaps can be obtained from enterprise or firm-level and factory-level data from the NSS and ASI respectively. While the ASI collects data on the gender of the wage worker in its factory surveys, the NSS does not do so in its enterprise surveys. However, it does report the gender of the entrepreneur or working owner. Since the vast majority of the 'firms' in this data are tiny (with zero or at most one to two wage workers) it is a good source of data on earnings from self-employment.

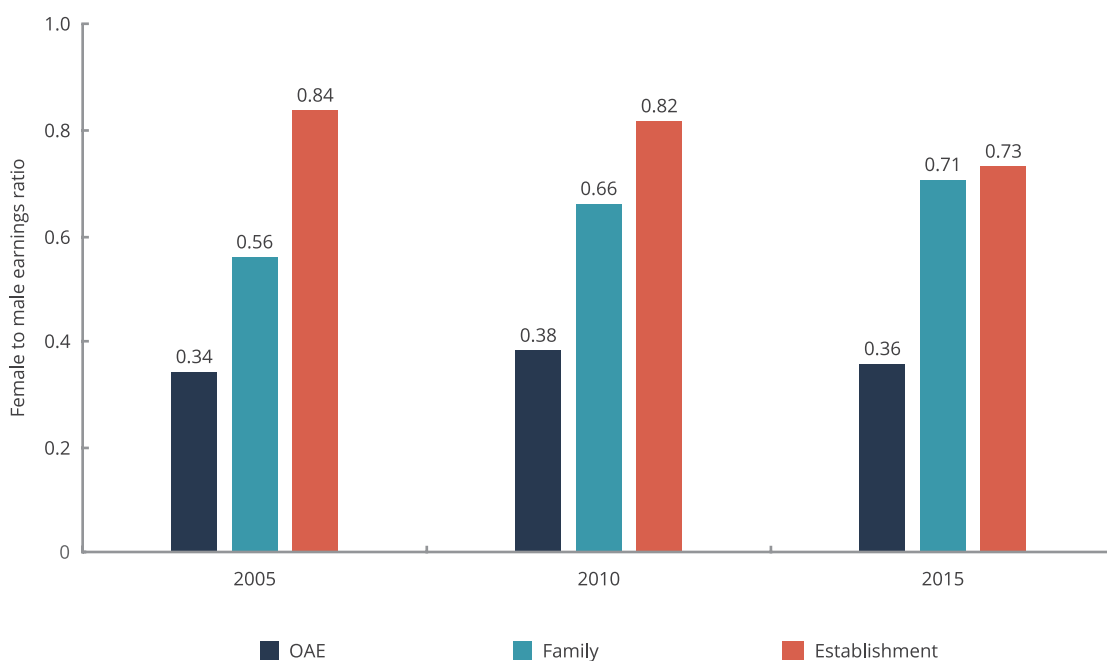
We can use gross value added (GVA) per worker, which is revenues minus non-wage costs divided by number of workers in the firm, as a measure of earnings in the unorganised sector. Comparing the performance of male versus female owned businesses then gives us an estimate of the gender penalty. For own-account enterprises (OAEs) which are operated only by a single working owner, the GVA per worker is equivalent to the mixed income of the working owner (that is, income from labour as well as returns to enterprise). For a business run with only unpaid family labour, the GVA is equivalent to the family's mixed income. For establishments that hire

at least one wage worker, the GVA per worker is no longer a proxy for earnings, but can still provide information on the gender penalty of entrepreneurship if we compare male versus female entrepreneurs.

In the unorganised manufacturing sector, we find that the earnings gap is very large for own-account enterprises and has not narrowed much over the last decade (Figure 5.8). In 2005, female-operated OAEs earned 34 per cent of what male-operated ones earned. In 2015, this number was 36 per cent. This clearly indicates that self-employed women who work for their own enterprises are at a large disadvantage in the unorganised sector.

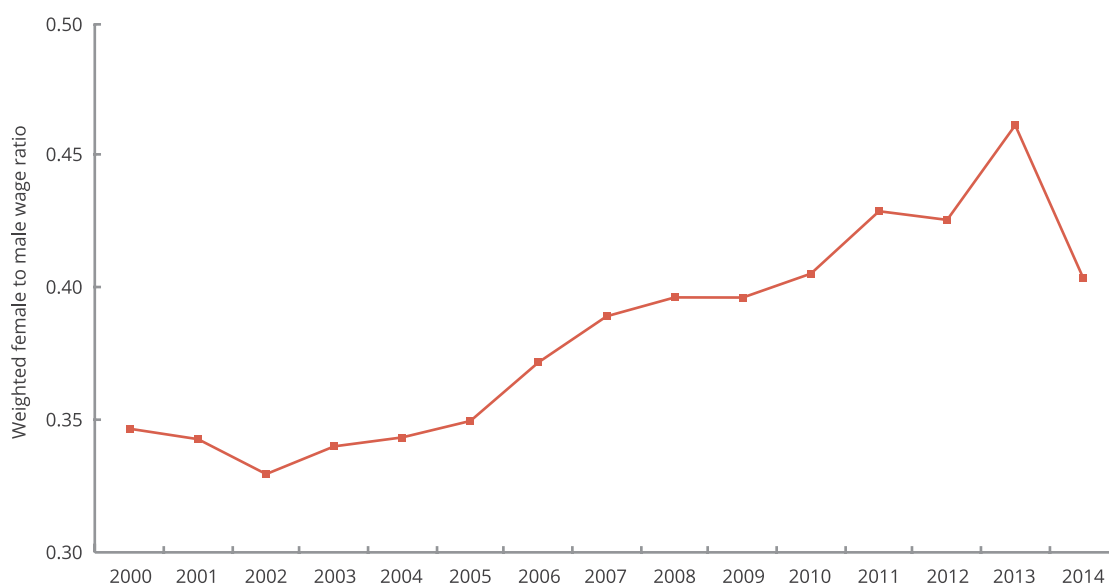
The gap was narrower for family enterprises at 56 per cent in 2005 and has narrowed further over time to 71 per cent in 2015. For establishments (that is, unorganised sector firms that hire at least one wage worker), in 2005 and 2010, it was comparable to the salary gap for regular workers at around 82–84 per cent. But it has widened in recent years and, in 2015, the GVA per worker in female-owned establishments was 73 per cent of that in male-owned ones.

