

**IN THE GRIP OF A GREEN GIANT: HOW THE RURAL SECTOR TAMED
ORGANIZED LABOR IN INDIA**

Emmanuel Teitelbaum
Department of Political Science
The George Washington University
Old Main, 413G
1922 F Street NW
Washington, DC 20052

Phone: (202) 994-9125

Email: ejt@gwu.edu

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Bio: Emmanuel Teitelbaum is Assistant Professor of Political Science and International Affairs at the George Washington University in Washington, DC. His research has been supported by grants from the National Science Foundation, the Fulbright Foundation and the Social Science Research Council. He is currently writing a series of articles and a book on the political economy of labor in South Asia.

ABSTRACT

In the Grip of a Green Giant: How the Rural Sector Tamed Organized Labor in India

Social scientists studying rural-urban struggles have focused primarily on the issue of urban bias. The issue of *rural bias* and its potential effects on urban dwellers has received much less attention. This paper demonstrates how agrarian political mobilization of rural constituents adversely affected urban workers in India. Agrarian mobilization led to two changes in development policy that undermined the bargaining strength of organized labor. First, remunerative pricing for agricultural products biased the terms of trade in favor of agriculture, resulting in a rise in the product wage. Second, incentives for rural and small-scale industries led to increased product market competition in the manufacturing sector, generating unemployment among urban workers. Under these circumstances, unions could not strike frequently and, when they did strike, fought longer to win their demands. I support these arguments with a statistical analysis of strike frequency and duration in India from 1976-1997.

[T]he most important class conflict in the poor countries of the world today is not between labor and capital. Nor is it between foreign and national interests. It is between rural classes and urban classes.

--Michael Lipton, 1977

1. INTRODUCTION

Social scientists studying rural-urban struggles have focused primarily on the issue of urban bias—policies that privilege urban and industrial development over rural and agricultural development, and in particular on how urban elites bias the terms of trade in favor of industry to favor industrial over agricultural development (Lipton, 1978; Bates, 1981).¹ The issue of *rural bias* and its potential effects on urban dwellers has received much less attention.² This paper presents evidence from India to demonstrate how democratic mobilization of rural constituents might shift development policy in favor of rural areas, adversely affecting urban dwellers, and in particular, workers in large- and medium-scale industries.

Relative to other countries, the Indian labor movement remains one of the most vibrant in the world (Teitelbaum, 2006). Yet as in most parts of the world, the strength of organized labor in India has been on the decline in recent years. This decline is partly demonstrated by trends in industrial conflict. The frequency of industrial disputes has declined dramatically while the average duration of disputes has increased (see Figure 1), indicating the inability of union leaders to call out strikes and the need for unions to fight longer in the course of industrial disputes to win demands.

--FIGURE 1 ABOUT HERE--

At least three explanations have been offered for declining union strength in India. Some observers have pointed to the effects of state interference and state repression. For example, Rudolph and Rudolph (1987) argue that the political cooptation and domination of unions has

resulted in the continual fragmentation of the union movement, leading to increasing weakness in collective bargaining and politics. They refer to this process as ‘involution’ and to the politics it generates as an ‘involved pluralism’.³

A second explanation for the weakness of Indian labor centers on the competitive pressures introduced by economic liberalization and increased exposure to international trade (Bhowmik 1998). This argument bears a high degree of initial plausibility due to the adverse impact global competition had on unionization rates in advanced industrial democracies (Western 1997). The perception that union weakness results from trade has been magnified by the rapid rise of China and recent competition from its imports.⁴

A third potential explanation for union weakness in India pertains to the rise of identity politics in India. Since the early 1990s, the Indian political system has undergone dramatic changes. Namely, the party system has been transformed from a ‘catchall’ system dominated by the Congress party to a more fragmented, ‘cleavage-based’ system dominated by parties whose constituencies are one or a handful of caste (*jati*) or ethno-religious groups (Chhibber, 1999). Arguably, the rise of identity-politics in recent years could have undercut the salience of class-based politics and, more generally, the potential for class-based mobilization.

While these arguments appear plausible, each fails to explain the gradual downward trend in dispute frequency and rise in dispute duration seen in figure 1. Union fragmentation is an unlikely explanation because the mechanisms are unclear. While fragmentation could arguably harm the efforts of unions to present a unified front in the political arena, it is not obvious how union competition produces weakness in the collective bargaining arena. In fact, one might expect the opposite: healthy competition between unions to promote worker interests should lead to better interest representation and, thus, more frequent protests and quicker settlements.

Explanations relating to economic liberalization and the rise of identity politics suffer from the common problem of timing. India's economic reform process began in earnest in 1991 following a severe balance of payments crisis. The changes in the frequency and duration of industrial disputes witnessed in Indian manufacturing clearly precede 1991, making it difficult to point to the competitive pressures of global trade as the primary cause of union weakness.

