

The Impact of the Minimum Wage on Male and Female Employment and Earnings in India

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Abstract. This study examines how employment and wages for men and women respond to changes in the minimum wage in India, a country known for its extensive system of minimum wage regulations across states and industries. Using repeated cross sections of India's NSSO employment survey data from 1983 to 2008 merged with a newly-created database of minimum wage rates, we find that regardless of gender, minimum wages in urban areas have little to no impact on labor-market outcomes. However, minimum wage rates increase earnings in the rural sector, especially for men, without any employment losses. Minimum wages also increase the residual gender wage gap, which may be explained by weaker compliance by firms that hire female workers.

JEL Classification Codes: J52, K31, J31, O14, O12

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I. INTRODUCTION

The minimum wage is primarily used as a vehicle for lifting the incomes of poor workers, but it can entail distortionary costs. In a perfectly competitive labor market, an increase in a binding minimum wage causes an unambiguous decline in the demand for labor. Jobs become relatively scarce, some workers who would ordinarily work at a lower market wage are displaced, and other workers see an increase in their wage. Distortionary costs from minimum wages are potentially more severe in developing countries with their large informal sectors. In particular, the minimum wage primarily protects workers in the urban formal sector whose earnings already exceed the earnings of workers in the rural and informal sectors by a wide margin. Employment losses in the regulated formal sector translate into more workers seeking jobs in the unregulated informal sector. This shift may result in lower, not higher wages for most poor workers who are engaged predominantly in the informal sector. Even a small increase in the minimum wage can have sizeable disemployment effects in developing countries if the legal wage floor is high relative to prevailing wage rates and a large proportion of workers would earn the legislated minimum.

To the extent that female workers are relatively concentrated in the informal sector and men in the formal sector, fewer women stand to gain from binding minimum wages in the formal sector. Further, if minimum wages discourage formal-sector employment, a disproportionate number of women can experience decreased access to formal-sector jobs. For women who remain employed in the formal sector, the minimum wage can help to raise their relative average earnings. Because the female earnings distribution falls to the left of the male distribution in most countries, a policy that raises the legal minimum wage irrespective of gender, if properly enforced, should help to close the male-female earnings gap (Blau and Kahn 1995). Although

the gender wage gap in the formal sector shrinks, the wage gain for women can come at the expense of job losses for low-wage female workers. Hence disemployment effects may be larger for women than men in the formal sector.

Critics of the minimum wage state that employment losses from minimum-wage-induced increases in production costs are substantial.¹ Advocates, however, argue that employment losses are small, and any reallocation of resources that occurs will result in a welfare-improving outcome through the reduction of poverty and improvement in productivity. Our study contributes to this debate by analyzing the relationship between the minimum wage and employment and earnings outcomes for men and women in India.

India constitutes an interesting case given its history of restrictive labor market policies that have been blamed for lower output, productivity, investment, and employment (Besley and Burgess 2004; Amin 2009). As a federal constitutional republic, India's labor market exhibits substantial variation across its twenty-eight geographical states in terms of the regulatory environment. Labor regulations have historically fallen under the purview of states, a framework that has allowed state governments to enact their own legislation including minimum wage rates that vary by age (child workers, adolescents, and adults), skill level, and by detailed job categories.² Each state has set minimum wage rates for particular occupational categories regardless of whether the jobs are in the formal or informal sector, with the end result that there are more than 1000 different minimum wage rates across India in any given year. This wide degree of variation and complexity may have hindered compliance relative to a simpler system with a single wage set at the national or state level (Rani *et al.* 2013; Belser and Rani 2011).

To examine how the minimum wage affects men's and women's employment and wages in India, the study uses six waves of household survey data from the National Sample Survey

Organization spanning the 1983-2008 period, merged with an extensive and uniquely-available database on minimum wage rates over time and across states and industries. Also merged into the NSSO data are separate databases of macroeconomic and regulatory variables at the state level that capture underlying market trends. A priori, we expect that India's minimum wage increases would bring relatively few positive effects for women as compared to men, particularly if women have less bargaining power and face greater obstacles in hiring in the labor market. Our empirical results confirm these expectations in the case of women's relative wages, but we find little evidence of disemployment effects for them or for men.

II. LITERATURE REVIEW

Employment and Wage Effects

The past quarter of a century has seen a surge in scholarly interest in the impact of minimum wage legislation on labor market outcomes across countries, with much of that research focusing on changes in employment. Results across these studies have varied, with some reporting statistically significant large negative employment effects at one end of the spectrum and others finding small positive effects on employment. In an effort to synthesize this large body of work, Belman and Wolfson (2014) conducted a meta-analysis for a large number of industrialized country studies and concluded that minimum wage increases may lead to a very small disemployment effect: raising the minimum wage by 10 percent causes employment to fall by about 0.03 to 0.6 percent.

For developing and transition economies, the estimated employment effects tend to be negative as well but with more variation as compared to industrialized countries.³ Disemployment effects have been found for Bangladesh (Anderson *et al.* 1991), Brazil (Neumark *et al.* 2006), Colombia (Bell 1997; Maloney and Mendez 2004), Costa Rica (Gindling

and Terrell 2007), Hungary (Kertesi and Köllö 2003), Indonesia (Rama 2001, Suryahadi *et al.* (2003), Nicaragua (Alaniz *et al.* 2011), Peru (Baanante 2004), and Trinidad and Tobago (Strobl and Walsh 2003). But not all estimates are negative. There was no discernable impact on employment in Mexico (Bell 1997) and Brazil (Lemos 2009), and in China the minimum wage appeared to have a negative impact only in the eastern region of the country while it had either no impact or a slightly positive impact elsewhere (Ni *et al.* 2011; Fang and Lin 2013). Negligible or even small positive employment effects have been found in other cases when national-level estimates are disaggregated, such as for workers in Indonesia's large firms (Rama 2001; Alatas and Cameron 2008; Del Carpio *et al.* 2012).

Minimum wage impacts in developing countries vary considerably not only because of labor market conditions and dynamics, but also because of noncompliance, inappropriate benchmarks, and the presence of large informal sectors.⁴ In fact, most of the negative minimum wage impacts across countries are for formal sector employment where there is greater compliance among firms. Noncompliance with minimum wage regulations is directly related to difficulty of enforcement and can take the form of outright evasion, legal exemptions for such categories as part-time and temporary workers, and cost-shifting through the avoidance of overtime premiums. Because minimum wages are more costly to enforce for small firms in the informal sector, noncompliance is pervasive there.

Compliance costs are higher for smaller firms in the informal sector because they tend to hire more unskilled workers, young workers, and female workers relative to larger firms in the formal sector. Given that average wages for these demographic groups are low, compliance is costly as the minimum wage is more binding. For example, Rani *et al.* (2013) found an inverse relationship between compliance and the ratio of the legislated minimum wage to median wages

in a sample of 11 developing countries. Among individual countries, Gindling and Terrell (2009) found that minimum wages in Honduras are enforced only in medium- and large-scale firms where increases in the minimum wage lead to modest increases in average wages but sizeable declines in employment. There is no impact in small-scale firms or among individuals who are self-employed. Similar evidence for the positive relationship between firm size and compliance was found in Strobl and Walsh (2003) in their study of Trinidad and Tobago.

Not surprisingly, most of these studies have found positive impacts of the minimum wage on formal sector wages, with the strongest impact close to the legislated minimum and declining effects further up the distribution. In a type of “lighthouse effect,” wages in the informal sector may also rise if workers and employers see the legislated minimum as a benchmark for their own wage bargaining and wage setting practices (e.g. Maloney and Mendez 2004; Banaante 2004; and Lemos 2009). A number of studies have found that minimum wage increases reduce wage compression since low-wage workers experience the strongest wage boosts from the new legislated minimum (Betcherman 2015).

Gender Differences in Minimum Wage Impacts

While there is a large empirical literature estimating minimum wage impacts on employment and wages, relatively few studies have included a gender dimension in their analysis. Among the exceptions for industrialized countries is Addison and Ozturk (2012) which used a panel dataset of 16 OECD countries and found substantial disemployment effects for women: a 10 percent increase in the minimum wage causes the employment-to-population ratio to fall by up to 7.3 percent, a magnitude that the authors find is high for industrialized countries. Among studies for individual countries, Shannon (1996) found that adverse employment effects from Canada’s minimum wage are more severe for women than men, although the gender

earnings gap shrank for women who kept their jobs. A similar result is found for Japan in Kambayashi *et al.* 2013, with sizeable disemployment effects for women but a compression in overall wage inequality. Yet not all employment effects for women are negative. In the U.K. for instance, minimum wages are associated with a four percent increase in employment for women while the estimated employment increase for men is less robust (Dickens *et al.* 2014). Further, not all gender-focused studies on industrialized countries have found reductions in the gender earnings gap. For instance, Cerejeira *et al.* (2012) found that an amendment to the minimum wage law in Portugal that applied to young workers increased the gender wage gap because of a re-structuring of fringe benefits and overtime payments that favored men.

Among developing countries, evidence for Colombia indicates that minimum wage increases during the 1980s and 1990s caused larger disemployment effects for female heads of household relative to their male counterparts (Arango and Pachón 2004). Larger adverse employment effects for women than men were also found in China for less-educated workers (Jia 2014) and in some regions (Fang and Lin 2013; Wang and Gunderson 2012). Indonesia's sharp increase in the real minimum wage since 2001 has also contributed to relatively larger disemployment effects for women in the formal sector (Suryahadi *et al.* 2003; Comola and de Mello 2011) and among non-production workers (Del Carpio *et al.* 2012). In Mexico among low-skilled workers, women's employment was found to be quite sensitive to minimum wage changes (with elasticities ranging from -0.6 to -1.3) while men's employment was more insensitive (Feliciano 1998).

Not all studies with a gender dimension have found disemployment effects for women. For instance, Montenegro and Pagés (2003) studied changes in the national minimum wage over time in Chile and found that the demand for male workers fell and the supply of female workers

rose, resulting in small net employment gains for women. The explanation for their finding is imperfect competition in the female labor market that caused women's wages to fall below their marginal product. Further, Muravyev and Oshchepkov (2013) argued that minimum wages in Russia from 2001 to 2010 resulted in no statistically significant effects on unemployment rates for prime-age workers as a whole or for prime-age working women.

Evidence on the impact of the minimum wage on women's wages and the gender wage gap is mixed essentially because it depends on the extent to which employers comply with the legislation. Greater noncompliance for female workers has been documented for a number of countries across developing regions. Minimum wage legislation in Kenya was found to increase wages for women in non-agricultural activities but not in agriculture, mostly because compliance rates were lower in agricultural occupations (Andalon and Pagés 2009). Also finding mixed results for women's earnings was Hallward-Driemeier *et al.* (2015), which showed that increases in Indonesia's minimum wage contributed to a smaller gender wage gap among more educated production workers but a larger gap among production workers with the least education. The authors suggest that more educated women have relatively more bargaining power which induces firms to comply with the minimum wage legislation. As another example, in 2010 the Costa Rican government implemented a comprehensive minimum-wage compliance program based on greater publicity around the minimum wage, new methods for employees to report compliance violations, and increased inspections. As a result, the average wage of workers who earned below the minimum wage before the program rose by about 10 percent, with the largest wage gains for women, workers with less schooling, and younger workers. Moreover, there was little evidence of a disemployment effect for full-time male and female workers (Gindling *et al.* 2015).

Looking more broadly at the gendered effects of minimum wage on measures of well-being, Sabia (2008) found that minimum wage increases in the United States did not help to reduce poverty among single working mothers because the minimum wage was not binding for some and led to disemployment and fewer working hours for others. Among developing countries, Menon and Rodgers (2013) found that restrictive labor market policies in India that favored workers (including the minimum wage) contribute to improved job quality for women for most measures. However, such regulations bring fewer benefits for men. Estimates indicate that for men, higher wages come at the expense of fewer hours, substitution toward in-kind compensation, and less job security. Looking beyond labor market effects, Del Carpio *et al.* (2014) analyzed the impact of provincial level minimum wages on employment and household consumption in Thailand and found that exogenously set regional wage floors are associated with small negative employment effects for women, the elderly and less-educated workers, but large positive wage gains for working-age men. These wage gains contributed to increases in average household consumption, although such improvements tended to be concentrated around the median of the distribution. Closely related, minimum wages in Brazil have had deleterious effects on the poor by raising the prices of the labor-intensive goods that they purchase, and these adverse impacts are strongest in poorer regions of the country (Lemos 2006).

III. METHODOLOGY AND DATA

The analysis uses an empirical specification adapted from Neumark *et al.* (2014) and Allegretto *et al.* (2011) that relates employment outcomes to productivity characteristics and minimum wage regulations across space and time. A sample of individual-level repeated cross sectional data from India's National Sample Survey Organization (NSSO) that spans 1983 to

2008 is used to identify the effects of the minimum wage on employment and earnings outcomes, conditional on state and year variations.