Figure 5.8 : *Own Account Women Workers Earn 30 per cent of Their Male Counterparts but the Gap Narrows Significantly to 80 per cent for Employers*



Sources and notes: NSS informal and unincorporated enterprise surveys, various rounds (see Methods for details). Nominal values deflated by CPI-IW (base 2015). OAE - own account enterprise or single person firm. Family - enterprises operating only with unpaid labour. Establishment - enterprises hiring at least one wage worker. The earnings gap is defined as the ratio of female to male earnings. Earnings are defined as GVA/worker for male and female owned firms.

Figure 5.9 : Gender Wage Gap in Organised Manufacturing is High but Has Been Declining



Sources and notes: ASI factory level data, various years. Wage gap is defined as the ratio of female to male wage rates weighted by size of the factory. See text for weighting details.

Note that there is a discrepancy between these data and the LB-EUS results reported earlier in Figure 5.6, where the gap was larger for employers than for own-account workers. The size of the gap measured in the two surveys is also very different, 0.6 in LB-EUS and 0.36 in NSS. But since the LB-EUS data allows only an approximation of earnings from large categories, the NSS estimates may be taken to be more reliable.

Evidence on the manufacturing wage gap in the organised sector comes from ASI. This data gives factory-level information on the number of male and female workers as well as total wages paid to both. Thus we can calculate the total male and female wage bill as well as total male and female workers across all factories, and then calculate the wage rates as well as the male to female ratio of the wage rates. Note

that this method assigns greater weights to factories with a greater number of workers.

Figure 5.9 shows the trends in the female to male wage ratio for size weighted estimates from 2000 to 2014 (the most recent year that factory-level data was available). The wage gap reduced from around 34 per cent in 2000 to 46 per cent in 2013. In 2014, the gap was 40 per cent.

The foregoing analyses from diverse secondary data sources as well as field studies clearly show that gender equity in the structural change process remains unachieved. Some of the findings regarding increased segregation are even more worrying. Deliberate policy measures are required to ensure that equity becomes possible in the near future.



5.3 / Caste Disparities in the Indian Economy

Alongside gender, caste continues to be an important factor in determining labour market outcome in India. Papola and Kannan (2017) have reviewed the recent literature on caste discrimination in the labour market. Caste effects manifest in type of employment (regular, casual, and so on), industrial segregation, as well as earnings.

NSS data have been used to show that upper caste Hindus have a higher chance of securing regular employment than SC and ST groups (Das and Dutta 2007). Thorat and Attewell (2007) conducted a study of call-backs to job applications analogous to the one by Bertrand and Mullainathan (2004) that showed racial discrimination in the US labour market. The US study used identical resumes randomly assigned to African-American and white sounding names. In the Indian case, otherwise identical resumes had names assigned to them that were easily identifiable as Hindu upper-caste, Hindu Dalit, or Muslim. These were sent in response to job advertisements by domestic and multi-national companies in New Delhi (2005–06). The authors found higher call-back rates for the first category compared to the other two.

Chakravarty and Somanathan (2008) find that SC and ST MBA graduates from the Indian Institute of Management (IIM), Ahmedabad, get significantly lower wages than those in the general category. But the difference disappears after taking Grade Point Averages into account. Recent work by Joshi and Malghan (2017) shows that faculty at IIMs are themselves drawn largely from upper-castes. There is almost no representation of SC and ST groups. Thus caste discrimination in the Indian labour market cannot be viewed separately from that in the educational system.

We now undertake an exploration of caste-based occupational and industrial segregation as well as earnings gaps since 2011. As indicated earlier, caste data is usually available only at a high level of aggregation with categories such as SC, OBC, and Others. These categories average together very different communities with diverse socio-economic opportunities as well as outcomes. For example, traditionally dominant landed castes such as Jats or Marathas are clubbed together with more underprivileged castes such as Mauryas or Kunbis under an omnibus OBC category. Similarly, even within the SC category, there is diversity of opportunities and outcomes as well as social status. Further, different states of India follow different schedules such that the same community found in two states may be classified as SC in one and ST in another. This means that results are likely to be underestimated in some cases and overestimated in others.

5.3.1 / Occupational and Industrial Segregation

We follow the same pattern as with gender in looking at segregation across occupations and industries over time using the one-digit NCO 2004 system and the NIC two-digit manufacturing and services classification harmonised across three rounds (1998, 2004, and 2008). We have comparable data on occupations for 2011 and 2015, and on industries for 2005, 2012, and 2016. However, the same caveats as before apply for conclusions based on a comparison of NSS-EUS and LB-EUS data.

Since there are four major caste groups as opposed to two gender groups, instead of showing the share of each caste in an occupation or industry, we instead show the degree of over- or under-representation of a particular caste group. Another reason for

The percentage of SC individuals among professionals and managers is half their representation in the population. The situation is even worse for ST groups.



focusing on representation in a particular occupation or industry compared to the overall share in the workforce in the case of caste is that no caste category is under-represented in the workforce as a whole, as was the case with women.

