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Striking a Balance: Enforcement of Job Security Laws and Firm Performance India's Manufacturing

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Abstract

This study examines the relationship between employment protection legislation (EPL), measured through pro-worker judicial outcomes (PWCJ), and firm performance in India's formal manufacturing sector. We construct a novel state-level indicator of EPL based on 1,471 high court judgments covering 18 states from 1999 to 2022. Using plant-level panel data from the Annual Survey of Industries, we analyse the impact of EPL on labour productivity growth, employment growth, and wage growth. The results indicate a non-linear (inverted U-shaped) relationship. A 1% increase in PWCJ is associated with a 3% rise in labour productivity, 2.59% increase in employment, and 2.95% increase in wages. However, beyond a threshold, further increases in PWCJ negatively affect all three outcomes. The results are robust to alternative specifications and controls. Our findings highlight the importance of balancing job security with flexibility to foster industrial performance. The study contributes new empirical insights to the debate on labour laws and firm outcomes in India.

JEL classification

K31, L51, L60, D24

Keywords

employment protection, labour disputes, court judgements, productivity, employment, wages, India

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Introduction

Job security laws, also known as employment protection legislations (EPL), refer to regulations that are designed to safeguard the rights and interests of employees in the workplace (Heywood et al., 2018). These laws typically cover rules that govern layoffs, retrenchment to protect employees from arbitrary dismissal and provide for severance compensations (Ahsan and Pages, 2008). Theoretical models in the labour market literature show that firing laws can hamper labour adjustments,affecting allocation of resources as well as productivity (Nickell, 1986; Hopenhayn and Rogerson, 1993; Garibaldi, 1998). The firing costs associated with employment protection legislation (EPL) can also be used by workers to push up their real wages above the market clearing level, exacerbating the unemployment problem (Lindbeck and Snower, 1987). However, EPL can also generate positive effects for enterprises by ensuring stability in the workforce and induce investments on firm-specific skills, boosting firm productivity (Belot et al., 2007; Lechthaler, 2009). Thus, theoretical link between EPL and industrial performance is ambiguous.

Indian labour laws have often taken to be cumbersome and rigid (OECD, 2007). The policy makers in the central government echoed in line with this neoliberal line of reasoning and the central government worked to reform labour laws and decided to rationalize them. In 2019 and 2020, the central government introduced four labour codes: wages, industrial relations, social security, and safety and working conditions. However, these codes have not been implemented yet. As the labour falls under the concurrent list of the Indian Constitution, the implementation of the labour codes depends on the concurrence of state governments. Prior to the introduction of the labour codes by the central government, a few state governments enacted some reforms in labour laws and offered additional flexibility to business in hiring and firing of workers. For example, Rajasthan has increased the threshold for the requirement of government approval for retrenchment from 100 to 300 workers and excluded the enterprises employing less than 50 workers from the purview of the Contract Labour Act

(CLA), 1970. Previously, the threshold for the exemption from the CLA, 1970 was set at 20 workers only.

In the post-reform period, the manufacturing sector in India grew at the annual rate of 7 per cent. However, this sector accounts for only 17 per cent of India's GDP and only 11.5 per cent of total workforce. The level of employment in the manufacturing sector was 59.8 million in 2011-12, which dropped for nearly a decade before goingback up to 64.8 million in 2022-23 pointing to a sluggish employment generation in this sector. One section of economists blamed labour laws for the industrial stagnation (Basu, 1995; Besley and Burgess, 2004; World Bank, 2008). They argue that attempts to correct the power-balance between labour and capital through strict pro-worker labour regulations would end up hurting workers, as it can affect the labour demand in the market. However, that argument was challenged by others due to a lack of empirical support and methodological issues(Nagaraj, 2004; Fragenas, 2010; Deakin & Sarkar, 2011; Roychowdhury, 2014; Sofi and Kunroo, 2018; Bhattacharjea, 2020).

A significant body of empirical literature from India has investigated the effect of labour laws on industrial performance in recent years, with their results presenting a mixed picture. For example,Hassan et al. (2021), Schwab (2020), and Dougherty (2014) demonstrate negative effects of EPL on industrial performance, whereas Fragenas (2010), Deakin & Sarkar (2011), Sofi and Kunroo(2018), and Roychowdhury (2018) show insignificant effects.Several studies at the international level report positive effects of EPL or firing costs on firms (see e.g.Pierre and Scarpetta (2013) for a cross-country analysis; Belot et al. (2007) for OECD countries, and Lechthaler (2009) for Germany).It is pertinent to mention that majority of the Indian studies that report negative effects of EPL have followed the Besley and Burgess (2004) Index or its modified version, which have come under severe criticism due to several grounds including the misinterpretation, coding errors, and disregard of the enforcement of labour laws under consideration (Bhattacharjea, 2006; 2020), undermining the credibility of the previous findings.Moreover, previous studies mostly utilize aggregate data at the industry level (except for few studies), facing limitations in capturing technological heterogeneity at the firm level. Empirical attempts exploiting micro-level longitudinal panel data for measuring the impact of EPL on firm performance are scarce, particularly in Indian context.

Additionally, the existing theoretical insights underlying the debate on labour laws are polarized, and their predictions are ambiguous.