The determinants of employment for an individual are expressed as follows:

$$E_{ijst} = a + \beta_1 MW_{jst} + \beta_2 X_{ijst} + \beta_3 P_{st} + \beta_4 \Phi_s + \beta_5 T_t + \beta_6 (\Phi_s * T_t) + \vartheta_{ijst} \quad \text{--- (1)}$$

where i denotes an employee, j denotes an industry, s denotes a state, and t denotes time. The dependent variable E_{ijst} represents whether or not an individual of working age is employed in a job that pays cash wages. The notation MW_{jst} represents minimum wage rates across industries, states and time. The notation X_{ijst} is a set of individual and household characteristics that influences people's employment decisions. These characteristics include gender, education level attained, years of potential experience and its square, marital status, membership in a disadvantaged group, religion, household headship, rural versus urban residence, and the number of pre-school children in the household. Most of these variables are fairly standard control variables in wage regressions across countries. Specific to India, wages tend to be lower for individuals belonging to castes that are perceived as deprived and for individuals who are not Hindu.⁵ The matrix P_{st} represents a set of control variables for a variety of economic indicators, all at the state level: net real domestic product, the unemployment rate, indicators of minimum wage enforcement, and variables for the regulatory environment in the labor market.

The notation Φ_s is a state-specific effect that is common to all individuals in each state, and T_t is a year dummy that is common to all individuals in each year. The state dummies, the year dummies, and the state-level economic indicators help to control for observed and unobserved local labor market conditions that affect men's and women's employment and earnings. In particular, the state and year dummies are important to control for state-level shocks that may be correlated with the timing of minimum wage legislation (Card 1992; Card and

Krueger 1995). Equation (1) also allows state effects to vary by time to address the fact that individually, these controls may be insufficient to capture all the heterogeneity in the underlying economic conditions (Allegretto *et al.* 2011). Finally, ϑ_{ijst} is an individual-specific idiosyncratic error term.⁶ Equation (1) is estimated separately by gender and by rural and urban status.

Our analysis also considers the impact of the minimum wage on the residual wage gap between men and women. All regressions are weighted using sample weights provided in the NSSO data for the relevant years and standard errors are clustered at the state level. All regressions are separately estimated with real and nominal minimum wage rates. Since the results are similar, the tables only report estimations for the real minimum wage. Note that selection of workers into and out of states with pro-labor or pro-employer legislative activity is unlikely to contaminate results since migration rates are low in India (Munshi and Rosenzweig 2009; Klasen and Pieters 2015).

We use six cross sections of household survey data collected by the NSSO. As shown in Appendix Table 1, the data include the years 1983 (38th round), 1987-88 (43rd round), 1993-1994 (50th round), 1999-2000 (55th round), 2004-05 (60th round), and 2007-08 (64th round). We utilize the Employment and Unemployment module - Household Schedule 10 for each round. These surveys have detailed information on employment status, wages, and a host of individual and household characteristics.

To construct the full sample for the employment regressions, we appended each cross section across years and retained all individuals of prime working age (ages 15-65) in agriculture, services, and manufacturing with measured values for all indicators. The pooled full sample has 3,332,094 observations. To construct the sample for the wage regressions, we restricted the full sample to all individuals with positive daily cash wages. The pooled wage

sample has 597,621 observations. One of the steps in preparing the data entailed reconciling changes over time in NSSO state codes that arose, in part, from the creation of new states in India (such as the creation of Jharkhand from southern Bihar in 2000). Newly created states were combined with the original states from which they were created in order to maintain a consistent set of state codes across years. In addition, Union Territories were combined with the states to which they are located closest by geography.

Sample statistics for the pooled full sample in Table 1 indicate that a fairly low percentage of individuals were employed for cash wages during the period, with men experiencing a sizeable advantage relative to women in both 1983 and 2008. The table further shows considerable gender differences in educational attainment. In 1983, 42 percent of men were illiterate as compared to 74 percent of women, while 15 percent of men and 6 percent of women had at least a secondary school education. These percentages changed markedly over time especially for women. By 2008, the percentage of illiterate women had dropped to 46 percent, and the percentage of women with at least secondary school had risen to 18 percent. The data also show a sizeable gender differential in geographical residence: 73 percent of men lived in rural areas in 1983, as compared to 79 percent of women. This difference shrank during the period but did not disappear. The bulk of the sample was married, lived in households headed by men, and claimed Hinduism as their religion. Finally, on average, about 25 to 30 percent of individuals belonged to the scheduled castes and scheduled tribes.

Insert Table 1 Here

Merged into the NSSO data was a separate database on daily minimum wage rates across states, industries, and years. We created a database on state-level and industry-level daily minimum wage rates using a set of annual reports entitled “Report on the Working of the

Minimum Wages Act, 1948,” published by the Indian government’s Labour Bureau. Only very recent issues of this report are available electronically; earlier years had to be obtained from local sources as hard copies and converted into an electronic database. For each year, we obtained the minimum wage report for the year preceding the NSSO wave when possible in order to allow for adjustment lags. We were able to obtain reports for the following years: 1983 (for the 1983 NSSO wave), 1986 (for the 1987-88 NSSO), 1993 (for the 1993-94 NSSO), 1998 (for the 1999-2000 NSSO), 2004 (for the 2004-05 NSSO), and 2006 (for the 2007-08 NSSO).

We then merged the minimum-wage data into the pooled NSSO data using state codes and industry codes aggregated up to five broad categories (agriculture and forestry, mining, construction, services, and manufacturing). As shown in Figure 1, at least two thirds of women were employed in agriculture in both 1983 and 2008; for men this share was close to one half. Men were concentrated in construction, services, and manufacturing, while over time, women increased their relative representation, mostly in services. For any individuals in the full sample who reported no industry of employment, this merging process entailed using the median legislated minimum wage rate for each individual’s state and sector (urban or rural) in a particular year. Assigning all individuals a relevant minimum wage regardless of their employment status allowed us to estimate minimum wage impacts on the likelihood of cash-based employment relative to all other types of activities including those performed by individuals of working age who were not employed, and so did not report an industry.

Insert Figure 1 Here

For each of the broad categories defined above, we utilized the median minimum wage rate across the detailed job categories as most states had minimum wage rates specified for multiple occupations within the broad groups. Further, given that smaller states are combined

with larger ones in order to maintain consistency in the NSSO data, utilizing the median rate across states, years and job categories avoids problems with especially large or small values. Moreover, if there were missing values for the minimum wage for a broad industry category in a particular state, we used the value of the minimum wage for that industry from the previous time-period for which data was available for that state. Underlying this step was the assumption that the minimum wage data are recorded in a particular year only if states actually legislated a change in that year. Similarly, the minimum wages for the aggregate industry categories in a state that was missing all values were assumed to be the same as the minimum wages in this state in the preceding time period.

The 1983 and 1985-1986 minimum wage reports differed from the subsequent years in several ways. First, these two earlier reports published rates for detailed job categories based on an entirely different set of labels. Hence the aggregation procedure into the five broad categories involved reconciling the two different sets of labels. Second, the reports for the two earlier years published monthly rates for some detailed categories; these rates were converted to daily rates using the assumption of 22 working days per month. Third, the reports for the two earlier years published numerical values for piece rate compensation while the latter four reports simply specified the words “piece rate” as the compensation instead of providing a numerical value. For the earlier two years, the piece rate compensation was converted into daily wage values using additional information in the reports on total output per day and minimum compensation rates. For the latter four reports, because very few detailed industries paid on a piece rate basis and those that did specified no numerical values, we assigned a missing value to the minimum wage rate. The earlier two reports also specified minimum wage rates for children; these observations

were removed from the database of minimum wage rates because our NSSO sample consists only of individuals 15-65 years of age.

Also merged into the NSSO data are separate databases of macroeconomic and regulatory variables at the state level that capture underlying labor market trends. The variables cover 15 states for each of the six years of the NSSO data and include net real domestic product, unemployment rates, indicators of minimum wage enforcement, and indicators of the regulatory environment in the labor market. The domestic product data are taken from Reserve Bank of India (2014). As shown in Figure 2, Maharashtra, Uttar Pradesh, and Andhra Pradesh had the highest net real domestic products from all the states in 2008, with Bihar, Assam, and West Bengal coming in at the bottom. These relative rankings have not changed much since 1983.

Insert Figure 2 Here

The state-level unemployment data merged into the sample are obtained from NSSO reports on employment and unemployment during each survey year (Indiastat various years; NSSO various years). Also merged into the full sample are four indicators of minimum wage enforcement by state and year. These indicators include the number of inspections undertaken, the number of irregularities detected, the number of cases in which fines were imposed, and the total value of fines imposed in (real) rupees. The data on minimum wage enforcement are available from the same annual reports (the “Report on the Working of the Minimum Wages Act, 1948”) that were used to construct the minimum wage rate database.

Finally, we control for two labor market regulation variables. The first labeled as “Adjustment” relates to legal reforms that affect the ability of firms to hire and fire workers in response to changing business conditions. Positive values of this variable indicate regulatory changes that strengthen workers’ job security (through reductions in firms’ ability to retrench,

increases in the cost of layoffs, and restrictions on firm closures), while negative values indicate regulatory changes that weaken workers' job security and strengthen the capacity of firms to adjust employment. The second variable labeled as "Disputes" relates to legal changes affecting industrial disputes. Positive values indicate reforms that make it easier for workers to initiate and sustain industrial disputes or that lengthen the resolution of industrial disputes, while negative values indicate state amendments that limit the capacity of workers to initiate and sustain an industrial dispute or that facilitate the resolution of industrial disputes. The underlying data are from Ahsan and Pagés (2009) and further discussion of the coding and interpretation of these variables is found in Menon and Rodgers (2013).

Table 2 presents sample statistics for average minimum wage rates by industry across states. In 1983, some of the highest legislated minimum wage rates were found in Haryana, Rajasthan, and West Bengal. By 2008 however, Haryana and Rajasthan were no longer in the group of states with the highest minimum wage rates and had been replaced by Kerala – known for its relatively high social development indicators – and Punjab. A comparison of Figure 2 and Table 2 reveals that there is no consistent relationship between net real domestic product and minimum wage. Among industries, minimum wage rates tend to be the highest on average in construction, mining, and services, the first two of which are male dominated industries. Rates tend to be the lowest in agriculture where women concentrate.

Insert Table 2 Here

Figures 3a and 3b present a set of wage distributions around the average statutory minimum wage in 1983 and 2008. Figure 3a depicts the distributions for male and female workers in India, while figure 3b presents distributions that are disaggregated by both sex and sector of work (formal and informal). Following convention, we construct the kernel density

estimates as the log of actual daily wages minus the log of the relevant daily minimum wage for each worker, all in real terms (Rani *et al.* 2013). In each plot, the vertical line at zero indicates that a worker's wage is on par with the statutory minimum wage in his or her industry and state in that year, indicating that the minimum wage is binding and that firms are in compliance with the legislation. Figures show weighted kernel densities using standard bandwidths that are selected non-parametrically.

Insert Figures 3a-3b Here

Figure 3a shows that the wage distributions around the average statutory minimum wage are closer to zero in 2008 as compared to 1983 for both male and female workers. The shifts in both distributions suggest that compliance has increased over time with proportionately more workers engaged in jobs in which they are paid the appropriate legally legislated wage. Figure 3b shows that for both men and women, the rightward shift in the wage distribution occurred in both the formal sector and the informal sector, which is consistent with the finding for other countries of a “lighthouse effect” in which informal-sector wages increase when workers and employers use the minimum wage as a benchmark in wage negotiations. However, the improvement in compliance holds more for male workers as most of the distributions for female workers in 2008 are still to the left of the point that indicates full compliance. A higher degree of compliance for male workers holds for both the formal and informal sectors (Figure 3b).

These kernel density graphs are important in that they depict relative positions of real wages in comparison to what is legally binding, with peaks at zero suggesting compliance by firms. Such compliance could come from a variety of sources including better enforcement of laws (which is included in the regression models), better agency on the part of workers (which would result from increased worker representation and unionization), or a combination of these

factors such as the sorting of workers into occupations that are subject to stronger enforcement and better representation. For example, Kerala's historical record of relatively high rates of unionization and worker unrest compared to many of the other states (Menon and Sanyal 2005) may underlie Kerala's apparently high rate of compliance as depicted in Appendix Table 1, which reports kernel density estimations for each state. The NSSO data do not allow for consistent controls for worker agency since questions on union existence and membership are not asked in every year. However the enforcement variables and the regulatory environment control variables should control for at least some of these effects.