A representation index can be calculated as the ratio of the share of that caste group in an occupation divided by the share of that caste in the entire workforce. Thus a value of one indicates proportional representation, a value less than one indicates under-representation, and a value greater than one indicates over-representation. For example, if SC groups comprise 20 per cent of the workforce but only 10 per cent of professionals, the under-representation index will be 0.5.

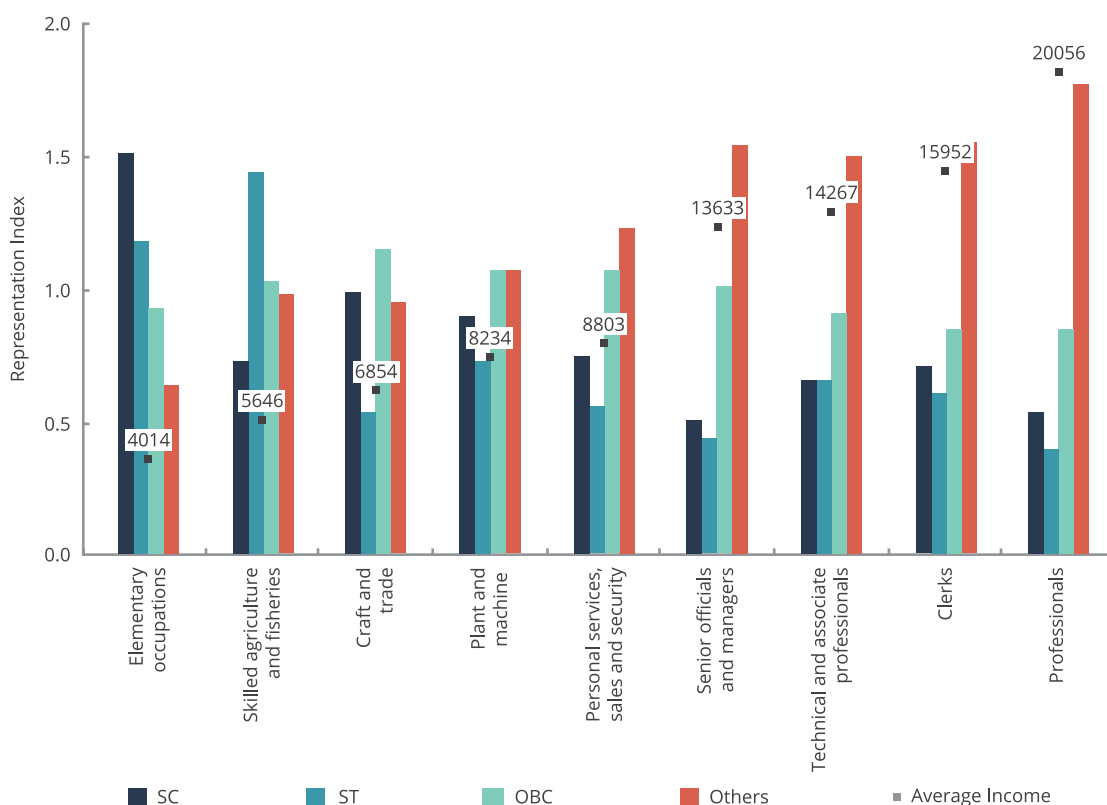
Figure 5.10 shows these values for all caste groups and occupations for 2015. Note that occupations are arranged from left to right in order of increasing average remuneration or earnings. The detailed distribution tables are

given in the online Appendix (Tables A5.1, A5.2 and A5.3).

The pattern is very clear. In 2015, SC as well as ST groups were over-represented in low paying occupations and severely under-represented in the high paying occupations. Especially among professionals and managers, a value of 0.5 indicates that the percentage of SC individuals is half their representation in the general population. The situation is even worse among ST groups (0.4).

Conversely, as expected, representation of upper caste groups steadily increases with earnings, and they are generally over-represented among professionals, managers, and clerks, that is, occupations requiring higher levels of formal education. Their over-representation is as high as 1.8 in these occupations. OBC groups are generally represented in proportion to their population share across all occupations. The above situation has not substantially altered since 2011 (data not shown).

Figure 5.10 : SC and ST Groups Are Over-Represented in Poorly Paid Occupations while Upper Castes are Over-Represented in Well-Paid Ones



Sources and notes: LB-EUS 2015. Representation Index = (% in occupation/% in workforce). Numbers indicate average monthly earnings for a given occupation.

Table 5.1 : Caste Composition of the Principal Sectors of the Economy

	SC (%)	ST (%)	OBC (%)	Others (%)
For the year 2004:				
Agriculture	20.7	14.4	42.5	22.4
Mining	26.1	16.5	38.0	19.5
Manufacturing	17.7	3.9	45.9	32.5
Construction	31.4	10.1	38.7	19.8
Services	15.9	3.9	37.7	42.5
Total	19.9	10.3	41.5	28.4
For the year 2011:				
Agriculture	18.8	15.2	45.0	21.0
Mining	26.8	11.1	41.6	20.6
Manufacturing	16.2	4.0	46.0	33.8
Construction	32.0	10.9	39.5	17.6
Services	15.3	4.4	41.6	38.6
Total	19.0	10.2	43.5	27.3
For the year 2015:				
Agriculture	22.5	14.9	39.4	23.3
Mining	23.9	15.3	36.5	24.4
Manufacturing	18.6	5.0	46.3	30.1
Construction	31.1	11.3	39.0	18.6
Services	15.8	6.1	39.9	38.2
Total	20.9	10.6	40.2	28.2

Sources and notes: NSS-EUS 2004 and 2011, and LB-EUS 2015

Before delving into the industrial segregation data, let us examine the broad sector-level shares of the four groups. Table 5.1 shows the caste composition of each major sector of the economy over the past decade. Agriculture is the only sector that displays shares close to the overall workforce shares. ST groups are over-represented in mining, SC groups in construction as well as mining, and upper-castes in the service sector. We do not see a tendency for these disparities to reduce over this period.