The downward trend in dispute frequency and upward trend in duration also preceded the rise of identity politics. As Chhibber notes, the rise of caste politics began with conflicts surrounding the implementation the Mandal Commission recommendations and the government's imposition of a caste-based reservation system in 1989 (1999). Ethno-religious politics only gained widespread prominence after Hindu nationalists destroyed the Ayodhya Mosque in 1991, and the Hindu nationalist Bharatiya Janata Party (BJP) won national elections for the first time 1996. The trends highlighted in Figure 1 had played themselves out well before these developments.⁵

Challenging these conventional explanations, I suggest that the proximate cause of union weakness was due to an important, but often overlooked, transformation in Indian politics--the programmatic political mobilization of rural constituencies in the late-1970s and 1980s. This mobilization precipitated agricultural procurement policies that shifted the terms of trade in favor of agriculture and contributed to a rise in the product wage (wages relative to producer prices).⁶ Further, as the rural sector grew in political importance, legislators became more concerned with generating employment in rural areas and consequently instituted a series of tax incentives designed to stimulate production in small-scale, rural units.

Ultimately, the pressure of a rising product wage combined with new competition from small-scale and rural industries led to a decline in the profitability of large- and medium-scale

urban production units. Tax breaks and lower wage costs helped non-unionized rural and small-scale units to compete in product markets once dominated solely by unionized large- and medium-scale urban units. The crisis that followed put unions on the defensive as large- and medium-scale producers fought hard to control wage costs. Instead of freely engaging in frequent strikes, unions either found themselves restraining militancy to maintain the viability of their companies or locked out by employers who were no longer profitable and demanding wage cuts.

In the next section, I develop a general theory of industrial disputes to explain why disputes are more numerous but shorter when firms are profitable and fewer in number and longer when firms are unprofitable. Specifically, I argue that to the union's need to attract members through the strategic use of the strike weapon explains this pattern. In section 3, I discuss the rural political mobilization in India that occurred during the late 1970s and 1980s, and show how this mobilization affected development policy and the structure of production. In section 4, I explain how these policy changes affected labor and present statistical models to test my hypothesis about the relationship between rural bias and the declining bargaining power of organized labor.

2. TAKING MUSCLE POWER SERIOUSLY: A THEORY OF INDUSTRIAL DISPUTES

A theory of industrial disputes that explains both the frequency and duration of disputes has long remained elusive to students of union behavior. In this section, I argue that we can understand the consistently observed patterns of a pro-cyclical rise in dispute frequency and a counter-cyclical rise in strike duration by examining the interests of unions in calling out strikes and the interests of employers in settling disputes. My theory comports with Hicks' (1963) intuition that strikes are often a show of force by unions, but in contrast to Hicks, I argue that

displays of force by unions are not “mistakes.” Instead, displays of force help unions to expand membership and generate monopoly rents in the labor market.

Econometric studies have established a relationship between economic cycles and patterns of strike activity. Most of these studies focus on a pro-cyclical rise in strike frequency. Using the Burns-Mitchell-NBER tools for business cycle analysis to analyze strike data, Jurkat and Jurkat (1949) uncovered strong evidence of procyclical variations in strike activity in the United States between 1915 and 1938. This analysis was extended by Rees (1952), Weintraub (1966) and Kennan (1986) to cover the period 1915-1986. Pigou (1927), Griffin (1939), Yoder (1940), and Knowles (1952) also pointed to evidence of procyclical variation in strike frequency in the United States and Britain. There is also evidence of a countercyclical rise in strike duration. Kennan (1985) finds a statistically significant negative relationship between strike duration and levels of industrial production.

The key to explaining the patterns of a procyclical rise in strike frequency and a countercyclical rise in strike duration lies in the fact that unions have two separate motivations for calling out strikes. The first generally agreed upon motivation is to secure a greater share of the value added produced by a firm. A second motivation often overlooked by scholars is to maximize union membership. As Golden (1997) notes, one primary motivation for strikes is the retention of key union members when firms cut the size of the workforce during economic downturns.

Additionally, unions engage in strikes to *expand* union membership through a show of force. Hicks (1963) first raised the possibility that unions use strikes more for a display of “muscle power” than a tool for extracting higher wages from employers. Hicks was trying to suggest an escape from the paradox he is famous for demonstrating: since strikes decrease the

size of the economic pie in a given firm, if there is a predicted outcome of a strike, both parties have an incentive to agree to this outcome in advance and avoid the economically damaging strike.

Citing this paradox, Hicks argued that strikes are mistakes from a purely economic perspective and a masculine show of force by the union leader is the irrational non-economic reason that unions strike. Yet, if we look beyond the level of the firm, there may be a very good economic explanation for “muscle power,” namely the expansion of union membership.

As Farber (1986) notes, the conception of unions in most economic research is that “unions are fundamentally organizations that seek to create or capture monopoly rents available in an industry” (Farber 1986, p. 1044). Unions can capture rents by exploiting existing product market imperfections or regulations in an industry. Unions can also create rents by monopolizing the sale of labor when they are able to organize a significant portion of the labor force. Thus, to the extent that a demonstration of a show of force helps to attract and retain union members, the use of “muscle power” makes perfect sense since it helps unions in the development of monopoly power in the market.

