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## Quality Employment and Firm Performance Evidence from Indian Firm-Level Data

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## ADB Economics Working Paper Series



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Glenita Amoranto and Natalie Chun

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**Glenita Amoranto and Natalie Chun**

October 2011

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## **Abstract**

We investigate the characteristics of manufacturing firms in India that generate better quality employment and the relationship between quality employment and firm performance using multiple measures of employment quality. Larger firms tend to generally provide better quality employment opportunities even after controlling for aspects related to employee skills. The organizational structure of firms matters, with government, private, and cooperative firms generally in terms of providing higher quality employment and better compensation measures, but lower quality employment in terms of gender equality. Overall, employment compensation does lead to higher profit, labor productivity, and capital productivity. However, providing more direct employment appears to constrain profits and productivity while increases in gender equality tend to have a negative effect on labor productivity.





# I. Introduction

Improving social welfare, reducing poverty, and having more inclusive growth are not automatic byproducts of economic growth. Macroeconomic studies such as Kaspos (2005), Hull (2009), and Loayza and Raddatz (2010) have suggested that what inherently matters are employment intensity and the composition of growth. Implicit in these findings is that at the microeconomic level, improving the quality of employment and labor productivity are possibly key to improving the circumstances of the poor and near poor. What indirect policies may help to improve the quality of employment? Are policies that explicitly improve employment quality a necessary compromise to firm productivity and profits?

This paper uses formal sector Indian firm establishment-level data to establish the types of firm- and regional-level factors associated with better employment quality, by providing evidence of indirect mechanisms through which it is possible to promote employment quality. In line with previous work on agglomeration and firm competition, firms in urban environments tend to have better employment quality. The organizational structure of the firm matters, as cooperatives generally provide better employment quality than either private or public firms. Finally, consistent with theories of learning and decreasing returns to scale, quality employment is concentrated in older and larger firms.

As there are potential trade-offs between higher quality employment and firm profits and productivity, we investigate these links to assess if raising the quality of employment is potentially detrimental to firm profits and productivity. As making the causal link between employment quality and firm outcomes is likely driven by unobserved factors, we use an instrumentation strategy that uses the characteristics of employment quality of other firms (e.g., year, region, industry, organization type, firm size) and state labor policy reforms that decrease the cost of employing workers. These instruments are assumed only to indirectly enter through the employment quality dimension and are assumed not to directly affect firm profit and productivity. We find that higher employment compensation and a greater proportion of female workers are associated with higher profit, labor, and capital productivity. The same trend is observed for the individual components of compensation, namely, wage, bonus, contribution to provident fund, and workmen and staff welfare expenses. However, having a greater proportion of direct employees <sup>1</sup>seems to constrain the profits and capital productivity of firms.

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<sup>1</sup> Direct employees are people who are directly employed in manufacturing activities for the firm, and excludes "other employees" who may also be holding regular positions, for instance, clerks in administrative offices, employees in the sales departments, etc.

The outline for the rest of the paper is as follows. Section II discusses the literature related to quality dimensions of employment and its relationship to firm productivity. Section III provides a basic background on employment in the manufacturing sector and the policies governing it. Section IV details the data that our analysis is based on as well as the construction of measures that capture employment quality. Section V provides our methodological approach to evaluating determinants of quality of employment in firms and its link to firm productivity. Section VI discusses the main findings. Section VII details some robustness checks. Finally, Section VIII concludes.

## II. Related Literature

Better quality employment that provides stable jobs, rewards worker effort, and provides a range of social protection is recognized as a potential way to improve firm performance and productivity. Bloom and Van Reenan (2010) in their overview of human resource management discuss the extensive body of evidence indicating that aspects of incentives associated with employment quality often lead to better firm performance.

Sorting and quality of matches between workers and firms also play a critical role in firm productivity. Shimer (2005) using a theoretical model finds that in labor markets with heterogeneous workers and jobs, wages and job productivity are associated, and that firms can maximize profits through increased employee productivity. Jackson (2010) finds that teachers who are better matched to schools and topics have higher output performance even after controlling for student characteristics.

In the empirical literature it is often found that firms that provide higher wages are often more productive and profitable even after controlling for individually observed skills. Using employer–employee matched data, Abowd et al. (1999) have found this for enterprises in France, Buhai et al. (2008) for Denmark, and Hellerstein et al. (1999) for the United States (US).

However, the findings do not always confirm that aspects associated with quality employment leads to better firm performance. For example, Brown (2007) finds that jobs that have better opportunities for promotion in the US are not associated with higher firm profits. Moreover, policies that are associated with quality employment also can hurt employment outcomes. As Autor et al. (2007) show, employment protection laws in the US that help workers remain in jobs may reduce employment flows and firm entry rates pointing to the pitfalls of restrictive policies.

Most existing research, however, is largely based on theory or empirical examinations of firms and employment quality in developed countries. Moreover, they focus on wage measures that can capture only a single dimension of employment quality. However, the

problem of employment quality in developing countries is more dire—often regulation that ensures minimal employment quality standards are lax or unenforced while the supply of labor for simply any employment opportunity may far exceed the demand. Thus, undertaking an examination of India, which represents one of the larger employment markets in the developing world, may provide some needed evidence on whether improving employment quality may come at the cost of firm productivity and the indirect mechanisms through which employment quality can occur.

### **III. Manufacturing Sector Employment and Industrial Policy in India**

The manufacturing sector and employment laws in India are potentially an important component in explaining employment quality and firm productivity. Much of the employment sector is covered by employment protection and labor dispute resolutions legislation. There are more than 50 labor laws at the national level and a greater set at the state level resulting in a broad range of protection for workers. The various labor legislations include provision for contract labor, minimum wages, social security and labor laws, as well as provisions for unemployment.<sup>2</sup>

A series of legislations also applies to formalized establishments that have 20 or more workers. For example, the employee provident fund organization was set up in 1952 that requires payment for pension and deposit linked insurance. There are also a series of worker welfare funds that applies to health, social security, education, housing, recreation, and water supply.

However, there is evidence that these laws reduce registered sector employment and manufacturing output especially in labor-intensive industries (Ahsan and Pages 2008). Ahmed and Devarajan (2007) have further argued that the creation of good jobs hinges on substantially reforming labor regulations that are often too restrictive, complex, and lack flexibility for firms to maximize their performance. Moreover, Mazumdar and Sarkar (2008) have suggested that these restrictive employment regulations that reduce firm productivity and profits may explain the problem of the missing middle whereby most firms are very small with 5–9 employees or very large with 500+ employees. There is anecdotal evidence that to get around the employment legislation, firms set up multiple establishments, causing them to lose out on economies of scale that occur in production, and which may constrain the quality of employment.

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<sup>2</sup> Legislation details are provided in the *Annual Report to the People on Employment* (Government of India 2010).

