Dissertations and Theses Collection (Open Access)

Dissertations and Theses

2008

# Are De Jure Labor Laws Absolute? Formal Manufacturing in India

Gurmeet Singh GHUMMAN
*Singapore Management University*, gurmeet.sg.2007@me.smu.edu.sg

# ARE *DE JURE* LABOR LAWS ABSOLUTE? FORMAL MANUFACTURING IN INDIA

## GURMEET SINGH GHUMMAN

## SINGAPORE MANAGEMENT UNIVERSITY
## 2008

# ARE *DE JURE* LABOR LAWS ABSOLUTE? FORMAL MANUFACTURING IN INDIA



## GURMEET SINGH GHUMMAN

## SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ECONOMICS

## SINGAPORE MANAGEMENT UNIVERSITY
## 2008

# Are *De Jure* Labor Laws Absolute? Formal Manufacturing in India

## GURMEET SINGH GHUMMAN

## Abstract

We investigate the view that *de facto* labor market conditions are important in evaluating the effects of labor institutions in developing countries where enactment does not necessarily imply enforcement. Using India as a case study we empirically investigate the effects of labor markets on the organized manufacturing sector from 1970 to 1997. Recognizing that the state can intervene in the outcome of labor disputes we construct a measure to proxy the degree of the state legislature's prejudice towards pro-worker causes. We argue that leftist and communist political parties can interfere in the resolution of disputes in favor of workers through conciliation, arbitration, and the adjudication machinery, and so we use the share of seats won by left parties as a proxy for how supportive the state legislature is towards workers' concerns. Our findings suggest that manufacturing output in the formal sector reduces with a higher presence of the left in the state legislature, and this effect is greater in states enacting pro-worker laws. In addition we also find that the intensity of worker usage is adjusted downwards, and factory registration declines with a greater presence of the left and is also intensified when states amending laws favoring workers. A more pro-worker state legislature itself however, does not significantly affect employment, worker productivity, fixed capital stock, and investment. Our results are most robust from 1980 onwards as it coincides with the changes in the Indian polity. We get some indication that the insignificance of labor market conditions on employment and wages is possibly due to the left parties in West Bengal functioning differently than parties in other states. In addition, disaggregate data confirms our main findings and reveals that the average factory size reduces in labor intensive sectors with left-leaning parties, and this effect is worse in states with pro-worker labor laws.

# Contents

# List of Tables

# List of Figures

# Acknowledgements

I am grateful to Assistant Professor Davin Chor for his patience, thoughtful direction and suggestions. He provided me with a healthy set of references to identify a topic and cut short what seemed like an endless search for identifying suitable data. Assistant Professor Rashmi Barua provided useful feedback and suggestions to fill the gaps during the final stage of the thesis. I understand that all errors are my own.

Several graduate students have assisted me in one way or another. In no particular order: Elizabeth Mathew, Gregorio III Alfredo Vargas, and ZhiXiang Sun. In addition I would like to thank the School of Economics and the School of Social Sciences for the opportunity of attending seminars and assisting in conferences. The experience has not only added to my academic learning but has also made the dissertation period more enjoyable.

On a personal note I would like to thank my parents for encouraging me to undertake a Masters program in economics, Babaji without whom the thought of studying further wouldn't have risen, and SMU for providing a generous scholarship program that put an end to my indecision.

# 1. Introduction

In a period spanning half a century, India's manufacturing sector has lagged behind the Asian Tigers by contributing on average only 16 percent of GDP over the past 30 years. Formal manufacturing output increased from 51 percent in 1958 to 65 percent in 1992 as a share of total manufacturing output, but still contributes to only 10 percent of total net state domestic product. The fastest growing Indian states have experienced a constant or declining share of net state domestic product going to manufacturing output with an increasing share going towards services (Kochhar et al, 2006). Numerous studies have argued that labor regulation is a primary determinant of the observed trends: an impediment to growth and the success of reforms (Sachs et al, 2000).

Attributing low economic performance to labor institutions is not a novel inquest. Proponents of deregulating labor markets claim that interventions misallocate resources and create distortions, thereby working against the initial objective of protecting workers and increasing worker welfare. Minimum wages, job security regulations, and social security increase inequality by shifting labor from the formal sector – as demand for labor in formal sector reduces with increasing labor costs arising from hiring/firing costs (Besley and Burgess, 2004) or unions bargaining for higher wages (Freeman 2008) – to the informal sector (World Bank, 1990). The literature terms this as the relative price effect. Interventions can also lead to the expropriation effect, where increasing the bargaining power of workers leads them to seize part of employers' sunk investments (Besley and Burgess, 2004); or the "rigidity effect" (Ahsan and Pagés, forthcoming), where wage and employment flexibility is reduced.

While the debate for the developed world has been between 'distornionists'– who are against intervention, and 'institutionists'– who in favor of intervention argue that institutions can bring about Pareto improvements under adverse market conditions, the increasingly important issue in developing countries is on the topic between the *de jure* labor laws and implementation in practice.[1] Some studies rank countries based on the

---

[1] Terms in single quotes as coined by Freeman (1993).

International Labor Organization (ILO) conventions ratified (Botero et al, 2004; Forteza and Rama, 2002) but observers argue that often developing countries do not implement ILO codes or conventions (Freeman 2000), they have "limited enforcement capabilities" (Forteza and Rama, 2002) arising due to lack of personnel and corruption, or firms find ways to avoid restrictive labor laws (Almeida and Carneiro, 2005).

This paper adds to the empirical literature on the effects of labor regulation, and to a lesser extent investment climate surveys (see Dollor et al., 2002; Goswami et al, 2002; and Indicus Analytics, 2004), on economic outcome. It contributes to the existing literature on statutory labor laws (see Besley and Burgess, 2004; Bhalotra, 1998; Botero et al., 2004; Roy, 2004; and Fallon and Lucas, 1993) by recognizing that *de facto* implementation of labor laws is important in the case of India and in a broader sense for developing countries. Based on ILO conventions ratified, India ranks the highest in the south Asia region[2] but comes across as being most flexible in practice (Forteza and Rama, 2002). Anant et al (2006) argue that labor regulation depends on the "culture of governance" and "reading off directly from legal statutes to measure rigidity could be misleading" as there are "intermediate factors" transforming enactment to enforcement that could invalidate the intention of the statutory law. This paper exploits the setup of the state machinery in resolving disputes. Conciliation proceedings are not free from political interference (Saini, 1997). State governments can intervene to come to an understanding between workers and employers, and in the event of failure can refer for adjudication in labor courts and tribunals (Ramaswamy 1985). The state government therefore enjoys considerable power as it can steer a dispute resolution towards a party or through inaction by ignoring claims and awards.

We argue that communist and leftist parties in the state legislature are known to have a pro-worker intervention stance in comparison to parties that are either unconcerned with labor issues or have liberal views on economic policies. For instance, in 2005 the Communist Party of India and the Communist Party of India (Marxist) called a national strike involving over 60 million workers in protest to the liberal doctrines of the central

---

[2] India has ratified 39 of the 184 ILO Conventions (Planning Commission, 2001a).

2

government. The effects of the strike were severely felt as stated by the President of the Associated Chambers of Commerce and Industry:

> "The strike has paralyzed the economic and industrial activities all over the country in a substantial manner, the losses of which are difficult to be measured now."[3]

We use such factual events to justify that a greater power of the left in the state legislature is more likely move industrial disputes and conflict of interest between employers and workers in favor of the latter. To do this we create a measure of the share of seats won by left parties in the Legislative Assembles elections. A greater victory for the left would imply more sympathy from the legislature towards workers' causes. We use this indicator as a proxy for implementation of labor laws. Intuitively the "effectiveness" of the labor laws is then determined by the interaction of statutory labor laws with implementation of the laws. Using this strategy we can explain how much of manufacturing performance is explained by *de jure* labor laws. Specifically, we explore if variations in party presence in the state legislature can alter the efficacy of labor practices in explaining manufacturing performance. We ask: Is it the case that political parties in the state legislature with an orientation towards the left have an adverse effect on manufacturing performance in states with pro-worker laws? How does this contrast with other political parties oriented to the center or to the right?

Our main finding is that registered manufacturing output reduces with a higher share of seats held by left parties in the state legislature, and this effect is greater in states that enact laws favoring workers. In addition, we also find the number of factories and intensity of usage of workers in the formal manufacturing sector to reduce in states that have amended pro-worker laws with a larger share of seats in the state legislature. However, there is little to no evidence of the effects on employment, capital stock, and investment. We conduct a series of robustness tests which includes singling out outlier

---

[3] Source: World Socialist, 4 October 2005, Web Site: http://www.wsws.org/articles/2005/oct2005/indi-o04.shtml

states and outlier observations, as well as using two alternate measures to proxy for enforcement of labor laws. With an average of 67 percent seats held by the left and having enacted the maximum number of pro-worker amendments, West Bengal stands out as an outlier state. On excluding West Bengal from our sample we still find significance results from 1980 onwards. There is some indication that the weak evidence on the effects on employment arises due to the left in West Bengal. The left parties in West Bengal seem have a negative impact on employment but are able to raise worker's wages contrary to the left in other states. This is not surprising given that the communist party in the state is known to implement labor laws more acutely than most of its compatriots elsewhere.

We also examine data at the state-industry level to address issues of specialization of technology biasing our results. We find strong evidence that pro-worker deposition of the Legislative Assemblies reduces production in the registered manufacturing sector even further in states enacting labor laws to protect workers. Incorporating industry characteristics reveals that factory size in labor intensive sectors are affected more in states with pro-worker labor laws when there is a large presence of left parties in the state legislature. Consolidating the results we find that our proxy for implementation of labor laws best explains the link between *de jure* laws and manufacturing performance for the key output indicator, namely registered manufacturing output.

The remainder of the paper is organized as follows. Section 2 introduces labor laws in India and reviews pertinent literature. Section 3 describes the data. Section 4 specifies the model, discusses the results, and addresses issues of linearity and robustness. Section 5 concludes.

## 2. Labor Regulation and Manufacturing

Article 246 of the Indian Constitution places labor and labor welfare on the Concurrent List, whereby both the central government and states governments have legislative power concerning labor issues. Acts at the center apply to the entire nation while state acts have a smaller scope and apply to the state concerned. Indian law is largely based on common law as was introduced during the British Raj which evolved to prevent capitalist exploitation of workers. Civil law systems incorporate a comprehensive set of legal rules that are usually changeable only through legislation thereby rendering them inflexible. Common law systems instead rely on the judicial system to amend laws based on specific cases which make them more adaptable to current conditions. As a result legal theory predicts that common law countries regulate labor markets less than civil law countries (Botero, 2004). However in the case of India, the concurrent framework has led to a plethora of labor laws with nearly 50 central and over 200 state laws. 13 central laws are each enforced solely by the central government and state governments, the remaining being enforced jointly by the two. Table 1 lists the major central labor laws related to the industrial workers categorized by welfare, social security, industrial disputes, working conditions and other laws. Most laws apply to the organized sector, which as of 1999 employs on average only 7.1 percent of the total workforce but contributes to nearly 40 percent of net domestic product. [4]

The four contentious labor laws concerning rigidity in the formal sector are the Trade Union Act, the Industrial Employment (Standing Orders) Act, the Contract Labor (Regulation and Abolition) Act, and Industrial Disputes Act. Out of these the empirical literature has mainly focused on the Industrial Disputes Act (IDA) of 1947, which extends to all industrial workers but excludes managerial and administrative employees as they earn more than a specified statutory amount and are considered to hold supervisory positions. [5] The IDA describes the procedures for investigation and

---

[4] Data collected by the National Sample Survey Organization (NSSO) in the National Sample Survey (NSS) 55th round (1999) and reported by Government of India, Ministry of Labor, Web Site: http://labour.nic.in/

[5] We ignore minimum wage rates in our study as they apply mostly to the informal sector and are considered ineffective. Fallon (1987) states minimum wage rates are well below unskilled wages in large establishments and at or 20 percent below wages in smaller establishments. Furthermore, a study by ILO

5

settlements of industrial disputes and the situations in which layoffs, retrenchment and closure can occur and specifies the level of compensation. In particular, section 25 of chapters V and V-B has been most controversial. Chapter V-B was inserted in the Act in 1976 by the center to make prior approval of the appropriate government mandatory in the case of layoffs, retrenchment and closure in industrial establishments employing more than 300 workers. In 1982 another central amendment extended chapter V-B to establishments employing at least 100 workers.[6] Although the IDA was instituted by the central (federal) government, state governments are allowed to make amendments as they see fit.

The earlier literature has examined the impact of employment protection amendments to the IDA by the federal government, the findings for which call for greater flexibility in labor markets. Fallon and Lucas (1993) study 64 manufacturing industries in India from 1959 to 1981 and find a reduction in demand for workers but with no effect on wages or slowing down in adjustment of number of employees following the amendment. Industries with large privately owned factories that had fewer union members and with more extensive coverage of legislation had the largest reduction in Labor demand, 17.5% on average, as a result of the 1976 amendment of chapter V-B to the IDA. Bhalotra (1998) however, contends the results of Fallon and Lucas by highlighting the statistically low significance of the estimates and argues that one should expect the speed of adjustment of employment to shocks to be slower on enacting job protection laws. Bhalotra also states that job protection should lower hiring and firing rates, but the direct impact on employment has no theoretical base and is ambiguous as seen in OECD countries (Layard, Nickell and Jackman, 1991). Roy (2002) studies the impact of both the IDA amendments (1976 and 1982) and finds accession rates to be higher than separation rates pre-1976, a period of employment growth, while hiring rates declined slower than separation rates from 1976 to 1983, thereby implying that the amendments reduced labor market flexibility despite having a small impact on employment. In contrast Roy's (2004)

---

(1996) found that minimum wages rates to be lower in real terms after periodic increments when compared to rates before adjustment.
[6] See Anant et. al. (2006) pg 244-245 for a summary of the major IDA amendments made by the center.

dynamic inter-related factor demand functions reveal a diminished impact of the amendments.

The most influential[7] analysis of labor regulation was conducted by examining the effects of state amendments of the IDA in explaining heterogeneity of manufacturing output in the organized sector across Indian states. Constructing a labor regulation index, Besley and Burgess (2004) find that labor regulation has a negative impact on registered manufacturing output. States with higher pro-worker legislation have no effect on wages but experience lower levels of employment. Fixed capital and worker productivity are also hindered by labor regulation in support of the expropriation effect. Disaggregate evidence at the industry-state level reconfirm their findings as it eradicates concerns that patterns of specialization or technological change are driving the negative correlation between labor regulation and manufacturing performance. Lastly, they find urban poverty to increase with greater pro-worker regulation of labor.[8]

Ahsan and Pagés (forthcoming) improve on the Besley-Burgess study by modifying the regulatory index to make the study compatible with other literature concerning different labor laws: They break down the Besley-Burgess regulatory index into a disputes resolution index and employment protection law index. Their analysis shows both types of legislations to reduce registered manufacturing output. The effects on investment, productivity, and employment are similar to Besley and Burgess (2004) with the exception that employment protection laws improve workers wages but wages reduce when dispute resolution is made more costly. This provides an explanation for the statistically low significance of labor regulation on wages in the Besley-Burgess study as employment protection laws and dispute resolution laws were combined into a single index.

Several studies adopt the Besley and Burgess (2004) regulatory index and institutional classification of states to study the consequences of economic reforms and labor regulation on outcomes. Hasan, Mitra and Ramaswamy (2007) find a positive impact of

---

[7] in terms of official/government opinion and as referred to in Ministry of Finance (2006).
[8] see Besley, Burgess, and Esteve-Volart (2007) for a literature review on poverty and growth in India.

trade liberalization on the elasticity of labor demand. Using dummy variables they collapse Besley and Burgess's (2004) institutional classification into states with flexible and inflexible laws, but contrary to the Besley-Burgess coding they re-classify the states of Gujarat and Maharashtra as flexible and Kerala as inflexible in labor laws based on the investment climate (see Goswami et al, 2002). In response to lower trade protection they find that labor demand elasticities increase more in states with flexible labor institutions than in states with inflexible labor institutions. Aghion et al (forthcoming) instead use annual values of the regulatory measure of Besley and Burgess (2004) to examine the interaction between product market and labor market regulations. They find support for their theory that delicensed industries and tariff reductions in pro-employer states benefited more than pro-workers states. Topalova (2004) finds that lower tariff rates affects growth of firms' total factor productivity independently of labor regulation identified by pro-worker and pro-employer state dummies. Classifying states by the investment climate, as well as using other state level characteristics, doesn't seem to influence the effect of trade liberalization on firm productivity. Topalova provides no explanation for these results. On the contrary Topalova (2005) uses Hasan, Mitra and Ramaswamy (2007) classification of states and finds that rigidities in the labor market impedes reallocation of factors across sectors under trade liberalization and worsens income inequality and poverty. Aside from studying the manufacturing sector, the Besley-Burgess index has also been made use of in studying growth patterns and income inequality. [9]

The credibility of the Besley-Burgess measure as an appropriate proxy for labor market conditions is questioned by a number of Indian economists but the counter evidence is limited. In two survey studies Sharma and Sasikumar (1996) and Deshpande et al (2004) find a lack support for the view that labor laws constrained employment growth and fixed capital investment in manufacturing firms. Bhattacharjea (2006) provides a critical review of methodology adopted and interpretation of the IDA amendments. Most importantly he raises concerns about the interpretation and coding of specific

---

[9] Topalova (2008) studies income inequality to find that the poor lose out in consumption growth in states with pro-worker laws.

amendments, most of which should not be assigned pro-worker or pro-employer. In section 3.2.1 we take this into account and recode amendments following Ahsan and Pagés (forthcoming) and make additional changes where necessary. Second, various studies document a decline in bargaining power of workers during liberalization, in spite of no changes in labor laws. The number of person-days lost to strikes and lockouts (Figure 1) and the share of income going to workers (Figure 2) has undoubtedly fallen during this period. Nagaraj (2004) also shows that the share of earnings going to supervisors has increased relative to workers. Nevertheless, India loses more workdays annually to strikes and lockouts than any other country (Bhattacherjee, 2001). Furthermore, while we do not contest the recent patters, the arguments are all presented at the aggregate level. Workers may have lost out in wages, but the relative loss may have been less in states with a rigid labor market compared to states with freer labor markets. In addition the time fixed effects in the panel studies conducted should capture the nationwide trend. We apply the same reasoning to the documented loss in employment experience post-1990 which occurred due to a variety of reasons such as domestic and international competition, restructuring or firms, and introduction of the voluntary retirement schemes (VRS) by the national renewal fund (NRF).

Critics of the Besley and Burgess (2004) study also argue that contract employment has risen since the 1980s. Deshpande et al. (2004) cite that larger firms have used more contract employment. However, while the share of temporary workers has increased, it is unclear whether the increase is due to greater enforcement of the IDA, lax enforcement of the Contract Labor (Regulation and Abolition) Act, or both. In any case firms may have found a way to circumvent the industrial laws which otherwise would not have been necessary if the laws were not implemented to begin with or contract employment is less costly even in the presence of pro-employer laws. In fact Ahsan and Pagés (forthcoming) find little evidence that contract employment has eased the negative impact of statutory laws on output and find even weaker evidence in the case of employment. Another issue raised is the classification of Gujarat and Maharashtra as pro-worker states and Kerala as a pro-employer state when in fact these states are known to possess quite the opposite labor market conditions. Our proxy for state bias towards pro-worker causes is in line

with this but we do not modify the regulatory index itself as it strictly tracks amendments made to the IDA.

Outside the Indian experience, there is extensive literature covering labor market institutions and outcomes. Freeman (2000) summarizes the literature on developed countries and concludes that overall institutions affect distributional outcomes but have less convincing effects on efficiency.[10] In contrast recent studies on developing countries point towards labor regulations causing inefficiency and creating a larger informal sector. In an analysis of firm-level and city level data for Brazil, Almeida and Carneiro (2005) find that stricter enforcement of labor laws diminishes firms' productivity, profitability, and use of labor as implementation of laws reduces access to the informal labor market. Heckman and Pagés (2003) conduct a cross-country study of Latin American and Caribbean labor markets and find that although job security regulations show inconclusive results on the level of employment at the aggregate level across countries, they have a large and negative effect on employment at disaggregate level.[11] Furthermore, the dispersion reducing effects of labor union in developed countries has no support in the case of Latin American countries. The consensus that labor market institutions have "modest hard-to-uncover effects on efficiency" (Freeman 2000) may not apply to developing countries.

Recent cross-country studies involving both developing and developed countries call for deregulation of labor markets. Countries with heavier regulation for firm entry do not provide better quality of private or public goods (Djankov et al, 2002). Using plant-level data, Micco and Pagés (2007) show that employment protection impedes growth of highly volatile sectors thereby reducing job turnover, firm entry and productivity. Forteza

---

[10] for cross-sectional results see Blanchard and Wolfers (2000), Nickell (1997) and Nickell and Layard (2000).
[11] This is a classic case where micro data is proven to be useful when cross-country macro time series evidence is inconclusive. Freeman (2005) also suggests using micro data instead of conducting additional cross-country studies. The macro-level cross-country analysis can yield fickle results when only a few countries or short time series data is available. For instance, the conclusions in Heckman and Pagés (2003) differed significantly from an earlier version of their paper in 2000 after including Chile in their cross-section of countries. Freeman (2005) also mentions the changing views of the OECD countries as seen in various publications of *Employment Outlook* (1995, 1996, 1997, 1999, 2002, and 2004) which now accept the view that the evidence is "fragile".

and Rama (2002) analyze data from 119 countries and find nations with rigid labor markets to have undergone deeper recessions before adjustment and slower recovery after economic reforms. Botero et al. (2004) categorize labor laws as employment laws, industrial (collective) relations laws and social security laws for 85 countries and find that heavier regulation of labor results in lower labor force participation and higher unemployment, especially for the young. Using a panel of 60 countries, Caballero et al. (2006) find that job security regulation lowers the speed of adjustment of employment and the creative-destruction process. Most relevant to the current discussion from these studies is the acknowledgement that the regulatory environment depends on the level of enforcement, for which Micco and Pagés (2007) measure by the "rule of law" (survey data from Kauffman et al, 2003), Caballero et al. (2006) measure using rule of law and government efficiency (survey data from Kauffman et al, 1999), and Botero et al (2004) measure using effectiveness of legislature (using data from Djankov et al., 2002).

## 3. Data

Table 2 displays the descriptive statistics for the variables used in our analysis. For most of the analysis the period of study ranges from 1970 to 1997. We restrict our data set to 16 out of 28 major States. Of the missing states, data for the concerned outcome variables were not recorded for the states of Arunachal Pradesh, Mizoram, Nagaland, and Sikkim. The states of Chhattisgarh, Jharkhand, and Uttarakhand were carved out of Madhya Pradesh, Bihar, and Uttar Pradesh in 2000. The remaining five states – Goa, Himachal Pradesh, Manipur, Meghalaya, and Tripura – are not used due to limitations in constructing appropriate price indices and population count compatible to that used for the 16 major states in this study. A majority of earlier studies also make use of the 16 states. The following subsections discuss the source of the outcome variables, our explanatory variables, and the rationale for using controls made available to us.