Next, we look at industrial segregation within the manufacturing and service sectors. We focus on SC and ST groups since segregation is low or absent for OBC and upper castes. The caveat is that coarse categories may hide actually existing segregation. Figures 5.11a and 5.11b show the representation index (share in a given industry

divided by the share in the total workforce) for both groups. Recall that an index of one means representation proportionate to that in the workforce. The wide range of the index going from 0.5 (or even lower in the case of ST groups) to 2.5 or 3 indicates a high level of caste-based segregation in the manufacturing sector.

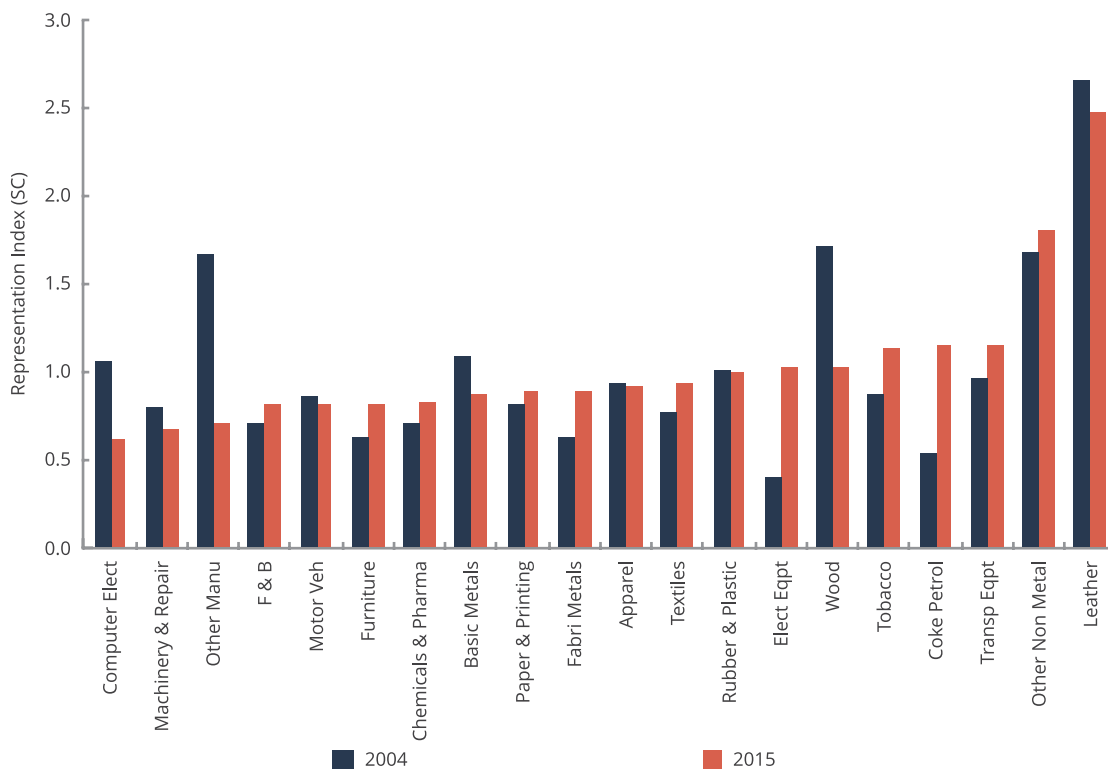
A few things stand out. First, SC workers are vastly over-represented in the leather industry. 46 per cent of leather industry workers belong to this category, while their proportion in the overall workforce is only 18.5 per cent, a clear indication of the enduring power of caste-based segregation in India. Second, between 2004 and 2011, there was a reduction in SC representation in industries such as computers, wood, and other manufacturing. The reasons behind this cannot be determined from these

data, but the question needs to be pursued. The ST manufacturing profile, though even more segregated than the SC case, has shown greater dynamism over this period. Several industries