The manufacturing sector is India's largest employer, and is the sector that is expected to be capable of absorbing the mass of India's young workforce. Moreover, the government's target for the manufacturing sector to comprise 25% of gross domestic product by 2020 means that substantial growth in this sector is expected. However, much of this productivity growth and employment growth may possibly be contingent on understanding how employment quality factors into average firm performance.<sup>3</sup>

## IV. Data and Descriptive

### A. Data

The data that is used for the basis of the analysis is the Indian Annual Survey of Industries 1994–1995 (ASI94), 2000–2001 (ASI00), 2004–2005 (ASI04), and 2007–2008 (ASI07) (Ministry of Statistics and Programme Implementation 2009 and 2011). This data accurately captures all formally registered factory and manufacturing units within India in accordance with the Factories Act of 1948. The ASI is composed of a census component and a sample component. The census component covers 100% of all units employing 100 or more people for all the ASI periods covered in the study. The census survey also applies to smaller states in the ASI where there is limited industrialization so as to more completely capture manufacturing activities in these areas.<sup>4</sup>

The sample component of the ASI is supposed to accurately represent all formally registered manufacturing firm establishments employing 20–99 workers in the ASI00, ASI04, and ASI07; and 20–199 workers in the ASI94 when using sample weights. The sampling design is representative of manufacturing units at the state and three-digit industry group levels in the ASI94, while stratification in the ASI04 and ASI07 occurs at the 4-digit 2004 National Industrial Classification (NIC 2004) code level with at least a 20% coverage of all manufacturing units and a minimum of six sample units. In the ASI00, data stratification is done at the industry level. The four ASI survey periods covered in the study use three different industry classifications, that is, NIC-1987, NIC-1998, and NIC-2004, for the 1994, 2000, and 2004, and 2007 surveys, respectively. To make the industries comparable over time, we employ a concordance that maps 3-digit NIC-1998 and NIC-2004 codes into unique 2-digit NIC-1987 codes. This gives us a total of 16 aggregated industries.

<sup>3</sup> See Williams and Prickitt (2011).

<sup>4</sup> In the ASI94, this applies to the 12 less industrially developed states at that time, while in ASI00, ASI04, and ASI07, this was limited to the states of Manipur, Meghalaya, Nagaland, Tripura, and Andaman and Nicobar Islands.

The limitation with the data is that first, formally registered firms only comprise a fraction of all actual manufacturing firms in India. Thus, our implications can only be drawn to those that formally operate under the formal sector in India. Second, while the firm data is representative at the plant level, the basic assumption is that these firms operate independently. There is no way to identify firms that have multiple plants across different districts or states, making it more difficult to control for returns to scale that may arise from providing quality employment. Finally, the data is nonpanel, meaning we cannot identify firms over time, making it impossible to control for time-variant, firm-specific characteristics.

Our final data set excluded from the analysis: (i) firms that closed down during the reference period; (ii) firms with zero or negative total output or failed to report output; (iii) firms with implausible values for employment, that is, greater than 50,000; and (iv) firms with negative value added. On the presumption that they are operating under a different objective function than private firms, firms wholly owned or jointly owned by the central government, state, and/or local governments are also excluded from the analysis.

Due to the absence of indicators that can proxy for worker skills and subsequently affect observed compensation within a firm, we merge the ASI data with average years of education completed from the Indian labor force surveys on the basis of industry size, district size, and firm size. We also merged this data with state-level indicators that capture the number of reforms on legislation obtained from the 2007 OECD Economic Surveys of India,<sup>5</sup> allowing us to capture at the state level variations in restrictions on firm behavior and profits that presumably effect the quality of employment. This confined our analysis only to states for which such data is available.

Table 1 displays the key characteristics of firms in our sample. The large majority of firms have no more than 20 employees. Also, joint partnerships comprise more than one-third of organizations, while private firms and individual proprietorships have become more prominent, accounting for 37% and 27%, respectively, of the organizations in 2007. The food industry has grown substantially from 7% in 1994 to 16% in 2007, while machinery and electrical machinery's share dropped slightly from 16% in 1994 to 12% in 2007. Average real gross value added (GVA) per firm (at 2007 prices) more than doubled during the period from 1994 to 2007, while employment per firm has decreased in 2000 and 2004 but picked up in 2007 to 86 employees per firm, which is slightly higher than the 1994 level. Average firm age is around 21 years in 2007 from only 16 in 1994. Finally, around two thirds of firms are located in urban areas and the total number of firms more than doubled from 1994 to 2007.

<sup>5</sup> These include the following states: Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal, and Delhi.

**Table 1: Summary Statistics of Key Firm Characteristics<sup>1</sup>**

<b>Variable</b>	<b>1994</b>	<b>2000</b>	<b>2004</b>	<b>2007</b>
Number of observations	23,578	15,257	27,235	26,659
Estimated total number of firms	47,054	59,594	86,242	94,250
Average annual profit per firm at 2007 prices	6,441,336	1,735,844	17,200,000	31,800,000
Average value added per firm at 2007 prices	20,300,000	19,400,000	34,900,000	53,700,000
Average profit per manday at 2007 prices	296	143	254	483
Labor productivity (value added per person-day at 2007 prices)	629	735	729	999
Capital productivity (value added per unit value of fixed capital)	13	5	5	32
Average number of workers <sup>2</sup> per firm	66	56	58	68
Average number of employees <sup>3</sup> per firm	84	73	74	86
Average number of directly employed workers by sex				
Male	46	35	34	38
Female	9	8	8	8
Average number of years of operation (firm age)	16	17	17	21
Percentage of firms				
In the urban areas	0.7	0.7	0.6	0.6
By average number of workers <sup>2</sup> and employees holding managerial/supervisory positions (firm size)				
1–19	0.5	0.6	0.5	0.5
20–49	0.2	0.2	0.2	0.2
50–199	0.2	0.1	0.2	0.2
200+	0.1	0.1	0.1	0.1
By type of organization				
Individual proprietorship	0.201	0.244	0.247	0.269
Family partnership	0.056	0.024	0.022	0.015
Partnership	0.395	0.372	0.348	0.326
Public/private limited company	0.333	0.344	0.366	0.371
Government enterprise/public corporation	0.001	0.001	0.001	0.000
Cooperative society	0.011	0.011	0.012	0.010
Other	0.003	0.005	0.005	0.007
By type of ownership				
Joint sector public/private	0.015	0.012	0.004	0.005
Wholly private ownership	0.984	0.988	0.995	0.994
Other	0.000	0.000	0.001	0.001

*continued.*

**Table 1.** *continued.*

Variable	1994	2000	2004	2007
By type of industry				
Food	0.07	0.14	0.17	0.16
Beverages, tobacco	0.02	0.03	0.03	0.03
Textiles	0.07	0.05	0.04	0.04
Textile products	0.04	0.06	0.05	0.05
Wood/wood products	0.03	0.03	0.03	0.03
Paper/paper products	0.05	0.06	0.06	0.06
Leather/leather products	0.01	0.01	0.02	0.02
Basic chemicals	0.12	0.10	0.10	0.09
Rubber/plastic/petroleum/coal	0.08	0.06	0.06	0.07
Nonmetallic	0.15	0.11	0.13	0.15
Metals and alloys	0.07	0.04	0.06	0.06
Metal products	0.07	0.07	0.06	0.07
Machinery and electrical machinery	0.16	0.16	0.13	0.12
Transport	0.04	0.05	0.05	0.04
Other manufacturing	0.02	0.03	0.02	0.02

<sup>1</sup> Statistics are computed after excluding states (i) for which no data was obtained on state-level employment policy reforms; and (ii) firms wholly owned or jointly owned by the central, state, and/or local governments.

<sup>2</sup> Includes all persons employed directly or through any agency whether for wages or not and engaged in any manufacturing process, or in cleaning any part of the machinery or premises used for manufacturing process, or in any other kind of work incidental to or connected with the manufacturing process or the subject of the manufacturing process. Laborers engaged in the repair and maintenance or production of fixed assets for factory's own use, or labor employed for generating electricity or producing coal, gas etc., are included.