### 3.1. Outcome Variables

All the outcome variables used (except for the non-manufacturing sector related output) are for the registered manufacturing sector. The Factories Act, 1948, defines registered establishments – factories or plants – as those that employ 10 or more employees and use electric power, or 20 or more employees without the use of power. All enterprises covered by the Act form the formal, registered, or organized manufacturing sector. The unorganized sector embodies all remaining enterprises. We use state-level factory data on output, employment, wages, efficiency, and investment for registered manufacturing from the Annual Survey of Industries. Using these variables one can study the effects of labor regulation on manufacturing output, workers employed, plant establishment, productivity, and capital accumulation. Data collected is from the *factory sector*, which consists of the *census sector* and the *sample sector*. Factories with 50 or more workers and employing power or 100 or more with power are covered in the census sector. All remaining factories with at least 10 workers with power, or 20 workers without power, come under the sample sector. The 16 states covered in this study account for over 95 percent of total registered manufacturing output and employment for each year. These states also comprise the bulk of the Indian population (also 95 percent).

In addition we use data at the state-industry level collected from the Annual Survey of Industries. The data is recorded at the two digit NIC level. We leave out industries for which data is recorded sparsely leaving us with 21 industries. The states of Jammu & Kashmir and Kerala have 17 and 19 industries, Haryana and Rajasthan have 20 industries each, and the remaining states have data for 21 industries. The time period spans only 1979 to 1997 giving us an average of 19 observations for each industry for each of the 16 states.

## 3.2. Explanatory Variables

### 3.2.1. *De jure measure of labor regulation*

Our measure for Labor regulation across Indian states is taken from Besley and Burgess (2004) and refers to the state amendments to the IDA. In total 113 state amendments to the IDA were studied and coded as pro-worker, pro-employer, and neutral depending on the expected impact on the party's bargaining power. A pro-worker amendment is given a score of +1, a pro-employer amendment gets a score of -1, and an amendment with no clear impact on the bargaining power of workers or employers is assigned 0. For years in which more than one amendment is passed, the net score of amendments is computed but brought down to +1, -1 or 0 to indicate the net impact on the bargaining power. For instance, the state of Andhra Pradesh made 8 amendments to the IDA in 1987 with two pro-employer amendments and 6 pro-worker amendments yielding a net score of 4. Since the net impact is pro-worker, the state gets a score of +1 for the year. The scores for each state are cumulated over time to construct the regulatory Index.

In response to the critique by Bhattacharjea (2006) on the interpretation and miscoding of specific amendments, we adopt the list of amendments re-coded by Ahsan and Pagés (forthcoming). For instance, 1968 Andhra Pradesh amendment is described in the online data appendix of the Besley and Burgess study as:

> Any services in hospitals or dispensaries are classified as a public utility. Public utilities are more limited in having strikes and lock-outs and the government has greater power to refer industrial disputes in public utilities

service to the appropriate court. In the central act these services are not classified as public utilities.

Bhattacharjea argues that services in hospitals and dispensaries are irrelevant for manufacturing and should not be assigned a pro-worker or pro-employer score. Appendix D lists 10 amendments that we re-code to modify our regulatory measure. We incorporate 7 changes as listed in Ahsan and Pagés (forthcoming) and make additional changes to the Besley and Burgess regulatory index as suggested by Bhattacharjea. Note that we use the index from the period from 1970 and don't use it beyond 1997 unlike other studies and avoid a potential problem of inappropriate use of the index as there were no amendments made until 2002. We also counter those who have reservations of using the index as a measure of *de jure* laws by claiming that it is still able to pick up some of the variation in manufacturing performance; it therefore remains a useful measure.

### 3.2.2. *Left presence in Legislative Assemblies*

The political science literature has typically adopted two approaches to examine the effects of political parties on economic policy and government performance (Chhibber and Nooruddin, 2004). The first approach studies governments steering economic policy and social programs to gain victory at elections. This is congruent to political power theories in the context of labor regulation where political parties in power design institutions such as unions to benefit themselves (Botero, 2004). The second line of literature centers on the ideology of ruling political parties in explaining the different policy actions of the government. While the political science literature links the effects of political ideology to government performance in terms of state expenditure, welfare programs, and delivery of public goods, our interest is in examining the interaction between labor institutions and the influence of political institutions on the labor market environment.

To link state-level labor institutions and political institutions we need to consider the composition of state legislatures, also known as the Vidhan Sabhas. We categorized all parties that have won seats in the state legislature during any election year in the 16 states (see Appendix A). Parties are categorized at two levels: i) political ideology, and ii)

political orientation. A party's political ideology is a characteristic or identity usually determined at the founding of the party. For instance, the Communist Party of India (CPI) dates back to 1920 with links to the international communist movements, in particular the Communist Party of Soviet Union (Mehra, 2003). The Communist Party of India - Marxist (CPM), which split from the CPI in 1964, declares that it "adheres to its aim of building socialism and communism" in India.[12] The Revolutionary Socialist Party (RSP) is more radical than the CPI and CPM but does not take up arms unlike the Communist Party of Indian – Marxists Leninist (CPI (ML)) which guides its principles based on "Marxism-Leninism" and relies on "organised class struggle and mass action" to achieve its goals and objectives.[13] We classify these four parties as Communist. [14] Similarly all other parties with a regional or state specific presence (i.e. parties that do not hold office across several states) that have a communist or socialist leaning are labeled with a Leftist political ideology. These parties also include democratic socialist parties which represent certain population groups many of whom are from the bottom of the income distribution. Other political ideologies include Hindutva (parties promoting Hinduism), Liberalist, Socialist (early socialist parties functioning differently from the communist parties), and Islamist. A categorization that deserves mention here is the Bahujan Samaj Party (BSP). BSP is a Dalit socialist party and one would assume it should be placed under the Socialist political ideology. We choose not to do so for two reasons. First, the Socialist ideology is for early parties active during the first few elections post-independence and the 1970s while the BSP was established in 1984. Second, in the state of Uttar Pradesh where the BSP has gained considerable power, it has had to align itself with the Bharatiya Janata Party (BJP) despite the ideological differences (Jaffrelot, 1998) and hence classify it under Hindutva.[15]

In cases where the political ideology isn't clear we categorize parties by major groupings. There are three major groupings: Congress, Janata, and Regional. The Indian National Congress (INC) forms the main party in the Congress group. Other parties in the congress

---

[12] CPM, *Programme* adopted at the Seventh Congress, Calcutta, October 31 to November 7, 1964 and updated by the Spcial Conference, Thiruvananthapuram, October 20-23, 2000, Section 6.2

[13] RSP, *Constitution*, 1940, Section 1.3

[14] For differences between the four parties see Ray (1972)

group are splinter parties or major divisions that occurred over time. Some parties may have also gone through name changes and may appear repetitive. For instance the INC was renamed INC (I) under Indira Gandhi's leadership. The Janata group lists parties that formed and split from the Janata Party that contested and won the 1977 general elections in opposition to the ruling Congress. Some of these parties later formed the Janata Dal and so come under the Janata category. Regional parties are those which participate in constituencies within a state, or constituencies falling in neighboring states representing particular groups based on culture, religion, etc. Some prominent regional parties are the All India Anna Dravida Munnetra Kazagham (AIADMK) and Dravida Munnetra Kazagham (DMK) in Tamil Nadu, Akali Dal in Punjab, and Telugu Desam Party (TDP) in Andhra Pradesh, to name a few.

From the first general elections to 2004 we have 632 parties that contested Legislative Assembly elections in 16 states, of which 180 parties have won seats. Figure 3 shows how the share of seats won in the state legislature has varied over time for our political ideology and major groups. In most states we find a high proportion of seats held by Congress from independence to the 1970s which marked a period of Congress dominance similar to national level politics or the Lok Sabha elections. From the 1977 elections onwards we see larger discrepancies across states with oscillations - or dominance in some cases - between Congress and the other groups like regional, Janata, BJP, and communist parties.

Proceeding with our taxonomy we abstract one level higher and cluster the political ideologies and major groups into political orientation. The political orientation suggests the bias that parties have towards workers. We argue that the bias can affect dispute outcomes because of the design of the resolution machinery. The Central Industrial Relations Machinery (CIRM) is charged with the duty of settlement of industrial disputes and enforcement of other labor laws in the central sphere for which the central government is the appropriate government. State governments have their own labor departments overlooking enforcement of labor laws. In the event of a dispute employers and workers engage in compulsory or voluntary conciliation. Conciliation is involvement

of a third party which is mostly conciliation officers and to a lesser extent conciliation boards. Conciliation officers come in two forms: professional conciliators or outsiders. The professional conciliators are appointed by the State, while outsiders are usually political figures such as ministers, members of the Legislative Assemblies, labor commissioners, etc. (Ratnam, 2003). While conciliators help the parties involved to develop their own proposed solutions, outsiders tend to act as mediators and arbitrators thereby implying that the conciliation process is not autonomous and independent from outside influence. In the case of failure of conciliation the state government or officers can refer the case for adjudication. Adjudication involves labor courts and tribunals where the former are mostly involved with individual worker disputes and the latter are involved with collective disputes.  In actuality the state governments have: i) used police force, ii) influenced conciliation proceedings, iii) rejected a dispute from progressing to adjudication, and iv) decided not to implement the ruling or awards of a Labor Court or Industrial Tribunal (Sen Gupta and Sett, 2005):

> "The minister or the chief minister of the state entered the scene in the guise of a conciliator interested in finding an amicable settlement to the dispute. Then, taking advantage of the glaring weaknesses of the existing law (like absence of provisions for statutory union recognition or, foolproof method for union membership verification) and using their formidable political clout, they forced settlements which favoured trade unions, union leaders or employers of their choice…The history of industrial disputes in India is replete with instances of abuse of political power and subversion of dispute settlement machinery to promote political interests (Government of India, 1968; Ramaswamy 1984)."

We define the labels left, right, and center such that political parties intervene to promote favorable outcomes for workers, employers, or neither respectively. Parties oriented to the center have no sympathies towards either parties or have had ambiguous or changing preferences. From the first general elections to the early 1970s, the Congress government protected workers rights through the central sphere and faced a slight but increasing trend in industrial disputes (Figure 1). It was only until the national railway strike in the mid 1970s that the government cracked down on industrial strikes. During the early liberalization period from the 1980s Congress switched its stance by pushing towards

private sector involvement and withdrew its interventionist behavior in labor disputes over the next two decades which contributed to the decline in bargaining power of workers. The swing from pro-worker to liberal policies prompts us to label Congress parties as center. Regional parties have no clear cut evidence of pro-worker or pro-business preference. The Islamic parties promote religious representation for greater integration of its people in the economy (Vanaik, 2006). The early socialist parties had their economic policies in line with the Congress (Mehra et al, 2003). We identify all these groups as having a center orientation.[16]

The Hindutva and liberal parties, of which the BJP is the dominant party, have targeted their economic policies towards promoting free enterprise (Gosh, 2003). It was only during one general election period in 1984 when the party changed its stance towards Gandhism but it is doubtful if this had an effect on disputes considering that it was only a shift in tactic to gain votes rather than changing economic policy. Following the literature we classify these parties as right (see Chhibber and Nooruddin, 2004). Previous studies classify the Janata Party as a centrist party; however we choose to code the Janata Party as a rightist party as it was quite progressive when it came to power at the center in 1977. The party sought to allow foreign capital to enter to drive the manufacturing industry and economy. In response to the industrial climate it introduced a bill to ban strikes and lockouts in certain industries but was severely opposed mostly by unions (Sengupta, 1992). This was at a time when the person-days lost in disputes were nearly equivalent from strikes and lockouts hinting that unions were still more worried about losing bargaining power by not being able to strike than employers were from the inability to exercise lockouts. If the bill had passed, it would have affected the *de jure* labor laws, but it gives us a sense that the Janata Party were trying to reduce industrial conflict which would have favored businesses. Furthermore, the Bharatiya Jan Sangh (BJS) was a part of the Janata Party and is a direct ancestor of the BJP (Graham, 1987) implying some overlap of policies between the Janata Party and the BJP.

---

[16] The political science literature commonly classifies regional parties and the Congress as centrist parties. Chhibber and Nooruddin (2004) examine the effects of ideological competition on delivery of public goods by coding regional parties and the Congress as centrists, and the communist and socialist parties as having a left orientation. Our main results do not change if we assign socialists a left political orientation. Lahiri and Yi (2006) also do not include the socialist parties when measuring leftist vote share.

It has often been found that industrial disputes are supported in favor of workers in states with parties oriented to the left (Lahiri and Yi, forthcoming). For instance, the communist government in Kerala has been an ardent supporter of protecting workers through restricting "labor-displacing technologies" in the labor intensive industries and being strict on working conditions and hiring practices (Heller, 1997). This may in turn result in greater turmoil in the industrial climate. In the state of West Bengal, Lahiri and Yi (forthcoming) find that vote share of the leftist parties is positively correlated with the incidence of industrial action (measured by the ratios of days lost to days worked) caused by strikes, lockouts, and the like. In a recent article the CPM acknowledged backing all national strikes of trade unions opposed to the central government's "neo-liberal policies".[17] This adds another dimension in that not only can political parties intervene in the state machinery but they can also instigate disputes for workers' causes.   We assign the communist party and other leftist parties a left orientation as the latter have often formed coalitions with the former and fight for pro-worker causes.

To proxy how left leaning the state legislature is in promoting or supporting workers interests, we construct a variable *Left* as the sum of share of seats of the four communist parties and 32 leftist parties won during Assembly elections. The share of left seats won can vary from a minimum of 0 to a maximum of 1 and remains constant for the election year and all subsequent years prior to the next election year. *Left* can be interpreted as the number of seats *held* by communist and leftist party in the state legislature.  Figure 4 shows the presence of left parties from 1957 to 2004 for 16 states. Maharashtra, Orissa, Punjab and Uttar Pradesh show low and declining levels of left parties in the state legislature. Andhra Pradesh, Assam and Tamil Nadu also have relatively low share of left seats which is below the 20 percent mark. Kerala and West Bengal have the largest share of legislative seats held by communist and other leftist parties. Barring Bihar, the remaining states have a negligible left presence.

---

[17] Source: Times of India, 29 August 2008,
http://timesofindia.indiatimes.com/CPM_stands_by_right_to_strike/articleshow/3419105.cms.

To show that our proxy for implementation of labor laws factors in the critique of Besley-Burgess's classification of states and resembles the actual labor market conditions as reported by other studies, we highlight the discrepancies between our two explanatory variables (section 4.3 addresses the issue of linearity). Of interest in Table 3 are the "Mean" column of *Left*, the "Classification" column of *Besley and Burgess (2004)*, and the column labeled *Hasan et al (2007)*. The states of Assam, Bihar, and Punjab have a 5.2, 11.9 and 6.2 percent of combined communist and leftist parties in the state but enjoy a neutral classification for its labor law orientation. Most strikingly, Gujarat and Kerala take on opposite classifications, with the former experiencing a near zero share of left seats in the state but classified as pro-worker, and the latter tagged as pro-employer despite 44.2 percent of seats occupied by the left. In comparison, *Left* is more consistent with the Hansan et al (2007) labor market flexibility categorization. Notwithstanding the differences in classification of states, the variation of our proxy for labor law implementation is independent of the classifications. Grouping states according to Besley and Burgess (2004), Table 4 shows that pro-worker states experienced the least volatility in presence of left parties in the legislative assemblies, on average, and for all decennial periods except the 1980s, pro-worker states saw a smaller fluctuation than pro-employer states. Interestingly neutral and pro-business states show an increasing trend in volatility of left presence. Re-categorizing Kerala as pro-worker and Maharashtra as pro-business (Goswami et al., 2002), does not change the overall pattern of the coefficient of variation.

To quantitatively justify the use of *Left* we compare it with the other two political orientations. We regress registered manufacturing outcome on share of seats held by right parties and center parties separately. Columns (1) to (4) in Table 5 show that the right progressive political parties and the center have a positive significant level and interaction effect on registered manufacturing output with and without controls. Column (5) and (6) regress registered manufacturing output on *Right* and *Center* again but for the reduced sample running from 1974 to 1997. We find that while the interaction of *Right* and labor regulation retains its significance, the interaction of center and labor regulation loses its significance at the 10 percent level. From 1974 onwards we cannot reject the null hypothesis that the coefficient on the interaction term is zero thereby lending support to

our classification of parties; center and right parties have a different influence than the left.

## 3.3. Control Variables

We control for state development expenditure as an overall indicator for measuring the level of state infrastructure and development. It includes expenditure on social services and economic services (see Appendix C) and is expressed as log of real development expenditure per capita terms.

We also use the total installed electricity per capita for each state as a measure for infrastructure. For infrastructure development Kochhar et al (2006) use transmission and distribution losses (T&D losses) of state level electricity boards as a fraction of generating capacity. However, we were unable to obtain this data and instead use total installed electricity per capita while being aware that quantity does not imply quality of infrastructure.[18]

We include state literacy rates instead of primary and secondary school enrollment rates as a measure for quality and availability of human capital.[19] We follow Besley and Burgess (2004) and rely on state population as a measure for changing labor market conditions within a state.

Purfield (2006) and Topalova (2008) use credit provided by scheduled commercial banks[20] as a measure of financial development. Levine, Loayza and Beck (2000) find that financial development can foster faster long-run growth by reducing information and transaction costs. Burgess and Pande (2005) find that the state-led rural branch expansion program from 1977 to 1990 affected nonagricultural output and smaller manufacturing establishments. We suspect that higher level of credit availability will encourage registered manufacturing growth and possibly ease entry of new establishments.

---

[18] Kochhar et al (2006) also state that installed electricity capacity is for the most part determined by the central government and may be related to anticipated future growth.

[19] Trivedi (2002) finds that secondary school enrollment rates are positively related to economic growth and female education has greater impact on growth than male education. We were unable to access various issues of Census of India to construct this data.

[20] Scheduled commercial banks in India include the State bank of India and its subsidiaries, national and foreign banks, private banks, cooperative banks and regional rural banks.

Table 6 shows the pair-wise correlations between the controls used. State population is least correlated to other controls. Development expenditure is highly correlated to the remaining variables. We decide to use all variables as controls except bank credit as the high correlation may severely affect the standard errors of our estimates.

To verify random sampling of the chosen states, we test that the chosen state characteristics do not differ based on the degree of leftness of a state and group states into the four quartiles of *Left*. We find that the controls for the four intensities of leftness differ from the overall mean (Table 7). Conducting multiple comparison tests reveals that development expenditure and literacy rates are significantly different or higher for the high left states when compared to low, low-medium, and medium left states. On excluding the states of Kerala and West Bengal, high left states no longer exhibit different means for development expenditure and literacy rates from the remaining groups of states. We revisit the issue of Kerala and West Bengal as outliers when verifying the robustness of our results.

# 4. Empirical Analysis

## 4.1. Specification

To study the affects of political orientation and labor regulation on economic and manufacturing outcome, we use a panel regression of the form:

$$y_{st} = \lambda R_{st-1} + \delta P_{st} + \gamma (R_{st-1} * P_{st}) + \beta X_{st} + \alpha_s + \alpha_t + \varepsilon_{st}, \qquad (1)$$

where $y_{st}$ is the outcome variable in state $s$ at time $t$. $R_{st-1}$ is the regulatory measure lagged one time period to accommodate for the adjustment of statutory laws. $P_{st}$ is the political orientation of state $s$ the primary measure for which is *Left*, the share of seats held by hard communist and leftist parties in the state legislature. We do not lag this variable as we expect the state legislature to be fast moving in addressing workers' interests, thereby having a more immediate effect on economic outcome. $X_{st}$ represents the control variables used. In particular we control for state population, electricity power, literacy rates, and government developmental expenditure. States may commonly experience events during certain time periods; for instance, the central IDA amendments in 1976 and 1982, and the 1975 state of emergency declared under Article 352 of the Constitution of India. We use time fixed effects, denoted $\alpha_t$, to account for such shocks affecting the manufacturing sector. In addition, ignoring characteristics unique to states could lead to a serious omitted variable bias. $\alpha_s$ is the state fixed effect that captures time-invariant features such as linguistic diversity and culture.

The coefficient $\lambda$ depicts the level effect of labor regulation on manufacturing performance while $\delta$ captures the impact of political complexion for a control state that has not amended a pro-worker or pro-employer regulation. The coefficient $\gamma$ yields the interaction of labor regulation and our *de facto* measure. We are interested in examining how implementation of labor regulation affects manufacturing performance and varies with the *de jure* labor market policies of a state, the total impact for which is given by the sum of the level effect and the product of the interaction effect and the state's labor legislation $(\delta + \gamma R_{st-1})$. We predict the interaction term to be negative and significant for

our main outcome variable: log of real registered manufacturing output per capita. In unison with other studies, we cluster standard errors by state (see Bertrand, Mullainathan and Duflo, 2004) to address concerns of serial correlation of the error terms.

The empirical strategy is closely related to Ahsan and Pagés (forthcoming) who interact labor regulation with share of contract employment in manufacturing to examine the effects of using contract labor in the formal sector as a means for employers to evade the IDA. However our fundamental approach differs as we look at a factor influencing implementation of the IDA rather than using a measure of employment activity governed by a different set of laws to help explain effects of the IDA on manufacturing outcome.

## 4.2. Results

### 4.2.1. *Main results*

Before examining the *effectiveness* of labor laws on economic outcomes, we attempt to replicate the main results from Besley and Burgess (2004) using the modified regulatory index for the sample from 1970 to 1997. Panel A of Tables 8 to 13 presents the results where a negative coefficient for labor regulation implies that the dependent variable decreases with greater pro-worker state amendments to the IDA. We find that labor regulation has a reducing effect on the main outcome variable: **registered manufacturing output** (column (5), Table 8). Together, columns (5) and (6) confirm that pro-worker legislation discourages output in the formal sector and encourages production in the informal sector. The significance of the estimates holds on introducing controls (columns (5) and (6), Table 9). Although our main focus is on registered manufacturing output, we also study the effects of labor laws on employment, productivity, and investment. In Tables 10 and 11, pro-worker amendments lower employment and reduce the usage of workers (columns (1) to (3)). Table 13 shows that the negative impact of labor laws is significant at the 10 percent level for worker productivity (column (1)) and number of factories (column (4)) only on including controls. Note that we conduct all our analyses including and excluding controls to verify if our results are being driven by controls, as in the previous case, or if they lose significance on including controls due to omitted variable bias. We therefore assume

estimates that are significant at least at the 10 percent level, with and without controls, to be most reliable. The panel A results imply that the main Besley-Burgess results hold for our period of study, despite modifying the regulatory index, but with the notable exception that we find a negligible effect of labor regulation on capital stock.

We also examine our proxy for implementation of labor laws in the absence of *de jure* laws (panel B) to see if higher values of the proxy for labor law implementation suggests a decline in manufacturing performance. Again, of primary concern is the relationship between **registered manufacturing output** and the left for which we find a negative relationship (column (5)) of Table 8 and 9). The effect on unregistered manufacturing output shows a positive but weak relationship (column (6), Table 8): It may be that the left promote public sector activities in the informal sector or cause movement from formal production to informal production. Of secondary concern is the influence of the left on other manufacturing outcomes. In Tables 10 and 11, shows a higher presence of the left in the state legislature to reduce employment levels (columns (1) and (2)) and the intensity of usage of currently employment workers (column (3)). It also seems that the left reduces entry or increases exit of factories (column (4), Tables 12 and 13). In other words entry decision is influenced based on the composition of the state legislature.