We note two more issues related to sorting. First, workers might sort across states seeking conditions that are more favorable for the occupations in which they are trained. Because questions about migration are not asked consistently in the 1983 to 2008 rounds of the NSSO data, we cannot control for this directly. However as noted above, rates of migration in India are generally quite low and state characteristics that could drive these types of movements are accounted for in the regression framework with the inclusion of state and time fixed effects and their interactions. Second, there may be sorting by workers into industries both across and within states depending on skill and training levels. Again the NSSO modules do not consistently ask whether there were recent job changes and details of such changes (switches in industry affiliations). We control for possible sorting on observables by including a full set of education, experience and demographic characteristics that conceivably influence choice of industries and possible movements between them. This approach is supported by recent work indicating that controlling for individual level characteristics may absorb variations in both observable and unobservable attributes under certain circumstances (Altonji and Mansfield 2014).⁷

IV. RESULTS

Table 3 presents the regression results for the determinants of men's employment and wages in the rural sector. Results show that the real minimum wage has positive and statistically significant impacts on men's likelihood of being employed for cash wages in the rural sector. For a ten percent increase in the real minimum wage, the linear probability of employment increases by 6.34 percent on average for men in rural areas of India. Other variables in these models show that the likelihood of employment falls with all lower levels of schooling up through secondary school, but then rises with graduate schooling. The probability of cash-based employment for rural men is higher with potential experience, marriage, scheduled tribe/caste status, net state domestic product, state unemployment, and two measures of enforcement: inspections and value of fines. But it is lower in households that are male headed and in households with preschool children. It also falls with both measures of the regulatory environment and two measures of enforcement. On balance, it appears that all else equal, employment probability for men in the rural sector is negatively affected by a regulatory and enforcement structure that appears to be restrictive to employers.

Table 3 also reports results for real wages for men in the rural sector. The coefficient for the real minimum wage shows that for a ten percent increase in the minimum wage, real wages rise by 10.78 percent. Relative to being illiterate, all categories of schooling have positive and statistically significant impacts on wages. As expected, wages rise with potential experience at a decreasing rate. Unlike in the case of employment, membership in one of the backward caste groups has a negative effect on real wages. Real wages also rise with net state domestic product and the unemployment rate. As one would expect, real wages for rural men rise with three of the four measures of minimum wage enforcement. Yet other labor regulations associated with adjustments and disputes have the opposite effect on real wages, suggesting that men experience

a pay penalty in the face of a regulatory environment in which employers have more difficulty adjusting the size of their workforce or ending disputes.

Insert Table 3 Here

Table 4 presents results for the determinants of cash-based employment and wages for women in the rural sector. Like results for men in the rural sector, women experience a positive impact on employment from the minimum wage. For a ten percent increase in the real minimum wage, the linear probability of employment increases by 6.02 percent on average for women in rural areas. Although this estimate is smaller than the estimate for men in the rural sector, tests reveal that these coefficients are not statistically distinct. All lower levels of schooling are negatively associated with employment for women, but completing graduate school has a positive effect. The negative association may reflect the fact that women with lower levels of schooling are less likely to hold cash-based jobs in the rural sector. Married women and women who are members of the backward caste groups are more likely to be employed. In contrast, rural women are less likely to be employed if the household is headed by men or if there are preschool-aged children present in the household. In keeping with intuition, labor regulations that strengthen worker's ability to initiate or sustain industrial disputes are associated with lower levels of employment. As in the case for rural men, the enforcement variables that most directly affect firms (inspections and the value of fines) are positively related to women's likelihood of employment in the rural sector, while women's employment falls with both measures of the regulatory environment and the other two measures of enforcement.

Table 4 further indicates that for rural women receiving cash wages, the real minimum wage has a positive effect on wages. Controlling for state-level time varying heterogeneity, a ten percent increase in the real minimum wage increases real wages by 6.87 percent. Although this

increase is smaller than the 10.78 percent wage increase reported for rural men, the difference in the male and female coefficients is not statistically significant. Schooling has a positive impact on real wages, with higher levels of schooling associated with considerable wage premiums relative to having no education. Years of experience matters positively, as does net state domestic product. Finally, labor regulations associated with disputes have beneficial impacts on wages. Among the enforcement variables, as with men, rural women's wages on balance are positively affected by minimum wage enforcement, with the number of cases with fines imposed having the largest positive impact.

Insert Table 4 Here

Table 5, which reports results for the determinants of men's cash-based employment and wage levels in the urban sector, shows that the minimum wage rate has no statistically significant effect on these outcomes. This result most likely reflects the argument that in urban areas, perhaps as a consequence of better enforcement or awareness on the part of workers, men are paid at least the appropriate legally legislated wage. The absence of an impact on urban-sector employment is similar to findings in numerous other studies, suggesting that India's urban-sector labor market has characteristics consistent with those of other labor markets around the world.

Insert Table 5 Here

The effect of the schooling variables in Table 5 are similar to those for men in the rural sector except that the positive effects of schooling on employment become evident at much lower levels. The positive employment impacts of potential experience, marriage, and membership in scheduled tribes or scheduled castes are also similar to those for men in rural India. However in contrast to their rural counterparts, Hindu men in the urban sector are more likely to be employed. Results for the other controls for men's wages in the urban sector in Table

5 are similar to the results for rural men. In particular, potential experience and higher levels of schooling are associated with substantial wage premiums. In contrast to their rural counterparts, wages of urban men are positively impacted from marriage. Working against higher wages for urban men is membership in a disadvantaged caste group and being Hindu. Finally, regulations associated with disputes have positive impacts on the wages of urban men as do three of the four enforcement measures.

Table 6 presents results for the determinants of cash-based employment and wages for women in the urban sector. Again, conditional on enforcement, real minimum wages have no statistically discernible impact on employment or wages. This result is similar to the finding for urban men and is in keeping with the intuition that India's urban-sector labor market, despite its inefficiencies, operates more like labor markets in other countries where minimum wage laws have been found to have negligible impacts on aggregate employment and wages.

Insert Table 6 Here

For urban women, being married reduces the likelihood of employment but increases real wages, and women who live in households headed by men are less likely to be employed and to have lower real wages. Net state domestic product matters only for real wages, and labor regulations related to adjustments that are pro-worker in orientation have a positive impact on employment and a negative impact on wages for urban women. This result indicates that limitations imposed on firms' abilities to adjust their workforce help to protect urban women's jobs, but some of the cost may be passed along in the form of lower wages to women. Finally, the number of inspections to ensure enforcement has a positive effect on women's employment, whereas both inspections and the number of irregularities detected matter for their wages.⁸

To shed more light on the employment results, minimum wage effects were estimated for different sectors of employment: formal sector, informal sector, and self-employment.⁹ These results are found in Table 7 where only the minimum wage coefficients are reported.¹⁰ Note that the estimations are performed using the sample of all individuals of working age who are employed for cash wages. Hence results in Panel A represent the likelihood of formal-sector employment relative to other types of employment in which people earn cash wages, where the formal sector includes those who reported their current employment status as regular salaried wage employees. Similarly Panel B reports the likelihood of informal-sector employment relative to engagement in other cash-based employment, where the informal sector includes those who reported their current employment status as own-account workers, employers, unpaid family workers, casual wage laborers in public works, and casual laborers in other types of work.¹¹ In the same spirit, Panel C shows the likelihood of being self-employed relative to work in other employment with cash wages. Tabulations reveal that there is no overlap between formal-sector employment and the other two categories of work. That is, formal-sector status is mutually exclusive from informal-sector status and self-employment. However, a small percentage of individuals are both self-employed and employed in the informal sector (about 2 percent of the sample).

Insert Table 7 Here

Table 7 reports these results for the formal sector, informal sector, and self-employment using the full sample for each sector as well as sub-samples differentiated by year. We divided the sample into the pre-2005 years (1983 through 1999-2000) and the post-2005 years (2004-05 through 2007-08) in an effort to gauge the impact of India's National Rural Employment Guarantee (NREG) Act (NREGA) of 2005, a large job guarantee scheme that can be considered

a mechanism for enforcing the minimum wage in rural areas. This Act – which assures all rural households at least one hundred days of paid work per year at the statutory minimum wage – has had a large positive effect on public sector employment in India’s rural areas, as estimated in Azam 2012 and Imbert and Papp (2015). These two studies, however, have conflicting results regarding the program’s effect on gender with Azam (2012) finding that NREGA had a large positive impact on the labor force participation of women but not men, while Imbert and Papp (2015) found that the inclusion of proxy variables for other shocks unrelated to the program reversed this conclusion.

The aggregate results in Table 7 indicate that for both men and women, most of the positive employment effects observed for all rural-sector individuals in the aggregate employment results come from formal-sector employment. A possible explanation is the migration of industries to rural areas in order to take advantage of competitive wages (Foster and Rosenzweig 2004). Such industrial migration could also drive the results for the rural informal sector where a sizeable disemployment effect is evident for both men and women. The results for self-employment are lower in magnitude and differ by gender: while rural men see small reductions in self-employment with increases in the minimum wage, it is urban women who exhibit the disemployment effect when it comes to this category of work.

The time-differentiated results in Table 7 reveal that in the formal sector, the positive and statistically significant impact of the minimum wage for the employment of rural men occurred mostly before 2005, while the impact occurred both before and after the NREGA was implemented for rural women. Urban women in the formal sector also experienced an employment boost during the post-2005 years, suggesting that minimum wage increases combined with a strict enforcement scheme helped to pull women into the formal labor market

across the board, possibly due to spillovers of the scheme in urban areas. Similarly, Panel B shows that the disemployment effect for informal sector work among rural men occurred only before NREGA was implemented, while rural women showed a lower likelihood of informal sector employment with minimum wage increases both before and after NREGA. This negative employment effect from the minimum wage for informal-sector women during the post-2005 years also extended to urban areas, but not for men.

In sum, minimum wages strengthened formal-sector employment in rural areas for men and women. Potentially, there could be two reasons. First, employment elasticities could have increased for men and women or second, this employment boost could be the direct impact of NREGA. The specification test results in Table 7 indicate that very little to none of the positive impact of minimum wages in the rural sector for men could be explained by NREGA. For women, some of the positive impact in the rural sector occurred before NREGA was implemented (suggesting a possible role for an increase in employment elasticities from another cause, perhaps as outlined in Foster and Rosenzweig (2004)), and some after. Note that the estimation is based on variation in minimum wage rates across states and industries, while NREGA was applied at the national level and did not vary by industry. Any variation in how states applied NREGA should be captured by the time-varying state control variables included in the specification, which implies that any impact that is measured net of these controls may be attributed separately to positive employment elasticities. This appears to be the case for rural men. However, some of the increase in women's formal employment in the rural sector after 2005 could be attributed to the enforcement mechanism built into NREGA. Although we are not able to pinpoint how much, we can be reasonably sure that the state control variables are picking up much of the employment effects of NREGA even though we do not include a specific

NREGA-related variable in the models of Table 7. This conclusion is consistent with the argument in Imbert and Papp (2015) that some of the positive labor market outcomes for women ascribed to NREGA are actually due to changes unrelated to the program.

We further explored the positive employment results in rural areas by using the NSSO data to construct labor force participation rates by state, year, gender, and rural/urban, and tested for the relationship between minimum wage rates and labor force participation rates with controls for state and year effects. These tests indicate that there is strong evidence of increased labor force participation rates in rural areas in states that have relatively high minimum wages.¹² Interestingly, when we added a gender dimension by interacting the minimum wage and a dummy variable for male workers, we found that for women, the increase in labor force participation rates in rural areas is higher than that for men in the post-2005 in states with relatively high minimum wages. This result helps to explain the minimum wage effects we document in rural areas for women.

The final part of the analysis considers the impact of the minimum wage on the residual wage gap between men and women. The residual wage gap is estimated using the Oaxaca-Blinder decomposition procedure, a technique that decomposes the wage gap in a particular year into a portion explained by average group differences in productivity characteristics and a residual portion that is often attributed to discrimination (Blinder 1973; Oaxaca 1973). We used the coefficients from a regression of men's wages on the full set of worker productivity characteristics, state dummies, year dummies, and state-year interaction terms, estimated with the pooled sample of male wage earners (458,040 observations). The residual wage gaps are averaged to the state and year level and are regressed on controls that vary at this level: the minimum wage, net state domestic product, gender- and sector-specific unemployment rates, the

regulatory environment in each state's labor market, and four measures of minimum-wage enforcement.

Results in Table 8 indicate that the minimum wage is positively associated with the residual gender wage gap. A ten percent increase in the minimum wage results in a 1.28 percent increase in the unexplained portion of the gender wage gap. This finding is consistent with the argument that non-compliance could be greater in the case of women workers, also evident in the kernel density figure for women.¹³ Average wages for women are lower than for men, so the minimum wage is more binding and compliance is relatively more costly for them. This explains why firms might not fully comply with the legislated wage for women workers; all the more likely in contexts in which enforcement is weak and the legal machinery for enforcing contracts is either inefficient or absent.