Aiming to bridge these research gaps, the present study constructs a novel quantitative indicator of employment protection (EP)at the state level (in India's federal constitutional set up) using pro-worker court judgments (PWCJ) of labour disputes to capture their ground level enforcement. Then we estimate the non-linear effects of strictness in EP on labour productivity growth, employment growth, and wage growth, exploring the possibility of inverted U-shaped relationship. The study relies on plant level Annual Surveys of Industries (ASI), covering the registered manufacturing sector. We focus on those disputes that have cited chapters 5A and 5B of the Industrial Disputes Act (IDA), 1947. The chapters 5A & 5B of IDA 1947 require thatcompanies must obtain permission for layoffs and retrenchments from the state government where the company is located, a legal provision that has resulted in much litigation.

The results indicate that each 1% rise in the share of pro-worker judicial outcomes of labour disputes is associated with 3% increase in labour productivity growth, 2.59% increase in employment growth, and 2.95% wage growth. However, beyond some threshold, the relationship between judicial outcomes and the outcome variables turns out negative, with each 1% rise in pro-worker judicial outcomes being associated with a 0.408% fall in labour productivity growth, 0.334% fall in employment growth, and 0.39% fall in wage growth. The results are robust to inclusion of firm-specific and state-level control variables, and alternatively specifications of the econometric model. The findings of the study highlight the importance of having a balanced job security and labour law regime in place that encourages workforce stability and job specific skill development, while also providing substantial flexibility for firms to do business. This study adds new insights to a significant body of Indian and international literature that argues that labour protection is not bad for industrial performance (Roy et al. 2020; Roychowdhury, 2018; Sofi and Kunroo, 2018; Pierre and Scarpetta, 2013; Deakin & Sarkar, 2011; Fragenas, 2010; Lechthaler, 2009; and Belot et al. 2007). We further argue that the optimal level of job security depends on the competition in labour and product markets, and as the economic environment becomes more competitive, the relevance of EPL for firm performance grows. This line of argument adds to previous theoretical insights advanced by Belot et al. (2007).

Our study is novel in several respects. First, by exploiting the data on high court judgments, we are able to construct a continuous time series indicator of EPL that captures ground level enforcement across 18 states. Capturing the ground level enforcement of EPL in empirical analysis is vital, as it determines the actual cost of compliance. Firms can find several ways to circumvent regulations in regions with weak enforcement of these laws. Moreover, unlike previous literature, our continuous time series of EP indicator enables us to estimate threshold effects or turning points, thereby significantly contributing to the existing literature.

Hiring and Firing Laws in India

India has had a plethora of centre and state labour laws governing industrial relations, wages, employment, and social security. In fact, the number of laws applicable to a registered enterprise increases with the number of workers employed by the firm (Panagariya, 2016). Under Article 246 of the Indian constitution, labour comes under the List–III, which is the Concurrent list, allowing both the centre and the State governments to enact laws or make amendments in the existing labour regulations. There are as many as 35 central laws and 200 state laws governing employer-labour relations in the country (Anant et al., 2006). Not surprising that so many labour laws result in a large amount of litigation. Pending litigation often slows down the pace of growth, as often cases can drag out in India's cumbersome legal process.

In addition, the vast majority of Indian labour laws are applicable only if the firm employs more than 10 workers, and is hence regarded as part of the formal sector (firms with less than 10 workers are called unorganized sector units). Hence, we should be clear that in this study we are only examining firms which employment over 10 workers; such firms account for a smaller share of total enterprises than the unorganized units, and the formal firms also tend to have a higher productivity than the unorganized ones.

However, the academic debate on labour laws is particularly focussed on hiring and firing laws or employment protection legislations (EPLs) for organized sector firms because of their strong theoretical underpinning in the economic literature. The Indian labour law regime provides for a significant body of EPLs under Chapter 5, Chapter 5-A, and Chapter 5-B of

the Industrial Disputes Act (IDA), 1947. While Chapter 5 lays down conditions for strikes and lockouts, Chapter 5-A and Chapter 5-B regulate lay-offs, retrenchments, and wages in industrial establishments.

The section 25C, 25FF, and 25FFF provide for a right to monetary compensation to workmen affected due to layoffs, transfer and closure of business undertakings. Further, Sections 25F and 25M of Chapter 5-A and 5-B, respectively provide that no workman (other than a casual worker) shall be laid off or retrenched without government permission and issuance of one month's notice. Similarly, Section 25-N lays down conditions for retrenchment including three months' notice and requirement of government permission, while section 25-O lays down the procedure for closing down of an undertaking. The provisions under the chapter 5B are more severe as compared to those under the Chapter 5A. The chapter 5A applies to enterprises employing 50 or more workers but less than 100 workers. Enterprises employing 100 or more workers come under the purview of chapter 5B. The central EPL regime has not changed substantially over the past few decades, except for the central government's collapsing of the labour laws into four codes in 2019-20, which is still awaiting the implementation. However, several states have implemented labour reforms from time to time.

In addition, it is notable that the promulgation of four new Labour Codes (in November 2025), which merge the 29 existing labour laws of the Central government of India, is likely to flexibilize the labour market and reduce labour inspections (on which more later in the paper), in the future. Hence, there will be a greater responsibility falling on the shoulders of the judiciary to ensure that the EPL regime that emerges works in the interest of both workers and employers.

Theoretical insights

Hiring and firing laws require employers to obtain prior approval from the government for layoffs, retrenchments, and closures, and make advance notice compulsory. The length of the notice period depends on the firm size as discussed in the previous section. The non-compliance with these rules can attract penalties and punishment against the defiant employer. Previous literature has claimed that government approvals for layoffs and retrenchments could involve a cumbersome process, potentially delaying the employers'

desired responses to market shocks. Hiring and firing laws also provide for severance payments depending on the length of the continuous service of a worker.