In order for strikes to be effective as a show of force, the union needs to win a substantial demand. Unions are most likely to win substantial demands in economic upturns, when the demand for a firm’s products is high and the firm will settle quickly to avoid losing valuable orders and market share. Thus, in economic upturns, unions can maximize their share of the value added and reap the reputational/membership benefits of successful strikes by going on short strikes. Further, we would expect unions to engage in short strikes in economic upturns *even if the firm agrees to the wage demand prior to the strike*, because the membership gain associated with a show of force exceeds the loss of revenues from a brief strike.

In economic downturns, the demand for the firm's products will be low and the firm will have less incentive to settle. Since strikes will take longer to win in an economic downturn, they become more expensive for unions and consequently unions will engage in fewer short, "frivolous" strikes for a show of force. Instead, strikes in an economic downturn are likely to be defensive in nature and protracted, and are more likely to be over wage cuts than wage hikes.

This theory of industrial disputes supports three predictions of union and firm behavior following the expiration of a collective agreement:

Prediction 1. When a firm is profitable, the union provokes a short dispute as a show of force.

Prediction 2. When a firm is unprofitable, the firm provokes a long dispute over a wage cut.

Prediction 3. When a firm is just breaking even, a dispute will not occur.

These predictions help to explain the procyclical rise in dispute frequency and countercyclical rise in dispute duration observed in econometric studies of industrial disputes in the United States and Britain. They should also apply to other contexts. In India, for instance, a fall in strike frequency and rise in strike duration have accompanied changes in the structure of production that have reduced the profitability of employers in medium and large-scale sector units. I provide a detailed outline of these structural changes in the next section and argue that they originated from the political mobilization of India's agrarian sector. I then demonstrate the correlation between these structural shifts, a decreasing trend in dispute frequency, and an upward trend in dispute duration.

3. FROM URBAN TO RURAL BIAS IN INDIA'S DEVELOPMENT POLICY

The populist mobilization of India's rural voters and the transition from urban to rural bias in India's agricultural and industrial development policies has been clearly documented. Following Independence in 1947, with the support of Jawaharlal Nehru, the logic of urban bias

prevailed. Because he was primarily concerned with rapid industrial development that required heavy state investments into industry and infrastructure that India could only pursue in the absence of heavy spending on the agrarian sector, Nehru advocated tenure reform to increase agricultural productivity in place of expensive agricultural inputs and price subsidies that would eventually bring about India's Green Revolution.⁷

The government directed the vast majority of industrial investment towards medium- and large-scale units in urban areas, meaning that it effectively reserved high paying jobs in industry for urban dwellers. Nehru's industrial policy ran starkly counter to the Gandhian ideal, which was to foster a more democratic distribution of investment through support for labor-intensive small-scale sector industry in the countryside.

After Nehru's death, agricultural and industrial development policies underwent substantial shifts away from Nehruvian principles. Agricultural development policy shifted almost immediately towards stimulation of agricultural growth through higher procurement prices and agricultural subsidies. Slowly, industrial development policy began to privilege small-scale rural production over large- and medium-scale urban production.

Shifts toward rural bias in agricultural development policy

Following Nehru's death, C. Subramaniam, India's powerful Food and Agricultural Minister between 1964 and 1966 pushed India's new Prime Minister, Lal Bahadur Shastri, to implement policies which would stimulate growth in the agrarian sector.⁸ These policies included the procurement of food grains at above-market prices by the Food Corporation of India's (FCI) for the public distribution system. Since the FCI purchases approximately 10 percent of food grains every year (Mooij, 1999), FCI purchases at above-market rates constitute an artificial stimulus for food grain prices and a production incentive for farmers. Combined

with subsidies for fertilizers, these price incentives are credited for India's Green Revolution during the late 1960s.

This initial shift in food price policy was largely at the bureaucratic level and involved debates among technocrats. Producer prices eventually faded as a bureaucratic imperative in the early 1970s, but subsequently Indira Gandhi championed the agrarian cause in a much more politicized manner in the mid and late 1970s. Indira's rural populism was followed by the even more potent mobilization of Chowdhry Charan Singh's Janata Party.⁹ Singh was able to capitalize on Gandhi's urban political base by arguing that it compromised her dedication to the concerns of the rural sector, and his movement matured and gained momentum at the state level through the 1980s.

As Varshney (1998) notes, Singh's mobilization made the producer price issue a fixed part of the political landscape that no party could ignore. Although the dominance of the Janata Party in the national parliament was brief, food grains were consistently procured at above market rates from the 1980s onwards because producer prices became an essentially irrevocable privilege for farmers. The extent of this privilege is now such that even "deficit states" which take more food from the central distribution system than they contribute (and so have an interest in low food prices) demand price increases for their agricultural products (Varshney, 1998: 85).