Insert Table 8 Here

V. CONCLUSION

This study has examined the extent to which minimum wage rates affect labor market outcomes for men and women in India. The empirical results indicate that regardless of gender, the legislated minimum wage has positive and statistically significant impacts on rural-sector employment and real earnings. These positive impacts in rural areas occur primarily in the formal sector, with sizeable disemployment effects observed for informal-sector workers, especially women, and for self-employed individuals, especially men. Hence we find that a higher minimum wage appears to attract more employment for both genders in the formal sectors of rural areas. This finding is not inconsistent with studies reviewed above, especially those that have examined minimum wage impacts across the wage distribution, across sectors, and across geographical areas, and have found employment growth in sectors and areas with high

proportions of low-wage workers and with relatively more underemployment (e.g. Stewart 2002). The finding is also consistent with evidence in Foster and Rosenzweig (2004) that a great deal of industrial capital moved to India's rural areas during this period to set up new enterprises to employ the relatively cheaper labor in these areas. Further, we cannot rule out that the positive employment results in the rural sector for women partly reflect the minimum-wage enforcement mechanism built into India's National Rural Employment Guarantee Act of 2005.

In contrast, minimum wages in India's urban areas have little to no impact on overall employment or wages. These urban-sector results are consistent with previous work in both industrialized and developing countries. However, a closer look at different sectors within India's urban areas yields some evidence of disemployment effects for women who are self-employed or work in informal sector jobs, but not for men. These results are suggestive that NREGA may have even drawn urban women from informal-sector jobs and self-employment.

Our study indicates that the main cost associated with India's minimum wage is an increase in the residual gender wage gap over the 1983 to 2008 time period. This widening in the gender gap is consistent with previous work that highlighted women's relatively weak position in the labor market after reforms, as well as studies that note the persistent clustering of women into low-wage jobs and pay inequities within the same jobs in India (Menon and Rodgers 2009; South Asian Research and Development Initiative 1999). The relatively adverse impact of the minimum wage on women is also consistent with findings in advanced economies and middle income economies such as Mexico, Indonesia, and China. The growing residual gender wage gap is most likely explained by weak compliance by firms that predominantly hire female workers. Noncompliance with minimum wage regulations which is widespread in developing countries is

directly related to difficulty of enforcement. Our findings suggest that women may bear the burden of this lack of compliance.

For the minimum wage to be considered a gender-sensitive policy intervention in a shared-prosperity approach to economic growth, governments must pay more attention to improving enforcement and compliance, especially in industries that employ large concentrations of women workers. Greater emphasis on compliance can help to prevent increases in the gender wage gap and ensure that the minimum wage is a more integral component in the toolkit to promote well-being. Policies that work in tandem to improve women's education and experience in the work-place would help to complement these objectives and further strengthen the effectiveness of a statutory minimum wage.

A possible extension of this research is to examine how India's minimum wage legislation has affected household well-being as measured by poverty incidence, household consumption, or investments in children's human capital. For example, India has seen a steady decline in poverty since 1983 with an even stronger reduction for lower caste groups relative to the more advantaged social groups (Panagariya and Mukim 2014). An interesting question is the extent to which the minimum wage may have contributed to reducing poverty and inequality.

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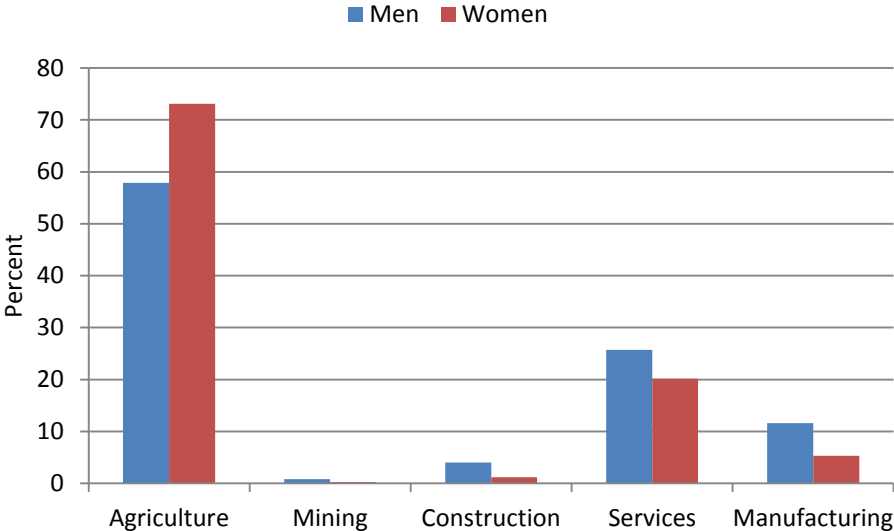
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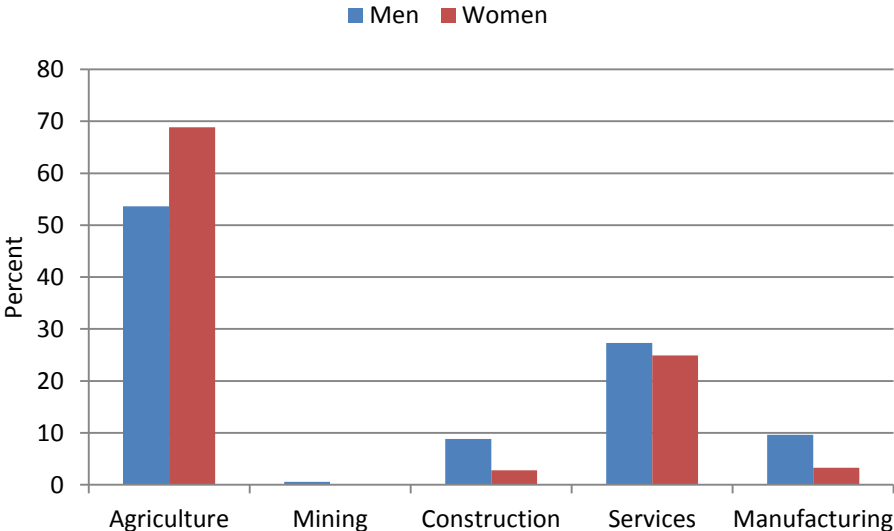
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Figure 1. Men’s and Women’s Employment by Broad Industrial Category, 1983-2008

Panel A: 1983

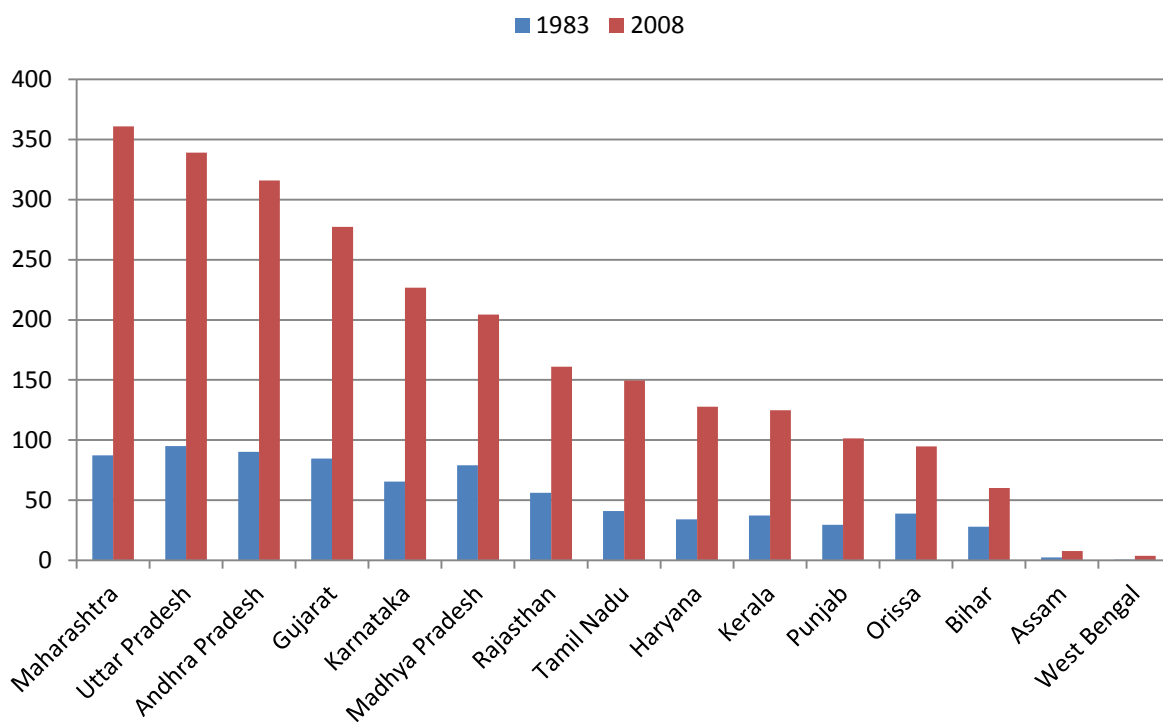


Panel B: 2008



Source: Constructed from NSSO (various years).

Figure 2. Net Real Domestic Product by State, 1983-2008



Source: Reserve Bank of India (2014).

Figure 3a. Kernel Density Estimates of the Relative Real Wage in India for Male and Female Workers

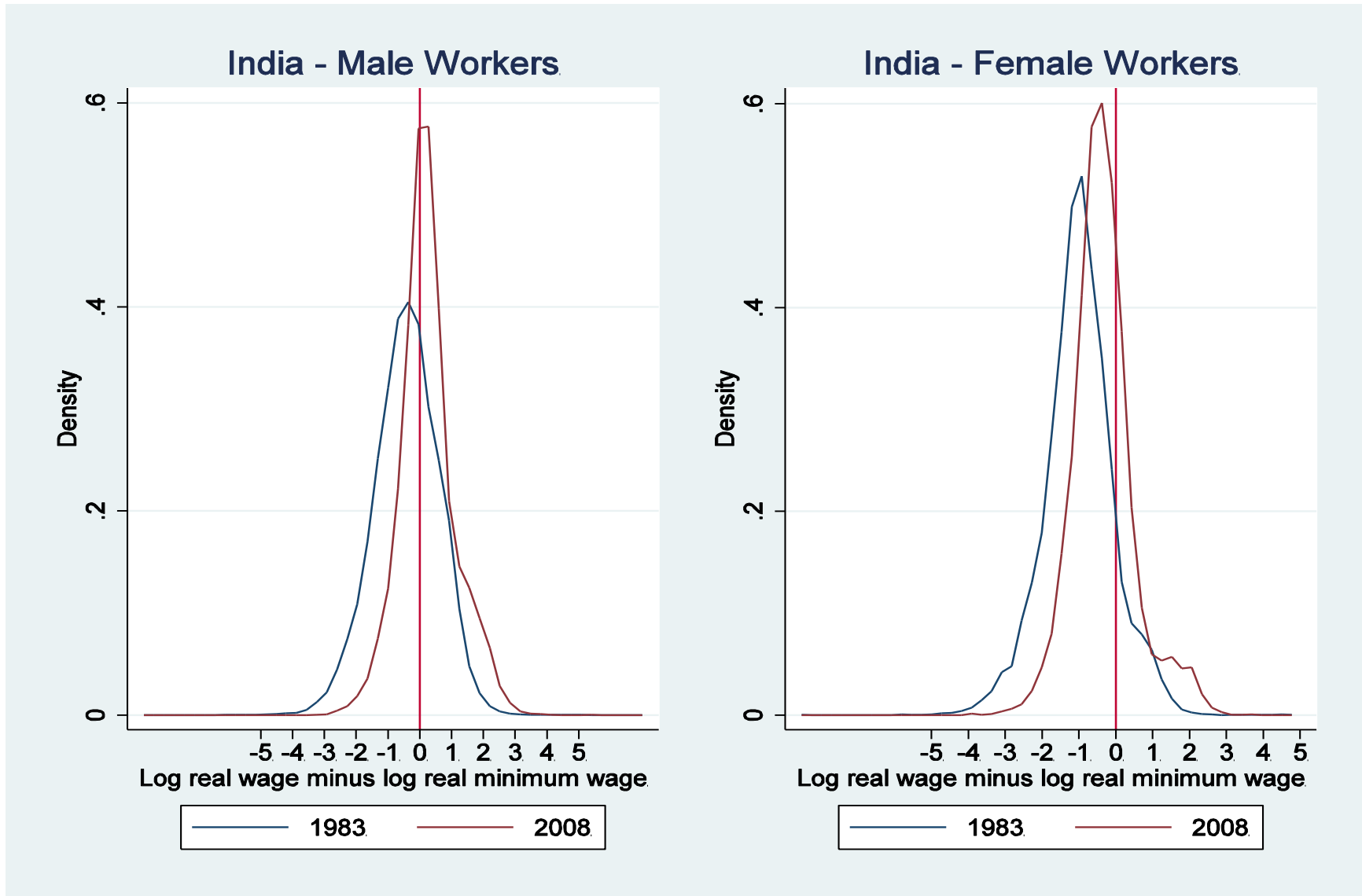


Figure 3b. Kernel Density Estimates of the Relative Real Wage Across Formal and Informal Sector Workers