The existing theoretical literature explains both negative and positive potential effects of EPL on firm performance. Few economic models demonstrate that costly firing restrictions can hinder desired labour adjustments in response to demand shocks (Nickell, 1986; Garibaldi, 1998; Bertola, 1990) and force firms to hire sub-optimal labour inputs, impending on firm productivity (Hopenhayn and Rogerson, 1993). The insider-outsider model (Lindbeck and Snower, 1987) demonstrates that labour turnover costs can be leveraged by workers for the wage bargaining, pushing real wages above the market clearing level. If the incumbent workers are well informed about the turnover costs of firing a worker, they can exploit them to resist downward wage adjustments during economic recessions, forcing a prolonged unemployment duration for outsiders. Ichino &Riphahn (2005) argue that the protection against layoffs can reduce labour productivity because workers tend to shirk when there is no fear of a job loss. Similarly, Di Pietro (2002) argues that EPL can reduce the capability of firms to quickly tap into skilled labour supply, forcing the business enterprises into a low level skill or technological trap.

On the other hand, EPL can sprout channels that are useful for productivity growth in the long run. For example, a strictly pro-worker EPL regime can boost employee commitment and encourage workers and employers to invest in firm specific skills and human capital, which is an important source of competitive advantage for firms (Storm & Naastepad, 2013). Lagos (2006) argues that the implementation of employment protection legislation motivates firms to adopt a selective approach in labour hiring, improving the quality of matching in the labour market. Similarly, strict rules under EPL can reduce workers' inclination to switch between jobs, and reduce employer's inclination to dismiss his/her workers, thereby improving the retention rates and tenure of employees (Auer and Cazes, 2000). This will in turn reduce the probability of having to incur costs of training for new entrant workers.

The net effect of hiring and firing laws on total factor productivity (TFP) hinges on the relative strength of the negative and positive channels these regulations introduce. The balance of these effects can vary significantly depending on the phase of a country's economic development. In underdeveloped economies, characterized by an excess supply of

labour and high unemployment, workers have lower incentives to shirk since the cost of losing a job is substantial. Consequently, employers may not find employment protection laws useful for increasing the effort of a worker, as the threat of job loss is already a strong deterrent against worker indolence. In this context, the potential positive effects of EPL, such as enhanced worker commitment and reduced turnover, may be less pronounced. This line of argument is also echoed by Belot et al. (2007) who argue that EPL can increase welfare only if worker's effort level is socially too low.

Moreover, in less advanced economies, firms often have greater control over price setting and may prioritize reducing costs over maintaining high product quality. Lower income levels among consumers make them more sensitive to price reductions, even at the expense of product quality. This diminishes the motivation for firms to leverage EPL to enhance product or service quality as a competitive strategy.

Additionally, the practice of investing in firm-specific skills and training programs is less prevalent in developing economies compared to industrialized nations. For example, in India, only 0.07 per cent of workers received on-the-job training during 2017-18 (Sarkar, 2021). Firms in these regions may not see the immediate benefits of such investments, which are more commonly recognized in advanced economies where workforce skills are a significant competitive advantage. These factors explain why firms in less developed countries, like India, often resist employment protection laws, despite the potential long-term benefits these regulations might offer. However, as economies develop, market imperfections decrease, and the economic environment becomes more competitive and efficient, the relevance of EPL for firm performance grows. In such contexts, the positive channels induced by EPL, such as improved worker retention, enhanced firm-specific skills, and greater employee commitment, can start to outweigh the negative impacts, leading to a net positive effect on TFP.

Therefore, the impact of EPL is highly context-dependent, evolving with the phase of economic development. While stringent EPL might initially pose challenges in developing economies, its benefits can become more significant as these economies advance, suggesting that the relationship between EPL and TFP is dynamic and multifaceted (see Arestis et al. 2023 for a slightly similar argument).

Methodology

Measurement of Strictness in EPL Enforcement

The measurement of the strictness of EPL often remains a debatable issue in the literature. International literature has mainly relied on two approaches to measuring the labour law strictness. One is based on a textual analysis of labour laws (see e.g. Besley & Burgess, 2004), which captures the de-jure strictness. It examines the content and provisions of legal texts or its amendments over time. This approach can face two significant limitations. First, there can often be a discrepancy between the de-jure provisions of labour laws and their de-facto implementation (Nagaraj, 2004). Further, the de-jure provisions remain static (unless they are amended) and they do not account for evolving nature of interpretations of legal provisions in a rapidly changing socio-economic and institutional conditions. Second, quantitatively weighing legal provisions is inherently challenging and highly subjective, as the provisions are often ambiguous and open to multiple interpretations, making it difficult to assign precise and universally accepted values.

The other approach, on the other hand, is based on court judgments (see e.g. Fragenas, 2010). This approach aims to capture the de-facto implementation, reflecting on how labour laws are interpreted, enforced, and applied in the real world scenarios.The approach has gained popularity off late, in the international literature (Choutagunta, 2019). It bridges the gap between the written laws and their practical enforcement, highlighting how stricter or lenient the laws are in actual labour disputes. Court judgments reflect evolving interpretations of the law, responding to changing socio-economic conditions andinstitutional changes, which textual analysis cannot fully capture. Besides, court judgments can be easily categorized as pro-worker, pro-employer, or neutral, allowing for construction of quantitative metrics, which is less susceptible to subjectivity as compared to de-jure based measure.

How do court judgments influence the enforcement of EPL?