<sup>3</sup> Include all workers defined above, those holding supervisory or managerial positions, and clerks in administrative offices; storekeeping sections; welfare sections (hospital, school, etc.); and watch and ward staff. Also include employees in the sales department and those engaged in the purchase of raw materials, fixed assets, etc. for the factory.

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

## B. Constructing Quality Measures

The itemized cost breakdown of the Indian ASI data provides a means to capture different dimensions of employment quality at the firm level, both compensation and noncompensation measures alike. In particular, we provide measures that represent a wage dimension, bonus provisions, contributions to provident funds and other funds, and workmen and staff welfare expenses, which are associated with social protection; and construct indices to capture extent of gender equality, and degree of formal employment<sup>6</sup>. The compensation measures are all computed on a per person-day basis at 2007 prices to ensure comparability across firms and over time. On the other hand, the indices for

<sup>6</sup> A proxy for quality employment that is often used in the literature is formal sector employment, which includes salaried and wage employees working in registered (typically large) private companies and in the public sector (both government and public sector enterprises). For purposes of this study, formal employment includes workers employed directly on payment of wages or salaries and engaged in any manufacturing process or its ancillary activities. Persons holding positions of supervision or management regardless of classification are likewise included. Excluded are employees whose line of work is indirectly connected with the manufacturing process, e.g., clerks in administrative offices, storekeeping sections, etc.



the noncompensation measures are constructed to represent relative quality compared to all firms for any given year. These indices are constructed on an absolute basis and therefore are comparable across all different types of firms and over time.

### 1. Compensation Measures

The compensation measure,  $I_{it}^c$ , represents the compensation value for firm  $i$ , during year  $t$ . It captures the average level of compensation per person-day of a firm in India at 2007 prices thus, allowing comparison across firms and time. Compensation can take the form of wages, bonuses, contribution to provident fund and other funds (CPF), and workplace welfare expenses. Thus, an overall compensation measure sums over these respective components.<sup>7</sup> More precisely, because we have average compensation per person-day,  $\bar{c}_{eit}$  for different employee types,  $e$ , we derive the overall average compensation per person-day across all types of workers for the firm using as weights the number of employees out of total employees,  $\omega_{eit}$ , before obtaining the maximum of the average compensation per employee.

$$I_{it}^c = \sum_{e=1}^3 \omega_{eit} \bar{c}_{eit}$$

### 2. Gender Index

The gender index,  $I_{it}^g$ , represents the extent to which gender equality exists in the workplace with the assumption that full gender equality is satisfied when the number of female workers,  $N_{it}^f$ , is at least as large as the number of male workers,  $N_{it}^m$ .

$$I_{it}^g = \begin{cases} 1 & \text{if } \frac{N_{it}^f}{N_{it}^m} > 1 \\ \frac{N_{it}^f}{N_{it}^m}, & \text{otherwise} \end{cases}$$

### 3. Formal Employment Index

This index,  $I_{it}^{Formal}$ , represents the proportion of employees within a firm that have formal employment as given by the number of formal employees,  $N_{it}^{Formal}$ , over the total,

<sup>7</sup> Bonus payments are not explicitly included as part of an individual's wages and can vary based on performance of the firm from year to year. The provident fund in India was created in 1952 and takes care of the needs of members' (i) retirement, (ii) medical care, (iii) housing, (iv) family obligation, (v) education of children, and (vi) financing insurance policies. The policy associated with the provident fund requires employees and employers to contribute to the fund at the rate of 12% of basic wages or 10% per month for establishments with less than 20 employees. Thus, this fund represents a measure of the amount of social protection coverage of employees within the firm and assumes that employees in the higher indices are better covered in relation to their wages. The welfare index is constructed based on the amount spent per worker on enhancing the workplace.

$N_{it}^T$ , (versus contract work) relative to the firm that has the maximum proportion of formal employees. It assumes that a firm with more formal employees has a better quality work environment.

$$I_{it}^{Formal} = \frac{1}{\max \left( \frac{N_{it}^{Formal}}{N_{it}^T} \right)} \frac{N_{it}^{Formal}}{N_{it}^T}$$

Table 2 shows the averages of the employment quality measures/indices for each of the survey years. Excluding 2000, employment quality in terms of compensation, in general, seems to have risen steadily over the period of study. However, much of the observed improvement was driven by increases in real wages rather than by progress in provision of social protection. Marginal gains are achieved in terms of increasing the proportion of female workers while a slight deterioration is observed for direct employment.

**Table 2: Summary Statistics of Average Firm Level Employment Quality Measures**

Index	1994	2000	2004	2007
Average pay per person-day (2007 prices)				
Across all employee types				
Compensation	210	278	230	239
Wage	170	214	190	202
Bonus	13	21	11	11
Contribution to provident fund and other funds	15	24	17	16
Workmen and staff welfare expenses	12	19	11	10
Workers <sup>1</sup>				
Compensation	154	181	156	155
Wage	136	162	144	145
Bonus	12	13	9	8
Contribution to provident fund and other funds	3	4	2	1
Workmen and staff welfare expenses	2	2	1	1
Supervisory and managerial staff <sup>2</sup>				
Compensation	333	465	425	517
Wage	293	422	407	498
Bonus	14	35	14	16
Contribution to provident fund and other funds	21	6	3	2
Workmen and staff welfare expenses	4	3	1	1
Other employees <sup>3</sup>				

*continued.*

**Table 2. continued.**

Index	1994	2000	2004	2007
Compensation	188	252	193	211
Wage	146	210	178	197
Bonus	14	34	12	11
Contribution to provident fund and other funds	16	5	2	2
Workmen and staff welfare expenses	12	2	1	1
Average index values				
Gender	0.21064	0.21380	0.21619	0.22487
Direct employment	0.80525	0.77825	0.74394	0.72310

<sup>1</sup> Including all persons employed directly or through any agency whether for wages or not and engaged in any manufacturing process, or in cleaning any part of the machinery or premises used for manufacturing process, or in any other kind of work incidental to or connected with the manufacturing process, or the subject of the manufacturing process. Laborers engaged in the repair and maintenance or production of fixed assets for the factory's own use, or laborers employed for generating electricity or producing coal, gas etc. are included.

<sup>2</sup> Including all persons holding positions of supervision or management regardless of classification under the Factories Act 1948.

<sup>3</sup> Including all employees other than workers, e.g., clerks in administrative office, storekeeping section, and welfare section (hospital, school, etc.); watch and ward staff. Also includes employees in the sales department as also those engaged in the purchase of raw materials, fixed assets, etc. for the factory.

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

## V. Empirical Approach

### A. Effects of Employment Quality on Firm Performance

To what extent can better employment quality enhance firm performance? Is the average firm within India operating at optimal levels of employment quality such that further investment in employment quality will not increase productivity and profits?