As one would expect, absent a similar stimulus for manufactured products, over a period of two decades the artificial stimulus to food prices substantially influenced the urban-rural terms of trade. The best measure of the terms of trade for time series analysis is the gross terms of trade which is calculated as the ratio of agriculture and manufacturing price deflators:¹⁰

$$TT = \frac{\frac{GDP_{ag}(CURRENT)}{GDP_{ag}(CONSTANT)}}{\frac{GDP_{mfg}(CURRENT)}{GDP_{mfg}(CONSTANT)}} \quad (9)$$

Figure 2 displays the gross terms of trade from the late 1970s through the late 1990s. From the early 1980s onwards, the gross terms of trade show a consistent trend in the terms of trade toward agriculture.¹¹

--FIGURE 2 ABOUT HERE--

The shift toward rural bias in industrial policy

The Fourth Five-Year Plan (1969-74) marked a watershed in Indian industrial policy. In it, the Planning Commission stressed the “competitive rather than complementary aspects of the development of the small-scale and the large-scale sectors” and advocated a set of financial incentives and protections for small-scale and rural industries designed to increase the regional dispersal of labor-intensive economic growth (Ahluwalia 1998: 265). Members of the planning commission believed that targeting the small-scale sector would boost industrial development in rural areas because the average rural entrepreneur has only a very small amount of resources to invest. Thus, the planning commission viewed the goals of regional dispersal of growth and growth of the small-scale sector as one-and-the-same.¹²

The incentives provided to small-scale sector industries included subsidized loans, preferment in public procurement, but most importantly, reservations and exemptions from sales and excise taxes. Starting with a handful of reservations in the late 1960s, the number of products reserved for exclusive production by small-scale sector industries grew to almost 900 by the 1990s (Joshi and Little 1996, 200).

Additionally, to ensure the growth of small-scale industries (SSIs) in rural areas, the Government of India (GOI) began using the industrial licensing system to restrict the expansion of large- and medium-scale units in urban areas and favor the growth of production in industrially “backward” districts. Finally, the GOI offered tax exemptions for companies setting

up production units (including medium- and large-scale units) in “backward” or “no-industry” districts and invested in special economic zones in rural areas (Ahluwalia, 1998).

These incentives were highly successful in transforming the structure of production in India’s manufacturing sector. Figure 3 illustrates trends in the growth of small-scale industry. It charts an index of growth in industrial output from small-scale units, which climbs from .35 in 1974 to almost .60 in 1996. This index is the ratio of total output produced in SSI units to total output in the registered manufacturing sector. Figure 3 also displays the annual growth rates of SSI output relative to growth in output of the registered manufacturing sector. SSI growth rates were markedly higher than those of registered manufacturing during this period.

--FIGURE 3 ABOUT HERE—

Some evidence also suggests that these incentives ultimately led to a movement of overall productive capacity from rural to urban areas. Figure 4 displays trends in the percentage of total investment, output, and employment in rural areas, which are available in the Annual Survey of Industries from 1987 onward. As Figure 4 indicates, there has been a clear upward trend in the percentage fixed capital investment, number of factories, value of output produced, net value added, workers employed and wages paid to workers in the rural areas during the period for which the data are available.

--FIGURE 4 ABOUT HERE—

4. THE EFFECTS OF RURAL BIAS ON ORGANIZED LABOR

The changes in industrial and agricultural development policy outlined above adversely affected the fortunes of the manufacturing sector and with it those of organized labor. Diagram 1 identifies the precise chain of causal relationships linking rural political mobilization to union protest behavior in the industrial relations arena. As explained in the previous section, rural

political mobilization leads to two sets of pro-rural development policies—remunerative pricing for agricultural products and incentives designed to shift industrial production to the small-scale and rural sectors. Both sets of policies produce higher levels of unemployment among workers in the manufacturing sector. The increased production capacity of SSI and rural units resulting from incentives to SSI and rural sectors produces unemployment both directly by generating greater competition in product markets and indirectly by putting upward pressure on the product wage (wages deflated by producer prices). The increased terms of trade to agriculture resulting from remunerative pricing affects unemployment only indirectly through the product wage. Rising unemployment, in turn, decreases the bargaining leverage of unions, leading to shorter and less frequent strikes. I provide a more detailed discussion of these relationships below.

--DIAGRAM 1 ABOUT HERE--

The relationship between rural bias and the product wage

The product wage measures the movement of wages relative to producer prices. It is defined as the total wage bill divided by the number of production worker hours (or days) deflated by the sectoral producer price. A rising product wage indicates that producer prices are not keeping pace with the rising costs of labor. Conversely, a declining product wage indicates that producer prices are rising faster than the cost of labor. Assuming a constant rate of investment and no increases in productivity, a rising product wage will reduce company profits.

Movements in the product wage can differ from those of real wage, which deflates wages by a cost of living index. The product wage can rise as real wages fall if inflation of consumer prices outpaces inflation of producer prices and vice versa. As I will show, the effects of the product wage and real wage on worker protest are also distinct. From the perspective of union

bargaining power, we are more interested in the effects of the product wage because a higher product wage has more impact on the employer's ability to pay a higher wage than the real wage.