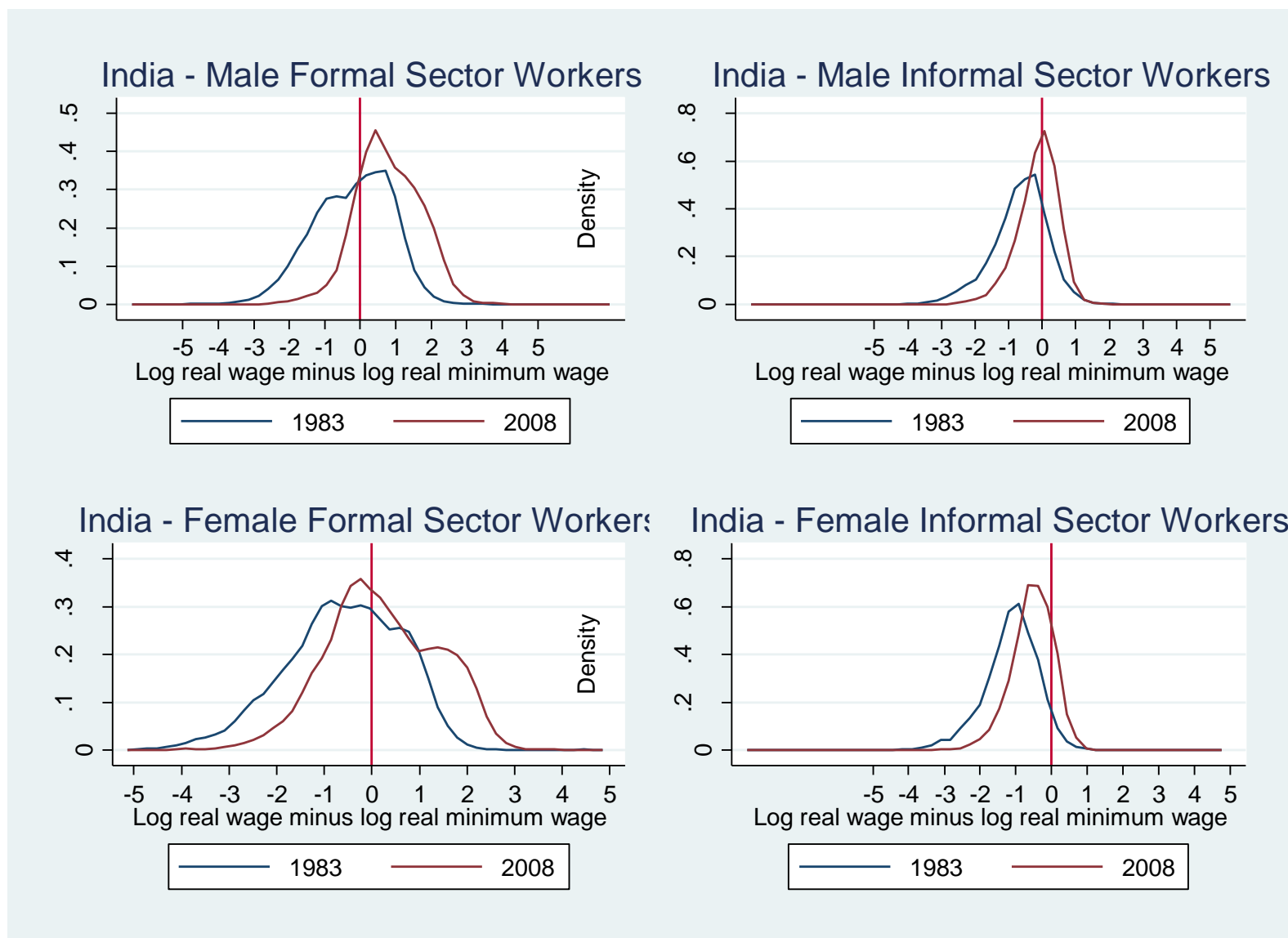


Table 1. Full Sample Means by Gender, 1983 and 2008

	<i>1983</i>		<i>2008</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
Employed for cash wages	0.189 (0.392)	0.087 (0.282)	0.328 (0.470)	0.119 (0.324)
Educational attainment				
Illiterate	0.417 (0.493)	0.737 (0.440)	0.237 (0.426)	0.462 (0.499)
Less than primary school	0.134 (0.341)	0.067 (0.250)	0.102 (0.302)	0.089 (0.285)
Primary school	0.158 (0.365)	0.084 (0.278)	0.158 (0.365)	0.125 (0.331)
Middle school	0.139 (0.346)	0.055 (0.228)	0.207 (0.405)	0.141 (0.348)
Secondary school	0.113 (0.316)	0.043 (0.202)	0.135 (0.342)	0.088 (0.284)
Graduate school	0.040 (0.196)	0.014 (0.119)	0.160 (0.367)	0.095 (0.294)
Potential experience in years	23.875 (14.780)	26.002 (14.533)	22.154 (15.684)	24.623 (15.921)
Potential experience squared/100	7.885 (8.386)	8.873 (8.652)	7.368 (8.336)	8.598 (8.910)
Age in years	34.040 (13.270)	33.736 (13.355)	34.814 (13.692)	35.023 (13.474)
Currently married	0.722 (0.448)	0.753 (0.431)	0.684 (0.465)	0.746 (0.435)
Scheduled tribe/scheduled caste	0.256 (0.436)	0.283 (0.450)	0.291 (0.454)	0.287 (0.452)
Hindu	0.843 (0.364)	0.856 (0.351)	0.831 (0.375)	0.834 (0.372)
Household headed by a man	0.967 (0.179)	0.883 (0.321)	0.946 (0.226)	0.876 (0.330)
Rural	0.733 (0.442)	0.789 (0.408)	0.735 (0.442)	0.747 (0.435)
No. of pre-school children in household	0.762 (0.958)	0.775 (0.957)	0.484 (0.808)	0.516 (0.830)
No. of observations	391,157	244,302	221,443	212,877

Note: Standard deviations are in parentheses, and sample means are weighted. All means are expressed in percent terms unless otherwise noted.

Table 2. Average Daily Minimum Wage Rates by Industry and State, 1983-2008

Panel A: Nominal										
	<i>Agriculture</i>		<i>Mining</i>		<i>Construction</i>		<i>Services</i>		<i>Manufacturing</i>	
	1983	2008	1983	2008	1983	2008	1983	2008	1983	2008
Andhra Pradesh	14.1	74.0	12.3	92.5	14.6	99.9	17.0	95.2	11.2	93.9
Assam	11.5	72.4	13.8	55.0	12.0	72.4	11.0	55.0	11.5	55.0
Bihar	9.3	77.0	14.1	77.0	18.8	77.0	20.9	77.0	14.0	77.0
Gujarat	15.2	94.1	14.9	93.0	16.3	95.3	15.1	95.1	14.9	94.7
Haryana	19.8	95.6	21.0	95.6	21.1	95.6	28.1	95.6	23.6	95.6
Karnataka	10.0	73.1	11.2	79.3	11.8	83.6	13.2	84.6	10.5	81.0
Kerala	7.5	101.0	6.6	276.2	17.1	165.7	13.5	123.0	7.9	114.6
Madhya Pradesh	10.7	79.0	10.7	95.0	14.3	95.0	15.9	95.0	17.0	95.0
Maharashtra	11.8	94.0	9.9	87.0	22.5	87.0	12.5	87.0	13.7	87.0
Orissa	9.5	55.0	15.3	55.0	15.3	55.0	15.1	55.0	17.0	55.0
Punjab	10.3	98.5	12.6	98.5	17.1	98.5	14.7	127.0	14.5	127.0
Rajasthan	22.0	73.0	22.0	80.4	22.0	73.0	22.0	73.0	22.0	73.0
Tamil Nadu	10.0	70.8	16.6	94.9	19.0	113.8	9.5	86.4	5.5	77.2
Uttar Pradesh	9.0	85.9	9.5	112.7	9.5	100.2	11.4	100.2	14.5	100.2
West Bengal	23.0	134.5	28.0	134.5	24.8	134.5	31.5	144.8	23.6	134.5

Panel B: Real										
	<i>Agriculture</i>		<i>Mining</i>		<i>Construction</i>		<i>Services</i>		<i>Manufacturing</i>	
	1983	2008	1983	2008	1983	2008	1983	2008	1983	2008
Andhra Pradesh	14.1	14.9	12.3	18.6	14.6	20.1	17.0	19.2	11.2	18.9
Assam	11.5	14.6	13.8	11.1	12.0	14.6	11.0	11.1	11.5	11.1
Bihar	9.3	15.5	14.1	15.5	18.8	15.5	20.9	15.5	14.0	15.5
Gujarat	15.2	18.9	14.9	18.7	16.3	19.2	15.1	19.1	14.9	19.1
Haryana	19.8	19.2	21.0	19.2	21.1	19.2	28.1	19.2	23.6	19.2
Karnataka	10.0	14.7	11.2	16.0	11.8	16.8	13.2	17.0	10.5	16.3
Kerala	7.5	20.3	6.6	55.6	17.1	33.3	13.5	24.8	7.9	23.1
Madhya Pradesh	10.7	15.9	10.7	19.1	14.3	19.1	15.9	19.1	17.0	19.1
Maharashtra	11.8	18.9	9.9	17.5	22.5	17.5	12.5	17.5	13.7	17.5
Orissa	9.5	11.1	15.3	11.1	15.3	11.1	15.1	11.1	17.0	11.1
Punjab	10.3	19.8	12.6	19.8	17.1	19.8	14.7	25.6	14.5	25.6
Rajasthan	22.0	14.7	22.0	16.2	22.0	14.7	22.0	14.7	22.0	14.7
Tamil Nadu	10.0	14.3	16.6	19.1	19.0	22.9	9.5	17.4	5.5	15.5
Uttar Pradesh	9.0	17.3	9.5	22.7	9.5	20.2	11.4	20.2	14.5	20.2
West Bengal	23.0	27.1	28.0	27.1	24.8	27.1	31.5	29.1	23.6	27.1

Source: Aggregated from data in Government of India, Labour Bureau (various years). Nominal wages in rupees, real wages are pegged to price indices with a base year of 1983.

Table 3. Determinants of Employment and Wages for Men in the Rural Sector

<i>Variable</i>	<i>Employment probability</i>		<i>Log wages</i>	
	<i>Coefficient</i>	<i>Standard error</i>	<i>Coefficient</i>	<i>Standard error</i>
Minimum Wage	0.634***	(0.078)	1.078***	(0.213)
Education (reference group = illiterate)				
Less than primary school	-0.061***	(0.009)	0.110***	(0.020)
Primary school	-0.063***	(0.008)	0.179***	(0.036)
Middle school	-0.059***	(0.013)	0.334***	(0.043)
Secondary school	-0.043**	(0.017)	0.736***	(0.067)
Graduate school	0.073**	(0.031)	1.237***	(0.086)
Years of potential experience	0.010***	(0.001)	0.036***	(0.002)
Potential experience squared/100	-0.017***	(0.001)	-0.047***	(0.004)
Currently married	0.053***	(0.008)	0.005	(0.021)
Scheduled tribe/scheduled caste	0.064***	(0.009)	-0.040**	(0.016)
Hindu	0.000	(0.008)	-0.047	(0.027)
Household headed by a man	-0.041**	(0.014)	-0.007	(0.045)
Number of preschool children	-0.005**	(0.002)	-0.004	(0.008)
Net state domestic product	0.002***	(0.000)	0.005***	(0.000)
State unemployment rate	0.009***	(0.001)	0.025***	(0.003)
State regulations: Adjustments	-0.019***	(0.006)	-0.147***	(0.028)
State regulations: Disputes	-0.024***	(0.004)	-0.025***	(0.005)
Enforcement: Inspections	0.030***	(0.003)	0.083***	(0.011)
Enforcement: Irregularities	-0.011***	(0.001)	-0.013***	(0.003)
Enforcement: Cases w/ fines	-0.085***	(0.011)	0.333***	(0.014)
Enforcement: Value of fines	0.008***	(0.001)	0.017***	(0.002)
No. Observations	1,216,259		218,506	

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation *** is $p < 0.01$, ** is $p < 0.05$, * is $p < 0.10$. Both regressions include state dummies, time dummies, and state-time interactions terms.