We run general specifications of indicators for employment quality,  $I_{itr}^q$ , and firm characteristics,  $X_{itr}$ , on firm performance,  $P_{itr}$ , which includes firm profits, log labor productivity, and log capital productivity as follows:

$$P_{itr} = \alpha + \beta I_{itr}^q + \zeta S_{itr} + \theta X_{itr} + \gamma_r + \gamma_t + \eta_{itr} \quad (2)$$

In our model, we assume that besides firm characteristics, other choices in terms of level of capital to labor, degree of technology used in operations, institutional characteristics such as trade costs, firing costs, and skill set of people within firms are captured by the regional and time fixed effects.<sup>8</sup> We also assume that productivity is largely driven by the

<sup>8</sup> On the theoretical side, Cosar et al. (2010) look at tariffs, trade costs, firing, costs on firm dynamics, and labor market outcomes using a general equilibrium model. Tariff reductions help reduce job turnover and informality in the long run, but firing cost reductions drive up job turnover rates and informality especially in large, inefficient producers. Davis (2001) finds excessive supply of inferior jobs and inferior workers when match formation is costly and wage determination decentralized. Dhawan (2001) finds that profits of US firms decline with firm size, but have longer survival probabilities. Dunne et al. (2002) find in the US that productivity dispersion may be related to increase in wage dispersion. Fernandes (2008) looks at firm productivity in Bangladesh and finds that firms

skill level of the workers within the firm. As we lack measures of worker skills, we proxy for skill level,  $S_{itr}$ , using average education level of workers in firms in a given industry or state and use the arising log wages allocated for each worker type assuming that wages are connected to the skill levels of workers.

## B. Endogeneity of Employment Quality

However, the challenge in identifying our coefficient of interest,  $\beta$ , which represents the effect of employment quality on productivity, is that unobservable characteristics of the firm,  $\eta_{itr}$ , captured in the error term likely determine both the observed outcomes of employment quality and productivity. This arises due to limitations in our ability to observe specific characteristics of the workers and environments within firms such as degree of innovation and work culture, which can result in different sets of people sorting themselves into different firms. In many cases the direction of the bias is unclear and we assume that different dimensions of worker quality appeal to different types of workers whose characteristics may ultimately determine productivity.

We thus use an instrumentation strategy where we model the firm's decision to provide for their workers in the first stage. We assume this is primarily determined by a series of firm-specific factors,  $X_{itr}$ , which represent characteristics of firm  $i$  at time  $t$  in region  $r$ . In particular, we run specifications as follows:

$$I_{itr}^q = \alpha + \beta X_{itr} + \gamma_r + \gamma_t + \varepsilon_{itr} \quad (1)$$

We assume that what drives firm employment quality is (i) worker demands (i.e., skill level); (ii) competition (captured by urban variables and state variables); (iii) level of scrutiny that it may come under (firm size and age); (iv) organization type (that may provide a measure of how much, say, employees get in the decision that are made regarding labor); (v) general industry characteristics (e.g., presence of trade unions); and (vi) other institutional characteristics, namely, the state's labor policy reforms. The inclusion of firm size in the quality specification captures aspects that are associated with increasing returns to scale that make it easier and less costly to provide quality employment opportunities. The model also includes region and year fixed effects  $\gamma_r$  and  $\gamma_t$ .

We attempt to resolve the issue of unobserved factors that determine both employment quality and firm profits and productivity by running three-stage least squares (3SLS)

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with more experienced and educated managers are more productive. Fox and Smeets (2011) also find that experience, firm and industry tenure, as well as general capital measures explain about one third of the gap in productivity between the 90<sup>th</sup> and 10 percentile firms. However the wage bill explains almost as much dispersion in productivity using Danish manufacturing and services data. Hasan and Jandoc (2010) especially find that more flexible labor regulations are correlated with larger firms. Thus, it shows the role of institutions in the size and productivity of firms. Moretti (2004) finds that there are substantial human capital spillovers from having a larger skilled labor force.

regressions that use as instruments for the quality of employment: (i) quality of other firms in a given state, sector, industrial sector, organization type, and firm size in a given year; and (ii) state-level employment policy reforms interacted with firm size dummy (i.e., 1 if the firm size in number of employees is greater than 100 and 0 otherwise). These instruments are assumed to enter directly in the quality indicators, but do not directly affect productivity and profits. Thus we assume that the instruments are orthogonal to the error term  $\eta_{itr}$ . Assuming that the instruments are valid, meaning the average quality of other firms is unobserved and uncorrelated with productivity of a particular firm, but drive a particular firm's employment quality, we should be able to identify the effects of employment quality on firm performance.<sup>9</sup>

## VI. Results

### A. First-Stage Instrumentation

The quality of our instruments is contingent on the assumption of being highly correlated with firm employment quality measures, but of low correlation with our firm productivity measures.

Table 3a displays estimates from the relationship between our instruments, general firm characteristics, market environment, and employment quality measures. We find that in line with previous works, firms in urban environments generally do have better quality employment, presumably due to competition effects. Organization of the firm seems to matter significantly—government, private firms, cooperatives, and other types of organizations provide better quality employment than partnerships and proprietorships along compensation measures (Figure 1a) but lower quality employment in terms of gender equality and proportion of direct employment (Figure 1b). Age of firm matters only for particular dimensions of employment quality, i.e., CPF and gender equality. Also, we see in Figures 2a and 2b that quality of firm is generally increasing with firm size, which perhaps may indicate economies of scale in providing a better work environment (even though many of our measures are largely based on measures dedicated to certain aspects of income).

<sup>9</sup> Alternatives to the estimation process and productivity measures can be observed in the input–output literature, for example, Ornaghi (2006) and Dollar et al. (2005). In the Dollar et al. paper, labor input, capital input, and material input are regressed on gross output,  $Y = a_0 + a_l * l + a_k * k + a_m * m + \epsilon$ .

**Table 3a: Firm-Level Determinants of Employment Quality**

Variable	Compensation	Wage	Bonus	Contribution to Provident Fund and Other Funds	Workmen and Staff Welfare Expenses	Gender	Direct Employment
Firm Age	0.000280 [0.0501]	-0.00953 [0.0307]	-4.27e-05 [0.00791]	0.0142*** [0.00517]	-0.00437 [0.00760]	-6.89e-05** [3.47e-05]	1.20e-05 [2.36e-05]
Firm Size							
20–49 workers	21.41*** [8.081]	14.39*** [5.176]	1.811 [1.240]	4.036*** [0.779]	1.167 [1.195]	0.0627*** [0.00413]	-0.0913*** [0.00308]
50–199 workers	99.65** [50.81]	62.55** [30.60]	11.80 [8.133]	11.88*** [4.365]	13.43* [7.783]	0.0927*** [0.00478]	-0.161*** [0.00391]
≥ 200 workers	133.2*** [19.39]	90.81*** [11.84]	5.946* [3.056]	19.59*** [1.789]	16.87*** [2.955]	0.0501*** [0.00488]	-0.137*** [0.00406]
Urban	65.90*** [21.91]	43.46*** [13.25]	6.765* [3.497]	10.13*** [1.904]	5.547* [3.348]	-0.0184*** [0.00393]	0.0195*** [0.00283]
Type of Organization							
Family partnership	12.08** [4.850]	10.06*** [3.647]	-0.412 [0.512]	2.435 [1.904]	0.00379 [0.742]	-0.0327*** [0.0105]	0.00549 [0.00754]
Partnership	18.94*** [3.590]	16.34*** [3.119]	0.764** [0.348]	2.133*** [0.387]	-0.291 [0.343]	-0.0522*** [0.00446]	0.00641** [0.00321]
Public/private limited company	143.7*** [23.41]	110.3*** [14.11]	8.095** [3.744]	12.96*** [2.039]	12.36*** [3.586]	-0.138*** [0.00471]	-0.00444 [0.00353]
Government enterprise/public corporation	616.0*** [87.38]	430.2*** [55.96]	26.90*** [9.688]	74.41*** [11.29]	84.48*** [20.78]	-0.182*** [0.0532]	-0.0137 [0.0265]
Cooperative society	94.25*** [20.00]	73.67*** [14.69]	5.215** [2.480]	16.77*** [5.370]	-1.407 [2.350]	-0.0794*** [0.0169]	-0.0115 [0.0101]
Other	110.5*** [12.69]	84.17*** [9.923]	3.524** [1.456]	16.54*** [2.015]	6.249*** [1.603]	-0.0351 [0.0250]	-0.0487*** [0.0154]
Constant	2.944 [15.25]	22.10** [9.313]	-3.752 [2.407]	-10.17*** [1.525]	-5.236** [2.331]	0.369*** [0.0126]	0.752*** [0.00831]
Observations	90,877	90,877	90,877	90,877	90,877	90,877	90,743
R-squared	0.006	0.008	0.003	0.009	0.004	0.229	0.147