We now discuss the findings of our full specification using registered manufacturing output as the principal indicator and other related sectors (panel C of Tables 8 and 9). First we find that total manufacturing, which includes formal and informal manufacturing, is lowered by higher left presence in the Legislative Assemblies and reduces further in states with pro-worker labor laws (column (4)). Formal manufacturing constitutes nearly 65 percent[21] of total manufacturing and is picking up the effects of labor regulation and implementation on registered manufacturing output. This is confirmed in column (5) where the magnitude of the coefficient on the interaction term is greater and highly significant. The negative sign of the coefficient on the interaction term in column (5) implies that a larger support for laborers in the state legislature reduces **registered manufacturing output** even further when pro-worker amendments are made.

---

[21] Author's estimate.

Hypothetically, if the left in a state enacting one cumulative pro-worker amendment – such as Orissa – held 10 percentage points share of seats more, then organized manufacturing output per capita would reduce by approximately 3 percent. Evidently a greater cumulative number of pro-worker amendments enacted or a higher presence of communist and leftist parties will result in a larger negative impact on registered manufacturing. In contrast enactment of labor laws and our proxy for enforcement hint weakly at increasing manufacturing output in the informal sector column (6). The effect on total net state domestic product and other sectors is more difficult to discern given the large standard errors (columns (1), (2), and (3)), but in comparison the manufacturing sector is most linked to the labor market indicators. Establishing the impact of *effectiveness* of labor laws on our main indicator for manufacturing performance, the remaining discussion concerns employment, productivity and investment.

Concerning employment, Table 10 and 11 shows weak evidence that states with pro-worker amendments experience a larger reduction in employment of workers (column (1)), and employment of workers and supervisors combined (column (2)), with a pro-worker bias in the state legislature in comparison to states with pro-employer amendment. Moreover, employers reduce the daily employment or intensity with which workers are used in states with pro-workers laws and a larger legislature with a left orientation (column (3)). However, the coefficient on the level effect of the left positively influences daily employment when controlling for labor regulation or in states with no pro-worker laws. This could be in anticipation to future pro-worker laws so employers expropriate more out of the currently employed workers. Workers also don't seem to be gaining in terms of wages (column (4)) and income share (column (5)). Overall workers do not seem to benefit from greater protection through labor institutions and sympathy from political parties.

The evidence shows that employers too are affected with pro-workers laws and the left. The negative interaction coefficient in column (1) of Tables 12 and 13 suggests that greater strength of the left in the state legislature impedes worker productivity when pro-worker laws are in place. Pro-worker laws that are implemented may result in excess employment in the case of job protection laws or allow workers to provide sub-standard

26

or sub-optimal effort. For instance, amendments increasing job protection allow workers to take comfort as employers may face higher firing costs. As a result workers in the formal sector may have a lesser incentive to work harder. There is no evidence that workers are able to expropriate part of capital stock (column (2)) or investment flow (column (3)) despite protection from institutions. This coincides with the survey studies of Sharma and Sasikumar (1996) and Deshpande et al (2004); both studies find a lack of evidence on labor laws impeding fixed capital investments. The decision of firm's to register their plants is nonetheless affected by the regulatory labor market environment and the political outlook. The level effect of the left is positive and highly significant but is reduced by the negative coefficient on the interaction terms (column (4)). We speculate that the left may take measures to prevent factories from closing as government permission is required for closure. Some observers mention that in the case of public enterprises, state governments have prevented closures even if factories are running at a loss so as to prevent redundancy of workers. While data was available by factory ownership (private versus public) at the national level, we were unable to obtain data at the state level to test the hypothesis. As for the average firm size expressed in number of workers in column (5), the coefficients of the level and interaction effects take on opposite signs to that in column (4). We uncover that pro-left states experience a greater reduction in the average plant size relative to pro-center and pro-right states. Pro-worker regulation seems to counter this reduction. Again, national level data for factory size distribution is insufficient to conduct a state level analysis. We are unable to verify if the increase average firm size is due to a fall in registration of medium and smaller size factories as they choose to stay small to avoid the restriction of the formal labor market.


### 4.2.2. *Differences in political orientation*

We now would like to examine how left-wing parties compare to the other extreme – right-wing parties – by determining how an increase in the share of left parties in the state legislature alters the responsiveness of manufacturing performance to pro-worker labor laws. To do this we modify the specification by controlling for parties oriented towards the center:

$$y_{st} = \lambda R_{st-1} + \delta Left_{st} + \gamma(R_{st-1} * Left_{st}) + \eta Center_{st} + \psi(R_{st-1} * Center_{st}) +$$
$$\beta X_{st} + \alpha_s + \alpha_t + \varepsilon_{st}$$

(2)

Specification (2) adds to specification (1) the share of seats in the Legislative Assemblies held by parties with an orientation to the center, namely *Center*, and interacts *Center* with the statutory labor laws in place. We can now examine the effects of the left and center relative to the right (the omitted category), on economic outcome. Column (5) in Table 14 confirms our main finding that the left reduce **registered manufacturing output** more in states where pro-worker laws are enacted. The magnitude of this effect is greater on controlling for center parties in comparison to the coefficient in column (5) of Table 9. Also, the coefficient on the interaction between the left and labor regulation picks up the negative impact on non-agricultural output and total manufacturing output (columns (3) and (4) respectively) as both outcomes incorporate the registered manufacturing sector. The results for the remaining outcomes are similar to our findings using specification (1): the regressors fail to explain employment levels but show high significance for intensity of usage of workers, worker productivity, value-added per employee, number of factories and average factory size.

The results in section 4.2.1 and 4.2.2 suggest that political orientation influences manufacturing performance and its responsiveness to the level of labor regulation. A higher presence of communist parties and leftist parties increase the implementation of pro-worker laws thereby worsening the impact of labor regulation on our chief indicator for the formal manufacturing sector: registered manufacturing output. Additionally we find adjustment to employment usage downwards, a decline in worker productivity, and reduction in registration of factories to be associated with pro-worker legislation in states with a more accommodating state legislature towards workers' interests. We find less evidence on the impact on employment of workers and employees, wages to workers, capital stock, and flow of investments. Our results also hold when controlling for center-leaning parties emphasizing that the left-leaning and right-leaning political parties differ in their attitude towards labor issues.

### 4.2.3. State-industry variation

To alleviate concerns of biased estimates due to industrial specialization, we further examine data at the state-industry level. We estimate the following specification:

$$y_{ist} = \lambda R_{st-1} + \delta Left_{st} + \gamma(R_{st-1} * Left_{st}) + \beta X_{st} + \phi_i t + \alpha_{is} + \alpha_t + \varepsilon_{ist}, \tag{3}$$

where the subscripts $i$, $s$, and $t$ denote the industry, state and year respectively. $y_{ist}$ is the state-industry outcome at time $t$, $\phi_i t$ is the industry specific time trend, $\alpha_{is}$ is the state-industry fixed effect; and $\varepsilon_{ist}$ is the error term. We cluster standard errors by state and industry to tackle auto correlation of the error terms.

The state-industry variation confirms our main result. Column (1) of Table 15 shows a negative coefficient for the interaction between labor regulation and the leftness of the state legislature on excluding and including controls. Again, coefficients significant at the 10 percent level in both panels A and B imply that the estimates are robust on the inclusion of controls and are not being driven by the controls.

There is some evidence, although weak, that the left reduce other outcomes more in pro-worker regulated states. Workers employed and total employment (columns (2) and (3)) decline with pro-worker enactment of labor laws and pro-labor state legislatures. The effects on the remaining outcomes (columns (4) to (10)) are not significant at the 10 percent level on excluding or including controls.

We further examine if our explanatory terms depends on industry characteristics by considering the model:

$$y_{ist} = \lambda R_{st-1} + \delta Left_{st} + \gamma(R_{st-1} * Left_{st}) + \mu(R_{st-1} * Z_i) + \rho(Left_{st} * Z_i) +$$
$$\kappa(R_{st-1} * Left_{st} * Z_i) + \beta X_{st} + \phi_i t + \alpha_{is} + \alpha_t + \varepsilon_{ist}, \tag{4}$$

where $Z_i$ is the industry characteristic. Since we perform a within estimation we cannot include an own term for industry characteristics as it only varies by industry. In addition to the coefficients from specification (3) there are three more coefficients to be estimated

to reveal if the labor market conditions affect manufacturing outcomes differently for different industry characteristics.

The industries in our data set differ in their labor or capital intensities so we investigate if labor market rigidity affects manufacturing outcomes differently for sectors with varying capital intensities. Industries such as textiles, furniture, food, and tobacco are low in capital intensity while manufacturing of chemicals, rubber, metal and alloys, non-metal, and equipment are capital intensive. We find that pro-worker regulation and the left in the state legislature do not affect our main outcome – **registered manufacturing output** – differently for capital and less capital intensive sectors (Table 16, column (1)). The only outcome for which there is a significant impact is the average factory size. The negative coefficient on the interaction of labor regulation, *Left*, and capital intensity (column (10)) implies that factories size changes with capital intensity of industries when labor laws are enacted and implemented. Evidently, the estimates for the coefficients $\delta$, $\gamma$, $\kappa$, and $\rho$ indicate that a 10 percentage point increase in the share of seats held by the left in states with one cumulative pro-worker amendment, reduces the average factory size by 2.4% for the textile industry, a highly labor intensity industry (Table 17). Industries with a capital intensity equivalent of the textiles industry and upwards to the electricity industry, experience an increase in average factory size in states enacting a pro-worker amendment in response to a marginal increase in share of seats won by left parties in the state legislature. For instance, industries with the mean level of capital intensity in our sample face a 2.1% increase in the average factory size in states with one cumulative pro-worker law and a marginal increase in left presence in the state legislature by 10 percentage points. The results suggest that labor intensive industries are harder hit in factory size as a result of pro-worker enactment and enforcement of labor laws.

## 4.3. Linearity of Explanatory Variables
In this section we briefly discuss the issue of linearity between labor regulation and the share of seats won by left parties in the state legislature. Linearity between the two would imply that the left in the state legislature amend the IDA with pro-worker laws, thereby

preventing us from identifying a proxy for implementation that is different from the labor regulation index.

To test for linearity we regress the *de jure* labor regulation index on the share of seats held by the left. Using state fixed effects and controlling for state time-variant characteristics, column (1) of Table 18 shows that *Left* is strongly and positively correlated to labor regulation. We suspect that the correlation is being caused by West Bengal where the communist parties have ruled for most of the period from 1970 to 1997 and have also enacted pro-worker amendments to the IDA. Column (2) shows the coefficient for *L*eft is no longer significant at the 10 percent in the sample without the state of West Bengal. Column (3) yields a positive but statistically insignificant estimate for share of left seats when including all states but for the reduced period running from 1977 to 1997. From Figure 3 we can see that the combined share of seats held by the communist and the leftist parties in West Bengal does not vary much although the state continues to enact pro-worker laws (Figure 4). During this period the share of left seats averages 69 percent but with a low standard deviation of only 3.5 percent. 1977 also marks the end of the state of emergency which was followed by a rise of opposition parties to the Congress. The Indian polity also changed in that a coalition government in the state legislature was no longer uncommon. In other words political competition intensified. Fiscal studies have shown that intensified competition and coalition governments have led to better performance of the state but failure in terms of making the more "politically difficult" reforms (Lalvani, 2003). Making difficult political decisions or economic reforms are a problem for a coalition government which is constrained by greater instability as consent from all parties of the coalition is required to remain in power. It would not be surprising then if the coalition government or less dominance by a single party at the state legislature could cause the difficult reform of enactment of labor laws to differ from the implementation of labor laws.[22] This may therefore help explain why the state legislature is least correlated with statutory labor laws from 1977 onwards,

---

[22] Following Lalvani (2005) we construct a dummy variable and set it to 1 for years when the state government is formed by a coalition, and set it to 0 otherwise. We find a positive and insignificant correlation between left and the coalition dummy for 1970 to 1997, but the standard error reduces from 1977 to 1997 to yield significance at the 25 percent level. The coalition dummy and the labor regulation index is however uncorrelated for the entire period under investigation.

implying that there is less concern that our constructed measure is picking up the same effect as the labor regulation index. In the following section we test if the results from the previous section are reliable.

## 4.4. Robustness

We subject our findings to a series of robustness checks. First, we consider two tests for outlier states and one test for outlier observations. Second, we use two alternate measures to proxy for pro-worker implementation of labor laws. Third, we modify the timing of implementation of labor laws in the baseline specification.

### 4.4.1. Outlier states

Testing for single outlier states, we use specification (1) and drop and replace one state at a time from the sample. We estimate the specification for the case of registered manufacturing output and the remaining 15 dependent variables, thereby performing 1536 regressions in total. We only report the extreme (minimum and maximum) coefficients. In addition, we list those states which if omitted from the sample yield significant estimates at the 10 percent level or below.

The estimation using the chief outcome of interest, **registered manufacturing output**, produces a significant coefficient for the interaction between statutory laws and the left when dropping each state except West Bengal (Table 19, outcome 5a, column (3)). Although the coefficient is negative with magnitude 0.081, the significance is well above the 10 percent level. We perform an additional regression to find that dropping West Bengal from the sample indeed yields a negative and significant coefficient for the reduced sample time period from 1980 to 1997: the coefficient for the interaction term ranges from a minimum of -0.307 to a maximum of -1.503 (outcome 5b, column (3)) all of which are significant. [23] This alleviates concerns that West Bengal is driving our main result.

---

[23] Including controls, the coefficient on the interaction term is negative and significant from 1977 onwards but is significant only from 1980 onwards when excluding controls. We therefore select the period starting 1980 to be most robust.

The interaction coefficients (column (3)) on daily employment, factory registration, and average factory size (outcomes 9, 15, and16 respectively) pass the test for single outliers. For the remaining outcomes this exercise reveals some insight on the lack of strong evidence of the explanatory power of the labor laws and the state legislature. There is no sub-sample that yields a significant interaction coefficient at the 10 percent level for workers employed and total employment (outcomes 7 and 8, column (3)). However the sign of the coefficients is positive for all but one sample: the sample without West Bengal. This suggests, although weakly, that the left in West Bengal seems to worsen employment with pro-worker legislation in contrast to the left in other states that seem to increase employment. As a further check we estimate the level effect of the original unmodified labor regulation index on employment for the full sample period of the Besley and Burgess (2004) study and find that the negative coefficient is no longer significant at the 10 percent level on excluding West Bengal. [24] Therefore the Besley-Burgess claim that labor legislation significantly lowers employment levels in the formal manufacturing sector is not robust. Our previous finding of the weak significance of explanatory variables on workers' earnings is due to the left in states of Orissa and West Bengal (outcome 10, column (3)). Only when we omit either of these states from the sample do we find a negative and significant impact on workers' earnings. Column (3) of outcome 11 shows that workers' income share reduces when excluding West Bengal but the income share increases when including West Bengal in 4 out of 15 cases. The negative coefficient (column (3)) for value added per employee (outcome 12) is also not robust: it is insignificant at the 10 percent level only for sub-sample excluding West Bengal, thereby indicating that the left parties in West Bengal may improve benefits going to workers or reduce the negative impact of labor regulation and the left on worker productivity in other states. All together, the interaction coefficients from outcomes 7 to 12 suggest that the left in West Bengal worsen employment levels but increase the workers' earnings, share of income going to workers, and worker productivity relative to the left in other states.

---

[24] results not shown.

Since Kerala and West Bengal are the two states with the highest presence of left parties in the state legislature, we re-estimate specification (1) by excluding both these states to check if they are driving the results. Column (4) of Table 20 shows a negative but insignificant estimate at the 10 percent level for the interaction term on **registered manufacturing output**. An additional test with the reduced sample running from 1977 to 1997 however generates a statistically significant coefficient (column (5)): Excluding both West Bengal and Kerala rejects the null hypothesis that the left affect registered manufacturing output independently of a state's enactment of labor regulation. The interaction coefficients are also robust in the case of daily employment, factories, and workers per factory, columns (9), (15), and (16) respectively.

Using the full sample of 16 states we verify if our results hold on excluding outlier observations. Observations where the share of leftist and communist seats held in the state legislature is 50 percent or more are excluded when estimating specification (1). Our sample discards 34 observations occurring for the states of Kerala and West Bengal. As seen in column (4) of Table 21, the product of labor regulation and the left no longer impacts **registered manufacturing output** at the 10 percent level, although the negative sign is retained. We do in fact uncover significance for the reduced period from 1977 to 1997 (column (5)) which supports our argument that labor regulation lowers **registered manufacturing output** even more in states with greater pro-worker politicians in the Legislative Assemblies. Apart from our main outcome we interestingly find that workers employed and total employment increase with a greater pro-worker state legislature and pro-worker labor laws (columns (7) and (8)) in support of our findings when testing for single outliers. Similarly workers' wages and productivity are negatively affected (columns (10) and (12)): omitting the extreme observations from West Bengal gives more weight to the observations in other states. Again, the effectiveness of labor regulation to explain adjustment of usage of workers, factory registration, and factory size is robust.

### 4.4.2. *Alternate measures of Left*

To allay concerns that our measure *Left* may include political parties that don't necessarily have a clearly defined prejudice towards worker's concerns, we replace the

proxy with a measure of share of seats held by the four communist parties of India; we have already argued that the communist parties promote interests of workers. We continue to find support for the main result: **registered manufacturing output** is lowered by more sympathetic politicians and this effect is more pronounced in states enacting pro-worker laws (Table 22, column (5)). The magnitude of the interaction term is only marginally larger than the estimated coefficient in column (5), panel C of Table 9. The results for the remaining outcomes are similar to the case when using leftist and communist parties for labor law implementation.

It could be argued that governments in power have a stronger influence on industrial disputes than minority non-ruling parties in the state legislature. We replace *Left* by constructing a dummy variable and set it to 1, for all years in which one of the four communist parties formed the ruling government, either as a single party or a coalition government. A significant and high correlation of 0.76 between the communist dummy and the earlier proxies used, leads to similar results. Specifically, **manufacturing output** in the organized sector is lowered with pro-worker statutory labor laws and the extent to which it lowered depends on the composition of the legislative assemblies (Table 23, column (5)). Not surprisingly we also find employment to reduce significantly with pro-worker laws, and more so with communist parties ruling the state as the dummy variable places a greater weight on the communist parties in West Bengal.

### 4.4.3. *Timing of the legislative assemblies*

Specification (1) uses the *current* number of seats won by the left parties with immediate effect of the elected politicians to the state legislature. We believe that the state legislature is faster moving than labor institutions. However, if the newly elected state legislature requires time to implement its polities then *Left* could be lagged by one time period. Another argument for lagging *Left* would be that elections don't necessarily coincide with the fiscal year. We therefore modify the specification to include lags for the *Left* for the level effect and the interaction effect. Table 24 presents our findings of which the most important result in column (5). The left continue to have an adverse impact on **registered manufacturing output** and this effect is worse in states with pro-worker laws in place. The magnitude of this interaction effect is higher than when using the original

35

specification without lagging *Left*: a 10 percentage point increase in the share of seats held by the left parties reduces registered manufacturing output by nearly 5.8 percent in states enacting one cumulative pro-worker amendment. The outstanding dependent variables also show similar interactions to that found in panel C of Tables 9, 11, and 13. Also, the coefficients of the interaction term on employment (column (7) and (8)), workers' wages (column (10)) and worker productivity (column (12)) are significant at the 10 percent level.

### 4.4.4.  *Summary of robustness checks*

Consolidating the results from the robustness checks we find the effects of labor regulation and left parties on registered manufacturing output to be most robust for the period 1980 to 1997. What explains the significance for this reduced time period? Manufacturing output is not significantly different among states when comparing production in 1970-79 to 1980-89. From Table 4 one can infer that the volatility in *Left* for all the states in aggregate does not change much from the period 1970-79 to 1980-89. However, on excluding West Bengal the volatility of left does increase for the remaining states on a whole. In addition, most amendments to the IDA were made following the 1977 state of emergency. Therefore the variation in both explanatory terms seems to be able to explain the performance in the manufacturing sector. The years 1980 to 1997 coincide with the period for which our measure for pro-worker political orientation is uncorrelated with the *de jure* labor regulation measure possibly due to greater party competition and changing dynamics of the Indian polity. Furthermore, some industrialized states have a high presence of the left while other (industrialized) states have a low presence of the left which alleviates concerns that highly industrialized states tend to enact laws favoring workers. These issues therefore ease concerns of reverse causality between registered manufacturing output and left for the reduced time period.

Table 25 confirms that the interaction effects on daily employment, factory registration, and average factory size are maintained and significant even for the reduced sample period running from 1980 to 1997 (columns (9), (15), and (16)). The negative estimates for employment (columns (7) and (8)) and workers' wages (column (10)) are significant

only when including controls and are not robust to the check for single outlier states.[25] Overall it seems that the left political parties in West Bengal worsen employment levels but increase the wages to workers, income share of workers, and value added per worker, relative to the left in other states.

---

[25] results not included.

# 5. Conclusion

This study empirically investigates how the implementation of labor laws can affect state-level manufacturing performance based on statutory labor laws. Given that states intervene in arbitrating disputes in India – through inaction, conciliation, or referring for adjudication – to affect dispute outcomes in favor businesses or laborers, we proxy for pro-worker implementation of labor laws by measuring the strength of leftist and communist parties in the state legislature. Our main finding is that lower manufacturing output in the registered sector is correlated with greater strength of the left in the state legislature, and this relationship is intendisfied in states enacting pro-worker labor laws. The evidence is robust for the Indian experience from 1980 to 1997.

Using other measures for economic performance we also find the negative impact of pro-worker regulation on the intensity of labor usage, and factory registration, is worse in states with a greater presence of the left. Leftness of the state legislature also reduces the average factory size, but it increases with enforcement of laws only in states that have a highly pro-worker environment. We find no evidence in support of the expropriation effect where labor regulation deters investment. The state-industry variation shows a lack of evidence that the impact of enactment and enforcement of labor laws affects labor and capital intensive sectors differently, but the average factory size reduces for establishments in labor intensive sectors.

Overall we find that in the absence of a *de facto* labor law measure, our proxy for pro-worker orientation captures a glimpse of labor market practices by amplifying the effect of pro-workers amendment to the Industrial Disputes Act and lends some support to the distortionist view on labor regulation. Underlying this exercise is the fact that suitable measures to proxy actual labor conditions can better approximate the impact of labor regulation for countries lacking an efficient enforcement framework. Although India has machinery in place to facilitate labor disputes, there is a need to improve the implementation process or update its laws so that statutory laws can be better transformed into actual labor market practices. Over 100 developing countries have revised their labor laws in the face of globalization (Sharma, 2006) – India should follow suit.

References

[1] Aghion, P., Burgess, R., Redding, S. and Zilibotti, F. (forthcoming), "The Unequal Effects of Liberalization: Evidence from Dismantling the License Raj in India," *American Economic Review*.

[2] Ahsan, A. and C. Pagés, (forthcoming), "Are All Labor Regulations Equal? Evidence from Indian Manufacturing," *Journal of Comparative Economics*.

[3] Almeida, Rita and Pedro Carneiro, (2005), "Enforcement of Regulation, Informal Labor and Firm Performance," IZA Discussion Papers 1759, Institute for the Study of Labor (IZA).

[4] Anant, T.C.A**.,** Hasan, R, Mohapatra, P., Nagaraj, R. and Sasikumar, S.K. (2006), "Labor Markets in India: Issues and Perspectives," in J. Felipe and R. Hasan (eds), *Labor Markets in Asia: Issues and Perspectives*, Palgrave Macmillan, ADB, pp.205-300.