Table 4. Determinants of Employment and Wages for Women in the Rural Sector

<i>Variable</i>	<i>Employment probability</i>		<i>Log wages</i>	
	<i>Coefficient</i>	<i>Standard error</i>	<i>Coefficient</i>	<i>Standard error</i>
Minimum Wage	0.602 ^{***}	(0.093)	0.687 ^{**}	(0.248)
Education (reference group = illiterate)				
Less than primary school	-0.058 ^{***}	(0.014)	0.097 ^{***}	(0.030)
Primary school	-0.060 ^{***}	(0.014)	0.161 ^{**}	(0.066)
Middle school	-0.075 ^{***}	(0.016)	0.199 ^{***}	(0.044)
Secondary school	-0.043 [*]	(0.018)	0.804 ^{***}	(0.085)
Graduate school	0.084 ^{***}	(0.022)	1.329 ^{***}	(0.132)
Years of potential experience	0.005 ^{***}	(0.001)	0.022 ^{***}	(0.005)
Potential experience squared/100	-0.008 ^{***}	(0.001)	-0.031 ^{***}	(0.007)
Currently married	0.007 [*]	(0.004)	-0.012	(0.013)
Scheduled tribe/scheduled caste	0.053 ^{***}	(0.008)	0.028	(0.021)
Hindu	0.006	(0.008)	-0.006	(0.043)
Household headed by a man	-0.073 ^{***}	(0.010)	-0.049	(0.033)
Number of preschool children	-0.005 ^{***}	(0.002)	-0.010	(0.009)
Net state domestic product	-0.001 ^{***}	(0.000)	0.003 ^{***}	(0.000)
State unemployment rate	-0.003 ^{***}	(0.000)	-0.001	(0.001)
State regulations: Adjustments	-0.076 ^{***}	(0.016)	-0.230 ^{***}	(0.044)
State regulations: Disputes	-0.039 ^{***}	(0.003)	0.060 ^{***}	(0.004)
Enforcement: Inspections	0.027 ^{***}	(0.004)	0.036 ^{***}	(0.011)
Enforcement: Irregularities	-0.003 ^{***}	(0.000)	-0.004 ^{***}	(0.001)
Enforcement: Cases w/ fines	-0.149 ^{***}	(0.016)	0.146 ^{***}	(0.032)
Enforcement: Value of fines	0.007 ^{***}	(0.001)	0.002	(0.001)
No. Observations	963,269		85,753	

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation ^{***} is $p < 0.01$, ^{**} is $p < 0.05$, ^{*} is $p < 0.10$. Both regressions include state dummies, time dummies, and state-time interactions terms.

Table 5. Determinants of Employment and Wages for Men in the Urban Sector

<i>Variable</i>	<i>Employment probability</i>		<i>Log wages</i>	
	<i>Coefficient</i>	<i>Standard error</i>	<i>Coefficient</i>	<i>Standard error</i>
Minimum Wage	0.132	(0.221)	0.247	(0.191)
Education (reference group = illiterate)				
Less than primary school	-0.024**	(0.010)	0.170***	(0.033)
Primary school	0.045***	(0.014)	0.248***	(0.045)
Middle school	0.078***	(0.019)	0.375***	(0.045)
Secondary school	0.110***	(0.022)	0.748***	(0.053)
Graduate school	0.197***	(0.019)	1.309***	(0.060)
Years of potential experience	0.018***	(0.001)	0.051***	(0.004)
Potential experience squared/100	-0.029***	(0.002)	-0.068***	(0.006)
Currently married	0.123***	(0.017)	0.179**	(0.027)
Scheduled tribe/scheduled caste	0.038***	(0.008)	-0.041**	(0.015)
Hindu	0.032***	(0.007)	-0.041**	(0.019)
Household headed by a man	-0.088***	(0.012)	0.014	(0.033)
Number of preschool children	-0.016***	(0.004)	-0.009	(0.011)
Net state domestic product	0.000	(0.000)	0.000*	(0.000)
State unemployment rate	0.001	(0.001)	-0.005***	(0.000)
State regulations: Adjustments	-0.015	(0.036)	-0.053	(0.031)
State regulations: Disputes	-0.009	(0.014)	0.046***	(0.010)
Enforcement: Inspections	0.000	(0.004)	0.007***	(0.002)
Enforcement: Irregularities	-0.002**	(0.001)	0.009***	(0.000)
Enforcement: Cases w/ fines	-0.052**	(0.022)	0.134***	(0.030)
Enforcement: Value of fines	0.002	(0.003)	0.000	(0.002)
No. Observations	690,342		239,534	

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation *** is $p < 0.01$, ** is $p < 0.05$, * is $p < 0.10$. Both regressions include state dummies, time dummies, and state-time interactions terms.

Table 6. Determinants of Employment and Wages for Women in the Urban Sector

<i>Variable</i>	<i>Employment probability</i>		<i>Log wages</i>	
	<i>Coefficient</i>	<i>Standard error</i>	<i>Coefficient</i>	<i>Standard error</i>
Minimum Wage	-0.342	(0.313)	0.432	(0.321)
Education (reference group = illiterate)				
Less than primary school	-0.053 ^{***}	(0.014)	0.244 ^{**}	(0.089)
Primary school	-0.055 ^{***}	(0.014)	0.317 ^{***}	(0.095)
Middle school	-0.046 ^{***}	(0.014)	0.492 ^{***}	(0.131)
Secondary school	0.017	(0.013)	1.107 ^{***}	(0.108)
Graduate school	0.184 ^{***}	(0.019)	1.663 ^{***}	(0.071)
Years of potential experience	0.009 ^{***}	(0.001)	0.048 ^{***}	(0.005)
Potential experience squared/100	-0.015 ^{***}	(0.002)	-0.065 ^{***}	(0.008)
Currently married	-0.032 ^{***}	(0.008)	0.136 ^{**}	(0.051)
Scheduled tribe/scheduled caste	0.039 ^{***}	(0.006)	0.078 [*]	(0.039)
Hindu	0.011	(0.007)	0.006	(0.083)
Household headed by a man	-0.114 ^{***}	(0.014)	-0.247 ^{***}	(0.047)
Number of preschool children	-0.015 ^{***}	(0.002)	0.002	(0.029)
Net state domestic product	0.001	(0.001)	0.001 ^{***}	(0.000)
State unemployment rate	0.001	(0.001)	-0.001	(0.001)
State regulations: Adjustments	0.065 ^{**}	(0.029)	-0.165 ^{***}	(0.034)
State regulations: Disputes	0.018	(0.020)	0.029	(0.019)
Enforcement: Inspections	0.001 ^{***}	(0.000)	0.008 ^{***}	(0.002)
Enforcement: Irregularities	0.002	(0.002)	0.010 ^{***}	(0.001)
Enforcement: Cases w/ fines	0.066	(0.077)	0.052	(0.078)
Enforcement: Value of fines	-0.004	(0.004)	0.003	(0.003)
No. Observations	462,224		53,828	

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation ^{***} is $p < 0.01$, ^{**} is $p < 0.05$, ^{*} is $p < 0.10$. Both regressions include state dummies, time dummies, and state-time interactions terms.

Table 7. Minimum Wage Coefficients from Employment Estimations Across Sectors, Before and After 2005

	<i>Men's Employment</i>		<i>Women's Employment</i>	
	<i>Coefficient</i>	<i>Standard error</i>	<i>Coefficient</i>	<i>Standard error</i>
Panel A. Formal Sector				
Rural: total	0.654 ^{***}	(0.162)	0.696 ^{***}	(0.165)
Rural: pre-2005	0.655 ^{***}	(0.162)	0.696 ^{***}	(0.165)
Rural: post-2005	0.414	(0.304)	0.844 ^{***}	(0.265)
Urban: total	-0.050	(0.324)	0.376	(0.297)
Urban: pre-2005	-0.050	(0.324)	0.375	(0.297)
Urban: post-2005	-0.358	(0.233)	0.773 [*]	(0.435)
Panel B. Informal Sector				
Rural: total	-0.650 ^{***}	(0.173)	-0.749 ^{***}	(0.159)
Rural: pre-2005	-0.651 ^{***}	(0.173)	-0.748 ^{***}	(0.159)
Rural: post-2005	-0.402	(0.297)	-0.868 ^{***}	(0.281)
Urban: total	0.038	(0.328)	-0.374	(0.302)
Urban: pre-2005	0.038	(0.328)	-0.374	(0.302)
Urban: post-2005	0.353	(0.232)	-0.787 [*]	(0.435)
Panel C. Self-Employment				
Rural: total	-0.084 ^{**}	(0.033)	-0.016	(0.010)
Rural: pre-2005	-0.084 ^{**}	(0.033)	-0.016	(0.010)
Rural: post-2005	-0.059	(0.035)	-0.006	(0.012)
Urban: total	-0.010	(0.006)	-0.021 ^{***}	(0.006)
Urban: pre-2005	-0.010	(0.006)	-0.021 ^{***}	(0.006)
Urban: post-2005	-0.008	(0.010)	-0.001	(0.004)

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation ^{***} is $p < 0.01$, ^{**} is $p < 0.05$, ^{*} is $p < 0.10$. Results are reported for the coefficient on the real minimum wage from separate regressions for whether or not an individual is employed in a particular sector (formal, informal, or self-employment). All regressions include the full set of control variables shown in Tables 3-6 plus state dummies, time dummies, and state-time interactions terms. Pre-2005 years are based on the 1983 through 1999-2000 NSSO, and post-2005 years are based on the 2004-05 through the 2007-08 NSSO.

Table 8. Residual Wage Gap Covariates at the State Level

	<i>Coefficient Estimate</i>
Minimum Wage	0.128 [*] (0.060)
Net state domestic product	0.001 ^{***} (0.000)
Rural male unemployment	0.003 ^{***} (0.001)
Urban male unemployment	-0.001 (0.001)
Rural female unemployment	-0.001 ^{**} (0.000)
Urban female unemployment	0.001 (0.001)
State regulations: Adjustments	-0.005 (0.016)
State regulations: Disputes	0.007 (0.009)
Enforcement: Inspections	0.002 ^{**} (0.001)
Enforcement: Irregularities	-0.006 ^{**} (0.003)
Enforcement: Cases w/ fines	-0.032 (0.047)
Enforcement: Value of fines	-0.002 [*] (0.001)

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation ^{***} is $p < 0.01$, ^{**} is $p < 0.05$, ^{*} is $p < 0.10$. All regressions have 90 observations at the state-year level and are estimated with OLS. The residual wage gap is constructed with the pooled sample of male wage earners (458,040 observations) and includes controls for worker productivity characteristics, state dummies, year dummies, and state and year interaction terms.

Appendix Table 1. Variable Descriptions and Data Sources

<i>Description</i>	<i>Name of Source and Years of Data</i>
Individual and household characteristics	NSSO: 1983, 1987-88, 1993-94, 1999-2000, 2004-05, 2007-08
State-level net real domestic product	Reserve Bank of India: 1983, 1987, 1993, 1999, 2004, 2007
State-level unemployment rates	Indiastat, NSSO: 1983, 1987-88, 1993-94, 1999-2000, 2004-05, 2007-08
State-level indicators of minimum wage enforcement	Labour Bureau: 1983, 1986, 1993, 1998, 2004, 2006
State-level labor market regulations on adjustment and disputes	Ahsan and Pagés (2009): 1983, 1986, 1993, 1998, 2004, 2006
State- and industry-level minimum wages	Labour Bureau: 1983, 1986, 1993, 1998, 2004, 2006

Appendix Table 2a. Complete Regression Results for Employment Estimations in the Formal Sector, Before and After 2005

Formal Sector Results	Rural				Urban			
	Men		Women		Men		Women	
	Pre-2005	Post-2005	Pre-2005	Post-2005	Pre-2005	Post-2005	Pre-2005	Post-2005
Minimum Wage	0.655*** (0.162)	0.414 (0.304)	0.696*** (0.165)	0.844*** (0.265)	-0.050 (0.324)	-0.358 (0.233)	0.375 (0.297)	0.773* (0.435)
Education (reference group = illiterate)								
Less than primary school	0.066*** (0.008)	0.047*** (0.005)	0.038** (0.015)	0.063*** (0.010)	0.187*** (0.023)	0.144*** (0.016)	0.136*** (0.027)	0.112 (0.069)
Primary school	0.118*** (0.015)	0.110*** (0.009)	0.131*** (0.039)	0.104*** (0.013)	0.254*** (0.022)	0.234*** (0.018)	0.252*** (0.034)	0.145*** (0.044)
Middle school	0.256*** (0.023)	0.232*** (0.011)	0.187*** (0.030)	0.230*** (0.032)	0.357*** (0.020)	0.335*** (0.015)	0.464*** (0.039)	0.230*** (0.057)
Secondary school	0.524*** (0.027)	0.476*** (0.022)	0.607*** (0.031)	0.593*** (0.048)	0.534*** (0.028)	0.483*** (0.023)	0.602*** (0.043)	0.465*** (0.054)
Graduate school	0.777*** (0.039)	0.776*** (0.024)	0.817*** (0.066)	0.868*** (0.038)	0.608*** (0.031)	0.591*** (0.036)	0.626*** (0.049)	0.545*** (0.053)
Years of potential experience	0.015*** (0.001)	0.013*** (0.001)	0.007*** (0.002)	0.011*** (0.001)	0.007*** (0.002)	0.006*** (0.001)	0.000 (0.002)	0.005* (0.002)
Potential experience squared/100	-0.020*** (0.002)	-0.017*** (0.002)	-0.009*** (0.003)	-0.014*** (0.002)	-0.004 (0.003)	-0.006*** (0.002)	0.006* (0.003)	-0.005 (0.005)
Currently married	-0.020** (0.008)	-0.038*** (0.008)	-0.016* (0.009)	-0.037*** (0.007)	-0.006 (0.010)	-0.013 (0.012)	-0.054*** (0.017)	-0.080*** (0.020)
Scheduled tribe/scheduled caste	-0.052*** (0.011)	-0.078*** (0.016)	-0.006 (0.009)	-0.022*** (0.005)	-0.057*** (0.016)	-0.074*** (0.013)	-0.017 (0.012)	-0.006 (0.018)
Hindu	0.014 (0.013)	0.014 (0.016)	0.013 (0.011)	-0.014* (0.007)	0.034 (0.020)	0.028* (0.015)	0.020 (0.023)	-0.017 (0.025)
Household headed by a man	0.034 (0.030)	0.013 (0.013)	-0.015 (0.010)	-0.018 (0.011)	0.077*** (0.024)	0.034* (0.017)	0.035 (0.040)	-0.014 (0.015)
Number of preschool children	-0.008* (0.004)	-0.004 (0.002)	-0.005 (0.006)	0.007** (0.003)	-0.017** (0.008)	-0.021** (0.008)	-0.004 (0.008)	-0.007 (0.011)