Court judgments can influence the enforcement of EPL through several ways. First, enforcement agencies, such as labour inspectors, face a challenging task of interpreting legal provisions due to potential ambiguities. Usually these enforcement agencies follow court rulings, which define the terms in the legal texts and provide clarifications on ambiguities. Second, court judgments set precedents, which determine the expected outcomes of future

cases. Third, unlikely labour inspections, court judgments are lesser prune to local political pressures, and they are binding.Labour inspections focus on identifying violations and ensuring routine compliance, while court judgments define how labour laws should be applied, and they establish the parameters of what constitutes a violation. Therefore, court judgments serve as a reliable proxy for the enforcement of labour laws.

We create a consolidated index of employment protection (EP) using high court judgments across 18 states of India for the period from 1999 to 2022. To ensure that our Index captures the strictness of EPL regime only, we considered only those labour disputes that have been resolved under Chapter 5A and 5B of the Industrial Disputes Act, 1947. We consider eight sections of the said chapters, including Section 25-B, 25-C, 25-F, 25-FF, and 25-FFF of Chapter 5A, and Section 25-M, 25-N, and 25-O of Chapter 5B. The study is restricted to state level high court judgments, since other judgments including those from lower courts are not available with the available online search engines. We follow the Leximetrics approach to arrive at the final quantitative indicator of EP. We categorize all the appropriate court judgments into three categories: Pro-Worker Court Judgments (PWCJ), Pro-Employer Court Judgments (PECJ), and Neutral Court Judgments (NCJ). The final index of employment protection is calculated in terms of the weighted cumulative PWCJ as a percentage of all court judgments (ACJ) in a given state and time period as under:

$$EP_{st} = \frac{PWCJ_{st} + \alpha \times PWCJ_{st-1}}{ACJ_{st} + \alpha \times ACJ_{st-1}} \times 100$$

In the above formula, EP_{st} is the index of employment protection varying across states ‘s’ and over time ‘t’ andα is the attrition rate. It is assumed that a court judgment in time period ‘t’ can influence the labour market dynamics not only in that time period, but also in the subsequent time periods. However, as the existing research shows, older precedents become less attractive over time, and judges or lawyers like to cite more recent ones (Friedman et al. 1981). A higher weighted cumulative percentage of pro-worker court judgments (PWCJ) in a statereflects that either the de-jure provisions in the state’s labour law are inherently stricter (de jure pro-worker) or the state’s high-court has adopted a stricter interpretation of these laws – both legislative provisions and judicial interpretation can vary across statesin tandem

as labour falls under the Concurrent List. One could argue that a higher proportion of pro-worker court judgments might result from poor state of labour laws and higher levels of worker exploitation.However, we contend that even if pro-worker judgments arise from these factors, they impose a cost on the firm and serve as a deterrent, reducing the likelihood of similar exploitative practices in the future, thereby strengthening the condition of the labour law.Employers would consistently prefer pro-employer court judgments over pro-worker ones, regardless of the origin of a labour dispute. Similarly, workers are more likely to view pro-worker judgments favourably, as the latter can influence the dynamics of future employer-employee relationships.

It is important to note that the EP strictness index discussed above is a continuous variable. Higher values of the Index is indicative of a stricter or pro-worker EPL regime in the state for the given time period. We also express the EPL index as a binary variable, assigning value 1 if EPL Index score in state ‘s’ and time period ‘t’ is greater than 50 percent, and zero otherwise.

Dependent and Independent Variables

This study considers three firm-level performance indicators, including labour productivity growth, employment growth, and wage growth – dependent variables in the study. Labour productivity is measured by net value added per worker, which is a standard measure widely used in the previous literature. Employment growth is calculated on the basis of number of workers, including both directly hired workers and contract workers, whereas wage growth in calculated using wage bills at the firm level.

The independent variables include employment protection (measured by proportion of pro-worker judicial outcomes of labour disputes) and square of the labour protection. Besides, we also include multiple control variables (varying across different regressions), including fixed capital, materials, fuels, and installed power capacity in the state,

Data

The data related to court judgments was collected from Legit Quest Global Services Private Limited, New Delhi. For economic variables, we used the annual surveys of industries (ASI) panel datasets, which were obtained from the MOSPI, Government of India. The time period of our consolidated EPL Index spans from 1999 to 2022. During the current project, a total of 501 court judgments were retrieved and analysed. These judgments were combined with previously collected judgments under the ICSSR project (Sofi, 2022). Our consolidated index of EP in the current study comprises of 1471 court judgments[2]. The economic variables were adjusted for inflation, wherever applicable, using the Whole Sale Price Index (WPI). As far as our sample enterprises are concerned, we selected only open enterprises with positive value of output in the registered manufacturing sector. The state-level control variables were collected from RBI, Centre for Monitoring Indian Economy (CMIE) States of India, and Indiastata. The data on number of law schools and colleges were generated using data mining tools.

Descriptive Analysis

Table 1 presents the trends in net value added per worker—a measure of labour productivity – and its growth rate from 1999–2000 to 2018–2019. During this period, the median level of labour productivity was ₹1.61 lakh per worker, with a median growth rate of 10.1%. These figures suggest a moderate increase in labour productivity over the past 25 years.

Table 2 presents the trends in labour productivity growth across varying levels of labour protection strictness. During the period under study, the median labour productivity growth was 8% under low labour protection regimes, compared to 8.9% under medium protection regimes. In contrast, firms under high labour protection experienced a lower growth rate of 6.8%, suggesting that while moderate labour protection can enhance productivity, excessive protection may hinder it.