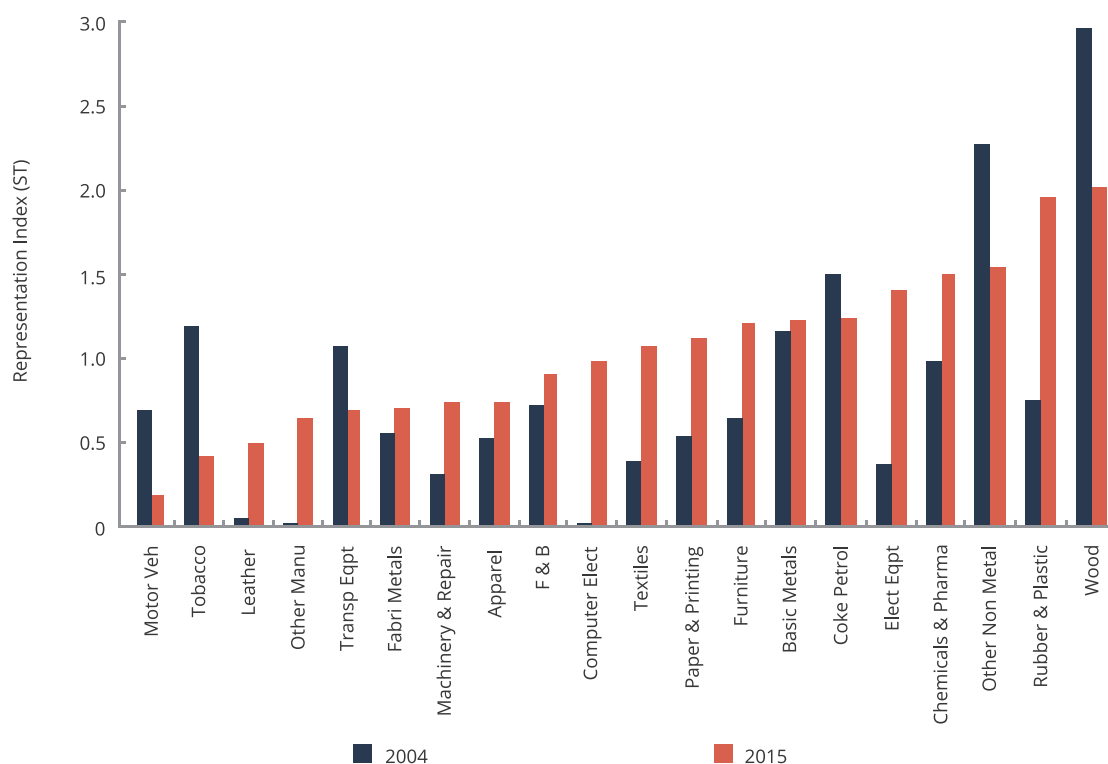
such as textiles, furniture, rubber and plastics, and paper, saw greater ST representation. On the other hand, some traditionally ST-heavy industries, such as wood, registered a decrease.