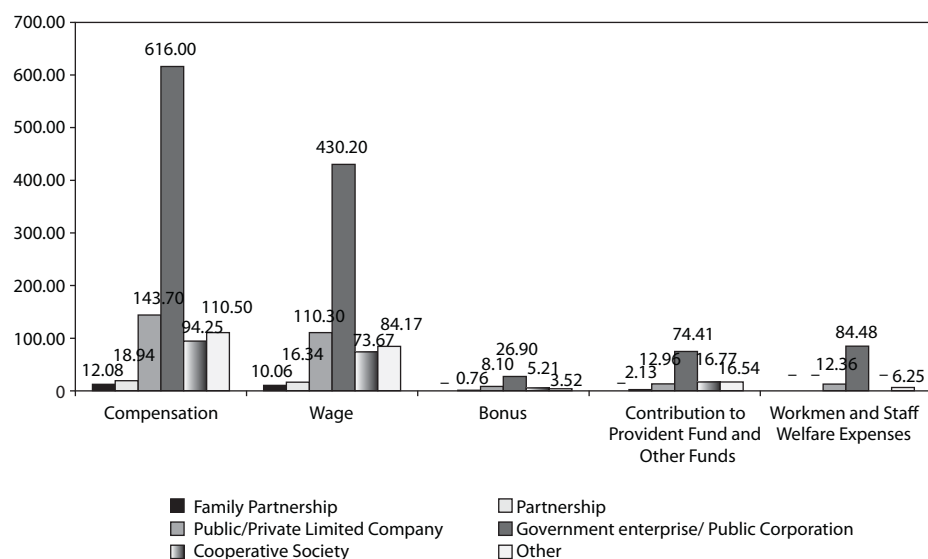
\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1.

<sup>1</sup> State, industry, technical education, and reference year dummies and school years included but not shown.<sup>2</sup> Firm size was based on the number of workers as defined in Table 1 and employees holding supervisory or managerial positions.<sup>3</sup> Omitted dummies are: 1–19 workers (for firm size) and individual proprietorship (for type of organization).

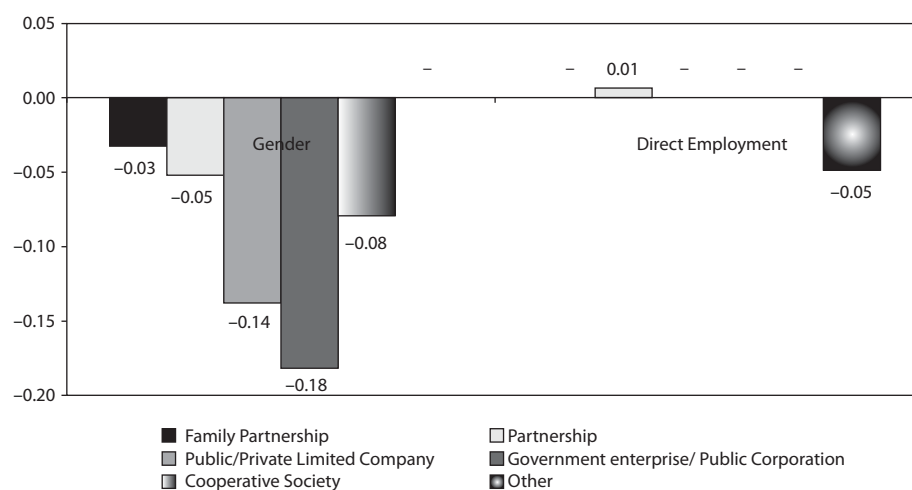
Note: Robust standard errors in brackets.

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

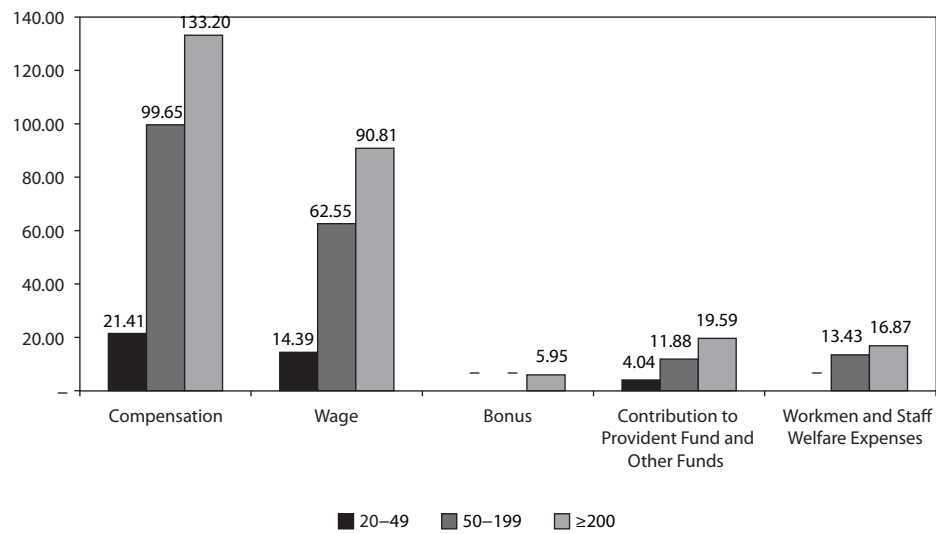
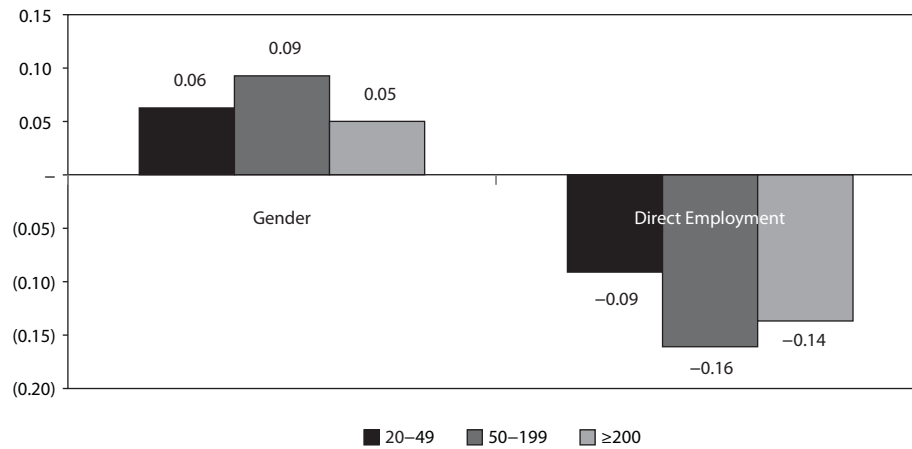
**Figure 1a: Determinants of Compensation Dimensions of Employment Quality (organization type)**