Table 3 presents the patterns of labour productivity growth across different firm-size categories. Labour productivity growth was higher in firms operating under medium labour protection across all firm-size categories. The productivity differential was most pronounced in large enterprises (6.8 percentage points), followed by small enterprises (2.5 percentage points), and was marginal in medium-sized enterprises (0.5 percentage points).

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[2]The detailed index of EPL shall be provided on demand.

However, consistent with the previous table, firms operating under high labour protection regimes experienced lower labour productivity growth compared to those under low and medium protection regimes. This further reinforces the non-linear impact of pro-worker judicial interpretations of labour laws on firm productivity.However, the descriptive analysis does not account for confounding factors that vary across firms and states and may influence labour productivity, highlighting the need for an empirical analysis. Such an analysis not only allows us to test the robustness and reliability of the findings but also helps uncover the nature of the non-linear relationship and identify potential turning points.

Table1: Growth in the net value added per worker (all states) in the formal manufacturing sector.

	Labour productivity	
Year	Median level of labour productivity	Median labour productivity Growth Rate
1999	0.84	
2000	0.81	-4.0
2001	0.77	-4.9
2002	0.82	6.5
2003	0.86	5.2
2004	0.89	3.1
2005	1.01	13.2
2006	1.15	14.0
2007	1.34	16.4
2008	1.53	14.4
2009	1.70	11.1
2010	2.01	18.3
2011	2.24	11.3
2012	2.48	11.2
2013	2.89	16.2
2014	2.91	0.8
2015	3.21	10.1
2016	3.49	8.9
2017	3.80	8.8
2018	4.09	7.7
Median	**1.61**	**10.1**

Source: Authors' Calculations.

Table 2: Growth in net value added per worker, by the level of strictness in the labour protection (measured in terms of pro-worker judicial outcomes of labour disputes).

	Median labour productivity growth		
Year	Firms facing Low employment Protection (EP)	Firms facing Medium employment Protection (EP)	Firms facing High employment Protection (EP)
2000	2.4	28.4	2.3
2001	-13.4	-3.0	-0.5
2002	8.4	8.9	-0.1
2003	20.2	-1.8	6.8
2004	22.7	4.6	-9.2
2005	-11.2	7.6	41.8
2006	42.4	15.1	-5.4
2007	-13.8	30.6	21.5
2008	-6.3	20.9	19.0
2009	39.5	2.0	4.9
2010	-1.1	26.0	44.0
2011	3.2	16.3	122.7
2012	13.4	19.0	-55.9
2013	22.5	2.8	33.1
2014	1.1	2.5	7.8
2015	8.0	20.2	-9.6
2016	-1.5	12.5	5.3
2017	9.3	7.4	9.8
2018	10.8	7.2	10.0

Median Growth Rate	**8.0**	**8.9**	**6.8**

Source: Authors' Calculations.

Table 3: Median labour productivity growth (1999-2000 to 2018-2019), by firm-size.

Median Labour Productivity growth			
Firm Category	Firms facing Low Employment Protection (EP)	Firms facing Medium Employment Protection (EP)	Firms facing High employment Protection (EP)
Small	5.1	7.6	4.7
Medium	5.5	6.0	4.2
Large	8.4	15.2	9.4
All	8	10	5

Source: Authors' Calculations.

Empirical Results

We employ a fixed effects regression model to empirically examine the relationship between employment protection (EP) or pro-worker court judgments (PWCJ) and firm performance. The fixed effects approach allows us to control for unobservable, time-invariant factors at the firm and state levels, while observable factors are addressed through the inclusion of control variables. To explore the potential for a non-linear relationship, we estimate a quadratic specification, which enables us to test for an inverted U-shaped pattern.

Table 4 presents the regression estimates of labour productivity, both with and without control variables. In the baseline specification, the coefficient on log PWCJ is positive (3.718) and statistically significant at the 1% level, indicating that a 1% increase in PJO is associated with a 3.718% rise in labour productivity. However, the coefficient on the squared

term, log PWCJ², is negative (-0.505) and also statistically significant, suggesting that beyond a certain threshold, further increases in PWCJ are associated with a 0.505% decline in labour productivity, consistent with an inverted U-shaped relationship.

In the second regression, which includes control variables, the coefficient on log PJO declines slightly to 3.000 but remains statistically significant at the 1% level? Similarly, the coefficient on log PWCJ² decreases to -0.408, yet continues to be significant at the 1% level. All control variables, including capital per worker (0.246) and power capacity (0.060), have positive and statistically significant coefficients, indicating a positive association with labour productivity. In the third specification, we test the robustness of the results by using robust standard errors to account for potential autocorrelation and heteroskedasticity. Fixed effects and year trends were included in all these regressions. The findings remain largely unchanged, further confirming the presence of an inverted U-shaped relationship between labour productivity and PWCJ.

Table 5 presents the regression estimates for employment growth. In the first specification, the coefficient on log PWCJ is positive (2.652) and statistically significant at the 1% level, indicating that a 1% increase in PWCJ is associated with a 2.652% rise in employment growth.

However, the coefficient on log PWCJ² is negative (-0.347) and statistically significant, suggesting that beyond a certain threshold, further increases in PWCJ lead to a 0.347% decline in employment growth – indicating a non-linear relationship. In the second regression, which includes control variables, the coefficients on log PWCJ and log PWCJ² decrease slightly to 2.598 and –0.334, respectively, but both remain statistically significant. This confirms the robustness of the inverted U-shaped relationship between PWCJ and employment growth.