Figure 5.11 : Caste Representation across Manufacturing Industries

a) SC



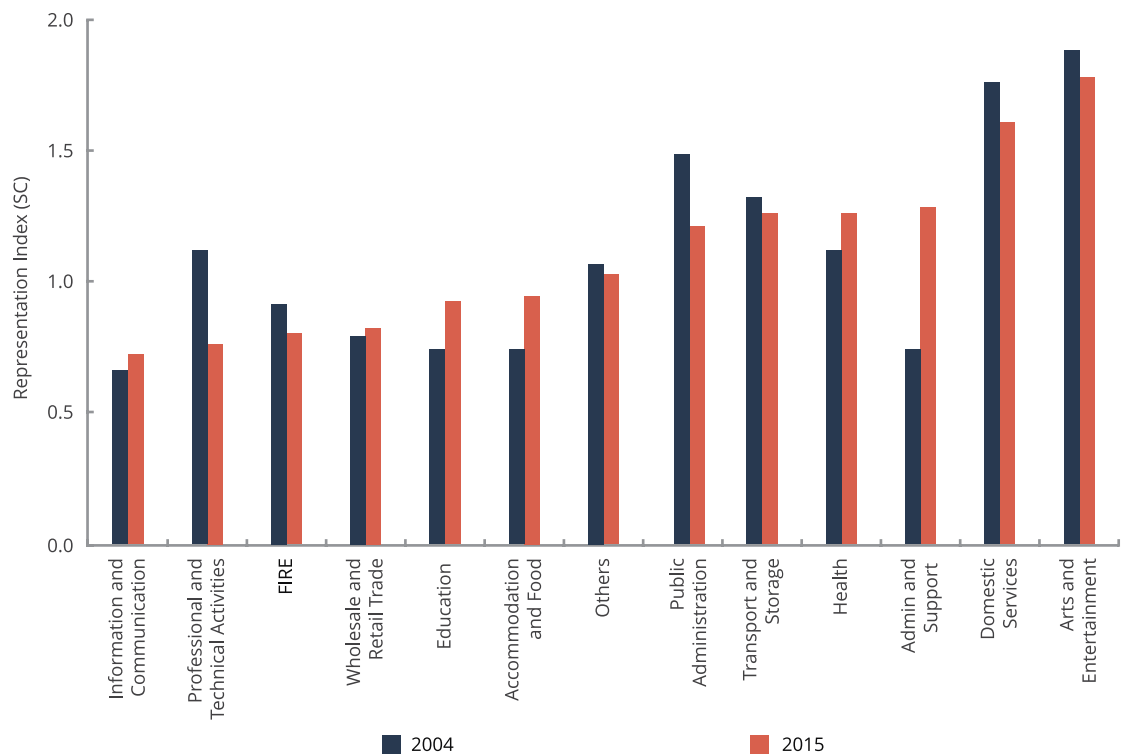
b) ST



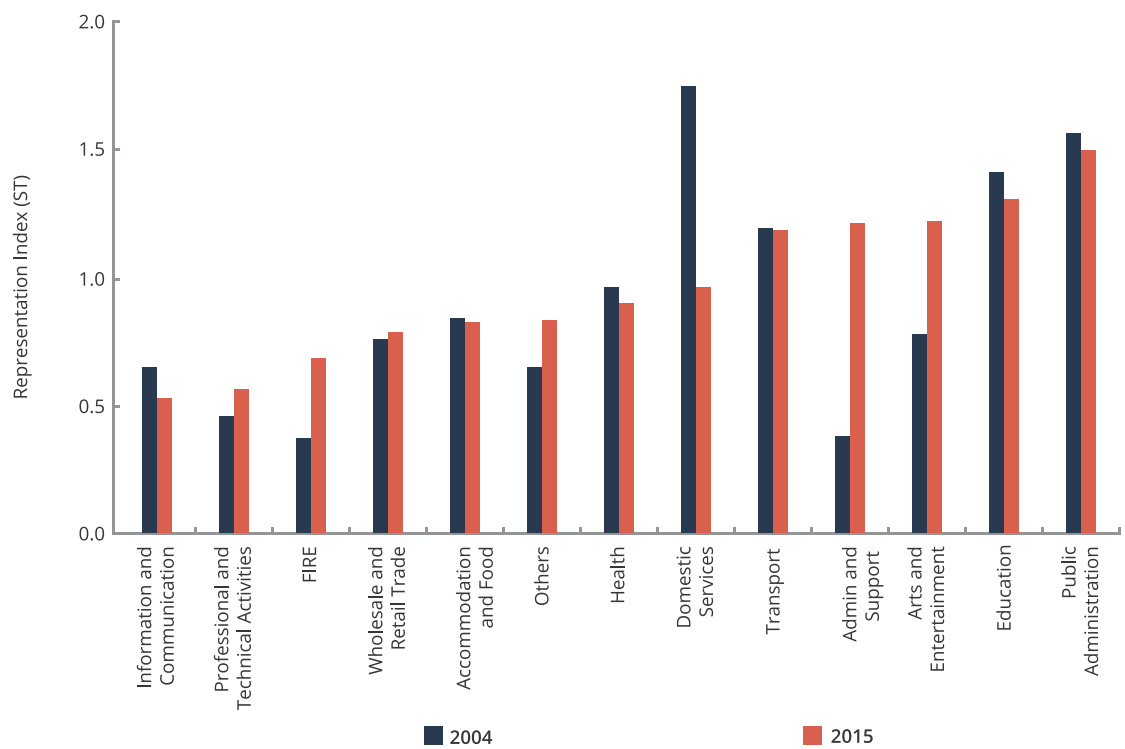
Sources and notes: NSS-EUS 2004, LB-EUS 2015. Representation Index = (% in industry/% in workforce). Bars are ordered by increasing SC/ST representation in 2015.

Figure 5.12 : *Caste Representation across Service Industries*

a) SC



b) ST



Sources and notes: NSS-EUS 2004, LB-EUS 2015. Representation Index = (% in industry/% in workforce). Bars are ordered in increasing order of SC/ST representation in 2015.



In the service sector, the range of over and under-representation is narrower than in manufacturing, as seen in the smaller range of the representation index. Figure 5.12 shows the data organised in increasing order of representation in 2015. There are some expected findings such as the under-representation of both groups (albeit more severe in the case of STs) in information and communication services and FIRE (index of 0.5 or 0.6).

On the other hand, both SC and ST groups are much better represented (in some cases even over-represented) in public administration. This may indicate the success of reservation policies over the years. In this respect, Borooah, Dubey, and Iyer (2007) have found that reservation policies increase the representation of SC and ST groups in regular salaried employment by around 5 percentage points. One can thus speculate that lack of reservation policies in the private sector is the reason why well-paying industries such as information and communication, FIRE, and professional and technical activities continue to be relative preserves of the upper-castes. Indeed, Madheswaran and Singhari (2016) argue that unequal access to high paying occupations is more important than wage discrimination within occupations in explaining the raw caste earnings gap in NSS data. On the basis of this, they advocate reservations in the private sector.

The final change to take note of is the reduction in ST representation in domestic services between 2004 and 2015, and an increase in both SC and ST shares in administration and support activities.

The secondary data cannot reveal much more than these overall trends. More fine-grained field studies and surveys are needed to identify the exact nature of these changes as well as their economic and social significance.

5.3.2 / Caste Earnings Gaps

As in the case of gender-based segregation, we

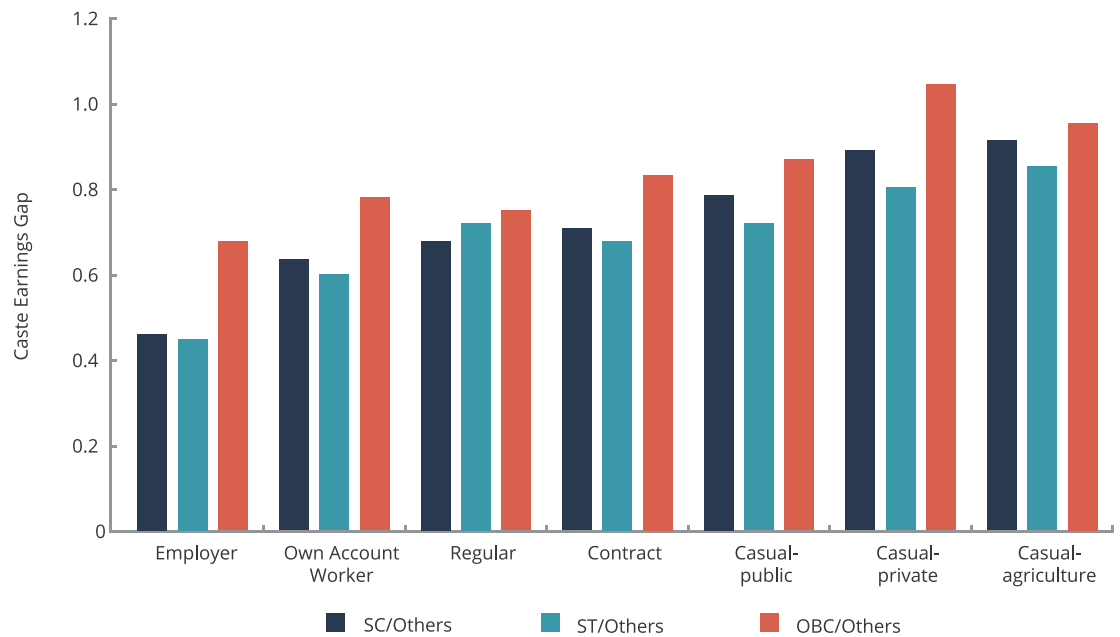
expect the caste-based segregation described above to have a strong effect on the caste earnings gap.