[5] Bertola, G., (1990), "Job Security, Employment and Wages," *European Economic Review*, 34(4): 851-886.

[6] Besley, T. and R. Burgess (2004), "Can Labor Regulation Hinder Economic Performance? Evidence from India," *The Quarterly Journal of Economics*, 91-134.

[7] Besley, T. and R. Burgess and B. Esteve-Volart, (2007), "The Policy Origins of Poverty and Growth in India," in T. Besley and L. Cord (eds), *Delivering on the Promise of Pro-Poor Growth. Insights and Lessons from Country Experiences*, New York: World Bank

[8] Bhalotra, S., (1998), "The Puzzle of Jobless Growth in Indian Manufacturing," *Oxford Bulletin of Economics and Statistics*, 60(1): 5-32.

[9] Bhattacharjea A., (2006), "Labour Market Regulation and Industrial Performance in India: A Critical Review of the Empirical Evidence," *Indian Journal of Labour Economics*, Vol. 49(2): 211-232.

[10] Bhattacherjee, D. (2001), 'The Evolution of Indian Industrial Relations: A Comparative Perspective," *Industrial Relations Journal*, vol. 32, pp. 244-263.

[11] Blanchard, Olivier, and Justin Wolfers (2000), "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence," Economic Journal, CX (2000), C1–C33.

[12] Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, (2004), "The Regulation of Labor," *Quarterly Journal of Economics*, 119: 1339- 1382.

[13] Butler, David, Ashok Lahiri, and Prannoy Roy, (1989), *India Decides: Elections 1952 – 1989*, Aroom Purie for Living Media India, New Delhi.

[14] Caballero, R. J., Kevin N. C., Eduardo M.R.A Engel and A. Micco (2004), "Effective Labor Regulation and Microeconomic Flexibility," Cowles Foundation Discussion Paper No. 1480, New Haven: Yale University

[15] Chandidas, R. et al., (Eds.), (1968), "India votes: a source book on Indian elections," New York: Humanities Press.

[16] Chhibber, P. and I. Nooruddin, (2004), "Do Party Systems Count? The Number of Parties and Government Performance in the Indian States," *Comparative Political Studies*, Vol. 37(2): 152-187

[17] Chor, D. and R. Freeman, (2005), "The 2004 Global Labor Survey: Workplace Institutions and Practices Around the World," NBER Working Paper 11598, *National Bureau of Economic Research,* Cambridge, MA.

[18] Deshpande, L., Alakh, N.S., Karan, A. and Sarkar, S., (2004), "Liberalisation and Labour: Labour Flexibility in Indian Manufacturing," Institute for Human Development, New Delhi.

[19] Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer, (2002), "The Regulation of Entry," *Quarterly Journal of Economics*, CXVII, 1-37.

[20] Dollar, D., Guiseppe I., and T. Mengistae, (2002), "Investment Climate and Economic Performance: Some Firm Level Evidence from India," Center for Research on Economic Development and Policy Reform Working Paper No. 143.

[21] Fallon, P., and R. E. B. Lucas, (1993), "Job Security Regulations and the Dynamic Demand for Labor in India and Zimbabwe," *Journal of Development Economics*, XL, 241–275.

[22] Forteza, A., and M. Rama, (2002), "Labor Market 'Rigidity' and the Success of Economic Reforms across more than One Hundred Countries," World Bank, mimeo.

[23] Freeman, R. B., (1988), "Labor Market Institutions and Economic Performance," *Economic Policy*, VI 64–80.

[24] ------------------ (1993a): "Labor Market Institutions and Policies: help or Hindrance to Economic Development?" *Proceedings of the World Bank Annual Conference on Development Economics 1992*, p. 117-144, Washington, DC: The World Bank.

[25] ------------------ (1993b), "Labor Markets and Institutions in Economic Development," *The American Economic Review*, Vol. 83, No. 2, pp. 403-408

[26] ------------------ (2000), "Single Peaked vs. Diversified Capitalism: The Relation Between Economic Institutions and Outcomes," NBER Working Paper 7556, *National Bureau of Economic Research,* Cambridge, MA.

[27] ------------------ (2003), "Labour Market Institutions and Employment Policies: The International Experience," *Estudios de Economia*, Vol. 30, Junio, pp. 5-20.

[28] ------------------ (2005), "Labour Market Institutions Without Blinders: The Debate over Flexibility and Labour Market Performance," NBER Working Paper No. 11286, *National Bureau of Economic Research,* Cambridge, MA.

[29] ------------------ (2008), "Labor Market Institutions Around the World," CEP Discussion Paper No. 844

[30] Gosh P. S. (2003), "The Congress and the BJP: Struggle for the Heartland," in A.K. Mehra, D.D. Khanna, and G.W. Kueck (eds), *Political Parties and Party Systems*, New Delhi: Sage Publications

[31] Goswami, O., A. K. Arun, S. Gantakolla, V. More, A. Mookherjee, D. Dollar, T. Mengistae, M. Hallward-Driemier, and G. Iarossi., (2002), "Competitiveness of Indian Manufacturing. Results from a Firm-Level Survey," Confederation of Indian Industry and World Bank.

[32] Government of India, (1968), *Sakaria Commission of Inquiry-Final Report*. Delhi: Government of India.

[33] Graham, B. D., (1987), "The Challenge of Hindu Nationalism: The Bharatiya Janata Party in Contemporary Indian Politics," Hull Papers in Politics No. 40, Hull: University of Hull.

[34] Hasan, R.; Mitra, D. and Ramaswamy, K.V. (2007), "Trade Reforms, Labor Regulations and Labor-Demand Elasticities: Empirical Evidence from India," *Review of Economics and Statistics*, 89(3): 466–481.

[35] Heckman, J. and C. Pagés, (2000), "The Cost of Job Security Regulation: Evidence from Latin American Labor Markets," *Economia: the Journal of the Latin American and Caribbean Economic Association,* 1(1), 109-154.

[36] ---------------------------------- (2003), "Law and Employment: Lessons from Latin American and the Caribbean," NBER Working Paper 10129, *National Bureau of Economic Research,* Cambridge, MA.

[37] Heller, Patrick, (1997), "Social Capital as a product of class mobilization and state intervention: industrial workers in Kerala, India," *World Development*, Vol. 24(6): 1055-1071.

[38] Holmes, T. J., (1998), "The Effect of State Policies on the Location of Manufacturing: Evidence from State Borders," *Journal of Political Economy,* CVI, 667–705.

[39] Indian Labour Bureau, (1954), *The Indian Labour Year Book 1951-52*, Manager of Publications, Delhi.

[40] Indicus Analytics, (2004), *Measuring Inter-State Differences in Investment Climate, A Report for the Twelfth Finance Commission*, New Delhi: Indicus Analytics.

[41] International Labor Organization, (1996), *India: Economic Reforms and Labour Policies*, New Delhi: ILO.

[42] Jaffrelot, Christope, (1998), "The Bahujan Samaj Party in North India: No Longer Just a Dalit Party?" *Comparative Studies of South Asia, Africa, and the Middle East*, Vol. 18(1): 35-52

[43] Jha, P. and S. Golder, (2008), "Labour Market Regulation and Economic Performance: A critical Review of Arguments and Some Plausible Lessons for India," International Labor Office, Geneva.

[44] Kochhar, K., U. Kumar, R. Rajan, A. Subramanian, and I. Tokatlidis, (2006), "India's Pattern of Development: What Happened, What Follows?" *Journal of Monetary Economics*, Vol. 53: 981-1019
.

[45] Lahiri, Amartya and Kei-Mu Yi, (forthcoming), "A Tale of Two States: Maharashtra and West Bengal," *Review of Economic Dynamics*.

[46] Lalvani, M., (2003), "Coalition Governments: Fiscal Implication for the India Economy," *American Review of Political Economy*, Vol. 3(1): 127-163.

[47] Manor, J. (2007), "Parties and the Party System," in P. Chatterjee (eds), *State and Politics in India*, Delhi: Oxford University Press.

[48] Mehra, A. K., Khanna D. D., and G. W. Kueck, (Eds.), (2003), *Political Parties and Party Systems*, New Delhi: Sage Publications.

[49] Mehra, A. K., (2003), "Historical Development of the Party Systems in India," in A.K. Mehra, D.D. Khanna, and G.W. Kueck (eds), *Political Parties and Party Systems*, New Delhi: Sage Publications.

[50] Micco, A. and C. Pagés (2007) "The Economic Effects of Employment Protection: Evidence from International Industry-Level Data" Inter-American Development Bank Working Paper 592.

[51] Ministry of Finance, (2006), *Economic Survey 2005-06,* Government of India.

[52] Nagaraj, R., (1994), "Employment and wages in manufacturing industries: trends, hypotheses and evidence," *Economic and Political Weekly* 29(4): 177–186.

[53] -------------- (2004), "Fall in Manufacturing Employment: A Brief Note," *Economic and Political Weekly* 39: 3387-90.

[54] Nickell, S., (1997), "Unemployment and Labour Market Rigidities: Europe versus North America," in *The Journal of Economic Perspectives*, Vol. 11: 55-74.

[55] ------------, and R. Layard, (2000), "Labor Market Institutions and Economic Performance," in Orley Ashenfelter and David Card (eds), *Handbook of Labor Economics*.

[56] OECD, (1995), *Jobs Study, Taxation, Employment and Unemployment,* Paris: OECD.

[57] --------- (1996), *OECD Employment Outlook*, Paris: OECD

[58] --------- (1997), "Economic Performance and the Structure of Collective Bargaining," *OECD Employment Outlook*, Paris: OECD

[59] --------- (1999), *Implementing the Jobs Study*, Paris: OECD

[60] --------- (2002), *OECD Employment Outlook*, Paris: OECD

[61] --------- (2004), *OECD Employment Outlook*, Paris: OECD

[62] Özler, Berk, Gaurav Datt, and Martin Ravallion, (1996), "A Database on Poverty and Growth in India," World Bank, Washington, DC, http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,contentMDK:20289079~isCURL:Y~menuPK:497971~pagePK:148956~piPK:216618~theSitePK:336992,00.html.

[63] Pande, Rohini, (2003), "Can Mandated Political Representation Increase Policy Influence for Disadvantaged Minorities? Theory and Evidence from India," *American Economic Review* 93 (4): 1132–51.

[64] Planning Commission, (2001a), Report of the Steering Committee on Labour and Employment for the Tenth Five Year Plan 2002-2007, Government of India, New Delhi.

[65]------------------------ (2001b), Report of the Task Force on Employment Opportunities, Government of India, New Delhi.

[66] Purfield, C., (2006), "Mind the Gap—Is Economic Growth in India Leaving Some States Behind?" IMF Working Paper 06/103 (Washington: International Monetary Fund).

[67] Ramaswamy, (1984), *Power and Justice: The state in Industrial Relations*. Calcutta: Oxford University Press

[68] ---------------- (1985), "Trade Unions, Rule Making and Industrial Relations," *Economic and Political Weekly* 20:524

[69] Ratnam, V. (2003), "Making Conciliation Effective," in A. Sivananthiran and V. Ratnam (eds), *Prevention and Settlement of Disputes in India*, New Delhi: ILO (Sub-regional Office for South Asia)

[70] Saini, D. S., (2004), "Labour organization and labour relations in India: implications for poverty," in L. Williams, A. Kjonstad, and P. Robson (eds), *Law and Poverty: The Legal System and Poverty Reduction*, Zed Books, pp 269-294.

[71] Ray, S., (1972), "Communism in India: Ideological and Tactical Differences among four Parties," *Studies in Comparative Communism*, Vol. 5(2-3): 163-180.

[72] Roy, D. S., (2002), "Job Security Regulations and Worker Turnover: A Study of the Indian Manufacturing Sector," *Indian Economic Review* 37: 141-62.

[73] ------------- (2004), "Employment dynamics in Indian industry: adjustment lags and the impact of job security regulations," *Journal of Development economics*, 73: 233-256.

[74] Sachs, J. D., A. Varshney, and N. Bajpai (eds), (2000), *India in the era of economic reforms*, New Delhi: Oxford University Press.

[75] Saini, D. S., (1997), "Labour Court Administration in India," in A. Sivananthiran (eds.), *Labour Adjudication in India*, New Delhi: ILO-SAAT.

[76] Sanyal, P. and N. Menon, (2005), "Labor Dispute and the Economics of Firm Geography: A Study of Domestic Investment in India," *Economic Development and Cultural Change*, 53: 825-54.

[77] Sen Gupta A. K. and P.K. Sett, (2005), "Industrial Relations Law, Employment Security and Collective Bargaining in India: Myths, Realities and Hopes," in J.D. Herbert (eds), *Management in India: Trends and Transition*. New Delhi: Sage.

[78] Sharma, A. N. and S. K. Sasikumar, (1996), "Structural Adjustment and Labour," V. V. Giri National Labour Institute, Noida, Mimeo.

[79] Sharma, A. N., (2006), "Flexibility, Employment and Labour Market Reforms in India," *Economic and Political Weekly*, Vol. 41(21): 2078-2085.

[80] Squire, L. and S. Suthiwart-Narueput, (1997), "The Impact of Labor Market Regulations," *World Bank Economic Review*, 11(1): 119-144.

[81] Topalova, P., (2004), "The Effect of Trade Liberalization on Productivity: The Case of India," IMF Working Paper No. 04/28, Washington: International Monetary Fund.

[82] --------------- (2005), "Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty and Inequality from India," Yale University, mimeo.

[83] Vanaik, A. (1997), "The Communalization of the Indian Polity," in *Communalism Contested: Religion, Modernity and Secularization*, New Delhi: Vistaar Publications.

[84] ---------------- (2008), "India: Is the Rising Tide Lifting All Boats?" NBER Working Paper 08/54, *National Bureau of Economic Research*, Cambridge, MA.

[85] World Bank, (1990), *World Development Report*, New York: Oxford University Press.

[86] ------------------ (1995), *World Development Report,* Washington, DC: The World Bank.

# Appendix A: Classification of Political Parties

**Taxonomy of Political Parties**

**Political Orientation**

- **Left**
  - **Leftist**
  - **Communist**
- **Center**
  - **Socialist**
  - **Congress**
  - **Islamist**
  - **Regional**
- **Right**
  - **Liberalist**
  - **Hindutva**
  - **Janata**

**Leftist**

| | |
|---|---|
| AD | PMK |
| AIFB | PWP |
| | RCI |
| ASDC(U) | RCPI(RB) |
| BBC | RJD |
| BBM | |
| CMPKSC | RPI(A) |
| DSP(PC) | RPK |
| FB(S) | RSPK(B) |
| IPF | SHD |
| JD(S) | SP |
| KC | SSD |
| KCJ | SUC |
| KCM | UCPI |
| KCP | WBSP |
| KEC(B) | WPI |
| KSP | |

**Communist**

| |
|---|
| CPI |
| CPM |
| CPI(ML)(L) |
| RSP |

**Socialist**

| |
|---|
| KLP |
| PSP |
| SAP |
| SJP(R) |
| SJP(M) |
| SLAP |
| SOC |
| SOP(L) |
| SSP |

**Congress**

| |
|---|
| ICS(SCS) |
| INC(I) |
| INC(O) |
| INC(U) |
| NCO |
| NCP |

**Islamist**

| |
|---|
| AIMIM |
| IUML |
| JMI |
| MBT |
| MUL |
| MLO |
| PLM |

**Liberalist**

| |
|---|
| SWA |

**Hindutva**

| |
|---|
| BJP / BJS |
| SHS |
| BSP |

**Janata**

| |
|---|
| BKD |
| BLD |
| JD(U) |
| JNP(JP) |
| JNP(SC) |
| JNP(SR) |
| LKD(B) |

**Regional**

| ABHM | AIRJP | CRC | IGL | JKNPP | MADMK | PP | STS |
|---|---|---|---|---|---|---|---|
| ABHS | AITC | CVP | INL | JPSS | MES | RLD | TDP |
| ABLTC | AJBP | DM | INLD | JSS | MVC | RMP | TMC(M) |
| | AKD | | ISP | KCP | NAGP | | TMK |
| ADK(JL) | BAC | GGP | JAC | KCVP | NC | RPD | TRS |
| ADK(JR) | BAS | GKC | JHP | KMP KNDP | NDF / NDP | RSMD | UGDP |
| ADM | BJD | GNLF | JKAL | KRS | NJP | RSNM | UKD |
| ADS | BKKGP | HJS | JKD | KSM | NVAS | RTKP | UMFA |
| | BPP | HLS | JKN | KSP | NVPP | | UTC |
| AGP(P) | BRP | HSD | JKP/JKP(N) | LJNSP | OGP | SAD(M) | VHP |
| | CMM | HVP | JMM | LSS | PHJ | SBP | YVP |
| AIC(T) | CNPSPJP | ICJ | JPP | LTC | PJP | STBP | |

# Appendix B: Abbreviations

| States of India | |
| --- | --- |
| **Acronym** | **Name** |
| AP | Andhra Pradesh |
| AS | Assam |
| BH | Bihar |
| GJ | Gujarat |
| HR | Haryana |
| JK | Jammu & Kashmir |
| KA | Karnataka |
| KE | Kerala |
| MP | Madhya Pradesh |
| MH | Maharashtra |
| OR | Orissa |
| PJ | Punjab |
| RJ | Rajasthan |
| TN | Tamil Nadu |
| UP | Uttar Pradesh |
| WB | West Bengal |

| Political Parties | |
| --- | --- |
| **Acronym** | **Name** |
| ABHM | AKHIL BHARAT HINDU MAHASABHA |
| ABHS | AKHIL BHARATIYA SENA |
| ABLTC | AKHIL BHARATIYA LOK TANTRIK CONGRESS |
| AD | APNA DAL |
| ADK / ADMK | ALL INDIA ANNA DRAVIDA MUNNETRA KAZHAGAM |
| ADK(JL) | ALL INDIA ANNA DRAVIDA MUNNETRA KAZHAGAM(JAYALALITA GROUP) |
| ADK(JR) | ALL INDIA ANNA DRAVIDA MUNNETRA KAZHAGAM(JANAKI RAMACHANDRAN) |
| ADM | AKALI DAL MASTER TARA SINGH GROUP |
| ADS | AKALI DAS SANT FATEH SINGH GROUP |
| AGP | ASOM GANA PARISHAD |
| AGP(P) | ASOM GANA PARISHAD PRAGTISHEEL |
| AHL | ALL PARTY HILL LEADERS CONGRESS / PLAIN TRIBALS COUNCIL OF ASSAM |
| AIFB | ALL INDIA FORWARD BLOCK |
| AIIC(T) | ALL INDIA INDIRA CONGRESS (TIWARI) |
| AIMIM | ALL INDIA MAJLIS-E ITHEHAD-UL MUSLIMEEN |
| AIRJP | ALL INDIA RASHTRIYA JANATA PARTY |
| AITC | ALL INDIA TRINAMOOL CONGRESS |
| AJBP | AJEYA BHARAT PARTY |
| AKD | AMBEDKAR KRANTI DAL |
| ASDC | AUTONOMOUS STATE DEMAND COMMITTEE |
| ASDC(U) | AUTONOMOUS STATE DEMAND COMMITTEE (UNITED) |

| Acronym | Name |
| --- | --- |
| BAC | BANGLA CONGRESS |
| BAS | AKHIL BHARTIYA ARYA SABHA |
| BBC | BHARATIYA BIPLABAI COMMUNIST PARTY |
| BBM | BHARIPA BAHUJAN MAHASANGHA |
| BJD | BIJU JANATA DAL |
| BJP | BHARTIYA JANTA PARTY |
| BJS | ALL INDIA BHARTIYA JAN SANGH |
| BKD | BHARATIYA KRANTI DAL |
| BKKGP | --- |
| BLD | BHARTIYA LOK DAL |
| BPP | BHARTIYA PRAGATISHEEL PARTY |
| BRP | BHARATIYA RASHTRIYA PARTY |
| BSP | BAHUJAN SAMAJ PARTY |
| CMM | CHHATTISGARH MUKTI MORCHA |
| CMPKSC | COMMUNIST MARXIST PARTY KERALA STATE COMMITTEE |
| CNPSPJP | JANATA |
| CPI | COMMUNIST PARTY OF INDIA |
| CPI(ML)(L) | COMMUNIST PARTY OF INDIA (MARXIST-LENINIST)(LIBERATION) |
| CPM | COMMUNIST PARTY OF INDIA (Marxist) |
| CRC | CONGRESS REFORMS COMMITTEE |
| CVP | CHAMPARAN VIKAS PARTY |
| DM | DEMOCRATIC MOVEMENT |
| DMK | DRAVIDA MUNNETRA KAZHAGAM |
| DSP(PC) | DEMOCRATIC SOCIALIST PARTY (PRABODH CHANDRA) |
| FB(S) | FORWARD BLOC (SOCIALIST) |
| GGP | GONDVANA GANTANTRA PARTY |
| GKC | GANDHI KAMRAJ NATIONAL CONGRESS |
| GNLF | GORKHA NATIONAL LIBERATION FRONT |
| HJS | PROGRESSIVE HULL JHARKHAND PARTY (SHIBU GROUP) |
| HLS | HARYANA LOK SAMITI |
| HSD | HINDUSTANI SHOSHIT DAL |
| HVP | HARYANA VIKAS PARTY |
| ICJ / ICJ(BG) | INDIAN CONGRESS (JAGJIVAN RAM - BHALLA GROUP) |
| ICS | INDIAN CONGRESS (SOCIALIST) |
| ICS(SCS) | INDIAN CONGRESS (SOCIALIST-SARAT CHANDRA SINHA) |
| IGL | ALL INDIA GORKHA LEAGUE |
| INC | INDIAN NATIONAL CONGRESS |
| INC(I) | INDIAN NATIONAL CONGRESS(I) |
| INC(O) | INDIAN NATIONAL CONGRESS (O) ANTI MERGER GROUP |
| INC(U) | INDIAN NATIONAL CONGRESS(Urs) |
| INL | INDIAN NATIONAL LEAGUE |
| INLD | INDIAN NATIONAL LOK DAL |
| IPF | INDIAN PEOPLES FRONT |
| ISP | --- |
| IUML/IML | INDIAN UNION MUSLIM LEAGUE |
| JAC | (ORISSA) JAN CONGRESS |
| JD | JANTA DAL |
| JD(S) | JANTA DAL (Secular) |