This regression includes four control variables: log fixed capital, log materials, log fuels, and installed power capacity. The coefficients on all these variables are positive and statistically significant, aligning with theoretical expectations.In the third regression with robust standard errors, the coefficients on all the variables do not change significantly, confirming the robustness of the findings.

Finally, Table 6 presents the regression estimates for wage growth. In the first specification, the coefficient on PWCJ is positive (3.399) and statistically significant at the 1% level,

indicating that a 1% increase in the proportion of PWCJ is associated with a 3.399% rise in wage growth. In contrast, the coefficient on PWCJ² is negative (–0.460) and also significant at the 1% level, suggesting that beyond a certain threshold, a further 1% increase in PWCJ results in a 0.460% decline in wage growth.

After including control variables in the second regression, the coefficients on PWCJ and PWCJ² decrease to 2.956 and remain statistically significant at the 1% level, confirming the inverted U-shaped relationship between wage growth and PWCJ. In the third regression, which uses robust standard errors, the coefficients remain largely unchanged, further reinforcing the robustness of the findings.

Overall, the results suggest that pro-worker judicial outcomes in labour disputes positively influence labour productivity, employment, and wage growth – up to a certain threshold. However, excessive labour protection appears to have a detrimental effect on all these outcomes.

Table 4: Impact of PWCJ of labour disputes on log labour productivity growth.

	(1)	(2)	(3)
VARIABLES	Without Control Variables	With Control Variables	With Robust S.E
Log PWCJ	3.718***	3.005***	3.005***
	(0.697)	(0.695)	(0.750)

Log PWCJ2	-0.505***	-0.408***	-0.408***
	(0.0900)	(0.0897)	(0.0963)
Log Capital per-worker		0.246***	0.246***
		(0.00580)	(0.00947)
Log Power capacity		0.0605**	0.0605**
		(0.0256)	(0.0274)
Year	-0.0276***	-0.0389***	-0.0389***
	(0.00121)	(0.00221)	(0.00243)
Constant	52.21***	73.04***	73.04***
	(2.683)	(4.560)	(5.040)
Observations	180,481	179,079	179,079
R-squared	0.006	0.021	0.021
Fixed Effects	Yes	Yes	Yes
Year Trend	Yes	Yes	Yes

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' calculations.

Table 5: Impact of PWCJ of labour disputes on log employment growth.

VARIABLES	(1) Without control variables	(2) With Control Variables	(3) With Robust S.E.
Log PWCJ	2.652***	2.598***	2.598***
	(0.490)	(0.495)	(0.530)
Log PWCJ2	-0.347***	-0.334***	-0.334***
	(0.0631)	(0.0639)	(0.0680)
Log Fixed Capital		0.0446***	0.0446***
		(0.00477)	(0.00514)
Log Materials		0.0495***	0.0495***

		(0.00411)	(0.00435)
Log Fuels		0.0321***	0.0321***
		(0.00648)	(0.00699)
Log Installed Power capacity		0.115***	0.115***
		(0.0190)	(0.0200)
Year Trend	-0.0322***	-0.0314***	-0.0314***
	(0.000882)	(0.00166)	(0.00175)
Constant	62.25***	58.43***	58.43***
	(1.921)	(3.371)	(3.550)
Observations	341,636	334,846	334,846
Fixed Effects	Yes	Yes	Yes
Year Trend	Yes	Yes	Yes

S.E. in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: Authors' calculations.

Table 6: Impact of pro-worker judicial outcomes on log wage growth.

	(1)	(2)	(3)
VARIABLES	Without control variables	With Control Variables	mode3
Log PWCJ	3.399***	2.956***	2.956***
	(0.482)	(0.487)	(0.488)
Log PWCJ^2	-0.460***	-0.390***	-0.390***
	(0.0621)	(0.0628)	(0.0628)
Log Fixed Capital		0.0390***	0.0390***
		(0.00469)	(0.00510)
Log Materials		0.0764***	0.0764***
		(0.00404)	(0.00431)
Log Fuels		0.0682***	0.0682***
		(0.00637)	(0.00672)

Log Power Capacity		0.230***	0.230***
		(0.0187)	(0.0185)
Year Trend	-0.0244***	-0.0162***	-0.0162***
	(0.000867)	(0.00163)	(0.00163)
Constant	46.07***	27.09***	27.09***
	(1.890)	(3.315)	(3.273)
Observations	341,815	335,005	335,005
Fixed Effects	Yes	Yes	Yes
Year Trend	Yes	Yes	Yes

Simple/Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' calculations.

Declining labour inspection intensity

Despite the evidence of a significant positive association between judicial enforcement of labour laws and firm performance, at least up to a certain threshold as discussed above, the ground level enforcement in terms of labour inspection has continuously declined over time.