**Figure 1b: Determinants of Noncompensation Dimensions of Employment Quality (organization type)**



Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

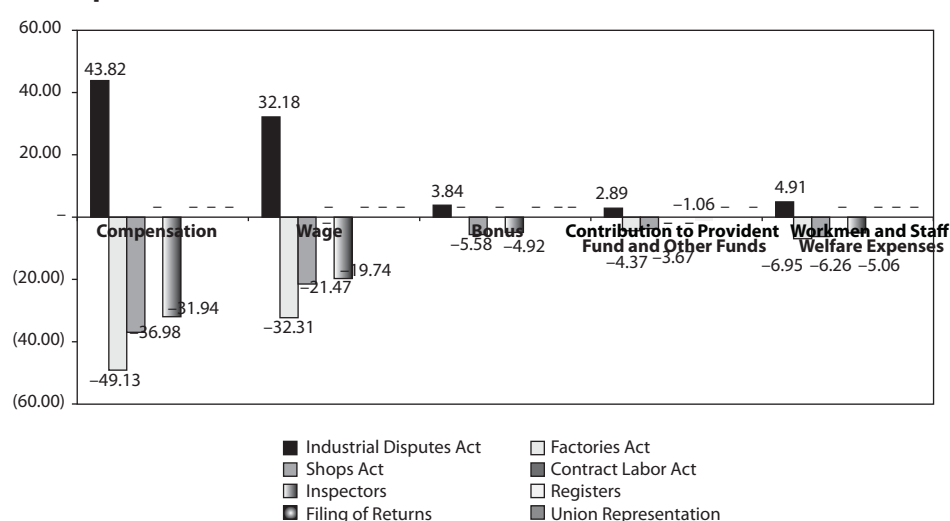
**Figure 2a: Determinants of Compensation Dimensions of Employment Quality (firm size)****Figure 2b: Determinants of Noncompensation Dimensions of Employment Quality (firm size)**

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

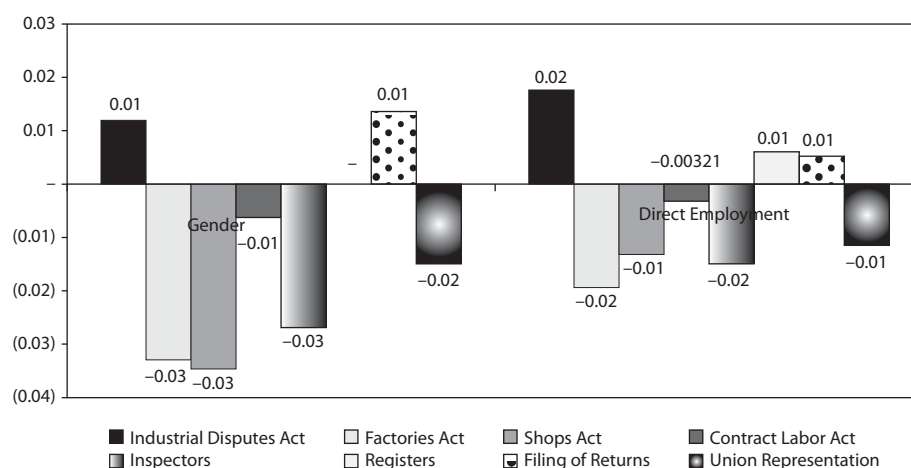


We also find that reforms on industrial disputes have positively affected all dimensions of employment quality (Figures 3a and 3b). The number of reforms in the Factories Act, Shops Act, and Inspectors have had negative effects on most dimensions of employment quality. Reforms on contract labor and union representation also seem to be associated with decreased employment quality in terms of gender equality and direct employment, but has no significant effect on compensation and all its dimensions. Table 3b shows that reforms that have reduced cost of filing returns have resulted in higher proportions of female workers and direct employees. The instruments are highly significantly associated with outcomes of employment quality.

**Figure 3a: Determinants of Compensation Dimensions of Employment Quality (labor policies)**



**Figure 3b: Determinants of Noncompensation Dimensions of Employment Quality (labor policies)**



Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

**Table 3b: Quality of Instruments in First Stage Regression of Firm Employment Quality Determinants**

Variable	Compensation	Wage	Bonus	Contribution to Provident Fund and Other Funds	Workmen and Staff Welfare Expenses	Gender	Direct Employment
Average values of other firms'							
Wage	0.131 [0.104]	0.126** [0.0634]	-0.00724 [0.0164]	0.0141 [0.00928]	-0.00119 [0.0157]	-3.55e-05*** [1.30e-05]	-2.79e-05*** [9.75e-06]
Bonus	-3.765* [2.085]	-2.501** [1.257]	-0.370 [0.331]	-0.350* [0.179]	-0.544* [0.319]	9.53e-05 [0.000126]	0.000246*** [8.59e-05]
Contribution to provident fund and other funds	1.678 [1.585]	1.040 [0.960]	0.231 [0.246]	0.177 [0.143]	0.230 [0.237]	-1.08e-05 [3.05e-05]	1.71e-05 [2.41e-05]
Workmen and staff welfare expenses	2.372 [1.658]	1.471 [1.002]	0.263 [0.262]	0.209 [0.143]	0.429* [0.254]	2.81e-05 [0.000140]	-0.000149* [8.80e-05]
Gender	-66.82*** [14.59]	-51.54*** [9.028]	-4.724** [2.280]	-5.186*** [1.387]	-5.363** [2.207]	0.605*** [0.00918]	0.0239*** [0.00589]
Direct employment	-12.10 [15.71]	-21.26** [9.780]	4.101* [2.389]	4.503** [1.774]	0.553 [2.373]	0.0815*** [0.0119]	0.574*** [0.00941]
Number of reforms							
Industrial Disputes Act	43.82*** [12.82]	32.18*** [7.793]	3.836* [2.034]	2.892** [1.175]	4.913** [1.958]	0.0119*** [0.00430]	0.0176*** [0.00300]
Factories Act	-49.13** [22.02]	-32.31** [13.29]	-5.502 [3.517]	-4.371** [1.899]	-6.947** [3.369]	-0.0330*** [0.00424]	-0.0194*** [0.00287]
Shops Act	-36.98* [20.94]	-21.47* [12.62]	-5.583* [3.350]	-3.666** [1.789]	-6.260* [3.205]	-0.0347*** [0.00285]	-0.0132*** [0.00204]
Contract Labor Act	3.995 [6.699]	3.253 [4.065]	0.872 [1.064]	-0.470 [0.635]	0.340 [1.021]	-0.00626*** [0.00165]	-0.00321*** [0.00118]
Inspectors	-31.94** [16.25]	-19.74** [9.810]	-4.919* [2.599]	-2.229 [1.406]	-5.059** [2.486]	-0.0269*** [0.00221]	-0.0150*** [0.00158]
Registers	1.887 [4.561]	1.789 [2.842]	0.459 [0.708]	-1.061** [0.436]	0.700 [0.683]	-0.000953 [0.00193]	0.00604*** [0.00152]
Filing of Returns	11.14 [9.392]	7.067 [5.654]	1.550 [1.504]	0.480 [0.804]	2.043 [1.439]	0.0136*** [0.00105]	0.00522*** [0.000847]
Union Representation	-19.55 [20.62]	-9.739 [12.42]	-3.807 [3.299]	-1.892 [1.765]	-4.116 [3.157]	-0.0150*** [0.00263]	-0.0115*** [0.00187]
Constant	214.3** [94.15]	135.6** [56.98]	28.38* [15.02]	16.97** [8.356]	33.28** [14.38]	0.313*** [0.0226]	0.395*** [0.0163]
Observations	85,842	85,842	85,842	85,842	85,842	85,842	85,842
R-squared	0.006	0.008	0.003	0.009	0.004	0.291	0.231

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

<sup>1</sup> All firm-level variables seen in Table 3a are included in regressions, but not shown.<sup>2</sup> The first six Instruments shown are average index values of other firms for a given year, state, sector, industry, organization type, and firm size while the rest are state-level employment policy reform measures. Interactions of firm size and number of reforms are included but not displayed.