| Acronym | Name |
| --- | --- |
| JD(U) | JANTA DAL (UNITED) |
| JHP | JHARKHAND PARTY / DAL |
| JKAL | J&K AWAMI LEAGUE |
| JKD | JAN KRANTI DAL |
| JKN | J&K NATIONAL CONFERENCE |
| JKP | ALL INDIA JHARKHAND PARTY |
| JKP | J&K PEOPLES CONFERENCE |
| JKP(N) | JHARKHAND PARTY (NOREN) |
| JMI | JAMAIT-I-ISLAMI, J&K |
| JMM / (M) / (S) | JHARKHAND MUKTI MORCHA / (MARDI) / (SOREN) |
| JNP | JANATA PARTY |
| JNP(JP) | JANATA PARTY (JP) |
| JNP(SC) | JANATA PARTY (SECULAR) - CH. CHARAN SINGH |
| JNP(SR) | JANATA PARTY (SECULAR) - RAJ NARAIN |
| JPP | JANTA PAKSHA PARTY |
| JPP | JHARKHAND PEOPLE'S PARTY |
| JPP / JKNPP | J&K PANTHERS PARTY |
| JPSS | JANADHIPATHIYA SAMREKSHNA SAMITI |
| JSS | JAN SURAJYA SHAKTI |
| KC / KEC | KERALA CONGRESS |
| KCJ | KERALA CONGRESS (JACOB) |
| KCM / KEC(M) | KERALA CONGRESS (M) |
| KCP | KARNATAKA CONGRESS PARTY |
| KCP | KERALA CONGRESS (PILLAI GROUP) |
| KCVP | KANNADA CHALAVALI VATAL PAKSHA |
| KEC(B) | KERALA CONGRESS (B) |
| KLP | KISAN MAZDOOR LOK PAKSHA |
| KMP | UTTARPRADESH KISAN MAZDOOR PARTY |
| KNDP | KANNADA NADU PARTY |
| KRS / KRRS | KARNATAKA RAJYA RYOTA SANGHA |
| KSM | KRANTIKARI SAMAJWADI MANCH |
| KSP | KERALA SOCIALIST PARTY |
| KSP | KOSAL PARTY |
| LJNSP / LJP | LOK JAN SHAKTI PARTY |
| LKD | LOK DAL |
| LKD(B) | LOK DAL (B) |
| LSS | LOK SEWAK SANGH |
| LTC | LOK TANTRIK CONGRESS |
| MADMK | M.G.R.ANNA D.M.KAZHAGAM |
| MBT | MAJLIS BACHAO TAHREEK |
| MCO / MCOR | MARXIST CO-ORDINATION |
| MES | MAHARASHTRA EKIKARAN SAMITI |
| ML / MUL | MUSLIM LEAGUE KERALA STATE COMMITTEE |
| MLO | MUSLIM LEAGUE KERALA (OPPOSITION) |
| MVC | MAHARASHTRA VIKAS CONGRESS |
| NAGP | NATUN ASOM GANA PARISHAD |

| Acronym | Name |
|---|---|
| NC | NATIONAL CONFERENCE |
| NCO | INDIAN NATIONAL CONGREGRESS (ORGANIZATION) |
| NCP | NATIONALIST CONGRESS PARTY |
| NDF | INDIAN NATIONAL DEMOCRATIC FRONT |
| NDP / NLP | NATIONAL DEMOCRATIC PARTY |
| NJP | NUTAN MAHA GUJARAT JANTA PARISHAD |
| NVAS | NAG VIDARBHA ANDOLAN SAMITI |
| NVPP | NATIVE PEOPLE'S PARTY |
| OGP | ORISSA GANA PARISHAD |
| PDF | PEOPLES DEMOCRATIC FRONT |
| PDP | PEOPLES DEMOCRATIC PARTY |
| PHJ | BIHAR PRANT HUL JHARKHAND |
| PJP | PUNJAB JANTA PARTY |
| PMK | PATTALI MAKKAL KATCHI |
| PML | PROGRESSIVE MUSLIM LEAGUE |
| PP | PRAJA PARISHAD |
| PP | PRAJA PARTY |
| PSP | PRAJA SOCIALIST PARTY |
| PWP | PEASANTS & WORKERS PARTY |
| RCI / RCP | REVOLUTIONARY COMMUMIST PARTY OF INDIA |
| RCPI(RB) | REVOLUTIONARY COMMUNIST PARTY OF INDIA (RASIK BHATT) |
| RJD | RASHTRIYA JANATA DAL |
| RLD | RASHTRIYA LOK DAL |
| RMP | RASHTRIYA MAJDOOR PAKSHA |
| RPD | RASHTRIYA PARIVARTAN DAL |
| RPI / REP | REPUBLIC PARTY OF INDIA |
| RPI(A) / RPA | REPUBLICAN PARTY OF INDIA (A) / (AMBEDKARITE) |
| RPK / RPI(K) | REPUBLICAN PARTY OF INDIA (KHOBRAGADE GROUP) |
| RRP / ARRP | AKHIL BHARATIYA RAMRAJYA PARISHAD |
| RSMD | RASHTRIYA SAMANTA DAL |
| RSNM | RAJASTHAN SAMAJIK NYAYA MANCH |
| RSP | REVOLUTIONARY SOCIALIST PARTY |
| RSPK(B) | REVOLUTIONARY SOCIALIST PARTY OF KERALA (BOLSHEVIK) |
| RTKP | RASHTRIYA KRANTI PARTY |
| SAD / AD | SHIROMANI AKALI DAL |
| SAD(M) | SHIROMANI AKALI DAL (SIMRANJIT SINGH MANN) |
| SAP | SAMATA PARTY |
| SBP | SANJUKTA BIPLABI PARISHA |
| SHD | SHOSHIT DAL |
| SHS | SHIVSENA |
| SJP(R) | SAMAJWADI JANTA PARTY (RASHTRIYA) |
| SJP(M) | SAMAJWADI JANATA PARTY (MAHARASHTRA) |
| SLAP / SAP | SOCIAL ACTION PARTY |
| SOC / SOP | SOCIALIST PARTY / SAMYUKTA SOCIALIST PARTY |
| SOP(L) / SLP(L) | SOCIALIST PARTY (LOHIA) |
| SP | SAMAJWADI PARTY |

| Acronym | Name |
| --- | --- |
| SSD | SHOSHIT SAMAJ DAL (AKHIL BHARTIYA) |
| SSP | SANGHATA SOCIALIST PARTY |
| STBP | SWATANTRA BHARAT BAKSHA |
| STS | SAMPURNA TELENGANA PRAJA SAMITHI |
| SUC / SUCI | SOCIALIST UNITY CENTRE OF INDIA |
| SWA | SWATANTRA PARTY |
| TDP | TELUGU DESAM PARTY |
| TMC(M) | TAMIL MAANILA CONGRESS (MOOPANAR) |
| TMK | THAYAKA MARUMALARCHI KAZHAGAM |
| TRS | TELANGANA RASHTRA SAMITHI |
| UCPI | UNITED COMMUNIST PARTY OF INDIA |
| UGDP | UNITED GOANS DEMOCRATIC PARTY |
| UKD / UKKD | UTTARAKHAND KRANTI DAL |
| UMFA / UMF | UNITED MINORITIES FRONT ASSAM |
| UTC | UTKAL CONGRESS |
| VHP | VISHAL HARYANA PARTY |
| WBSP | WEST BENGAL SOCIALIST PARTY |
| WPI | WORKERS PARTY OF INDIA |
| YVP | YUVA VIKAS PARTY |

# Appendix C: Data Sources

| | **Description of Variables and Data Source** | | |
|---|---|---|---|
| **Variable** | **Description** | **Data Set** | **Original Source** |
| | *Outcome Variables* | | |
| Output measures | Output measures are for total net state domestic product, net state domestic product for agricultural, non-agricultural, total manufacturing, registered manufacturing, and unregistered manufacturing activities. | EOPP & World Bank | Central Statistical Office |
| Workers employed | Workers are defined to include all persons employed directly or through contractors whether for wages and non-wage work in any manufacturing process or related maintenance work. It includes labor employed for generating electricity, or producing coal, gas etc. | EOPP & EPWRF | ASI |
| Total employment | Includes all workers as defined above and persons receiving wages and holding clerical or supervisory or managerial positions engaged in administrative office, store keeping section and welfare section, sales department as also those engaged in purchase of raw materials etc. or purchase of fixed assets for the factory as well as watch and ward staff. | EOPP & EPWRF | ASI |
| Daily employment | It is calculated by dividing the total attendance by workers employed (as defined above) in a year by the number of days worked by the factory as registered by the Factories Act, 1948. | EOPP | Indian Labour Yearbook |
| Workers' earnings | Wages to workers includes direct wages and salary (basic, overtime, allowances, etc.), remuneration for the period not worked (paid holiday, lay-offs, etc. if not paid by other sources), and bonuses and ex-gratia payments. It does not include lay off payments which are made from other sources other than the employer directly, imputed value of benefits in kind, employer's contribution to social security and old age benefits, etc. Wages are expressed in gross value before deduction for fines, damages, taxes, provident fund and state insurance contribution, etc. | EOPP & EPWRF | ASI |
| Value-added | It is the net value-added computed as the difference between the total output and the sum of total input and depreciation and denotes the incremental value to goods and services produced by the factory. | EOPP & EPWRF | ASI |
| Factories | Number of factories as covered under the Payment of Wages Act, 1936. It tracks the net flow of firms in the registered manufacturing sector as it tracks deregistration of incumbent firms and new entrants. For the state-industry analysis number of factories is taken from the Annual Survey of Industries as covered under the Factories Act, 1948. | EOPP & EPWRF | Indian Labour Yearbook & ASI |
| Fixed Capital | Fixed capital is the depreciated value of fixed assets with more than one year of productive life such as lease-hold land, buildings, plant and machinery, furniture and fixtures, transport equipment, water system and roadways, and other assets such as hospitals, schools, etc. used for the be benefit of the factory personnel. | EOPP & EPWRF | ASI |
| Investment flow | Investment flow calculated as the difference between the sum of current fixed capital and depreciation, and fixed capital from the previous period as defined above. | EPWRF | ASI |
| | *Control Variables* | | |
| Development Expenditure | Development expenditure includes expenditure on social services and economic services. Social services includes education, sports, art and culture; medical and public health, family welfare, water supply and sanitation, housing urban development, welfare of SCs and STs and OBCs; labor welfare; social security and welfare; nutrition; relief from natural calamities; etc. Expenditure on economic services includes agriculture and allied activities; rural development; special area programs; irrigation and flood control; energy; industry and minerals; transport and communications; science, technology and | EOPP | Public Finance Statistics |

| Variable | Description | Data Set | Original Source |
|---|---|---|---|
| Bank credit | environment; and general economic services. Bank credit is the total credit of scheduled commercial banks by place (state) of utilization. Data from 1972 to 1995 is from *Banking Statistics 1972-1995 (Summary Tables)*, table number 4: State-wise classification of deposits and credit (credit as per place of sanction and place of utilization) of scheduled commercial banks. Data for the remaining period is from annual issues of the *Banking Statistics - Basic Statistical Returns*. Both publications are available online at http://www.rbi.org.in/scripts/publications.aspx | N/A | Reserve Bank of India |
| Literacy Rate | Decennial data for state-wise literacy rates where obtained from the Economic Survey 2007-2008 from period 1951 to 2001 and interpolated for the years in between. | N/A | Census of India |
| Installed Electricity capacity | The total installed generating electricity capacity is measured in thousand kilowatts and was taken from EOPP. It was updated using various issues of the *Annual Report on The Working of State Electricity Boards Electricity Departments* produced by Planning Commission (Power & Energy Division), Government of India and *Statistical Abstracts*, Central Statistical Office, Department of Statistics, Ministry of Planning, Government of India. | EOPP | Planning Commission |
| State Population | State population is total of rural and urban population and recoded by the Census of India 1951, 1961, 1971, 1981, 1991, 2001 and is interpolated for the years in between | EOPP & World Bank | Census of India |
| *Explanatory Variables* | | | |
| Labor Regulation | Besley and Burgess (2004) code each text amendment to the Industrial Disputes Act, 1947, as listed in Malik (1997) by assigning each amendment a score of 1, 0, and -1 for amendments favoring pro-employer, neither employers or workers, and pro-worker respectively. In the case of more than one amendment for a state in a given year, the information is collapsed into one score as a single directional measure. The regulatory variable is constructed by cumulating scores for year for from 1947 to 1997. | EOPP | Malik (1997) |
| *Left, Right, Center* | Share of seats held by various parties were compiled using various statistical reports on general election to the legislative assembly for the 16 states available at http://www.eci.gov.in/StatisticalReports/ElectionStatistics.asp. Data for selected years was verified using India Butler, Lahiri and Roy (1989) and Chandidas et al (1968). | N/A | Planning Commission |
| *Industry Characteristics* | | | |
| Capital intensity | Measured by log of the ratio of real fixed capital stock to total employment and averaged over the period 1979 to 1997 | EPWRF | ASI |
| *Deflators* | | | |
| SCPIAL1 | Consumer Price Index for Agricultural laborers (CPIAL) with the base year 1973-74. Separate observations for Haryana and Punjab have been included from 1965 onwards. The series is corrected for interstate cost of living and rising firewood prices by Ozler, Datt, and Ravallion (1996). The data was organized using the Labour Handbook, the Indian Labour Journal, the Indian Labour Gazette and the Reserve Bank of India Report on Currency and Finance. | EOPP & World Bank | Various publications from the Government of India |
| STCPW1 | Same as SPCIAL1 but using Consumer Price Index for Industrial Workers (CPIIW) | EOPP | |

EOPP: The EOPP Indian STATA data base is made available by STICERD, London School of Economics, at http://sticerd.lse.ac.uk/eopp/research/indian.asp .

ASI: The Annual Survey of Industries (ASI) is the primacy source of industrial statistics in India. The survey is conducted by the Central Statistical Organization, Department of Statistics, Ministry of Planning, India (website: http://mospi.nic.in/stat_act_t3.htm)

EPWRF: The ASI data for this study was updated using the *Annual Survey of Industries 1973-74 to 2003-04 (Vol. II)* data base purchased from the Economic and Political Weekly Research Foundation (EPWRF) http://www.epwrf.res.in/

# Appendix D: Re-coded State Amendments

| Amendments re-coded according to Ahsan and Pagés (2008) and Bhatthcharjea (2006) | | | | | | | |
|---|---|---|---|---|---|---|---|

LR_0: Regulatory score for amendment assigned by Besley and Burgess
LR_1: Modified score for amendment
Net_0: Net score for all amendments for the given state and year computed by Besley and Burgess
Net_1: Net score for all amendments for the given state and year based on LR_1
Refer to Appendix B for state names

| State | Provision | Section | Year | LR_0 | LR_1 | Net_0 | Net_1 |
|---|---|---|---|---|---|---|---|
| AP | Any service in hospitals or dispensaries are classified as a public utility. Bhattacharjea (2006) argues that these are not in manufacturing and therefore irrelevant for the study. | 2 | 1968 | -1 | 0 | -1 | 0 |
| AP | A labor court or tribunal is granted the power of a civil court to execute its award or any settlement as a decree of a civil court. Bhattacharjea (2006) argues that this does not need to reduce the cost of resolving labor disputes | 11A-11D | 1982 | -1 | 0 | -1 | 0 |
| MP | In the case of criminal cases the Labour Court shall have all the powers under the Code of Criminal Procedure of a Judicial Magistrate of the First Class. Bhattacharjea (2006) argues that this does not necessarily translate to a reduction in the cost of resolving disputes. | 11A-11D | 1982 | -1 | 0 | -1 | -1 |
| MP | Labour court is given the power to deal with every offence punishable under the Labor Disputes Act as well as under a range of other central acts dealing with labour issues. Bhattacharjea (2006) argues that this does not necessarily translate to a reduction in the cost of resolving disputes. Ahsan and Pagés (2008) seem to have missed this. The net score the year 1982 remain unchanged as a pro-employer amendment was made to section 7 and a neutral amendment to section 10, all in the same year. | 34 | 1982 | -1 | 0 | -1 | -1 |
| MP | (i) Undertakings dealing with construction of building, bridges, roads, canals, dams or other construction work are no longer exempted from procedures for closing down undertakings. Bhattacharjea (2006) states that manufacturing does not concern these undertakings. | 25O | 1983 | 1 | 0 | 1 | 0 |

| State | Provision | Section | Year | LR_0 | LR_1 | Net_0 | Net_1 |
|-------|-----------|---------|------|------|------|-------|-------|
| MH | The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments, which employ more than 100 workers. Under the central act theses rules only apply to establishments, which more than 300 workers. Bhattacharjea (2006) questions this on the bases that the same change was adopted at the National level through a central amendment to the IDA one year later. Ahsan and Pagés (2008) think it best to leave it unchanged to reflect that it changed one year ahead of the central code. We agree with them but make the amendment neutral for the year 1982 to reflect that the central amendment would affect all states and not render the state of Maharashtra any more pro-worker than the rest with regards to this amendment. The net score for 1981 remains +1 due to other pro-worker amendments made to sections 2 and 25C in the same year. The cumulative score for 1982 remains unchanged as well. | 25K | 1981 | 1 | 1 | 1 | 1 |
| OR | The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments, which employ more than 100 workers. Under the central act these rules only apply to establishments, which employ more than 300 workers. Bhattacharjea (2006) argues that the same change was adopted at the National level through a central amendment to the IDA one year earlier in 1982 therefore nullifying the state amendment. The net score for 1983 is unchanged as a pro-worker amendment was passed for section 25O. Ahsan and Pagés (2008) either make a mistake or have a typo as the net score for their employment protection index is changed to 0. | 1983 | 25K | 1 | 0 | 1 | 1 |

| State | Provision | Section | Year | LR_0 | LR_1 | Net_0 | Net_1 |
|-------|-----------|---------|------|------|------|-------|-------|
| RJ | The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments, which employ more than 100 workers. Under the central act these rules only apply to establishments, which employ more than 300 workers. Bhattacharjea (2006) argues that the same change was adopted at the National level through a central amendment to the IDA two years earlier in 1982 therefore nullifying the state amendment. The net score for 1984 is unchanged as 4 pro-worker amendments were passed for sections 25N, 25O, 25Q, and 25S with only 1 pro-employer amendment to section 25M and 6 neutral amendments to subsections L, M, N, P, PP, and R of section 25. | 1984 | 25K | 1 | 0 | 1 | 1 |
| RJ | The definition of employer in the context of an industrial dispute also includes owners who have contracted with persons for the execution of work as part of the industry. The definition of worker in the context of an industrial dispute also includes workers who have contracted with employers for the execution of work as part of the industry. Bhattacharjea (2006) argues that these two changes are "different sides of the same coin". Ahsan and Pagés (2008) seem to have missed this. We give a score of +1 for both these definitions in section 2 instead of +1 for each as have Besley and Burgess. The net score however does not change. | 1960 | 2 | 1 | 1 | -1 | -1 |
| RJ | Registrar is defined as the person appointed to be the Registrar of Unions. This makes it clear who is involved in the bargaining process on behalf of the unions. This definition does not appear in the central act and hence might be subject to interpretation. Bhattacharjea (2006) argues that the amendment does not indicate that the officials appointed are supposed to represent unions. The net score for the year does not change as we now have 3 pro-employer amendments in sections 2 and 3, 1 pro-worker amendment in section 2, and 3 neutral amendments in section 2, all in the same year. | 1960 | 2 | -1 | 0 | -1 | -1 |

# Figures and Tables

## Table 1: Industrial Labor Laws

| Legislation | Aim | Coverage | Enacted by |
|---|---|---|---|
| *I. Industrial Laws* | | | |
| Industrial Disputes Act, 1947 | Provides machinery and procedures for the investigation and settlement of industrial disputes | All existing industries in India | CIRM and State Governments |
| Trade Unions Act, 1926 | Seeks to confer a legal and corporate status on registered trade unions. Provides immunity from civil and criminal liability for members and executives engaged in bona fide trade union activities. | Whole of India | |
| Industrial (Regulation and Development) Act, 1952 | | | Central Government |
| *II. Wage Laws* | | | |
| Minimum Wages Act, 1948 | Fixes minimum wage rates in scheduled employments with period revisions. | Whole of India with allowing central and state governments to extent the application to other employments | Central and State Governments |
| Payment of Wages Act, 1936 | Ensures regular and prompt payment of wages and prohibits arbitrary fines and deductions from wages | Whole of India. Primarily manufacturing establishments using power and 10 or more employees or 20 or more employees without power. Employees defined as not earning more than Rs1,600 a month | State Governments, except for railways, mines, oilfields, and Air Transport Services (ATS) |
| Payment of Bonus Act, 1965 | Provides for the payment of bonuses to persons employed in certain establishments and for the matters connected therewith | Whole of India. Employees defined as earning not more than Rs6,500 a month | |
| Equal Remuneration Act, 1976 | Equal remuneration to prevent discrimination based on sex and prevent exploitation of women | Whole of India | |
| *III. Welfare and Working Conditions* | | | |
| Factories Act, 1948 | Safety measures and to promote health of workers and child labor | Whole of India and all manufacturing establishments employing 10 or more workers using power or 20 or more without use of power | State Governments |
| Industrial Employment (Standing Orders) Act, 1946 | Regulates the conditions of recruitment, discharge, dismissal, disciplinary action, holidays, and working conditions of workers | Industrial establishments with 100 or more workers and extends to whole of India | |
| Contract Labour (Regulation and Abolition) Act, 1970 | Regulates the employment of contract labor in certain establishments and abolition to encourage direct employment | Whole of India and applies to (i) every establishment in which 20 or more workmen are employed or were employed as contract on any day of the preceding 12 months, and (ii) every contractor who employs or employed 20 or more workmen on any day of the preceding 12 months. | CIRM and State Governments |
| Shops and Commercial Establishments Act | Regulate the conditions of work of employees engaged in shops and commercial establishments. | Covers shops and commercial establishments, restaurants, hotels, and places of amusement in certain notified urban areas. | State Governments |
| *IV. Social Security Laws* | | | |
| Workmen's Compensation Act, 1923 | Requires employers to pay compensation to their workers for accidental injury caused to the workers arising out of an in the | Whole of India and to certain categories of railway servants and workers employed in any capacity specified in schedule II of the act | State Governments |

58

| | | course of employment resulting in death or in total/partial disablement. | (factories, mines, plantations, mechanically propelled vehicles, construction work, and certain other hazardous occupations). | |
|---|---|---|---|---|
| Employees' State Insurance Act, 1948 | | Provides for certain benefits to employees in case of sickness, maternity, and employment injury, and other related matters. | Extends to the whole of India except the state of Sikkim and applies to all factories employing 10 or more workers using power or 20 or more without using power, and services like shops and hotels employing 20 or more workers. Coverage is restricted to persons with not more than Rs6,500 | State Governments and the Autonomous Agencies created by the statutes. |
| Employees' Provident Funds and Miscellaneous Provisions Act, 1952 | | Provides for the setting up of compulsory provident funds for employees in factories and other establishments | Extends to the whole of India expect the state of Jammu & Kashmir (J&K) and extends to all factories and other establishments of any notified industry that employ 20 or more workers. The wage ceiling for coverage under the provident fund scheme is Rs6,500 per month. | |
| Maternity Benefit Act, 1961 | | Regulation of employment of women in certain establishments for certain periods before and after childbirth and provides for maternity benefits and certain other benefits. | Extends to the whole of India and applies to every factory, mine and plantation , expect the factories and establishments to which provisions of the Employees' State Insurance Act, 1948, are applicable. | |
| Employees' Pension Scheme, 1995 | | Provides for the payment of monthly pensions in case of contingencies like superannuation, retirement, permanent total disablement, or death during service. | Extends to all persons who were members of the Family Pension Scheme, 1971. It is compulsory for persons who became members of the provident fund after 16 November 1995 | |
| Payment of Gratuity Act, 1972 | | Provides for the payment of gratuity to employees in factories and establishments. | Extends to the whole of India except the state of Sikkim and plantations in the state of Jammu & Kashmir. Applies to every factory, mine, oil field, plantation, port, oil company, and shop or establishment in which 10 or more workers are employed or were employed on any day of the preceding 12 months. There is no wage ceiling for coverage under the act. The maximum amount obtainable under the act is Rs350,000 per employee. | |

Source: Anant et al (2006), Jha & Golder (2008), Malik (2007), Planning Commission (2001)

## Table 2: Summary Statistics: 1970 – 1997

| Variable | Obs | Mean | Std dev | Min | Max |
|---|---|---|---|---|---|
| **Explanatory Variables** | | | | | |
| Labor Regulation | 448 | -0.065 | 1.094 | -2 | 4 |
| *Left* | 448 | 0.101 | 0.193 | 0 | 0.830 |
| **Control Variables** | | | | | |
| Log (real) development expenditure per capita | 448 | 4.827 | 0.508 | 3.295 | 6.010 |
| Log installed electricity capacity per capita | 448 | 3.718 | 0.632 | 1.170 | 5.067 |
| Literacy rates | 446 | 0.461 | 0.147 | 0.208 | 0.904 |
| Log total population | 448 | 17.369 | 0.730 | 15.315 | 18.883 |
| Log (real) credit per capita | 416 | 5.296 | 0.802 | 2.997 | 6.903 |
| **Outcome Variables** | | | | | |
| *(Real) Output* | 448 | 7.047 | 0.363 | 6.186 | 8.039 |
| Log output (all sectors) per capita | 447 | 6.107 | 0.329 | 5.214 | 7.172 |
| Log agricultural output per capita | 447 | 6.501 | 0.476 | 5.272 | 7.574 |
| Log non-agricultural output per capita | 447 | 5.018 | 0.620 | 3.670 | 6.599 |
| Log total manufacturing output per capita | 447 | 4.491 | 0.759 | 2.172 | 6.353 |
| Log registered manufacturing output per capita | 447 | 4.030 | 0.580 | 2.547 | 5.455 |
| Log unregistered manufacturing output per capita | 448 | 7.047 | 0.363 | 6.186 | 8.039 |
| *Employment and wages in formal manufacturing* | | | | | |
| Log workers employed per capita | 432 | -4.940 | 0.584 | -6.583 | -4.010 |
| Log total employment | 432 | -4.689 | 0.575 | -6.329 | -3.799 |
| Log daily employment | 364 | 11.524 | 1.230 | 6.908 | 13.812 |
| Log earnings per worker | 432 | 8.379 | 0.345 | 7.098 | 9.361 |
| Log income to workers as a share of value-added | 432 | -1.267 | 0.348 | -2.199 | 1.053 |
| *Productivity and Investment in formal manufacturing* | | | | | |
| Log real value-added per employee | 432 | 9.394 | 0.473 | 6.845 | 10.925 |
| Log fixed capital per capita | 432 | 5.723 | 0.681 | 3.313 | 7.594 |
| Investment per capita | 415 | 81.444 | 92.352 | 150.0 | 1136.3 |
| Log factories per capita | 364 | -9.175 | 0.862 | -11.339 | -6.987 |
| Log workers per factory | 348 | 4.265 | 0.626 | 1.966 | 6.589 |

Data listed is for 16 states. Appendix C lists the description of variables and data sources.