The effects of the terms of trade on the product wage

The agriculture-industry terms of trade have implications for the product wage in the manufacturing sector and thus the bargaining power of organized labor. All things being equal, rising food prices generate inflation, thereby placing upward pressure on wages. If the terms of trade are going in favor of agriculture, wages (in tandem with food prices) will grow faster than the prices of manufactured goods and the product wage will rise. On the other hand, if the terms of trade are going in favor of industry, the prices of manufactured goods will grow faster than wages and the product wage will fall (ILO, 1996: Chapter 2).

In India, the relationship between the terms of trade and the product wage is likely to be magnified by two factors. First, a large percentage of wage agreements are tied to the Consumer Price Index (CPI) through cost of living adjustments (COLAs). Additionally, as in most developing countries, food items constitute a large portion of the basket of goods used to calculate the CPI. As Figure 2 demonstrates, the trends in gross terms of trade are indeed closely related. There is a close correspondence between the upward trend in the product wage and the upward trend in terms of trade from 1975 to 1996. The turning points are similar and the correlation coefficient between the two variables is .89.

The effects of competition from small-scale industry on the product wage

The growth in the small-scale sector has also had a large impact on the product wage in India. Because the vast majority of SSI units are not unionized and many are located in rural areas where the cost of living is low, small-scale sector units had much lower wage bills in the 1980s. As we said earlier, small-scale units also benefited enormously from tax breaks,

subsidies, and restrictions on the growth of large and medium-scale units through industrial licensing and production quotas. All of these benefits reduced the cost of production SSI units, which resulted in enormous competition for large- and medium-scale units.

The competition from small-scale units led to a marked decline in the pricing power of manufactured products. Figure 3 displays trends in the growth of the productive capacities of the small-scale sector are inversely related to the pricing power of manufacturing. Here, the pricing power of manufacturing is measured by a gross terms of trade index of manufactured products relative to all products. It is clear from Figure 3 that a marked decline in the pricing power of manufacturing accompanied the rise in SSI output. The turning points of the two variables are similar and the correlation coefficient is $-.91$.

The relationship between rural bias and unemployment

Ultimately, a rising product wage and incentives to small-scale and rural industries had a significant impact on employment in the manufacturing sector. The rising product wage and shift in production to rural and small-scale sector industries led to a large rise in the level of unemployment among workers in the manufacturing sector during the 1980s as workers in large and medium-scale urban units were thrown out of work. The number of unemployed workers as a percentage of employed workers in manufacturing more than doubled in the manufacturing sector during this period, rising from 10% in 1979 to 24% in 1991 (see Figure 5). This trend continued during the 1990's, although at a slower rate, with the percentage rising from 24% in 1991 to 30% in 1997.

--FIGURE 5 ABOUT HERE--

In one sense, this is surprising since productivity growth was quite substantial during 1980s relative to earlier periods. According to Unel's (2003) calculations, the average annual

increase in labor productivity was 6.3 percent during the period 1979-1990—approximately three times higher than the growth rate of labor productivity in the 1960s and 70s. Additionally, the growth rate of the capital-output ratio was lower in the 1980s (1 percent) than in the 1960s and 70s (2.3 percent), implying a higher growth rate in capital efficiency. Total factor productivity growth was also higher in the 1980s (between 1.8 and 3.2 percent) than in the 1970s (approximately -.1 percent). One might expect that these gains in productivity would have offset the rise in the product wage, thereby saving jobs.

However, the productivity gains were in large measure due to an overall restructuring of industry in response to greater product-market competition, which involved both a higher level of investment in capital and technology and a shedding of labor. This process is reflected in the rapid increase in capital intensity during the 1980s. From 1979 to 1990, the capital-labor ratio increased at an average annual rate of 7.3 percent, one percentage point faster than the growth rate of labor productivity during the same period (Unel, 2003).

This restructuring process is demonstrated by trends in value added and profits displayed in Figure 6. The bars in Figure 6 display trends in the share of net value added accruing to capital, labor and finance (rent and interest paid on invested capital). Despite the increases in productivity just discussed, capital's share of net value was declining during most of the 1980s, falling from about 22 percent in 1979 to about 12 percent in 1987. The primary culprit was the share of net value added accruing to rent and interest, which increased from about 22 percent in 1979 to about 32 percent in 1987. This suggests that companies were using a higher share of the net value added to finance their investments in capital and technology. The line in Figure 6 represents the trend in profits in expressed in constant 1993-94 rupees. Profits stagnated during most of the 1980s, hovering at around the 100 billion rupee mark until 1988. Finally, labor's

share of value added held constant until profitability returned to the manufacturing sector. Labor's share of value added declined from 56 in 1987 to 39 percent in 1997.

--FIGURE 6 ABOUT HERE--

These trends are consistent with the argument that manufacturing companies were under strain due to new competition in the product market. The productivity gains witnessed in the 1980s were more a response to that competition than a resource for preserving jobs despite that competition. In order to remain competitive, manufacturing companies were spending a larger share of net value added on new investments. At the same time, companies were shedding excess labor and shifting production to the low-wage rural and SSI sectors; thus, when the manufacturing sector returned to profitability in the late 1980s, it was at the expense of labor.