Using the same approximation method on LB-EUS income data, described earlier in the section on gender, we find that the aggregate raw earnings gap between scheduled castes and upper castes in 2015 was 0.56. That is, average SC earnings were 56 per cent of upper caste earnings. The figure is 55 per cent for ST groups and 72 per cent for OBC.

There is a large variation in the raw gap averages across types of employment (Figure 5.13). As reported for gender, the gap is widest for own-account workers and employers, possibly indicating the combined deleterious effects of caste discrimination in multiple markets (labour, land, capital, and product). SC and ST employers report earnings that are only 46 per cent of the earnings of upper-caste workers. OBC employers fare better but are still far behind upper castes, at 69 per cent.

The gap narrows to 0.7 – 0.8 for regular workers from all caste groups. It is very low for casual agricultural workers, which may represent a floor effect due to very low wages. A surprising result is the relatively larger gap observed among casual workers in public works such as MGNREGA, compared to private casual labour. Further investigation is required to see if caste discrimination is somehow playing a role in payments made to casual workers in public works.

Higher representation of SC and ST groups in public administration and education could indicate the success of reservation policies over the years.

Figure 5.13 : *Caste Earnings Gaps across Employment Status*

Sources and notes: LB-EUS 2015. *Earnings gap = Ratio of SC, ST or OBC earnings to Others earnings. A larger ratio indicates a smaller gap. Bars are ordered by increasing SC to Others ratio.*

Once we control for level of education, the raw caste gap narrows considerably and varies much less across education categories than it does across types of employment (Figure 5.14). For SCs, the largest gap is 0.69 for certificate and diploma holders, and the smallest is 0.84 for those with less than primary level schooling. For graduates and post-graduates, the gap is 0.77 and 0.74 respectively. Since 50 per cent of graduates and post-graduates are upper-caste, and only 11 per cent are from SC groups, it seems reasonable to suppose that the reason for high raw caste disparity is due to the relative preponderance of upper castes among the higher educated. Thus, the data offer a clear indication of the benefits of increasing the representation of lower caste groups in higher education.

In this regard, it is worth stating that the aforementioned study by Madheswaran and Singhari (2016) also finds that endowment differences matter more than discrimination for regular salaried workers.

In general, across all three groups, there is a U-shaped pattern, with gaps being low at the two ends of the educational spectrum and highest in the middle. It is possible that

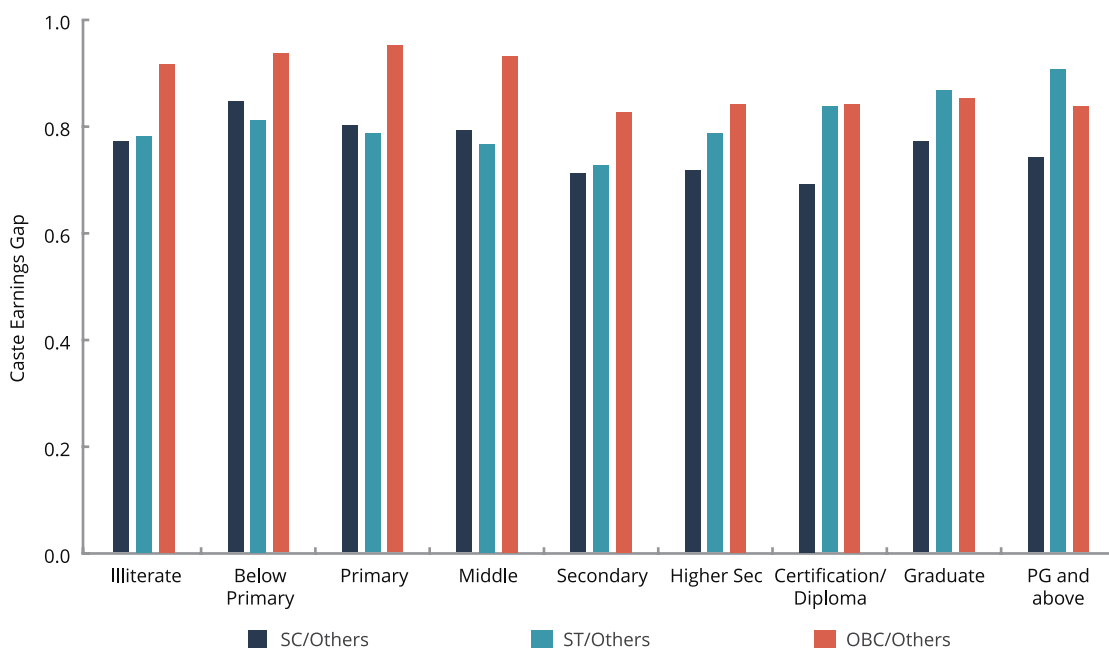
this is due to floor effects at the lower end and regulated or formal employment at the upper end. But this hypothesis needs further investigation. Finally, note that the earnings gap is lower for ST workers with higher educational qualification than SC workers with the same qualification.

Our final piece of data on caste gaps is the 2015 NSS unorganised sector enterprise survey. We used this source earlier to estimate the penalty paid by women entrepreneurs in the unorganised manufacturing sector. Figure 5.15 shows the same for caste groups. As before, 'earnings gaps' here are approximated by the gross value added per worker by a firm operated by SC, ST, or OBC entrepreneurs, compared to firms operated by upper-caste ones.