Note: Robust standard errors in brackets.

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

## B. Effects of Employment Quality on Firm Performance

Table 4 presents the impact of overall quality on the three measures of firm performance using 3SLS. This specification captures the interrelationship between firm profits, labor, and capital productivity, which likely results in correlation between these three equations and the endogeneity of our employment quality measures.

**Table 4: Impact of Firm Employment Quality on Firm Productivity Measures Using Three-Stage Least Squares for All Sizes of Firms**

Variable	Profit per Person-Day	Log(Labor Productivity)	Log(Capital Productivity)
Compensation	0.688*** (0.180)	0.00145*** (7.26e-05)	0.000171*** (3.51e-05)
Firm Age	-0.269 (0.231)	-0.000388*** (9.33e-05)	0.000923*** (4.52e-05)
Firm Size			
20–49 workers	61.50* (34.73)	-0.0482*** (0.0140)	0.261*** (0.00678)
50–199 workers	88.11* (45.65)	-0.146*** (0.0184)	0.342*** (0.00891)
≥ 200 workers	254.9*** (67.19)	0.0921*** (0.0271)	0.315*** (0.0131)
Urban	-61.30* (34.37)	0.00209 (0.0139)	0.309*** (0.00671)
Type of Organization			
Family partnership	28.41 (101.7)	0.00870 (0.0410)	0.0637*** (0.0198)
Partnership	59.78* (35.83)	0.127*** (0.0144)	-0.0237*** (0.00699)
Public/private limited company	198.9*** (46.98)	0.524*** (0.0189)	-0.789*** (0.00917)
Government enterprise/public corporation	333.1 (1,267)	0.488 (0.511)	-1.260*** (0.247)
Cooperative society	-253.9 (166.1)	-0.244*** (0.0670)	-0.434*** (0.0324)
Other	2,434*** (301.7)	-0.178 (0.122)	0.127** (0.0589)
School Years (Industry-State)	1.109 (6.636)	0.0267*** (0.00268)	-0.0205*** (0.00130)
With Technical Education	153.3 (122.2)	-0.291*** (0.0493)	0.146*** (0.0239)
Reference Year			
2000	-204.5*** (46.96)	-0.108*** (0.0189)	-0.427*** (0.00917)
2004	-79.18* (42.80)	0.613*** (0.0173)	0.0716*** (0.00836)

*continued.*

**Table 4:** *continued.*

Variable	Profit per Person-Day	Log(Labor Productivity)	Log(Capital Productivity)
2007	153.4*** (41.44)	0.805*** (0.0167)	0.104*** (0.00809)
Constant	23.48 (66.45)	4.736*** (0.0268)	0.0422*** (0.0130)
Observations	269,550	269,550	269,550
R-squared	0.123	−4.987	0.063

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1.

<sup>1</sup> Industry dummies included but not shown.<sup>2</sup> Firm size was based on the number of workers as defined in Table 1 and employees holding supervisory or managerial positions.<sup>3</sup> Omitted dummies are: 1–19 workers (for firm size); individual proprietorship (for type of organization); and 1994 (for reference year).<sup>4</sup> Instruments in 3SLS regressions are average values of other firms' employment quality measures for a given year, state, sector, industry, organization type, and firm size; and state-level employment policy reform measures including their interactions with indicator on whether firm size is greater than 100 or not.

Note: Robust standard errors in parentheses.

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

We find that overall employment quality, as measured by compensation, impacts positively on the average firm's profit and its labor productivity and capital productivity. The impact of particular dimensions of employment quality is shown in Table 5. Except for the proportion of females and direct employees, all dimensions of employment quality are found to impact positively on all three measures of firm performance. Meanwhile, a higher proportion of female workers are associated with higher capital productivity but is negatively associated with labor productivity. On the other hand, the proportion of direct employees appears to have a detrimental influence on a firm's profit and productivity.

**Table 5: Impact of Firm Employment Quality Dimensions Using 3SLS for All Sizes of Firms**

Variable	Profit per Person-Day	Log (Labor Productivity)	Log (Capital Productivity)
Wage	1.056*** (0.266)	0.00254*** (0.000115)	0.000175*** (5.09e-05)
Bonus	4.509*** (1.476)	0.00344*** (0.000293)	0.00174*** (0.000301)
Contribution to Provident Fund and Other Funds	6.062*** (1.714)	0.0111*** (0.000487)	0.00348*** (0.000348)
Workmen and Staff Welfare Expenses	3.469*** (1.320)	0.00536*** (0.000328)	0.00134*** (0.000257)
Gender	96.42 (93.76)	−0.714*** (0.0125)	0.625*** (0.0167)
Direct Employment	−517.1*** (155.3)	−0.125*** (0.0209)	−0.812*** (0.0278)

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1.

3SLS - three-stage least squares.

<sup>1</sup> All firm-level variables seen and dummies used in Table 4 are included in regressions, but not shown.<sup>2</sup> Instruments in 3SLS regressions are average index values of other firms for a given year, state, sector, industry, organization type, and firm size; and state-level employment policy reform measures including their interactions with indicator on whether firm size is greater than 100 or not.

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

## C. Differences Depending on Firm Size

3SLS regressions were ran for various groups of firm sizes in terms of number of employees, namely, <20, 20–50, 50–200, and ≥200. Table 6 shows the coefficient estimates for the different firm sizes. The effect of employment quality on profit varies depending on firm size, with positive effects of compensation seen for larger-sized firms and either negative or insignificant effects for smaller firms (i.e., employees not exceeding 50). Effects of employment quality on labor productivity, on the other hand, are generally the same regardless of firm size, that is, positive in the case of compensation measures and negative in the case of gender and formal employment measures, except in a few cases. Capital productivity of smaller firms (i.e., less than 50 employees) tends to rise with increase in compensation whereas capital productivity of larger firms tend to be less influenced by the level of compensation. Gender equality does seem to matter for capital productivity regardless of firm size while a higher proportion of direct employees seem to have a detrimental effect on the capital productivity of smaller firms (i.e., less than 50 employees).