Statistical models of strike activity

In this section, I present statistical models of industrial dispute frequency and duration to support the argument that the economic changes outlined above led to the increasing defensiveness of organized labor in the industrial relations arena. These models test the hypothesis that trends in strike frequency and duration are related to rising trends in the product wage, SSI output and unemployment. I present national-level time series models of dispute frequency and duration as well as pooled cross section time series analyses of dispute frequency and duration in Indian states. Both sets of models are of the time period 1976-1997.¹³

National Time Series Models

Table 1 presents the results of national-level time series models of strike frequency and strike duration of the form,

$$\begin{aligned}
 \text{FREQUENCY} = & \beta_0 + \beta_1 \text{INDVAR}_{t-1} + \beta_2 \text{IMPORTS}_{t-1} + \beta_3 \text{RWAGE}_{t-1} + \beta_4 \text{TOTALOUTPUT}_{t-1} \\
 & + \beta_5 \text{FRAGMENTATION} + \beta_6 \text{DENSITY} + \varepsilon
 \end{aligned}
 \tag{12}$$

and

$$DURATION = \beta_0 + \beta_1 INDVAR_{t-1} + \beta_2 IMPORTS_{t-1} + \beta_3 RWAGE_{t-1} + \beta_4 TOTALOUTPUT_{t-1} + \beta_5 FRAGMENTATION + \beta_6 DENSITY + \beta_7 1982 + \varepsilon \quad (13)$$

where $INDVAR_{t-1}$ is one of the three lagged independent variables of interest ($UNEMPLOYMENT_{t-1}$, $PWAGE_{t-1}$, $SSIOUTPUT_{t-1}$), $IMPORTS_{t-1}$ is the lagged value of imports as a percentage of Gross Domestic Product, $RWAGE_{t-1}$ is the lagged level of real wages, $TOTALOUTPUT_{t-1}$ is the lagged level of total industrial output, $FRAGMENTATION$ is the number of registered unions, and $DENSITY$ is union density.¹⁴

--TABLE 1 ABOUT HERE--

1982 is a dummy variable for the year 1982. It is included in the national duration model to control for effects of the exceptionally long Bombay textile strike, which otherwise skews the results of the model. Datta Samant, a union leader with a reputation for exceptional militancy, led the Bombay textile strike, which involved 250,000 textile workers and lasted for more than a year (Lakha 2002).

$RWAGE_{t-1}$ and $TOTALOUTPUT_{t-1}$ control for the impact of general economic conditions on the strength of organized labor. $IMPORTS_{t-1}$ tests the alternative hypothesis that exposure to pressures from global competition after economic liberalization in 1991 are the primary cause of the defensiveness of organized labor. If this argument were true, we would expect $IMPORTS_{t-1}$ to be negatively correlated with $FREQUENCY$ and positively correlated with $DURATION$.

$FRAGMENTATION$ and $DENSITY$ test the alternative hypothesis that union defensiveness is due to a declining institutional strength and cohesiveness of the union movement. Union fragmentation is measured by the number of unions submitting returns¹⁵ while union density is the number of unionized workers as a percentage of paid employees.¹⁶ If the argument about institutional weakness is correct, we would expect $FRAGMENTATION$ to be negatively correlated with $FREQUENCY$ and positively correlated with $DURATION$. We

would expect DENSITY to be positively associated with FREQUENCY and negatively correlated with DURATION.

Except for the institutional variables FRAGMENTATION and DENSITY, I test the models with lagged rather than current effects of each independent variable to account for the time it takes for structural changes to affect the behavior of unions and employers.

The results of the national time-series models support the hypotheses advanced in this paper. UNEMPLOYMENT_{t-1} and SSIOUTPUT_{t-1} are statistically significant in both the frequency and duration models. They are negatively correlated with FREQUENCY and positively correlated with DURATION. The effect of PWAGE_{t-1} is statistically significant in the frequency model and its sign is in the predicted positive direction in the duration model.¹⁷

The models provide little evidence in favor of the argument that liberalization and/or globalization led to union weakness. The level of imports displayed a statistically significant correlation with industrial disputes in just one of the frequency models. This suggests that the initial downward trend in strike frequency and rise in duration is better explained by *domestic* shifts in production and a rising product wage than by openness to international trade. The national time series models also provide no evidence in favor of the institutional weakness hypothesis since DENSITY and FRAGMENTATION were not significant in any of the models.