**Table 3: Left presence in Legislature Assemblies, Classification of States, and Labor market Flexibility: 1958 - 2002**

| State | Left | | | | Besley & Burgess (2004) | | | | | Goswami et al (2002) | Hasan et al (2007) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | s.d. | Min | Max | Mean | s.d. | Min | Max | Classification | | |
| Andhra Pradesh | 0.0721 | 0.0494 | 0.0068 | 0.1700 | -1.89 | 0.57 | -3 | -1 | Business | Good | Flexible |
| Assam | 0.0520 | 0.0451 | 0.0095 | 0.1587 | 0 | 0 | 0 | 0 | Neutral | --- | Rigid |
| Bihar | 0.1190 | 0.1124 | 0.0220 | 0.4259 | 0 | 0 | 0 | 0 | Neutral | --- | Rigid |
| Gujarat | 0.0004 | 0.0015 | 0 | 0.0060 | 0.67 | 0.48 | 0 | 1 | Worker | Best | Flexible |
| Haryana | 0.0058 | 0.0083 | 0 | 0.0247 | 0 | 0 | 0 | 0 | Neutral | --- | Rigid |
| Jammu & Kashmir | 0.0032 | 0.0068 | 0 | 0.0230 | 0 | 0 | 0 | 0 | Neutral | --- | --- |
| Karnataka | 0.0124 | 0.0086 | 0 | 0.0268 | -0.33 | 0.48 | -1 | 0 | Business | Good | Flexible |
| Kerala | 0.4415 | 0.0961 | 0.2302 | 0.5714 | -0.53 | 0.50 | -1 | 0 | Business | Poor | Rigid |
| Madhya Pradesh | 0.0058 | 0.0042 | 0 | 0.0125 | -0.02 | 0.15 | -1 | 0 | Business | --- | Rigid |
| Maharashtra | 0.0638 | 0.0312 | 0.0243 | 0.1296 | 0.93 | 0.99 | 0 | 2 | Worker | Best | Flexible |
| Orissa | 0.0307 | 0.0206 | 0.0068 | 0.0685 | 0.44 | 0.50 | 0 | 1 | Worker | --- | Rigid |
| Punjab | 0.0632 | 0.0416 | 0.0085 | 0.1282 | 0 | 0 | 0 | 0 | Neutral | Medium | Rigid |
| Rajasthan | 0.0108 | 0.0080 | 0.0050 | 0.0284 | -1.27 | 0.54 | -2 | 0 | Business | --- | Flexible |
| Tamil Nadu | 0.0571 | 0.0339 | 0.0128 | 0.1368 | -1.47 | 0.50 | -2 | -1 | Business | Good | Flexible |
| Uttar Pradesh | 0.0230 | 0.0153 | 0.0042 | 0.0565 | 0 | 0 | 0 | 0 | Neutral | Poor | Rigid |
| West Bengal | 0.5715 | 0.2558 | 0.1929 | 0.8299 | 1.84 | 1.71 | 0 | 4 | Business | Poor | Rigid |

**Table 4: Coefficient of Variation in share of seats won by Left parties in the State Legislature**

| | 1960 -2004 | 1960-1969 | 1970-1979 | 1980-1989 | 1990-1999 | 2000-2004 |
|---|---|---|---|---|---|---|
| **Panel A: Besley and Burgess (2004)** | | | | | | |
| *Pro-worker* | | | | | | |
| Maharashtra | 48.9 | 19.0 | 44.5 | 10.2 | 21.3 | 22. 9 |
| Orissa | 67.7 | 38.8 | 53.1 | 63.3 | 75.3 | 70.7 |
| West Bengal | 42.5 | 32.9 | 63.2 | 2.7 | 9.1 | 8.7 |
| Average | 53.0 | 30.2 | 53.6 | 25.4 | 35.3 | 34.1 |
| | | | | | | |
| *Neutral* | | | | | | |
| Assam | 87.2 | 74.4 | 92.2 | 110.6 | 27.7 | 80.1 |
| Bihar | 91.6 | 61.1 | 14.2 | 38.3 | 2.7 | 86.3 |
| Haryana | 144.5 | 43.3 | 210.8 | 161.0 | 316.2 | 148.1 |
| Punjab | 67.7 | 27.5 | 25.2 | 91.4 | 66.7 | 98.4 |
| Uttar Pradesh | 67.6 | 39.3 | 51.7 | 3.9 | 28.0 | 38.0 |
| Average | 91.7 | 49.1 | 78.8 | 81.1 | 88.3 | 90.2 |
| | | | | | | |
| *Pro-business* | | | | | | |
| Andhra Pradesh | 70.4 | 33.5 | 46.1 | 33.0 | 54.1 | 66.2 |
| Karnataka | 70.7 | 25.6 | 11.4 | 38.9 | 105.4 | 111.9 |
| Kerala | 22.3 | 43.1 | 2.6 | 10.4 | 16.9 | 15.9 |
| Madhya Pradesh | 74.3 | 35.8 | 83.4 | 105.4 | 38.6 | 74.2 |
| Rajasthan | 73.3 | 71.0 | 49.1 | 35.1 | 35.0 | 34.2 |
| Tamil Nadu | 59.0 | 44.1 | 9.8 | 52.0 | 71.2 | 67.4 |
| Average | 61.7 | 42.2 | 33.7 | 45.8 | 53.5 | 61.6 |
| | | | | | | |
| **Panel B: Besley and Burgess (2004) and World Bank (2002)** | | | | | | |
| *Pro-worker* (average) | 44.1 | 38.3 | 39.6 | 25.5 | 33.8 | 31.8 |
| *Neutral* (average) | 91.7 | 49.1 | 78.8 | 81.1 | 88.3 | 90.2 |
| *Pro-business* (average) | 66.1 | 38.2 | 40.7 | 45.8 | 54.3 | 62.8 |
| Gujarat and Jammu and Kashmir are omitted due to zero Left seats for most decades | | | | | | |

**Table 5: Manufacturing Output and Center and Right Political Orientation of the State Assemblies**

| | (1) Log registered manufacturing output [1970-1997] | (2) Log registered manufacturing output [1970-1997] | (3) Log registered manufacturing output [1970-1997] | (4) Log registered manufacturing output [1970-1997] | (5) Log registered manufacturing output [1974-1997] | (6) Log registered manufacturing output [1974-1997] |
|---|---|---|---|---|---|---|
| Labor regulation [t-1] | -0.168** | -0.164*** | -0.208** | -0.196*** | -0.143** | -0.178** |
| | (0.06) | (0.05) | (0.08) | (0.06) | (0.06) | (0.07) |
| *Right* [t-1] | -0.052 | -0.083 | | | -0.064 | |
| | (0.09) | (0.07) | | | (0.06) | |
| Labor regulation [t-1] * *Right* [t-1] | **0.176*** | **0.143*** | | | **0.144**** | |
| | (0.10) | (0.07) | | | (0.06) | |
| *Center* [t-1] | | | 0.098 | 0.105 | | 0.078 |
| | | | (0.12) | (0.09) | | (0.08) |
| Labor regulation [t-1] * *Center* [t-1] | | | 0.156* | 0.136* | | **0.134** |
| | | | (0.08) | (0.07) | | (0.08) |
| Observations | 447 | 445 | 447 | 445 | 383 | 383 |
| Adjusted $R^2$ | 0.71 | 0.73 | 0.71 | 0.73 | 0.65 | 0.65 |
| Controls | No | Yes | No | Yes | Yes | Yes |
| State Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Effects | Yes | Yes | Yes | Yes | Yes | Yes |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Standard errors are clustered by state and presented in parenthesis. Registered manufacturing output is measured in real terms.

**Table 6: Pair-wise correlations among control variables**

|  | Development Expenditure | Installed Electricity Capacity | Literacy | Population | Credit |
|---|---|---|---|---|---|
| Development Expenditure | 1 |  |  |  |  |
| Installed Electricity Capacity | 0.7461*** | 1 |  |  |  |
| Literacy | 0.6656*** | 0.6699*** | 1 |  |  |
| Population | -0.0463 | 0.1557*** | 0.1944*** | 1 |  |
| Credit | 0.7386*** | 0.8068*** | 0.7138*** | 0.027 | 1 |

*** significant at 1%

**Table 7: Difference in Means of Control Variables: 1970 - 1997**

| States grouped by percentile of share of seats held by the left | Development Expenditure $H_0 = 4.829$ $H_A \neq 4.829$ | | | Literacy Rates $H_0 = 0.461$ $H_A \neq 0.461$ | | | Electricity Capacity $H_0 = 3.716$ $H_A \neq 3.716$ | | | State Population $H_0 = 17.374$ $H_A \neq 17.374$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** | **(8)** | **(9)** | **(10)** | **(11)** | **(12)** |
|  | Mean | t-stat | Pr(\|T\| > \|t\|) | Mean | t-stat | Pr(\|T\| > \|t\|) | Mean | t-stat | Pr(\|T\| > \|t\|) | Mean | t-stat | Pr(\|T\| > \|t\|) |
| 25%: Low GJ,HR,JK,MP | 5.046 | 4.311 | 0.000 | 0.421 | -3.688 | 0.000 | 3.877 | 2.624 | 0.010 | 16.824 | -6.745 | 0.000 |
| 50%: Low-Medium KA,OR,RJ,TN | 4.809 | -0.488 | 0.626 | 0.445 | -1.390 | 0.167 | 3.746 | 0.822 | 0.413 | 17.427 | 2.081 | 0.040 |
| 75%: Medium AP,AS,MH, UP | 4.749 | -1.786 | 0.077 | 0.443 | -1.562 | 0.121 | 3.577 | -2.273 | 0.025 | 17.796 | 6.521 | 0.000 |
| 99%: High BH,KE,PJ,WB | 4.703 | -2.578 | 0.011 | 0.535 | 4.059 | 0.000 | 3.670 | -0.657 | 0.512 | 17.430 | 0.976 | 0.331 |

## Table 8: Output and Effectiveness of Labor Regulation (without Controls): 1970 – 1997

| | (1)<br>Log state output per capita | (2)<br>Log state agricultural output per capita | (3)<br>Log nonagricultural output per capita | (4)<br>Log total manufacturing output per capita | (5)<br>Log registered manufacturing output per capita | (6)<br>Log unregistered manufacturing output per capita |
|---|---|---|---|---|---|---|
| | | | *Panel A* | | | |
| Labor Regulation [t-1] | -0.004 | 0.013 | -0.028 | -0.065* | **-0.146**\*\* | 0.076** |
| | (0.02) | (0.02) | (0.02) | (0.04) | (0.06) | (0.03) |
| Observations | 496 | 447 | 447 | 447 | 447 | 447 |
| Adjusted $R^2$ | 0.88 | 0.46 | 0.91 | 0.71 | 0.7 | 0.46 |
| Controls | No | No | No | No | No | No |
| | | | *Panel B* | | | |
| *Left* [t] | -0.279* | -0.193 | -0.251*** | -0.475*** | **-0.941**\*\*\* | 0.35 |
| | (0.15) | (0.13) | (0.06) | (0.14) | (0.25) | (0.25) |
| Observations | 496 | 447 | 447 | 447 | 447 | 447 |
| $R^2$ | 0.88 | 0.46 | 0.91 | 0.71 | 0.68 | 0.45 |
| Controls | No | No | No | No | No | No |
| | | | *Panel C* | | | |
| Labor Regulation[t-1] | 0.005 | 0.004 | 0.004 | -0.008 | -0.032 | 0.06 |
| | (0.03) | (0.03) | (0.03) | (0.04) | (0.05) | (0.05) |
| *Left* [t] | -0.318 | -0.397*** | -0.061 | -0.078 | -0.069 | 0.082 |
| | (0.2) | (0.13) | (0.14) | (0.27) | (0.27) | (0.27) |
| Labor Regulation [t-1] *<br>*Left* [t] | 0.011 | 0.069 | -0.073 | -0.134* | **-0.278**\*\*\* | 0.029 |
| | (0.05) | (0.05) | (0.04) | (0.07) | (0.08) | (0.08) |
| Observations | 496 | 447 | 447 | 447 | 447 | 447 |
| Adjusted $R^2$ | 0.88 | 0.47 | 0.91 | 0.72 | 0.73 | 0.46 |
| Controls | No | No | No | No | No | No |

\* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Output per capita is expressed in real terms. All results include state fixed effects and time fixed effects. Standard errors are clustered by state and shown in parenthesis.

## Table 9: Output and Effectiveness of Labor Regulation (with Controls): 1970 – 1997

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Log state output per capita | Log state agricultural output per capita | Log nonagricultural output per capita | Log total manufacturing output per capita | Log registered manufacturing output per capita | Log unregistered manufacturing output per capita |
| | | | *Panel A* | | | |
| Labor Regulation [t-1] | 0.02 | 0.023 | -0.009 | -0.049 | **-0.145**\*\* | 0.098\*\* |
| | (0.02) | (0.02) | (0.02) | (0.03) | (0.05) | (0.04) |
| Observations | 494 | 445 | 445 | 445 | 445 | 445 |
| Adjusted $R^2$ | 0.91 | 0.47 | 0.93 | 0.76 | 0.72 | 0.53 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| | | | *Panel B* | | | |
| *Left* [t] | -0.133 | -0.158 | -0.123 | -0.323\*\* | **-0.807**\*\*\* | 0.486\*\* |
| | (0.1) | (0.13) | (0.07) | (0.14) | (0.23) | (0.22) |
| Observations | 494 | 445 | 445 | 445 | 445 | 445 |
| $R^2$ | 0.91 | 0.47 | 0.93 | 0.76 | 0.7 | 0.51 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| | | | *Panel C* | | | |
| Labor Regulation[t-1] | 0.032 | 0.013 | 0.02 | -0.004 | -0.049 | 0.075 |
| | (0.03) | (0.03) | (0.02) | (0.04) | (0.05) | (0.05) |
| *Left* [t] | -0.183\* | -0.370\*\*\* | 0.023 | -0.012 | -0.043 | 0.172 |
| | (0.1) | (0.12) | (0.07) | (0.21) | (0.24) | (0.21) |
| Labor Regulation [t-1] * *Left* [t] | -0.012 | 0.065 | -0.075\*\* | -0.112\* | **-0.233**\*\*\* | 0.038 |
| | (0.04) | (0.04) | (0.03) | (0.06) | (0.08) | (0.06) |
| Observations | 494 | 445 | 445 | 445 | 445 | 445 |
| Adjusted $R^2$ | 0.91 | 0.48 | 0.93 | 0.76 | 0.74 | 0.53 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |

\* significant at 10 percent, \*\* significant at 5 percent, \*\*\* significant at 1 percent. Output per capita is expressed in real terms. All results include state fixed effects and time fixed effects. Standard errors are clustered by state and shown in parenthesis.

**Table 10: Employment, Wages, and Effectiveness of Labor Regulation (without Controls): 1970 – 1997**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Log of workers employed per capita | Log total employment per capita | Log daily employment | Log earnings per worker | Log share of income to workers |
| | | | *Panel A* | | |
| Labor Regulation [t-1] | -0.119*** | -0.114** | -0.462** | -0.005 | 0.04 |
| | (0.04) | (0.04) | (0.21) | (0.02) | (0.03) |
| Observations | 512 | 512 | 364 | 480 | 528 |
| Adjusted $R^2$ | 0.35 | 0.35 | 0.29 | 0.84 | 0.49 |
| Controls | No | No | No | No | No |
| | | | *Panel B* | | |
| *Left* [t] | -0.847*** | -0.813*** | -2.176*** | 0.121 | 0.112 |
| | (0.18) | (0.18) | (0.43) | (0.12) | (0.22) |
| Observations | 512 | 512 | 364 | 480 | 528 |
| Adjusted $R^2$ | 0.33 | 0.33 | 0.17 | 0.84 | 0.48 |
| Controls | No | No | No | No | No |
| | | | *Panel C* | | |
| Labor Regulation[t-1] | -0.08 | -0.071 | -0.067 | 0.013 | 0.011 |
| | (0.05) | (0.04) | (0.11) | (0.03) | (0.02) |
| *Left* [t] | -0.578 | -0.54 | 2.203*** | 0.248** | -0.05 |
| | (0.35) | (0.36) | (0.31) | (0.11) | (0.26) |
| Labor Regulation [t-1] * *Left* [t] | -0.055 | -0.066 | **-1.439*** | -0.068 | 0.076 |
| | (0.07) | (0.07) | (0.16) | (0.04) | (0.05) |
| Observations | 512 | 512 | 364 | 480 | 528 |
| Adjusted $R^2$ | 0.39 | 0.39 | 0.48 | 0.84 | 0.49 |
| Controls | No | No | No | No | No |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Output per capita is expressed in real terms. All results include state fixed effects and time fixed effects. Standard errors are clustered by state and shown in parenthesis.

**Table 11: Employment, Wages, and Effectiveness of Labor Regulation (with Controls): 1970 – 1997**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Log of workers employed per capita | Log total employment per capita | Log daily employment | Log earnings per worker | Log share of income to workers |
| | | | *Panel A* | | |
| Labor Regulation [t-1] | -0.087** | -0.084** | -0.471** | -0.014 | 0.049** |
| | (0.03) | (0.03) | (0.19) | (0.02) | (0.02) |
| Observations | 478 | 478 | 362 | 478 | 478 |
| Adjusted $R^2$ | 0.4 | 0.4 | 0.31 | 0.84 | 0.46 |
| Controls | Yes | Yes | Yes | Yes | Yes |
| | | | *Panel B* | | |
| *Left* [t] | -0.477** | -0.450*** | -2.007*** | 0.046 | 0.158 |
| | (0.16) | (0.14) | (0.38) | (0.1) | (0.17) |
| Observations | 478 | 478 | 362 | 478 | 478 |
| Adjusted $R^2$ | 0.37 | 0.36 | 0.19 | 0.84 | 0.45 |
| Controls | Yes | Yes | Yes | Yes | Yes |
| | | | *Panel C* | | |
| Labor Regulation[t-1] | -0.052 | -0.048 | -0.085 | 0.006 | 0.027 |
| | (0.04) | (0.04) | (0.11) | (0.03) | (0.03) |
| *Left* [t] | -0.205 | -0.171 | 2.177*** | 0.175* | -0.029 |
| | (0.17) | (0.16) | (0.28) | (0.09) | (0.22) |
| Labor Regulation [t-1] * *Left* [t] | -0.073 | -0.08 | **-1.388*** | -0.064 | 0.058 |
| | (0.06) | (0.05) | (0.16) | (0.04) | (0.05) |
| Observations | 478 | 478 | 362 | 478 | 478 |
| Adjusted $R^2$ | 0.42 | 0.41 | 0.48 | 0.84 | 0.46 |
| Controls | Yes | Yes | Yes | Yes | Yes |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Output per capita is expressed in real terms. All results include state fixed effects and time fixed effects. Standard errors are clustered by state and shown in parenthesis.

**Table 12: Investment, Productivity, and Effectiveness of Labor Regulation (without Controls): 1970 – 1997**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Log value-added per employee | Log fixed capital per capita | Investment per capita | Log factories per capita | Log workers per factory |
| | | | *Panel A* | | |
| Labor Regulation [t-1] | -0.047 | -0.002 | -1.474 | -0.196 | 0.099 |
| | (0.03) | (0.04) | (5.47) | (0.12) | (0.1) |
| Observations | 480 | 480 | 463 | 364 | 348 |
| Adjusted $R^2$ | 0.79 | 0.46 | 0.18 | 0.52 | 0.46 |
| Controls | No | No | No | No | No |
| | | | *Panel B* | | |
| *Left* [t] | -0.048 | -0.194 | -29.042 | -1.164*** | 0.511 |
| | (0.28) | (0.2) | (36.75) | (0.3) | (0.38) |
| Observations | 480 | 480 | 463 | 364 | 348 |
| Adjusted $R^2$ | 0.78 | 0.46 | 0.18 | 0.5 | 0.45 |
| Controls | No | No | No | No | No |
| | | | *Panel C* | | |
| Labor Regulation[t-1] | -0.002 | -0.001 | 0.019 | 0.005 | -0.051 |
| | (0.02) | (0.07) | (8.55) | (0.1) | (0.1) |
| *Left* [t] | 0.285 | -0.232 | -24.801 | 0.807*** | -0.949*** |
| | (0.26) | (0.28) | (49.25) | (0.18) | (0.29) |
| Labor Regulation [t-1] * *Left* [t] | **-0.141**** | 0.018 | -1.996 | **-0.686**** | **0.557**** |
| | (0.05) | (0.11) | (14.84) | (0.14) | (0.14) |
| Observations | 480 | 480 | 463 | 364 | 348 |
| Adjusted $R^2$ | 0.79 | 0.46 | 0.17 | 0.59 | 0.51 |
| Controls | No | No | No | No | No |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. All results include state fixed effects and time fixed effects. Standard errors are clustered by state and shown in parenthesis.