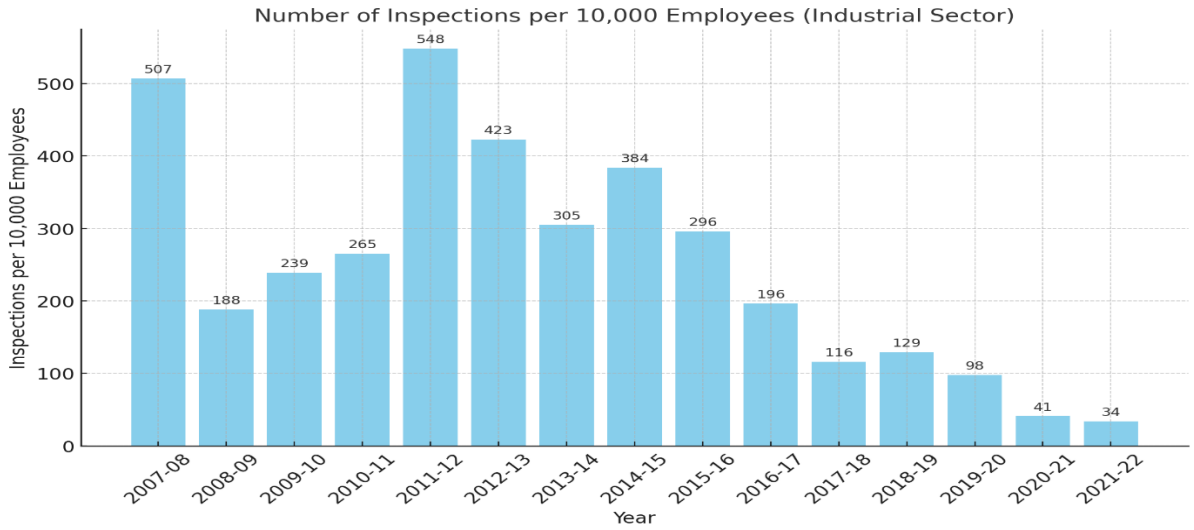
Our analysis of labour inspection data from the Labour Bureau shows that the average number of inspections per 10,000 formal sector industrial employees declined steeply from 507 in 2007-08 to 34 in 2021-22 (see Figure 1). Over the same period, the average number of official labour inspectors (conducting the inspections) per 10,000 employees registered a marginal decrease, from 2.5 to 2.4 (see Figure 2). These patterns indicate a weakening of the labour inspection system, which has serious implications for labour law enforcement.

Moreover, the surge in temporary employment within the formal sector, from 20% in 1999–2000 to 40.7% in 2022–23, has further eroded the effectiveness of labour laws. However, t is notable that the share of temporary workers in states with stricter labour law was 5% lower than in flexible states.

Since 2014, India has adopted a risk-based randomized labour inspection system. This system ostensibly aims to enhance ease of doing business and compliance with labour laws. Under this system, establishments are now randomly selected for inspections. However, the randomization is performed after classification of establishments on the basis of risk level and previous history of violations. Then, a certain number of enterprises are selected from high-risk enterprise groups for labour inspections. This approach has been formally incorporated in the new labour code on Occupational Safety, which was introduced in 2019-2020 – which is ready for implementation (with the official gazette notification in November 2025 of all the four Labour Codes, including the one on Occupation Safety & Health). The labour code defines the role of inspectors as enforcers and facilitators.

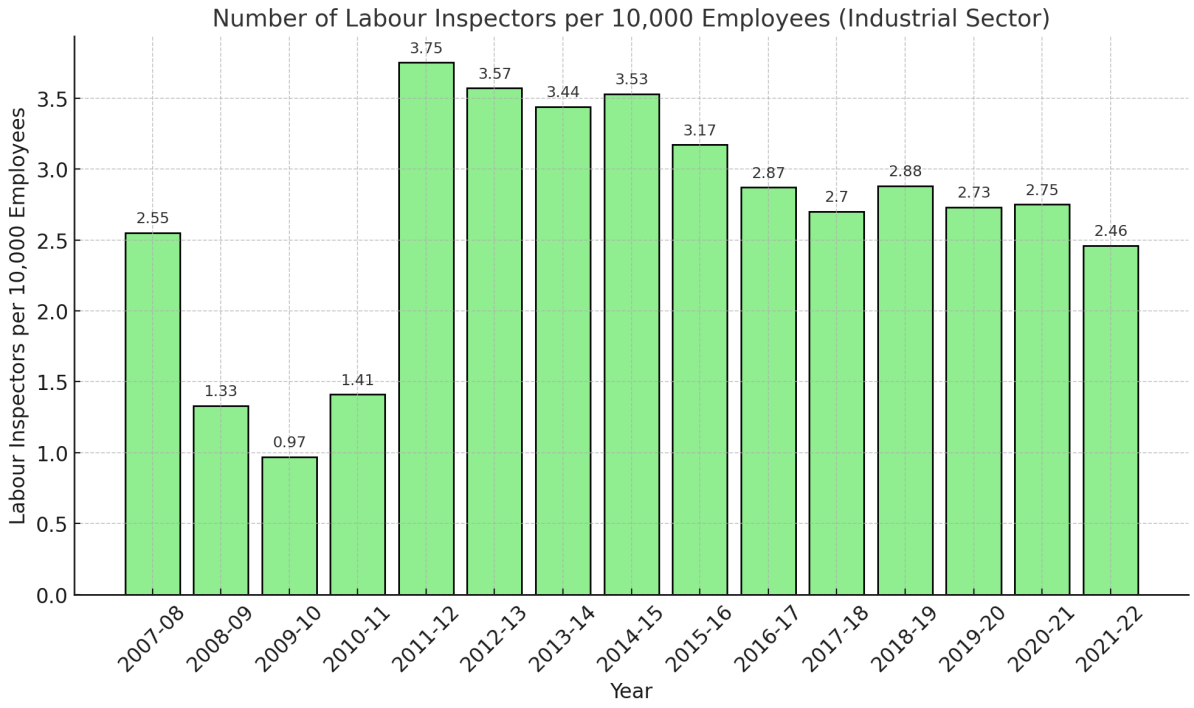
In principle, the randomized labour inspection system can bring transparency and reduce corruption. However, if the randomization is accompanied by a reduction in the number of inspections already noted, then the probability of an enterprise to be inspected falls substantially. We find that the percentage of registered factories that were inspected has fallen sharply from 47.6% in 2005 to 19.1% in 2023 see (Figure 3). This undermines the deterrence effect of the labour inspection system, thereby weakening the ground-level enforcement of labour laws. And when labour laws are weakened, it is the vulnerable class of workers who bear the brunt. Therefore, policy makers should raise the intensity of labour inspections and strengthen the capacity of enforcement agencies to ensure effective enforcement of labour law, especially in the light of the judicial court judgments conclusions we have drawn in this paper.