Net state domestic product	-0.000 ^{***} (0.000)	-0.001 (0.001)	0.001 ^{***} (0.000)	-0.001 ^{***} (0.000)	0.000 (0.002)	0.001 ^{**} (0.000)	-0.000 (0.000)	-0.001 (0.001)
State unemployment rate	0.007 ^{***} (0.002)	-0.009 (0.005)	-0.003 ^{***} (0.001)	-0.001 ^{**} (0.000)	0.002 (0.006)	-0.001 (0.002)	-0.001 (0.001)	-0.001 [*] (0.001)
State regulations: Adjustments	-0.110 ^{***} (0.028)	-0.148 [*] (0.083)	-0.152 ^{**} (0.048)	-0.085 ^{**} (0.030)	-0.020 (0.021)	0.053 (0.050)	0.024 (0.030)	-0.107 (0.080)
State regulations: Disputes	-0.039 ^{***} (0.006)	0.010 ^{***} (0.003)	0.068 ^{***} (0.013)	-0.078 ^{**} (0.031)	-0.004 (0.031)	0.071 ^{***} (0.006)	-0.007 (0.018)	-0.058 (0.041)
Enforcement: Inspections	0.026 ^{***} (0.007)	0.002 (0.002)	0.012 ^{**} (0.004)	-0.010 ^{***} (0.003)	-0.004 ^{***} (0.000)	0.006 ^{***} (0.001)	0.018 (0.012)	-0.013 [*] (0.007)
Enforcement: Irregularities	-0.009 ^{***} (0.002)	-0.048 [*] (0.023)	-0.008 ^{***} (0.002)	0.011 (0.010)	0.002 (0.004)	-0.021 ^{**} (0.009)	0.005 ^{***} (0.001)	0.001 (0.010)
Enforcement: Cases w/ fines	-0.057 ^{**} (0.020)	-0.103 ^{***} (0.017)	0.050 (0.084)	0.088 ^{***} (0.014)
Enforcement: Value of fines	0.007 ^{***} (0.002)	0.008 (0.005)	0.002 ^{***} (0.001)	-0.004 ^{***} (0.001)	-0.001 (0.004)	0.002 (0.001)	0.002 (0.003)	-0.005 ^{***} (0.001)
No. Observations	140,354	78,152	57,831	27,922	182,426	57,108	39,203	14,625

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation ^{***} is $p < 0.01$, ^{**} is $p < 0.05$, ^{*} is $p < 0.10$. All regressions include state dummies, time dummies, and state-time interactions terms.

Appendix Table 2b. Complete Regression Results for Employment Estimations in the Informal Sector, Before and After 2005

Informal Sector Results	Rural				Urban			
	Men		Women		Men		Women	
	Pre-2005	Post-2005	Pre-2005	Post-2005	Pre-2005	Post-2005	Pre-2005	Post-2005
Minimum Wage	-0.651*** (0.173)	-0.402 (0.297)	-0.748*** (0.159)	-0.868*** (0.281)	0.038 (0.328)	0.353 (0.232)	-0.374 (0.302)	-0.787* (0.435)
Education (reference group = illiterate)								
Less than primary school	-0.066*** (0.008)	-0.046*** (0.005)	-0.030 (0.019)	-0.061*** (0.009)	-0.189*** (0.023)	-0.141*** (0.017)	-0.133*** (0.029)	-0.108 (0.067)
Primary school	-0.118*** (0.015)	-0.110*** (0.009)	-0.136*** (0.042)	-0.105*** (0.013)	-0.258*** (0.022)	-0.231*** (0.019)	-0.252*** (0.036)	-0.153*** (0.047)
Middle school	-0.259*** (0.023)	-0.231*** (0.011)	-0.185*** (0.032)	-0.226*** (0.030)	-0.356*** (0.020)	-0.332*** (0.015)	-0.464*** (0.040)	-0.236*** (0.053)
Secondary school	-0.531*** (0.027)	-0.473*** (0.023)	-0.600*** (0.033)	-0.595*** (0.050)	-0.538*** (0.028)	-0.480*** (0.023)	-0.606*** (0.042)	-0.468*** (0.051)
Graduate school	-0.788*** (0.043)	-0.776*** (0.025)	-0.835*** (0.058)	-0.866*** (0.040)	-0.610*** (0.032)	-0.590*** (0.035)	-0.634*** (0.051)	-0.552*** (0.051)
Years of potential experience	-0.015*** (0.001)	-0.013*** (0.001)	-0.007*** (0.002)	-0.011*** (0.001)	-0.007*** (0.002)	-0.006*** (0.001)	0.000 (0.002)	-0.005* (0.002)
Potential experience squared/100	0.020*** (0.002)	0.017*** (0.002)	0.009*** (0.003)	0.015*** (0.002)	0.004 (0.003)	0.006*** (0.002)	-0.006* (0.003)	0.005 (0.006)
Currently married	0.022** (0.009)	0.037*** (0.008)	0.019* (0.009)	0.036*** (0.009)	0.006 (0.009)	0.011 (0.011)	0.041** (0.014)	0.075*** (0.019)
Scheduled tribe/scheduled caste	0.051*** (0.012)	0.078*** (0.016)	0.000 (0.009)	0.021*** (0.007)	0.061*** (0.016)	0.072*** (0.011)	0.022 (0.013)	0.000 (0.017)
Hindu	-0.014 (0.012)	-0.013 (0.017)	-0.017 (0.010)	0.013 (0.008)	-0.037* (0.020)	-0.025 (0.015)	-0.027 (0.026)	0.016 (0.024)
Household headed by a man	-0.027 (0.027)	-0.012 (0.012)	0.012 (0.011)	0.016 (0.013)	-0.078** (0.027)	-0.033* (0.017)	-0.026 (0.037)	0.013 (0.015)
Number of preschool children	0.007* (0.004)	0.004 (0.003)	0.005 (0.004)	-0.008* (0.004)	0.017** (0.007)	0.021** (0.008)	0.004 (0.008)	0.008 (0.011)

Net state domestic product	0.000 ^{***} (0.000)	0.001 [*] (0.001)	-0.002 ^{***} (0.000)	0.001 ^{***} (0.000)	-0.000 (0.002)	-0.001 ^{**} (0.000)	0.000 (0.000)	0.001 (0.001)
State unemployment rate	-0.007 ^{***} (0.002)	0.010 [*] (0.005)	0.003 ^{***} (0.001)	0.001 ^{**} (0.000)	-0.002 (0.006)	0.001 (0.002)	0.001 (0.001)	0.001 [*] (0.001)
State regulations: Adjustments	0.112 ^{***} (0.030)	0.153 [*] (0.081)	0.167 ^{***} (0.046)	0.070 ^{**} (0.032)	0.017 (0.021)	-0.054 (0.050)	-0.026 (0.031)	0.110 (0.080)
State regulations: Disputes	0.038 ^{***} (0.007)	-0.008 ^{**} (0.003)	-0.072 ^{***} (0.012)	0.099 ^{***} (0.032)	0.004 (0.032)	-0.067 ^{***} (0.006)	0.008 (0.018)	0.067 (0.041)
Enforcement: Inspections	-0.025 ^{***} (0.008)	-0.001 (0.002)	-0.013 ^{***} (0.004)	0.014 ^{***} (0.003)	0.004 ^{***} (0.000)	-0.006 ^{***} (0.001)	-0.019 (0.012)	0.015 ^{**} (0.007)
Enforcement: Irregularities	0.008 ^{***} (0.002)	0.051 ^{**} (0.023)	0.009 ^{***} (0.002)	-0.026 ^{**} (0.010)	-0.002 (0.004)	0.019 ^{**} (0.009)	-0.006 ^{***} (0.001)	-0.004 (0.010)
Enforcement: Cases w/ fines	0.062 ^{**} (0.021)	0.112 ^{***} (0.016)	-0.042 (0.085)	-0.092 ^{***} (0.014)
Enforcement: Value of fines	-0.007 ^{***} (0.002)	-0.010 [*] (0.005)	-0.003 ^{***} (0.001)	0.005 ^{***} (0.001)	0.001 (0.005)	-0.002 (0.001)	-0.002 (0.003)	0.005 ^{***} (0.001)
No. Observations	140,354	78,152	57,831	27,922	182,426	57,108	39,203	14,625

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation ^{***} is $p < 0.01$, ^{**} is $p < 0.05$, ^{*} is $p < 0.10$. All regressions include state dummies, time dummies, and state-time interactions terms.

Appendix Table 2c. Complete Regression Results for Employment Estimations for the Self-Employed, Before and After 2005

Self-Employed Results	Rural				Urban			
	Men		Women		Men		Women	
	Pre-2005	Post-2005	Pre-2005	Post-2005	Pre-2005	Post-2005	Pre-2005	Post-2005
Minimum Wage	-0.084** (0.033)	-0.059 (0.035)	-0.016 (0.010)	-0.006 (0.012)	-0.010 (0.006)	-0.008 (0.010)	-0.021*** (0.006)	-0.001 (0.004)
Education (reference group = illiterate)								
Less than primary school	0.005* (0.003)	0.003 (0.003)	-0.001 (0.004)	0.005 (0.005)	-0.000 (0.003)	-0.000 (0.002)	0.002 (0.004)	0.006* (0.003)
Primary school	0.002 (0.004)	0.004 (0.005)	0.000 (0.004)	0.000 (0.002)	-0.000 (0.002)	-0.002 (0.002)	-0.002 (0.004)	-0.002* (0.001)
Middle school	-0.001 (0.004)	0.002 (0.005)	0.004 (0.004)	0.004 (0.003)	-0.003* (0.002)	-0.001 (0.001)	-0.002 (0.004)	-0.002** (0.001)
Secondary school	-0.008* (0.004)	-0.005 (0.005)	0.003 (0.005)	0.000 (0.003)	-0.003* (0.002)	-0.003* (0.001)	-0.005* (0.003)	-0.003** (0.001)
Graduate school	-0.014*** (0.004)	-0.009** (0.004)	0.002 (0.004)	0.001 (0.004)	-0.004* (0.002)	-0.003** (0.001)	-0.003 (0.002)	-0.003** (0.001)
Years of potential experience	0.001** (0.000)	0.001*** (0.000)	0.001* (0.000)	0.001* (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Potential experience squared/100	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001* (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Currently married	0.012*** (0.003)	0.011*** (0.002)	-0.002 (0.004)	-0.001 (0.002)	0.002** (0.001)	0.001 (0.001)	0.004** (0.002)	0.001 (0.001)
Scheduled tribe/scheduled caste	-0.006** (0.002)	-0.005* (0.003)	-0.006 (0.005)	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.001 (0.002)	0.001 (0.001)
Hindu	0.005** (0.002)	0.004 (0.003)	0.004 (0.003)	0.004** (0.002)	-0.000 (0.001)	0.000 (0.001)	-0.004 (0.003)	-0.001 (0.002)
Household headed by a man	0.004 (0.006)	0.001 (0.002)	-0.006 (0.007)	-0.005*** (0.002)	-0.001 (0.003)	-0.001 (0.001)	-0.005 (0.004)	-0.002 (0.001)
Number of preschool children	0.001 (0.001)	-0.001 (0.001)	0.001 (0.002)	0.000 (0.001)	0.000 (0.000)	0.001 (0.000)	0.000 (0.002)	-0.001 (0.001)