**Table 13: Investment, Productivity, and Effectiveness of Labor Regulation (with controls): 1970 – 1997**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Log value-added per employee | Log fixed capital per capita | Investment per capita | Log factories per capita | Log workers per factory |
| | | | *Panel A* | | |
| Labor Regulation [t-1] | -0.066** | 0.049 | 1.09 | -0.213* | 0.121 |
| | (0.02) | (0.05) | (4.47) | (0.11) | (0.1) |
| Observations | 478 | 478 | 461 | 362 | 346 |
| Adjusted $R^2$ | 0.8 | 0.52 | 0.19 | 0.52 | 0.48 |
| Controls | Yes | Yes | Yes | Yes | Yes |
| | | | *Panel B* | | |
| *Left* [t] | -0.139 | 0.206 | 5.026 | -1.170*** | 0.679* |
| | (0.23) | (0.26) | (37.79) | (0.3) | (0.35) |
| Observations | 478 | 478 | 461 | 362 | 346 |
| Adjusted $R^2$ | 0.79 | 0.52 | 0.19 | 0.49 | 0.47 |
| Controls | Yes | Yes | Yes | Yes | Yes |
| | | | *Panel C* | | |
| Labor Regulation[t-1] | -0.026 | 0.052 | 1.306 | -0.009 | -0.053 |
| | (0.02) | (0.07) | (8.19) | (0.1) | (0.09) |
| *Left* [t] | 0.171 | 0.135 | 4.323 | 0.795*** | -0.888*** |
| | (0.23) | (0.35) | (41.72) | (0.13) | (0.21) |
| Labor Regulation [t-1] * *Left* [t] | **-0.116*** | -0.018 | -0.83 | **-0.684*** | **0.610*** |
| | (0.04) | (0.11) | (12.28) | (0.14) | (0.15) |
| Observations | 478 | 478 | 461 | 362 | 346 |
| Adjusted $R^2$ | 0.8 | 0.52 | 0.18 | 0.59 | 0.54 |
| Controls | Yes | Yes | Yes | Yes | Yes |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. All results include state fixed effects and time fixed effects. Standard errors are clustered by state and shown in parenthesis.

**Table 14: Economic Outcome, Labor Regulation, and Share of Seats Won by Left and Center Parties: 1970-1997**

| | (1)<br>State output | (2)<br>Agricultural output | (3)<br>Nonagricultural output | (4)<br>Manufacturing output | (5)<br>Registered manufacturing output | (6)<br>Unregistered manufacturing output | (7)<br>Workers Employed | (8)<br>Total Employment |
|---|---|---|---|---|---|---|---|---|
| Labor Regulation [t-1] | 0.059<br>(0.06) | 0.008<br>(0.06) | 0.022<br>(0.03) | 0.025<br>(0.06) | -0.02<br>(0.05) | 0.117<br>(0.11) | -0.083<br>(0.06) | -0.067<br>(0.05) |
| *Left* [t] | -0.145<br>(0.12) | -0.265*<br>(0.15) | 0.055<br>(0.08) | 0.085<br>(0.2) | 0.082<br>(0.24) | 0.178<br>(0.27) | -0.08<br>(0.18) | -0.082<br>(0.18) |
| *Center* [t] | 0.048<br>(0.04) | 0.088**<br>(0.04) | 0.029<br>(0.03) | 0.098<br>(0.07) | 0.123<br>(0.08) | 0.026<br>(0.17) | 0.096<br>(0.07) | 0.07<br>(0.06) |
| Labor Regulation [t-1] * *Left* [t] | -0.039<br>(0.06) | 0.062<br>(0.06) | -0.080**<br>(0.03) | -0.146**<br>(0.06) | **-0.269***<br>(0.07) | 0<br>(0.1) | -0.056<br>(0.06) | -0.07<br>(0.06) |
| Labor Regulation [t-1] * *Center* [t] | -0.039<br>(0.06) | 0.016<br>(0.05) | -0.001<br>(0.05) | -0.036<br>(0.08) | -0.032<br>(0.05) | -0.062<br>(0.13) | 0.057<br>(0.06) | 0.037<br>(0.06) |
| Observations | 494 | 445 | 445 | 445 | 445 | 445 | 478 | 478 |
| Adjusted $R^2$ | 0.91 | 0.49 | 0.93 | 0.77 | 0.74 | 0.53 | 0.42 | 0.41 |
| | (9)<br>Daily Employment | (10)<br>Workers' Wages | (11)<br>Income Share | (12)<br>Value-Added per Employee | (13)<br>Fixed Capital | (14)<br>Investment | (15)<br>Factories | (16)<br>Workers per Factory |
| Labor Regulation[t-1] | -0.279<br>(0.17) | -0.013<br>(0.04) | -0.023<br>(0.05) | -0.005<br>(0.05) | 0.14<br>(0.12) | 18.335<br>(28.38) | -0.008<br>(0.15) | -0.071<br>(0.16) |
| *Left* [t] | 2.565***<br>(0.23) | 0.269***<br>(0.09) | 0.138<br>(0.25) | 0.133<br>(0.24) | -0.066<br>(0.42) | -44.876<br>(66.39) | 0.649***<br>(0.18) | -0.596**<br>(0.21) |
| *Center* [t] | 0.233<br>(0.15) | 0.075*<br>(0.04) | 0.125<br>(0.08) | -0.024<br>(0.07) | -0.135<br>(0.13) | -34.337<br>(35.79) | -0.134<br>(0.15) | 0.253**<br>(0.12) |
| Labor Regulation [t-1] * *Left* [t] | -1.235***<br>(0.2) | -0.056<br>(0.05) | 0.089<br>(0.06) | -0.130**<br>(0.05) | -0.079<br>(0.14) | -11.97<br>(28.72) | -0.676***<br>(0.17) | 0.608***<br>(0.17) |
| Labor Regulation [t-1] * *Center* [t] | 0.302**<br>(0.14) | 0.035<br>(0.04) | 0.089<br>(0.06) | -0.034<br>(0.05) | -0.15<br>(0.11) | -29.47<br>(36.77) | -0.008<br>(0.12) | 0.04<br>(0.14) |
| Observations | 362 | 478 | 478 | 478 | 478 | 461 | 362 | 346 |
| Adjusted $R^2$ | 0.49 | 0.85 | 0.46 | 0.8 | 0.52 | 0.19 | 0.59 | 0.54 |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. All results include state and time fixed effects, election dummies, and controls. Standard errors are clustered by state and shown in parenthesis.

**Table 15: Manufacturing Outcome and Effectiveness of Labor Regulation: State-Industry Variation 1970 – 1997**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Registered Manufacturing Output | Workers Employed | Total Employed | Earnings per Worker | Income to Workers |
| | | | *Panel A* | | |
| Labor Regulation [t-1] | 0.045*** | -0.024 | -0.03 | 0.005 | 0.014 |
| | (0.01) | (0.03) | (0.03) | (0.01) | (0.03) |
| *Left* [t] | -0.580*** | -0.151 | -0.174 | 0.222*** | -0.155 |
| | (0.11) | (0.21) | (0.2) | (0.08) | (0.33) |
| Labor Regulation [t-1] * *Left* [t] | **-0.397*** | -0.121** | -0.115** | -0.068*** | 0.001 |
| | **(0.02)** | (0.05) | (0.05) | (0.02) | (0.05) |
| Observations | 6461 | 5963 | 5964 | 5960 | 5836 |
| Adjusted $R^2$ | 0.6 | 0.18 | 0.17 | 0.37 | 0.01 |
| Controls | No | No | No | No | No |
| | | | *Panel B* | | |
| Labor Regulation[t-1] | 0.051*** | -0.011 | -0.019 | -0.004 | 0.016 |
| | (0.01) | (0.03) | (0.03) | (0.01) | (0.03) |
| *Left* [t] | -0.253*** | 0.16 | 0.131 | 0.230*** | -0.195 |
| | (0.09) | (0.2) | (0.19) | (0.08) | (0.34) |
| Labor Regulation [t-1] * *Left* [t] | **-0.353*** | -0.101* | -0.093* | -0.041 | -0.021 |
| | **(0.02)** | (0.05) | (0.05) | (0.03) | (0.05) |
| Observations | 6461 | 5963 | 5964 | 5960 | 5836 |
| Adjusted $R^2$ | 0.63 | 0.19 | 0.18 | 0.37 | 0.066 |
| Controls | Yes | Yes | Yes | Yes | Yes |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. All results include state-industry fixed effects and time fixed effects. We allow for industry time trends. Standard errors are clustered by state-industry and are shown in parenthesis. Panel B results include election dummies.

| | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|
| | Value-added per employee | Fixed capital | Investment | Factories | Workers per Factory |
| | *Panel A* | | | | |
| Labor Regulation [t-1] | -0.001 | -0.033 | 0.009 | -0.028 | 0.004 |
| | (0.03) | (0.04) | (0.36) | (0.03) | (0.02) |
| *Left* [t] | 0.409 | 0.101 | -3.485 | -0.105 | -0.045 |
| | (0.33) | (0.33) | (2.49) | (0.22) | (0.22) |
| Labor Regulation [t-1] * *Left* [t] | -0.078* | -0.02 | -0.394 | -0.044 | -0.077* |
| | (0.05) | (0.07) | (0.75) | (0.04) | (0.04) |
| Observations | 5837 | 5966 | 5838 | 5967 | 5963 |
| Adjusted $R^2$ | 0.18 | 0.23 | 0.01 | 0.22 | 0.18 |
| Controls | No | No | No | No | No |
| | *Panel B* | | | | |
| Labor Regulation[t-1] | -0.009 | -0.033 | 0.052 | -0.008 | -0.004 |
| | (0.03) | (0.05) | (0.37) | (0.02) | (0.02) |
| *Left* [t] | 0.467 | 0.612* | -1.482 | 0.22 | -0.058 |
| | (0.33) | (0.32) | (2.66) | (0.21) | (0.22) |
| Labor Regulation [t-1] * *Left* [t] | -0.031 | 0.047 | -0.471 | -0.032 | -0.069 |
| | (0.05) | (0.08) | (0.81) | (0.05) | (0.04) |
| Observations | 5837 | 5966 | 5838 | 5967 | 5963 |
| Adjusted $R^2$ | 0.19 | 0.25 | 0.0094 | 0.24 | 0.18 |
| Controls | Yes | Yes | Yes | Yes | Yes |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. All results include state-industry fixed effects and time fixed effects. We allow for industry time trends. Standard errors are clustered by state-industry and are shown in parenthesis. Panel B results include election dummies.

**Table 16: Manufacturing Outcome, Effectiveness of Labor Regulation, and Capital Intensity: State-Industry Variation 1970 – 1997**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Registered Manufacturing Output | Workers Employed | Total Employed | Earnings per Worker | Income to Workers | Value-added per employee | Fixed capital | Investment | Factories | Workers per Factory |
| Labor Regulation[t-1] | 0.045 | -0.434 | -0.32 | 0.25 | -0.024 | 0.115 | -0.903* | 2.859 | -0.233 | -0.489 |
| | (0.15) | (0.42) | (0.4) | (0.17) | (0.31) | (0.33) | (0.52) | (6.89) | (0.96) | (0.4) |
| *Left* [t] | -0.14 | -2.375 | -2.925 | 1.067 | 5.95 | -5.015 | -1.977 | 48.508 | -8.222 | -4.652 |
| | (1.22) | (3.77) | (3.57) | (1.02) | (4.94) | (4.71) | (5.16) | (36.69) | (6.54) | (3.24) |
| Labor Regulation [t-1] * *Left* [t] | -0.345* | 0.705 | 0.556 | -0.043 | 0.231 | -0.048 | 0.925 | -10.641 | 1.608 | 1.261** |
| | (0.19) | (0.76) | (0.74) | (0.29) | (0.53) | (0.52) | (0.85) | (12.84) | (1.82) | (0.54) |
| Labor Regulation [t-1] * Capital Intensity | 0.001 | 0.043 | 0.031 | -0.026 | 0.004 | -0.013 | 0.089* | -0.287 | 0.018 | 0.049 |
| | (0.02) | (0.04) | (0.04) | (0.02) | (0.03) | (0.03) | (0.05) | (0.73) | (0.1) | (0.04) |
| *Left* [t] * Capital Intensity | -0.012 | 0.259 | 0.313 | -0.086 | -0.63 | 0.562 | 0.265 | -5.115 | 0.895 | 0.499 |
| | (0.13) | (0.4) | (0.37) | (0.1) | (0.53) | (0.51) | (0.54) | (3.91) | (0.67) | (0.34) |
| Labor Regulation [t-1] * *Left* [t] * Capital Intensity | **-0.001** | -0.082 | -0.066 | 0 | -0.026 | 0.002 | -0.09 | 1.039 | -0.16 | **-0.132**** |
| | **(0.02)** | (0.08) | (0.07) | (0.03) | (0.05) | (0.05) | (0.09) | (1.38) | (0.19) | **(0.05)** |
| Observations | 6461 | 5963 | 5964 | 5960 | 5836 | 5837 | 5966 | 5838 | 4005 | 5967 |
| Adjusted $R^2$ | 0.63 | 0.19 | 0.19 | 0.37 | 0.067 | 0.19 | 0.25 | 0.0091 | 0.13 | 0.24 |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. All results include state-industry fixed effects, time fixed effects, controls, and election dummies. We also allow for industry time trends. Standard errors are clustered by state-industry and are shown in parenthesis.

| Capital Intensity Rank | Description | NIC-1987 2 Digit | ln of Capital Intensity | % change in factory size |
|---|---|---|---|---|
| 1 | Electricity | 40 | 11.822 | 9.94 |
| 2 | Gas and Steam Generation and Distribution Through Pipes | 41 | 11.101 | 7.07 |
| 3 | Manufacture of Basic Chemicals and Chemical Products (Except Products of Petroleum and Coal) | 30 | 10.992 | 6.64 |
| 4 | Manufacture of Rubber, Plastic, Petroleum and Coal Products; Processing of Nuclear Fuels | 31 | 10.754 | 5.71 |
| 5 | Basic Metal and Alloys Industries | 33 | 10.717 | 5.57 |
| 6 | Manufacture of Paper and Paper Products and Printing, Publishing & Allied Industries | 28 | 10.122 | 3.29 |
| 7 | Manufacture of Non-Metallic Mineral Products | 32 | 9.964 | 2.69 |
| 8 | Manufacture of Wool, Silk and Man-made Fiber Textiles | 24 | 9.915 | 2.51 |
| 9 | Manufacture of Machinery and Equipment other than Transport Equipment (and excl. Manufacture of Scientific Equipment, Photographic / Cinematographic Equipment and Watches & Clocks) | 35-36 | 9.901 | 2.45 |
| 10 | Water Works and Supply | 42 | 9.859 | 2.30 |
| 11 | Manufacture of Transport Equipment and Parts | 37 | 9.744 | 1.87 |
| 12 | Other Manufacturing Industries (incl. Manufacture of Scientific Equipment, Photographic / Cinematographic Equipment and Watches & Clocks) | 38 | 9.599 | 1.33 |
| 13 | Manufacture of Metal Products and parts, except machinery and Equipment | 34 | 9.386 | 0.54 |
| 14 | Manufacture of Food and other Food Products | 20-21 | 9.317 | 0.28 |
| 15 | Manufacture of Leather and Leather Products, Fur & Leather Substitutes | 29 | 9.268 | 0.11 |
| 16 | Manufacture of Cotton Textiles | 23 | 9.266 | 0.09 |
| 17 | Manufacture of Beverages, Tobacco and Related Products | 22 | 9.108 | -0.48 |
| 18 | Manufacture of Textile Products (including wearing apparel) | 26 | 8.996 | -0.89 |
| 19 | Manufacture of Wood and Wood Products: Furniture and Fixtures | 27 | 8.979 | -0.95 |
| 20 | Manufacture of Jute and Other Vegetable Fiber Textiles (except Cotton) | 25 | 8.592 | -2.35 |
| 21 | Repair of Capital Goods | 39 | 8.369 | -3.14 |
| | *Mean* | | **9.799** | **2.07** |

Table 17: Capital Intensity of Industries: India 1979-1997

Using the coefficients from column (10) of table 15 we compute the % change in factory size as:
$-4.652(\Delta Left) + 1.261(R * \Delta Left) + 0.499(\Delta Left * Z_i) - 0.132(R * \Delta Left * Z_i)$ ] -1 }*100, where $\Delta Left$ is taken to be a 10 percentage point increase in share of seats held by left parties, $R$ is taken as a cumulative pro-worker amendment of +1, and $Z_i$ is ln of the capital intensity in industry i.

**Table 18: Linearity of Labor Regulation and *Left***

| | (1) Labor Regulation [1970-1997] | (2) Labor Regulation [1970-1997] [without WB] | (3) Labor Regulation [1977-1997] | (4) Labor Regulation [1970-1997] | (5) Labor Regulation [1970-1997] [without WB] | (6) Labor Regulation [1977-1997] |
|---|---|---|---|---|---|---|
| Share of left seats | 3.112*** | -0.217 | 0.664 | 3.268*** | -0.287 | 1.011 |
| | (0.54) | (1.21) | (0.77) | (0.54) | (1.06) | (0.85) |
| Observations | 446 | 418 | 336 | 446 | 418 | 336 |
| $R^2$ | 0.22 | 0.034 | 0.076 | 0.21 | 0.045 | 0.057 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| State Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Effects | No | No | No | Yes | Yes | Yes |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Output per capita is expressed in real terms. Specification includes state and time fixed effects, election dummies, and controls. Estimates are significant at the 10 percent level even when excluding controls. Standard errors are clustered by state and shown in parenthesis.

## Table 19: Robustness – Test for Single Outlier States: 1970-1997

| | Outcome | (1) Labor Regulation [t-1] | (2) *Left* | (3) Labor Regulation [t-1] * *Left* |
|---|---|---|---|---|
| | | ***Output*** | | |
| 1 | State output | -0.026 to 0.028 | -0.610*** to -0.117 <br> AP, KE | -0.115 to 0.050 |
| 2 | Agriculture | -0.042* to 0.018 <br> MH | -0.615*** to -0.348*** <br> All | 0.048 to 0.122*** <br> MH |
| 3 | Non-Agriculture | -0.015 to 0.027 | -0.259 to 0.033 | -0.101* to 0.043 <br> BH, JK, KA, MH, TN, UP |
| 4 | Manufacturing | -0.022 to 0.038 | -0.497 to 0.074 | -0.191** to -0.001 <br> All except AP, UP, WB |
| 5a | Registered Manufacturing | -0.048 to 0.043 | -0.357 to -0.031 | **-0.307*** to -0.081** <br> **All except WB** |
| 5b | Registered Manufacturing [1980-1997] | 0.005 to 0.115 | -1.188 to -0.187 | **-0.342*** to -1.503*** <br> All** |
| 6 | Unregistered Manufacturing | 0.034 to 0.097** <br> RJ | -0.442 to 0.187 | -0.023 to 0.08 |
| | | ***Employment and Wages*** | | |
| 7 | Workers Employed | -0.102** to -0.033 <br> RJ | -0.982*** to -0.385 <br> WB | -0.115 to 0.145 |
| 8 | Total Employment | -0.090** to -0.034 <br> JK, KE, RJ | -0.970** to -0.32 <br> WB | -0.114 to 0.141 |
| 9 | Daily Employment | -0.108 to 0.100 | 1.269** to 2.379*** <br> All | -1.646*** to -1.379*** <br> All |
| 10 | Workers' Earnings | -0.009 to 0.03 | 0.185 to 0.327* <br> All except UP | -0.301*** -0.094** <br> OR, WB |
| 11 | Workers' Share of Income | -0.01 to 0.026 | -0.213 to 0.194 | -0.305** to 0.100** <br> AS, BH, HR, KA, MP > 0 ; <br> WB < 0 |
| | | ***Investment and Productivity*** | | |
| 12 | Value-Added per Employee | -0.024 to 0.006 | 0.018 to 0.420* <br> AS | -0.160*** to -0.029 <br> All except WB |
| 13 | Fixed Capital | -0.046 to 0.035 | -0.433 to -0.042 | -0.029 to 0.361 |
| 14 | Investment | -5.713 to 5.455 | -68.049 to -4.662 | -7.754 to 82.918 |
| 15 | Factories | -0.049 to 0.096 | 0.269 to 0.850*** <br> All except WB | -1.554*** to -0.603*** <br> All |
| 16 | Workers per Factory | -0.128 to -0.004 | -1.101*** to -0.197 <br> All except WB | 0.490*** to 2.089*** <br> All |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Specification includes state and time fixed effects but no controls. Only maximum and minimum estimates are shown along with a list of states, which if individually excluded from the sample, yield significant estimates. Each line corresponds to a separate regression. Results are similar on including controls. Standard errors are not reported.

**Table 20: Robustness – Test for Kerala and West Bengal as Outlier States: 1970-1997**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Agricultural output | Nonagricultural output | Manufacturing output | Registered manufacturing output | Registered manufacturing output [1977-1997] | Unregistered manufacturing output | Workers Employed | Total Employment |
| Labor Regulation [t-1] | -0.003 | 0.025 | 0.018 | -0.024 | 0.029 | 0.092 | -0.049 | -0.049 |
| *Left* [t] | -0.622*** | -0.027 | -0.335 | -0.616 | -0.688 | 0.13 | -0.544* | -0.521* |
| Labor Regulation [t-1] * *Left* [t] | 0.516 | -0.353 | -1.055* | **-1.263** | **-1.219*** | -0.722 | -0.504 | -0.325 |
| Observations | 389 | 389 | 389 | 389 | 293 | 389 | 418 | 418 |
| Adjusted $R^2$ | 0.45 | 0.93 | 0.77 | 0.74 | 0.61 | 0.49 | 0.38 | 0.37 |
| | **(9)** | **(10)** | **(11)** | **(12)** | **(13)** | **(14)** | **(15)** | **(16)** |
| | Daily Employment | Workers' Wages | Income Share | Value-Added per Employee | Fixed Capital | Investment | Factories | Workers per Factory |
| Labor Regulation[t-1] | -0.006 | 0.016 | 0.032 | -0.017 | 0.057 | -9.256 | 0.077 | -0.136 |
| *Left* [t] | 0.770* | 0.27 | 0.087 | 0.16 | 0.81 | 17.157 | 0.41 | -0.78 |
| Labor Regulation [t-1] * *Left* [t] | -4.494** | -0.195 | -0.307 | -0.067 | 0.72 | 427.894** | -3.189* | 2.680* |
| Observations | 316 | 418 | 418 | 418 | 418 | 403 | 316 | 302 |
| Adjusted $R^2$ | 0.26 | 0.84 | 0.46 | 0.8 | 0.53 | 0.17 | 0.63 | 0.61 |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Standard errors are not reported. Output per capita is expressed in real terms. Specification includes state and time fixed effects, election dummies, and controls. Estimates are significant at the 10 percent level even when excluding controls.