Figure 1: Number of labour inspections per 10,000 formal sector employees in industry



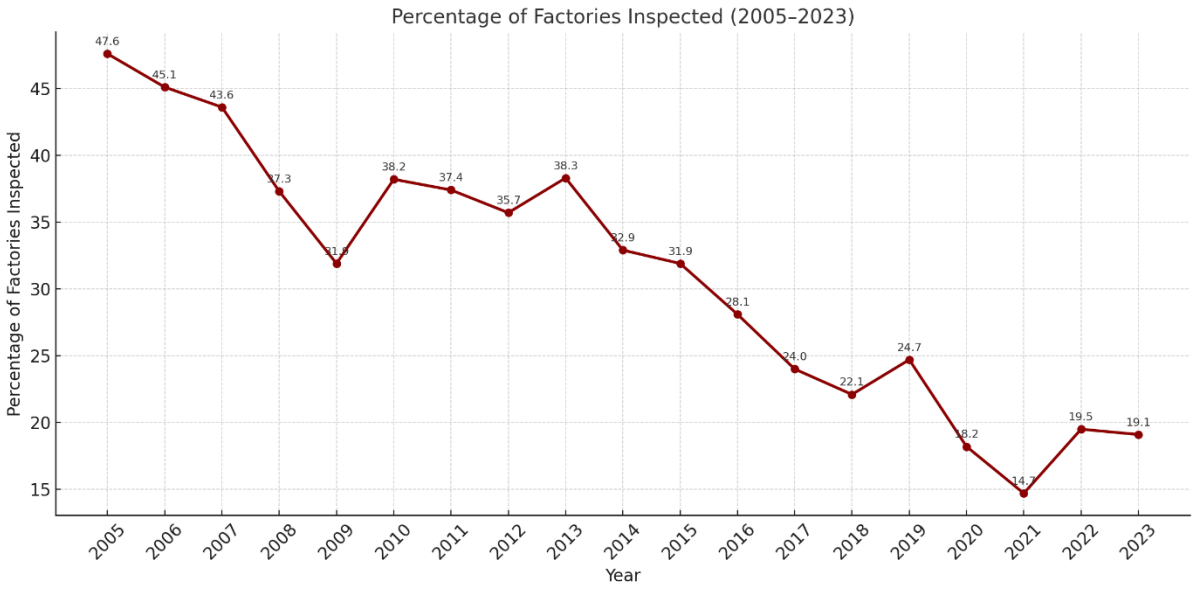
Source: Authors' Calculations Based on Bureau Data.

Figure 2: Number of labour inspectors per 10,000 employees in the industrial sector.



Source: Authors' Calculations based on Labour Bureau Data.

Figure 3: Changes in the percentage of factories inspected during 2005 to 2023.



Source: Standard Reference Note, Directorate General Factory Advice Service & Labour Institutes.

Conclusion

This study offers new evidence on the effects of employment protection (EP) on firm-level outcomes in India's formal manufacturing sector. Unlike previous studies that rely primarily on de jure legal provisions or use highly aggregated data, we build a novel, state-level EP indicator based on actual pro-worker judicial outcomes (PWCJ) of labour disputes. This measure captures how strictly EP is enforced on the ground and varies across time and states. It allows us to go beyond binary classifications and capture non-linear effects.

Our results clearly show that moderate levels of labour protection – reflected in a higher share of pro-worker judicial outcomes – are associated with positive firm outcomes. Labour productivity, employment, and wage growth all improve as EP strictness rises initially. However, after a certain threshold, further increases in EP enforcement become counterproductive. The inverted U-shaped relationship found across all outcome variables supports the idea that both under- and over-regulation can harm firms.

The analysis is robust to different specifications, including the use of fixed effects and robust standard errors. Control variables such as capital intensity, fuel use, and installed power capacity also show expected positive effects on productivity and employment.

This study makes several important contributions. First, by using court judgments, it addresses the key limitation in previous literature – the gap between de jure and de facto enforcement. Second, it brings new insights to the Indian context by focusing on firm-level data rather than industry aggregates. Third, it contributes to the international literature by reinforcing the view that the impact of labour laws depends on their implementation and economic context.

Policy implications are clear. Policymakers should aim for a balanced approach in designing and enforcing labour laws. The introduction of all four new Labour Codes (in late 2025) across the country is likely to make worker protection regimes even more flexible (as we noted in the Introduction). The declining quantity as well as quality of labour inspections by the executive branch of government now puts a greater onus of responsibility on the judiciary to protect worker rights, while discouraging employment and wage growth. On the other hand, complete flexibility can result in instability and low skill investment. The key lies in maintaining a regime that supports both worker protection and firm competitiveness. As India continues its industrial reforms, these insights can help create a labour law framework that is both efficient and equitable.

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