Pooled cross-section time-series analysis of 15 states

Pooled cross-section time-series (CSTS) models of industrial disputes in fifteen Indian states provide further support for the hypothesis that rural bias led to union weakness in the 1980s. I estimate these models with panel corrected standard errors (PCSE) as suggested by Beck and Katz (1995). The state-level models are of the form

$$FREQUENCY_{st} = \beta_0 + INDVAR_{st-1} + \beta_2 RWAGE_{st-1} + \beta_3 TOTALOUTPUT_{st-1} + \beta_5 \dots \beta_X STATE\ INDICATORS + \varepsilon \quad (14)$$

and

$$DURATION_{st} = \beta_0 + \beta_1 INDVAR_{st-1} + \beta_2 RWAGE_{st-1} + \beta_3 TOTALOUTPUT_{st-1} + MR1982 + \beta_5 \dots \beta_X STATE INDICATORS + \varepsilon \quad (15)$$

In these models, the dependent variables are measures of dispute frequency and duration in the entirety of the organized sector rather than just manufacturing as in the national model. $EMPLOYMENT_{t-1}$ is the total per capita number of workers employed in the industrial sector and serves as a proxy for unemployment in the manufacturing sector for which no data available at the state level. In the state-level analysis, $SSIOUTPUT_{t-1}$ is measured as the level of per capita output in the unregistered manufacturing sector. The unregistered sector includes all firms with fewer than 10 workers having power or firms with 20 or fewer workers having no power. This serves as an approximation for SSI output, for which state-level data is not available. MR1982 is an indicator variable for the state of Maharashtra in 1982 to control for the effects of the Bombay textile strike. The models include state indicator variables to control for any fixed case effects and allow the state of West Bengal to serve as the reference category. The results of these models are presented in Table 2.¹⁸

--TABLE 2 ABOUT HERE--

The results of the CSTS model of strike frequency and duration provide further support for the hypothesized link between rural bias and industrial conflict. The results of the frequency models provide particularly strong support in favor of the theory that employment, movements in the product wage and small-scale industry output are related to levels strike frequency. Higher levels of employment in organized industry ($EMPLOYMENT_{t-1}$) are related to higher levels of strike frequency, while a higher product wage ($PWAGE_{t-1}$) and higher levels of small-scale industry output ($SSIOUTPUT_{t-1}$) correlate with lower levels of strike frequency. The relationships are statistically significant at the .01 level.

The results of the duration models are more mixed. Employment in industry has the expected negative effect on strike duration. However, the product wage and small-scale industry output display no statistically significant relationship with strike duration. This may be due to the tendency of particularly large strikes to cause spikes in average duration in particular states at particular times. A larger sample and/or log transformations of the dependent variable might help to smooth these aberrations and determine whether the product wage and small-scale output relate to protest duration. Further analysis is required to explore these options.

6. CONCLUSION

Many observers suggest that the recent defensiveness of organized labor in India is due either to the effects of globalization, economic reform, or the institutional weakness and fragmentation of the Indian labor movement. The results presented in this paper suggest that this defensiveness is in fact due to domestic changes in the structure of production. In particular, I have argued that agrarian mobilization and pro-rural policies led to a shift in the terms of trade towards agriculture, a related rise in the product wage, and a shift in the flow of investment away from urban medium and large-scale units to rural small-scale industries. These developments led to a crisis in the profitability of the organized manufacturing sector that stiffened employer resistance to wage demands, making strikes longer and less frequent.

This set of dynamics has broader implications for the political economy of development. Most of the rural-urban struggles literature focuses on inequalities that favor urban areas. Thus, the literature pertaining to rural-urban struggles has been aptly coined the “urban bias” literature. The experience of India is valuable in showing how rural populist mobilization can shift developmental priorities away from urban centers in favor of the countryside and how such a tremendous shift in developmental priorities affects urban dwellers.

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¹ Urban bias, however, is theoretically not limited to artificially low food prices and includes, among other things, the heavily biased level of state investment in urban as opposed to rural areas. For an argument that the urban/rural bias literature has relied to heavily on price data, Lipton (1993).

² Exceptions include two studies on East and Southeast Asia, where it has been found countries practiced rural bias as they became wealthier (Moore 1993; Timmer 1993).

³ “We use involution as a metaphor for the decline or loss of vigor that results when a viable intensively elaborated pattern of development is extensively elaborated by continuous replication of units. Such replication not only weakens each successive unit but also weakens all units collectively and thus the activity as a whole. In this sense, more becomes less. Involution is thus a regressive, debilitating process that results in decreasing effectiveness or entropy, the reverse of evolution” (Rudolph and Rudolph 1987, 257).

⁴ Reported by employers and union leaders in interviews conducted during the 2002-2003 academic year.

⁵ Also, Varshney (2002) suggests that unions often check the rise of identity politics by fostering a sense of civic community and providing social networks through which ethnic groups can resolve their grievances. If Varshney is correct, unionized workers should be less susceptible to ethno-nationalist appeals than the average voter.

⁶ The product wage is defined as the total wage bill divided by the number of production worker hours (or days) deflated by the sectoral producer price. I discuss the merits of this measure of inflation in greater detail below.

⁷ For a detailed discussion of Nehruvian tenure reform policy, see Herring (1983).

⁸ The most comprehensive analysis of the politics of rural-urban terms of trade in India is Varshney (1998).

⁹ The ‘Janata Party’ was in actuality a coalition of smaller agrarian-based parties.