Net state domestic product	0.000 ^{***} (0.000)	0.000 ^{***} (0.000)	0.000 ^{***} (0.000)	0.000 ^{***} (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 ^{***} (0.000)	0.000 (0.000)
State unemployment rate	-0.001 ^{**} (0.000)	0.001 (0.001)	0.000 ^{***} (0.000)	0.000 (0.000)	-0.001 ^{***} (0.000)	0.000 (0.000)	0.001 ^{***} (0.000)	0.000 (0.000)
State regulations: Adjustments	0.018 ^{***} (0.005)	0.021 ^{**} (0.010)	0.014 ^{***} (0.003)	0.003 ^{**} (0.001)	0.007 ^{***} (0.000)	0.003 (0.002)	0.003 ^{***} (0.001)	0.000 (0.001)
State regulations: Disputes	0.010 ^{***} (0.001)	0.003 ^{***} (0.001)	0.001 (0.001)	0.002 (0.001)	0.005 ^{***} (0.001)	0.000 (0.000)	0.006 ^{***} (0.000)	0.000 (0.000)
Enforcement: Inspections	-0.003 ^{**} (0.001)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.001 ^{***} (0.000)	-0.000 (0.000)	0.000 [*] (0.000)	-0.000 (0.000)
Enforcement: Irregularities	-0.000 (0.000)	0.004 (0.003)	-0.000 ^{**} (0.000)	-0.001 ^{**} (0.000)	-0.000 (0.000)	0.001 ^{**} (0.000)	-0.002 ^{***} (0.000)	-0.001 ^{***} (0.000)
Enforcement: Cases w/ fines	-0.006 (0.004)	0.005 ^{***} (0.001)	0.002 (0.002)	0.026 ^{***} (0.000)
Enforcement: Value of fines	-0.001 ^{***} (0.000)	-0.002 ^{**} (0.001)	-0.000 (0.000)	-0.000 ^{***} (0.000)	-0.001 ^{***} (0.000)	-0.000 (0.000)	-0.001 ^{***} (0.000)	-0.000 ^{***} (0.000)
No. Observations	140,354	78,152	57,831	27,922	182,426	57,108	39,203	14,625

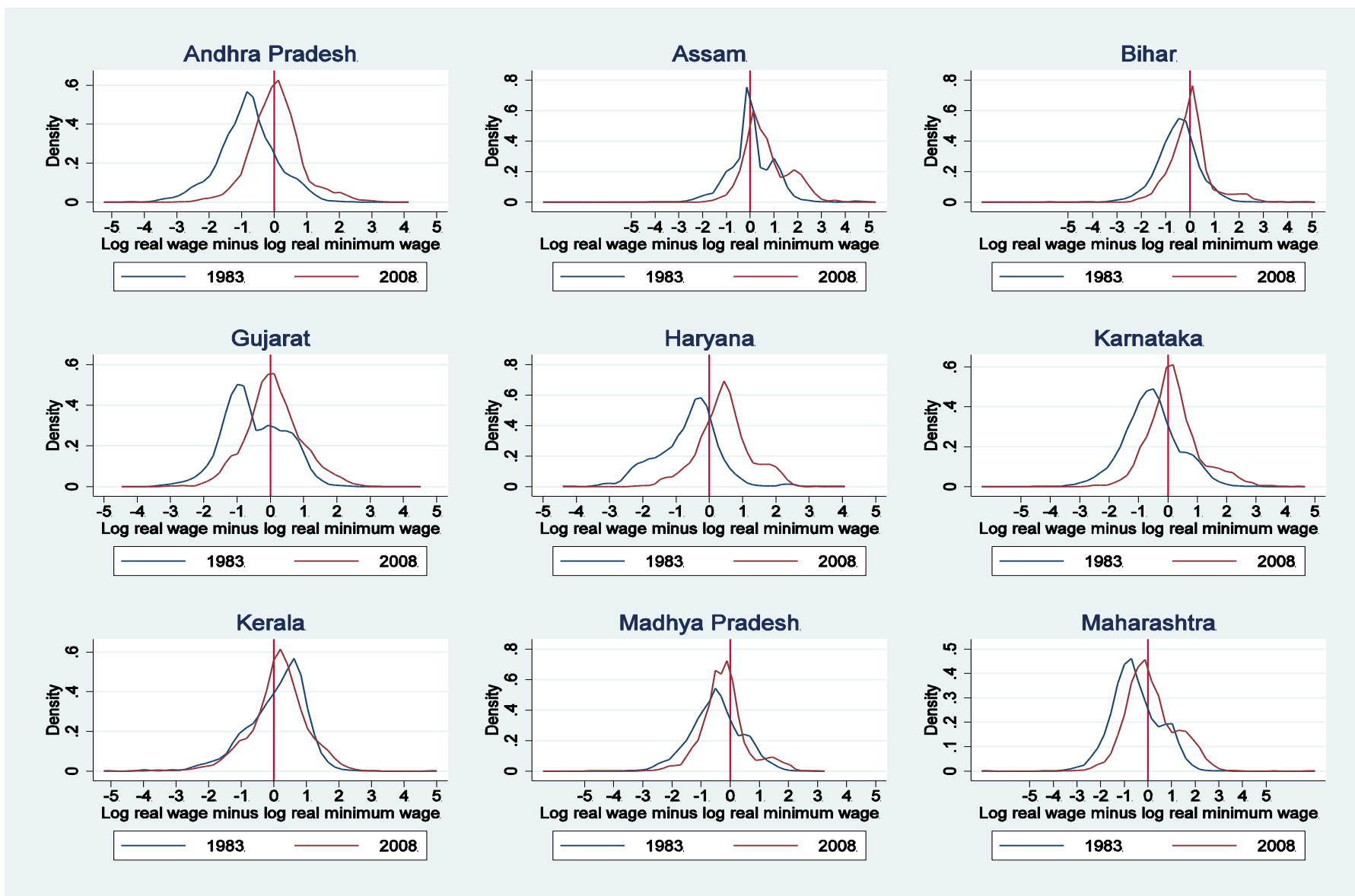
Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation ^{***} is $p < 0.01$, ^{**} is $p < 0.05$, ^{*} is $p < 0.10$. All regressions include state dummies, time dummies, and state-time interactions terms.

Appendix Table 3. Labor Force Participation Rates and the Minimum Wage

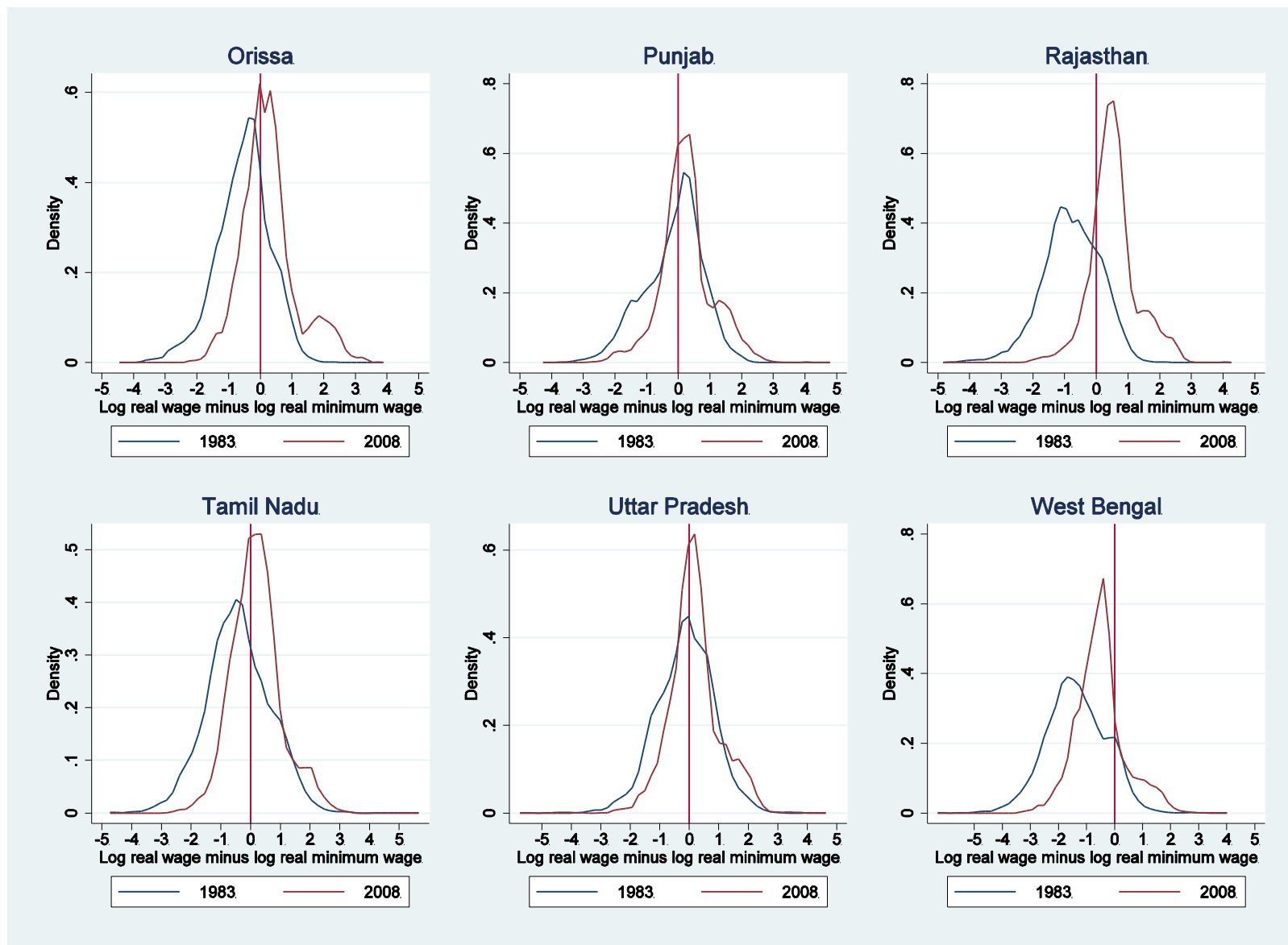
	Before 2005	After 2005	Before 2005	After 2005
High minimum wage state	-1.372 (6.363)	6.434** (2.706)	-2.141 (7.051)	6.558** (2.734)
Male			-0.482 (0.413)	0.166* (0.078)
High minimum wage state*Male			1.277 (1.795)	-0.240** (0.108)

Notes: Weighted to national level with NSSO sample weights. Standard errors, in parentheses, are clustered by state. The notation *** is $p < 0.01$, ** is $p < 0.05$, * is $p < 0.10$. All regressions include state dummies and time dummies.

Appendix Figure 1. Kernel Density Estimates of the Relative Real Wage Across States of India.



Appendix Figure 1, Continued. Kernel Density Estimates of the Relative Real Wage Across States of India



ENDNOTES

¹ This debate is carefully reviewed in Card and Krueger (1995), Belman and Wolfson (2014), and Neumark *et al.* (2014).

² Importantly, there is no distinction in pay by gender. However, given the complexity of enforcement that the myriad of such wages brings, female workers and those in rural areas tend to be paid less than the legal wage.

³ See two recently published meta-analyses for developing countries (Betcherman 2015 and Nataraj *et al.* 2014). This section expands on these reviews by focusing more on gender-disaggregated impacts of the minimum wage.

⁴ See the reviews in Squire and Suthiwart-Narueput (1997), Nataraj *et al.* (2014), and Betcherman (2015).

⁵ For more discussion of wage differentials among religious groups in India, see Bhaumik and Chakrabarty (2009).

⁶ We follow equation (1) to be consistent with Neumark *et al.* (2014) and Allegretto *et al.* (2011). This equation is an incomplete version of a difference-in-difference (DD) model since it includes one of the three two-way interaction terms (between minimum wages, states and years) and does not include the three-way interaction term (between minimum wages, states and years). We estimated the DD counterpart for male employment and results are qualitatively the same.

⁷ Previous studies have used worker fixed effects to control for sorting on unobservables (e.g. D'Costa and Overman 2014), but our data are repeated cross sections and not panel in nature.

⁸ We combined five measures of enforcement and created an index (dummy) based on each measure exceeding its median value to create a single aggregate indicator for overall enforcement that varied by state and year. We then included this index in the models of Tables 3-

6 in place of the disaggregated measures and added an interaction term of the legal minimum wage and this index, allowing us to determine the impact in states that have more stringent controls. Our results remain the same in the rural sector. However in the urban sector, minimum wages marginally reduce employment and increase real wages for workers. Since this does not contradict results in Tables 3 - 6, the results are not reported in the paper.

⁹ We did not study wages in these disaggregated sectors as the concept of a wage is difficult to interpret for informal and self-employed workers.

¹⁰ Complete regression results are found in Appendix Table 2.

¹¹ We thank Uma Rani for guidance as to India's definition of informal-sector employment.

¹² Results are found in Appendix Table 3.

¹³ In kernel density graphs by industry, women in agriculture and services (the female-dominated industries in our sample) move closer to the line indicating full compliance by 2008 as compared to 1983, but still earn below the level of full compliance. This pattern is not true for men, who by 2008 earn wages that are on par with those legislated by law. These graphs are available on request.