OBC entrepreneurs, whether they are operating own-account enterprises, family firms, or establishments with hired workers, perform better than SC or ST entrepreneurs, as seen in the lower earnings gap. SC and ST firms earn 40 to 70 per cent of what upper-caste firms do, depending on firm type. The gap is the largest for firms that run with only family labour. Another indicator of caste-based disparity in the data is the proportion of own-account

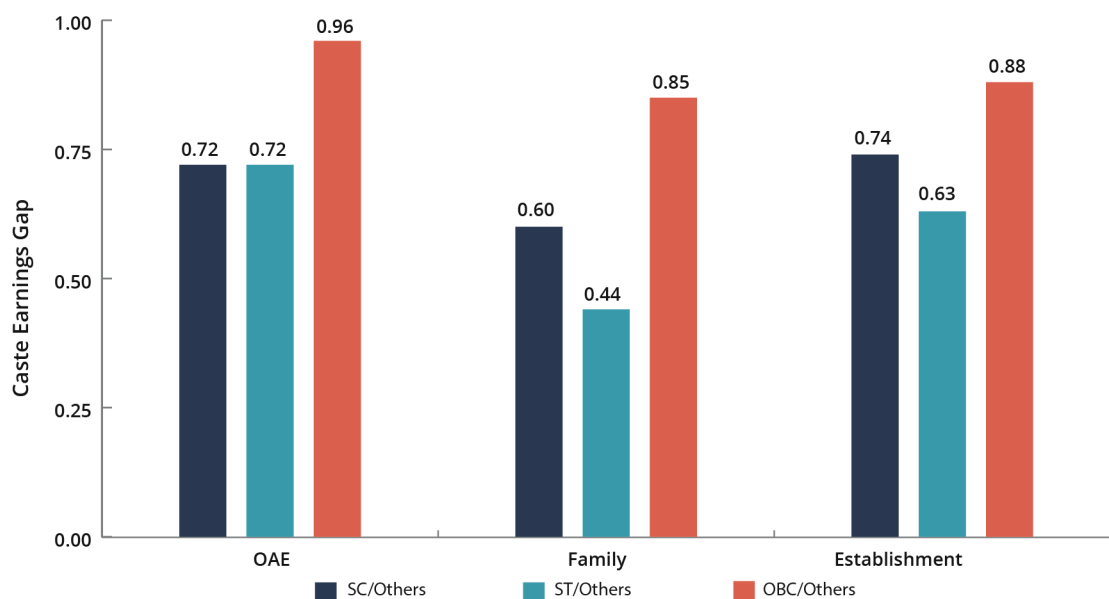
In the unorganised sector, SC and ST entrepreneurs earn only around 50 to 60 percent of what upper-caste ones do.

Figure 5.14 : Taking Education Level into Account Reduces the Caste Earnings Gap



Sources and notes: LB-EUS 2015. Earnings gap = Ratio of SC, ST or OBC earnings to Other earnings. A larger ratio indicates a smaller gap. Bars are ordered by increasing SC to Other ratio.

Figure 5.15 : Caste Earnings Gap across Firm Types in the Unorganised Manufacturing Sector



Sources and notes: NSS informal and unincorporated enterprise surveys, various rounds (see Methods for details). OAE - own account enterprise or single person firm. Family - enterprises operating only with unpaid labour. Establishment - enterprises hiring at least one wage worker. The earnings gap is defined as the ratio of lower caste to 'other' earnings. Earnings are defined as GVA/worker.

enterprises owned by members of various caste groups. While 22 per cent of upper-caste-owned enterprises were establishments with hired workers, only 7 per cent of SC and ST-owned enterprises fall under this category. OBC-owned firms fall in between, with 13 per

cent. In other words, lower-caste entrepreneurs seem to find it much more difficult than upper-caste entrepreneurs to hire workers in the unorganised sector.

5.4 / Conclusion

Despite very high rates of economic growth and ongoing structural change in the economy, it is clear that the Indian labour market suffers from large and persistent gender and caste disparities. The raw gender and caste earnings gaps have declined over time, but are still large at 65 per cent and 56 per cent respectively. The gaps vary considerably across types of employment, levels of education, and sectors. In general, they are larger in the self-employed category, for intermediate levels of education, and in the unorganised sector. But even where women or scheduled caste workers earn close to male or upper-caste workers, they rarely exceed 80 per cent of the dominant groups' earnings.

Gender and caste discrimination as measured by industrial and occupational segregation shows a more complex pattern. When it comes to gender segregation, some industries such as finance and professional services are over 90 per cent male. Many manufacturing industries are also over 80 per cent male, and segregation has actually worsened in the past ten years in this sector. However, overall segregation has reduced in services, and female over-representation in poorly paid industries such as domestic work has reduced somewhat. Of

course, it is possible that this reduction in over-representation is a result of women dropping out of the labour force altogether rather than shifting to other industries.

At this point, we would also like to reiterate that segregation measured by indices such as the Duncan Index of Dissimilarity is contingent on a given overall level of participation in the workforce. India thus has two distinct problems, both severe: first, the overall low participation of women in the paid workforce, and second, a segregated industrial and services workforce.

On the caste dimension, reservation or affirmative action policies in public administration and education seem to have had the desired effect of reducing caste segregation. The large caste-based movements for job quotas currently underway all across the country need to be seen in the context of this achievement.

With regard to gender, both the principal lessons from the literature as well as the analyses presented here—lack of decline in occupational and industrial segregation and of reduction in gender earnings gaps—are consistent with international findings (ILO 2016). Much remains to be done in building equity more effectively into the Lewis-Kuznets process.