**Table 6: Impact of Firm Employment Quality Dimensions Using 3SLS for Various Sizes of Firms**

Variable	Profit per Person-Day	Log(Labor Productivity)	Log(Capital Productivity)
For Firms with Less than 20 Employees			
Compensation	0.488 (0.529)	0.00328*** (0.000120)	0.00167*** (0.000108)
Wage	0.411 (0.667)	0.00446*** (0.000191)	0.00149*** (0.000133)
Bonus	13.36** (6.717)	0.0169*** (0.000828)	0.0314*** (0.00122)
Contribution to Provident Fund and Other Funds	7.083 (4.736)	0.0154*** (0.000684)	0.0283*** (0.00111)
Workmen and Staff Welfare Expenses	8.822 (6.487)	0.0265*** (0.000816)	0.0280*** (0.00122)
Gender	115.0 (150.4)	–0.617*** (0.0189)	0.370*** (0.0270)
Direct Employment	88.60 (420.0)	–0.0945* (0.0528)	–1.133*** (0.0765)
For Firms with Employees between 20 and 50			
Compensation	–0.793* (0.454)	0.00283*** (7.88e–05)	0.000476*** (0.000108)
Wage	–0.622 (0.567)	0.00364*** (9.90e–05)	0.000407*** (0.000136)
Bonus	–23.44*** (5.975)	0.0234*** (0.00112)	0.00921*** (0.00143)

*continued.*

**Table 6:** *continued.*

Variable	Profit per Person-Day	Log(Labor Productivity)	Log(Capital Productivity)
Contribution to Provident Fund and Other Funds	-10.21** (4.101)	0.0184*** (0.000816)	0.00678*** (0.000987)
Workmen and Staff Welfare Expenses	-20.12*** (5.608)	0.0208*** (0.00106)	0.0119*** (0.00137)
Gender	339.8** (151.5)	-0.435*** (0.0283)	0.558*** (0.0364)
Direct Employment	-1,875*** (219.2)	0.0801* (0.0412)	-0.798*** (0.0526)
For Firms with Employees between 50 and 200			
Compensation	1.833*** (0.0409)	0.000122*** (2.34e-05)	2.75e-05 (2.58e-05)
Wage	3.036*** (0.0672)	0.000336*** (4.51e-05)	1.64e-05 (4.28e-05)
Bonus	11.17*** (0.258)	-0.000354** (0.000143)	0.000383** (0.000163)
Contribution to Provident Fund and Other Funds	20.58*** (0.626)	0.00169*** (0.000279)	0.000367 (0.000296)
Workmen and Staff Welfare Expenses	11.38*** (0.260)	-0.000106 (0.000138)	0.000346** (0.000164)
Gender	247.5 (229.0)	-0.836*** (0.0285)	0.698*** (0.0339)
Direct Employment	490.8 (324.9)	-0.418*** (0.0412)	-0.00475 (0.0481)
For Firms with 200 or More Employees			
Compensation	5.058*** (0.790)	0.00178*** (7.68e-05)	3.38e-05 (9.65e-05)
Wage	7.540*** (1.078)	0.00254*** (0.000105)	-5.66e-05 (0.000132)
Bonus	162.4*** (15.33)	0.0241*** (0.00155)	0.00457*** (0.00175)
Contribution to Provident Fund and Other Funds	29.06*** (6.308)	0.0112*** (0.000737)	0.00236*** (0.000767)
Workmen and Staff Welfare Expenses	4.397 (7.129)	0.0130*** (0.000772)	0.000995 (0.000872)
Gender	-695.1 (441.1)	-0.720*** (0.0469)	0.706*** (0.0536)
Direct Employment	-2,768*** (783.0)	-1.327*** (0.0880)	0.929*** (0.0967)

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1.

3SLS - three-stage least squares.

<sup>1</sup> Industry dummies included but not shown.<sup>2</sup> Omitted dummies are: individual proprietorship (for type of organization); food (for industry); and 1994 (for reference year).<sup>3</sup> Instruments in 3SLS regressions are average index values of other firms for a given year, state, sector, industry, organization type, and firm size; and state-level employment policy reform measures including their interactions with indicator on whether firm size is greater than 100 or not.

Source: Authors' estimates based on various rounds of the Annual Survey of Industries (Ministry of Statistics and Programme Implementation, various years).

Regardless of firm size, except for firms with more than 200 employees, a higher proportion of direct employees has a positive impact on capital productivity while wage does not seem to matter. Effects on labor productivity of the different employment quality dimensions in terms of compensation and gender equality are generally similar to those found for capital productivity regardless of firm size. However, for firms between 50 and 200 employees, overall compensation, bonus, and welfare expenses have a negative influence on labor productivity, while wage and CPF are found to have no significant effect. The effect of direct employment on labor productivity varies depending on firm size. In the case of profits, effect of higher compensation is uniformly positive regardless of firm size except in the case of firms with 20–50 employees where level of compensation does not seem to matter. Gender equality for the largest firms does not seem to matter for profits while the effect of proportion of direct employees on profits varies depending on firm size.

## **D. Robustness Checks**

We ran a number of varying specifications to examine the robustness of the results to variances in specifications. These include instrumentation using a slightly larger set of firms, but excluding the state-labor policy reform indicators as well as relaxing the assumption that state-labor policy reforms affect the resulting outcomes. In general, we found very similar findings although in some cases it reduced the predictive ability of the estimates and changed the overall magnitudes of the estimated impact.

The general results indicate that improving the quality of employment within Indian firms can be highly beneficial to improving firm productivity and profits. As mostly larger firms have better quality and work environments it points to the need to help firms grow. The estimates from the first stage regressions also appear to indicate that substantial restrictions remain in improving the quality of employment. Also, many firms in the formal sector may continue to remain small and depress the growth in quality of employment purely because of restrictive industrial legislation, and may face credit and infrastructure constraints. Creating policies that can help firms to foster and grow will inevitably help in the rise in formal sector firms and improve the quality of employment, which can also have large benefits and implications on firm productivity and profit. This feedback will in turn lead to a larger and more productive industrial sector and may improve the quality of job creation and the quality of existing jobs more so than any mandate requiring firms to meet certain levels of quality employment.

## VII. Conclusion

The Indian manufacturing sector is believed to hold the most promise for absorbing India's mass of young people that will soon join the workforce and is targeted by the government to comprise 25% of gross domestic product by 2020. However, the ability of this to improve welfare by providing quality employment opportunities, and the possibility for this sector to grow may largely rely on the capacity of firms to improve their productivity and performance. Our examination showed that employment quality in formal manufacturing firms is generally associated with larger firms and is concentrated in firms located in urban areas and cooperatives where employees tend to have a greater voice. The paper also shows substantial benefits to labor employment policy reforms particularly through industrial dispute acts, which raise overall employee compensation, gender equality, and proportion of direct employees. This is consistent with earlier literature. These results support the idea that indirect policies that can help firms to grow; induce firms and therefore employees to locate in urban areas; and give employees a stronger voice to air their concerns, are highly important in improving the quality of employment within a firm and ultimately worker welfare. The paper also shows the role that governments can play in facilitating quality employment by helping to reform legislation that impose costs on firms not directly gained by employees but which still increase the cost of hiring.

The concentration of workers in large and small firms within India may indicate that there may be significant barriers for firms to grow and thus may provide a challenge to developing the quality of employment indirectly by increasing firm size or changing organizational structures as noted by Mazumdar and Sarkar (2008). Our finding that firms with higher wages, bonuses, contribution to provident funds, and welfare funds have positive and significantly higher profits, labor productivity, and capital productivity suggests that some firms may face some serious constraints to raising these types of compensation. A higher proportion of employees directly employed are shown to have a negative effect on both profits and productivity, which is consistent with findings that too much direct employment results in inflexibilities in firm operations that keep them from maximizing profits and effectively using labor inputs productively. That the average formal sector firm in India can potentially raise their employment quality while increasing profits and productivity may indicate that firms may face serious constraints imposed by rigid industrial and labor laws in raising employment quality standards. Failure to provide a greater understanding of the exact constraints may keep firms from effectively raising labor employment standards. Improving overall profits and labor and capital productivity is left for future research.



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### **About the Paper**

Glenita Amoranto and Natalie Chun examine the relationship between quality employment and firm performance using multiple measures of employment quality. They find that greater employment compensation leads to higher profit, labor productivity, and capital productivity. However, providing more direct employment leads to lower profits and productivity, and increases in gender equality negatively affects labor productivity.


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