## Table 21: Robustness – Test for Outlier *Left* Observations: 1970-1997

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Agricultural output | Nonagricultural output | Manufacturing output | Registered manufacturing output | Registered manufacturing output [1977-1997] | Unregistered manufacturing output | Workers Employed | Total Employment |
| Labor Regulation [t-1] | 0.007 | 0.009 | -0.009 | -0.052 | 0.0322 | 0.069 | -0.083 | -0.077* |
| *Left* [t] | -0.711*** | 0.051 | -0.198 | -0.4 | -0.677 | 0.113 | -0.386 | -0.394 |
| Labor Regulation [t-1] * *Left* [t] | 0.129 | 0.221 | 0.052 | **-0.146** | **-1.360*** | 0.17 | 0.805** | 0.748** |
| Observations | 415 | 415 | 415 | 415 | 307 | 415 | 442 | 442 |
| Adjusted $R^2$ | 0.46 | 0.93 | 0.77 | 0.75 | 0.61 | 0.49 | 0.37 | 0.36 |
| | **(9)** | **(10)** | **(11)** | **(12)** | **(13)** | **(14)** | **(15)** | **(16)** |
| | Daily Employment | Workers' Wages | Income Share | Value-Added per Employee | Fixed Capital | Investment | Factories | Workers per Factory |
| Labor Regulation[t-1] | -0.068 | 0.029 | 0.025 | -0.003 | 0.054 | -2.41 | 0.069 | -0.165** |
| *Left* [t] | 1.232** | 0.23 | 0.09 | 0.148 | 0.832 | -13.767 | 0.553 | -0.724 |
| Labor Regulation [t-1] * *Left* [t] | -2.061*** | -0.678*** | -0.002 | -0.620*** | 0.631 | 132.210* | -2.640*** | 3.379*** |
| Observations | 339 | 442 | 442 | 442 | 442 | 425 | 339 | 323 |
| Adjusted $R^2$ | 0.29 | 0.85 | 0.46 | 0.8 | 0.53 | 0.17 | 0.67 | 0.66 |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Standard errors are not reported. Output per capita is expressed in real terms. All results include state and time fixed effects, election dummies, and controls. Estimates are significant at the 10 percent level even when excluding controls.

79

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | State output | Agricultural output | Nonagricultural output | Manufacturing output | Registered manufacturing output | Unregistered manufacturing output | Workers Employed | Total Employment |
| Labor Regulation [t-1] | 0.034 | 0.017 | 0.018 | -0.007 | -0.053 | 0.074 | -0.052 | -0.047 |
| *Comm* [t] | -0.078 | -0.366*** | 0.014 | -0.206 | -0.188 | 0.028 | -0.212 | -0.168 |
| Labor Regulation [t-1] * *Comm* [t] | -0.03 | 0.063 | -0.081* | -0.098 | **-0.239**** | 0.066 | -0.082 | -0.092 |
| Observations | 494 | 445 | 445 | 445 | 445 | 445 | 478 | 478 |
| Adjusted $R^2$ | 0.91 | 0.48 | 0.93 | 0.76 | 0.74 | 0.53 | 0.41 | 0.41 |
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| | Daily Employment | Workers' Wages | Income Share | Value-Added per Employee | Fixed Capital | Investment | Factories | Workers per Factory |
| Labor Regulation[t-1] | -0.118 | 0.003 | 0.028 | -0.029 | 0.048 | 1.832 | -0.025 | -0.038 |
| *Comm* [t] | 2.310*** | 0.074 | -0.009 | 0.039 | -0.441 | -4.409 | 0.976*** | -1.226*** |
| Labor Regulation [t-1] * *Comm* [t] | -1.489*** | -0.059 | 0.063 | -0.112** | 0.046 | -1.833 | -0.754*** | 0.696*** |
| Observations | 362 | 478 | 478 | 478 | 478 | 461 | 362 | 346 |
| Adjusted $R^2$ | 0.47 | 0.84 | 0.46 | 0.8 | 0.52 | 0.18 | 0.59 | 0.54 |

\* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Standard errors are not reported. Output per capita is expressed in real terms. All results include state and time fixed effects, election dummies, and controls. Estimates are significant at the 10 percent level even when excluding controls.

**Table 23: Robustness – Communist Parties in the Ruling State Government as an Alternate Measure for *Left*: 1970-1997**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | State output | Agricultural output | Nonagricultural output | Manufacturing output | Registered manufacturing output | Unregistered manufacturing output | Workers Employed | Total Employment |
| Labor Regulation [t-1] | 0.032 | 0.021 | 0.011 | -0.011 | -0.061 | 0.072 | -0.05 | -0.044 |
| *Comm Rule* [t] | -0.048 | -0.089** | -0.025 | -0.015 | -0.098 | 0.108 | -0.068 | -0.079 |
| Labor Regulation [t-1] * *Comm Rule* [t] | -0.017 | 0.015 | -0.038* | -0.078** | **-0.162*** | 0.042 | -0.067* | -0.072** |
| Observations | 494 | 445 | 445 | 445 | 445 | 445 | 478 | 478 |
| Adjusted $R^2$ | 0.91 | 0.48 | 0.93 | 0.76 | 0.74 | 0.53 | 0.42 | 0.41 |
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| | Daily Employment | Workers' Wages | Income Share | Value-Added per Employee | Fixed Capital | Investment | Factories | Workers per Factory |
| Labor Regulation[t-1] | -0.220** | -0.001 | 0.036 | -0.043 | 0.063 | 3.457 | -0.078 | 0.012 |
| *Comm Rule* [t] | -0.201 | -0.004 | -0.035 | 0.043 | -0.117 | -7.055 | -0.199 | 0.177 |
| Labor Regulation [t-1] * *Comm Rule* [t] | -0.580*** | -0.026 | 0.031 | -0.053** | -0.015 | -4.191 | -0.297*** | 0.242*** |
| Observations | 362 | 478 | 478 | 478 | 478 | 461 | 362 | 346 |
| Adjusted $R^2$ | 0.41 | 0.84 | 0.46 | 0.8 | 0.52 | 0.18 | 0.56 | 0.51 |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Standard errors not reported. Output per capita is expressed in real terms. All results include state and time fixed effects, election dummies, and controls. Estimates are significant at the 10 percent level even when excluding controls.

## Table 24: Robustness – Alternate Specification by Lagging *Left*: 1970-1997

| | (1) State output | (2) Agricultural output | (3) Nonagricultural output | (4) Manufacturing output | (5) Registered manufacturing output | (6) Unregistered manufacturing output | (7) Workers Employed | (8) Total Employment |
|---|---|---|---|---|---|---|---|---|
| Labor Regulation [t-1] | 0.031 | 0.01 | 0.02 | -0.004 | -0.049 | 0.077 | -0.052 | -0.048 |
| | (0.03) | (0.03) | (0.02) | (0.04) | (0.05) | (0.05) | (0.04) | (0.04) |
| *Left* [t-1] | -0.171 | -0.419*** | 0.041 | -0.027 | -0.077 | 0.189 | -0.206 | -0.168 |
| | (0.1) | (0.13) | (0.07) | (0.24) | (0.26) | (0.27) | (0.18) | (0.17) |
| Labor Regulation [t-1] * | -0.011 | 0.076 | -0.075** | -0.107 | **-0.221**** | 0.031 | -0.065 | -0.073 |
| *Left* [t-1] | (0.04) | (0.04) | (0.03) | (0.07) | **(0.08)** | (0.07) | (0.06) | (0.05) |
| Observations | 494 | 445 | 445 | 445 | 445 | 445 | 478 | 478 |
| Adjusted $R^2$ | 0.91 | 0.49 | 0.93 | 0.76 | 0.74 | 0.53 | 0.42 | 0.41 |

| | (9) Daily Employment | (10) Workers' Wages | (11) Income Share | (12) Value-Added per Employee | (13) Fixed Capital | (14) Investment | (15) Factories | (16) Workers per Factory |
|---|---|---|---|---|---|---|---|---|
| Labor Regulation[t-1] | -0.08 | 0.007 | 0.027 | -0.024 | 0.049 | 1.673 | -0.01 | -0.053 |
| | (0.11) | (0.03) | (0.03) | (0.02) | (0.07) | (8.18) | (0.1) | (0.1) |
| *Left* [t-1] | 1.883*** | 0.178 | -0.126 | 0.266 | 0.138 | 20.675 | 0.650*** | -0.810*** |
| | (0.41) | (0.1) | (0.24) | (0.26) | (0.34) | (41.64) | (0.21) | (0.2) |
| Labor Regulation [t-1] * | -1.331*** | -0.069* | 0.068 | -0.129** | -0.014 | -3.223 | -0.648*** | 0.601*** |
| *Left* [t-1] | (0.17) | (0.04) | (0.05) | (0.05) | (0.11) | (12.33) | (0.14) | (0.14) |
| Observations | 362 | 478 | 478 | 478 | 478 | 461 | 362 | 346 |
| Adjusted $R^2$ | 0.47 | 0.84 | 0.46 | 0.8 | 0.52 | 0.18 | 0.59 | 0.53 |

\* significant at 10 percent, \*\* significant at 5 percent, \*\*\* significant at 1 percent. All results include state and time fixed effects, election dummies, and controls. Standard errors are clustered by state and are presented in parenthesis.

## Table 25: Economic Outcome, and Effectiveness of Labor Regulation: 1980-1997

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | State output | Agricultural output | Nonagricultural output | Manufacturing output | Registered manufacturing output | Unregistered manufacturing output | Workers Employed | Total Employment |
| Labor Regulation [t-1] | 0.029 | -0.003 | 0.033 | 0.009 | 0.052 | -0.031 | -0.012 | -0.015 |
| | (0.03) | (0.02) | (0.03) | (0.05) | (0.07) | (0.08) | (0.04) | (0.04) |
| *Left* [t] | -0.318* | -0.613*** | -0.122 | -0.225 | -0.248 | 0.067 | -0.25 | -0.219 |
| | (0.15) | (0.17) | (0.17) | (0.42) | (0.47) | (0.32) | (0.26) | (0.27) |
| Labor Regulation [t-1] * *Left* [t] | -0.047 | 0.094** | -0.124*** | -0.207*** | **-0.353*** | -0.061 | -0.129** | -0.128** |
| | (0.04) | (0.04) | (0.04) | (0.07) | **(0.1)** | (0.11) | (0.06) | (0.06) |
| Observations | 336 | 287 | 287 | 287 | 287 | 287 | 336 | 336 |
| Adjusted $R^2$ | 0.86 | 0.55 | 0.83 | 0.6 | 0.59 | 0.37 | 0.44 | 0.41 |
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| | Daily Employment | Workers' Wages | Income Share | Value-Added per Employee | Fixed Capital | Investment | Factories | Workers per Factory |
| Labor Regulation[t-1] | 0.039 | 0.001 | 0.009 | -0.004 | 0.026 | -5.595 | 0.01 | -0.018 |
| | (0.13) | (0.02) | (0.04) | (0.03) | (0.09) | (10.13) | (0.11) | (0.11) |
| *Left* [t] | 0.526 | 0.138 | -0.029 | 0.135 | 0.681 | 34.693 | 1.266 | -1.57 |
| | (1.25) | (0.12) | (0.36) | (0.36) | (0.48) | (91.91) | (1.72) | (1.76) |
| Labor Regulation [t-1] * *Left* [t] | -1.885*** | -0.060* | 0.047 | -0.107* | 0.117 | 1.379 | -0.784*** | 0.623*** |
| | (0.22) | (0.03) | (0.07) | (0.05) | (0.14) | (17.28) | (0.15) | (0.14) |
| Observations | 205 | 336 | 336 | 336 | 336 | 336 | 205 | 205 |
| Adjusted $R^2$ | 0.46 | 0.74 | 0.46 | 0.71 | 0.36 | 0.15 | 0.37 | 0.38 |

* significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. All results include state and time fixed effects, election dummies, and controls. Standard errors are clustered by state and presented in parenthesis.

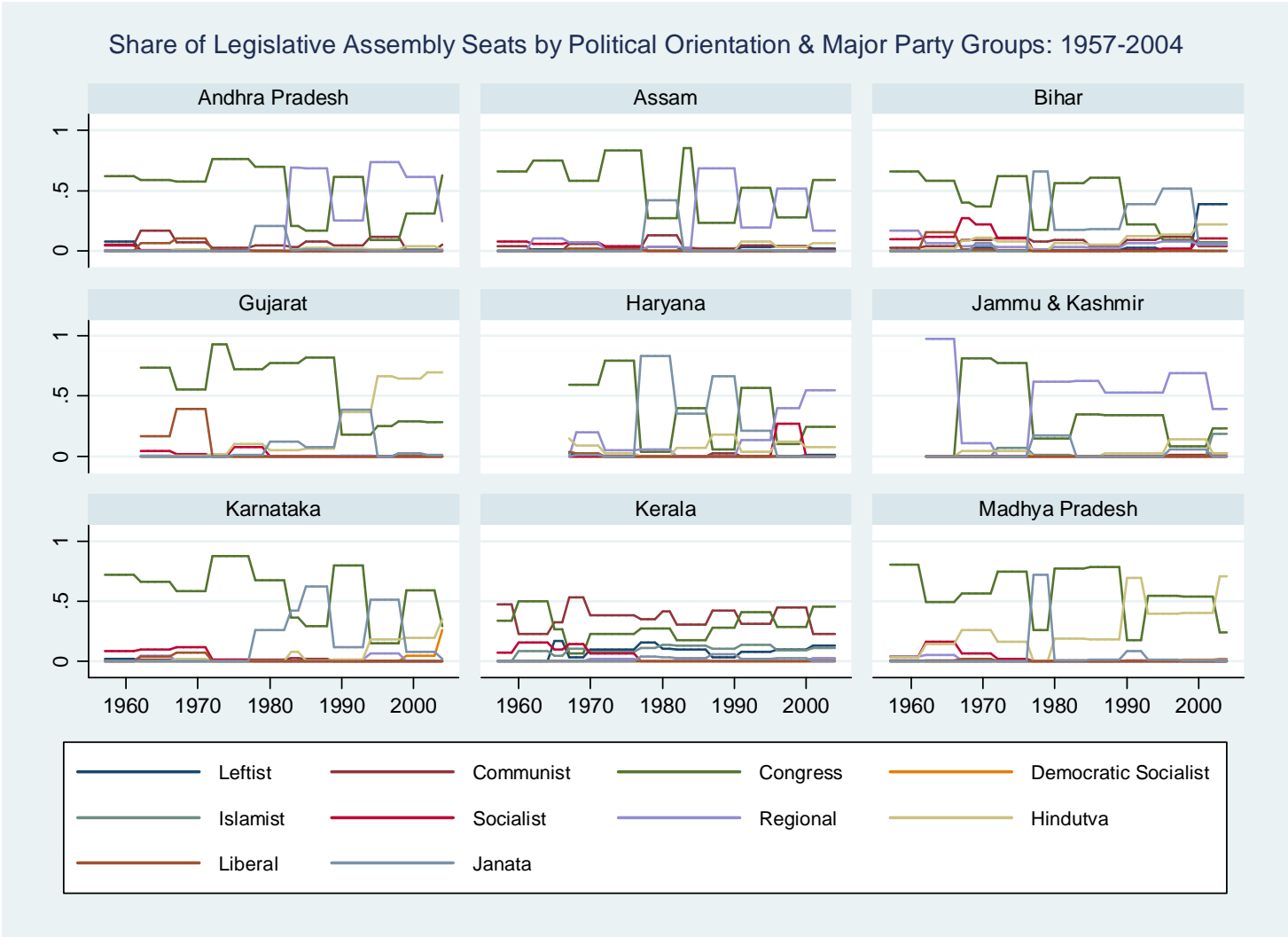## Figure 1: Number of Person-Days Lost in Disputes: 1961-2002
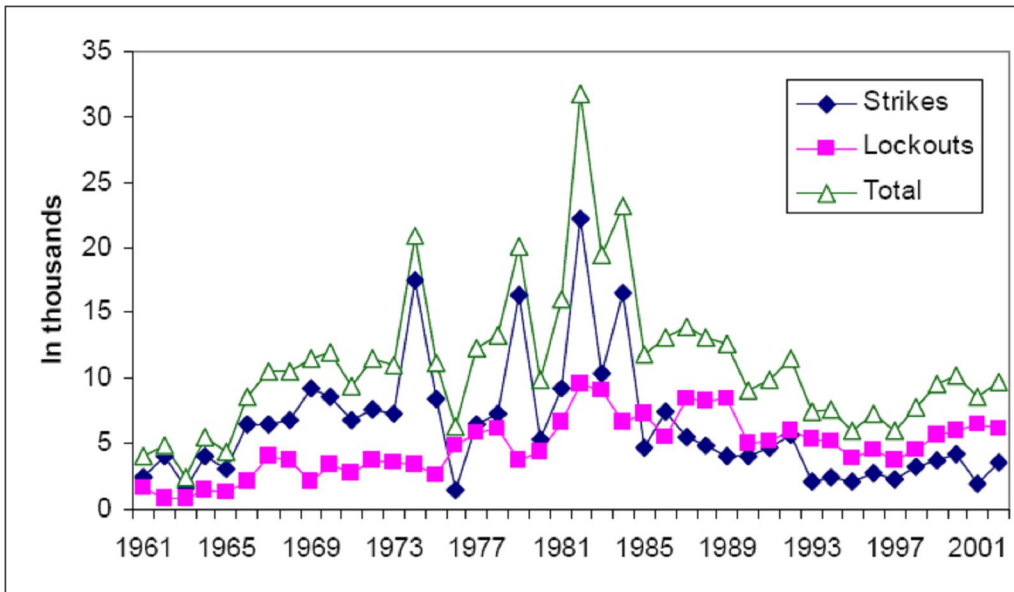


Source: Jha and Golder (2008)

## Figure 2: Share of Income to Workers
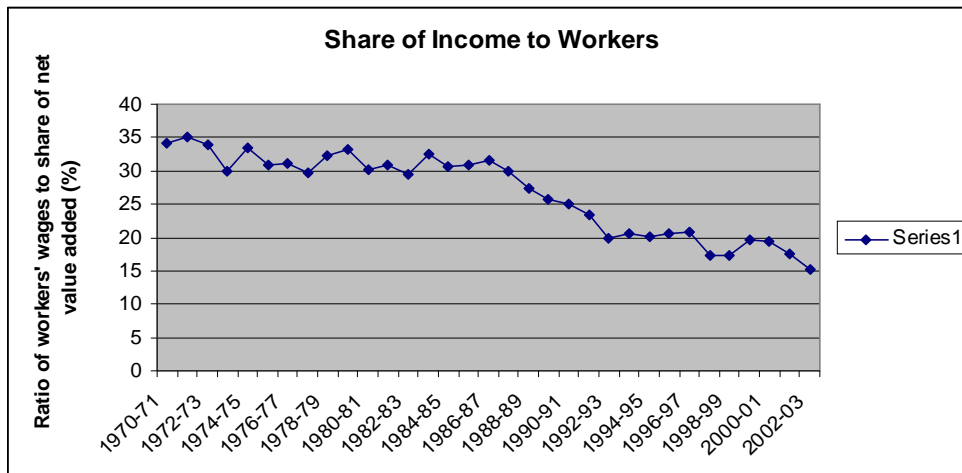


Source: Annual Survey of Industries

**Figure 3: Share of Legislative Assembly Seats by Political Orientation and Major Party Groups: 1957-2004**



Share of Legislative Assembly Seats by Political Orientation & Major Party Groups: 1957-2004

Share of Legislative Assembly Seats by Political Orientation & Major Party Groups: 1957-2004
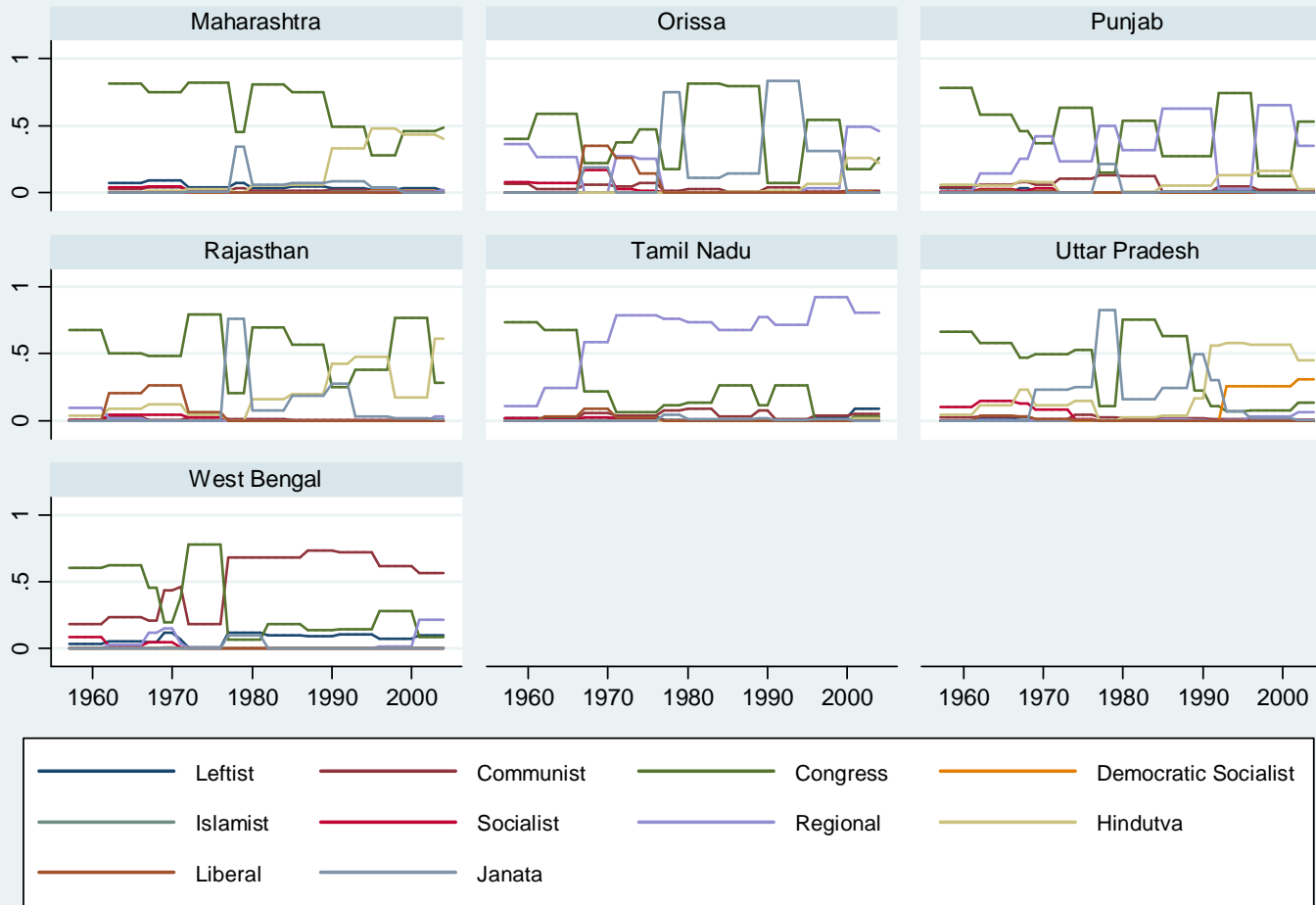
**Figure 4: Labor Regulation and Left presence in the Legislative Assemblies: 1957-2002**



Labor Regulation and Share of Left Seats in Legislative Assemblies: 1957-2002