¹⁰ The gross terms of trade index (GTT) is superior to indices based on surveys or baskets of goods (barter terms of trade (BTT) indices) because it measures the returns to investment and corrects for productivity increases in both sectors. Additionally, the GTT index is a broader and more consistently accurate indicator of terms of trade than BTT indices. This is because a) the baskets of goods, commodity weights, and groups surveyed for BTT indices change or become less representative of the economy over time and b) the quality of goods produced in a basket of goods is not uniform across firms. Nonetheless, in the Indian context, the movements and turning points of the gross and barter terms of trade indices closely mirror one another (Hazell, Misra, and Hojatti, 1995).

¹¹ Varshney (1998: 149-152) argues that there is no evidence suggesting that the terms of trade trended in favor of agriculture as a result of rural political mobilization and relies on the ratio of prices of manufactured products to those of agricultural products in the Wholesale Price Index (a crude barter terms of trade (BTT) index) to support this conclusion. A better BTT index, published by the Department of Economics and Statistics (DES), is lagged four years to account for missing data and shows a rise in favor agriculture during the 1980s and 1990s.

¹² The belief that incentives to small-scale industry would occur solely or even primarily in rural areas was an article of faith based on the Gandhian ideal of rural development. In fact, a slight majority of small-scale sector production occurs in urban areas. According to the Ministry of Small Scale Industry's 2000 sample survey, 53 percent of small-scale sector units operated in areas designated as 'urban' and 47 percent in areas designated as 'rural'. Yet, as I demonstrate below, the expansion of the productive capacity in the small-scale sector has the effect of driving up competition in product markets regardless of the actual location of the small-scale units.

¹³ This time period was chosen for theoretical and practical reasons. Theoretically, it makes sense to begin the analysis before widespread agrarian mobilization in the late 1970s and to end it after the government began reversing many of the subsidies and tax breaks to rural industries in the 1990s. Practically, data limitations made a longer period of analysis problematic. The real wage data are available from 1976. At the time of publication, the trade union fragmentation and density data are only available until 1997.

¹⁴ In each set of models, the dependent variable was regressed separately on $UNEMPLOYMENT_{t-1}$, $PWAGE_{t-1}$, and $SSIOUTPUT_{t-1}$ because VIF scores indicated a high degree of collinearity.

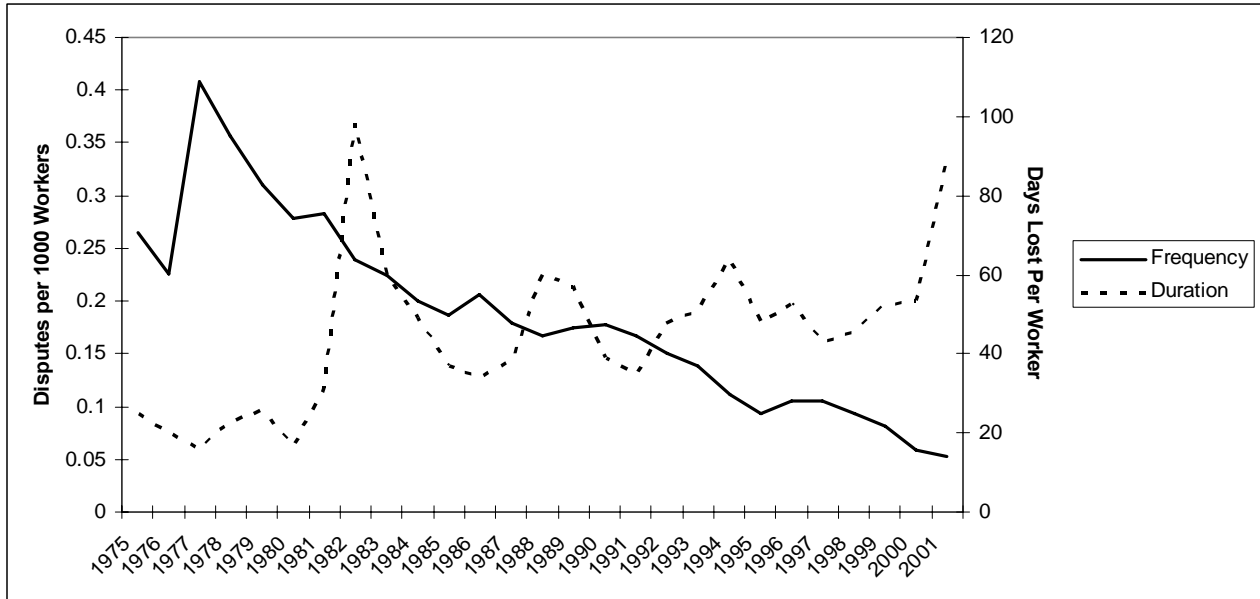
¹⁵ Some authors use the number of registered unions as a measure of union proliferation. This is a poor measure because many of the unions on the registry are inactive.

¹⁶ The union density data are prone to inflation because they are based on self-reported membership by the unions, which are not strictly audited by the government, and should therefore be viewed with caution.

¹⁷ I tested each model for serial correlation using a Durbin-Watson test and by running the regressions with a Prais-Winston estimator. The Durbin-Watson tests for each model indicated no evidence of serial correlation. Running the regressions with a Prais-Winston estimator did not substantially change the results.

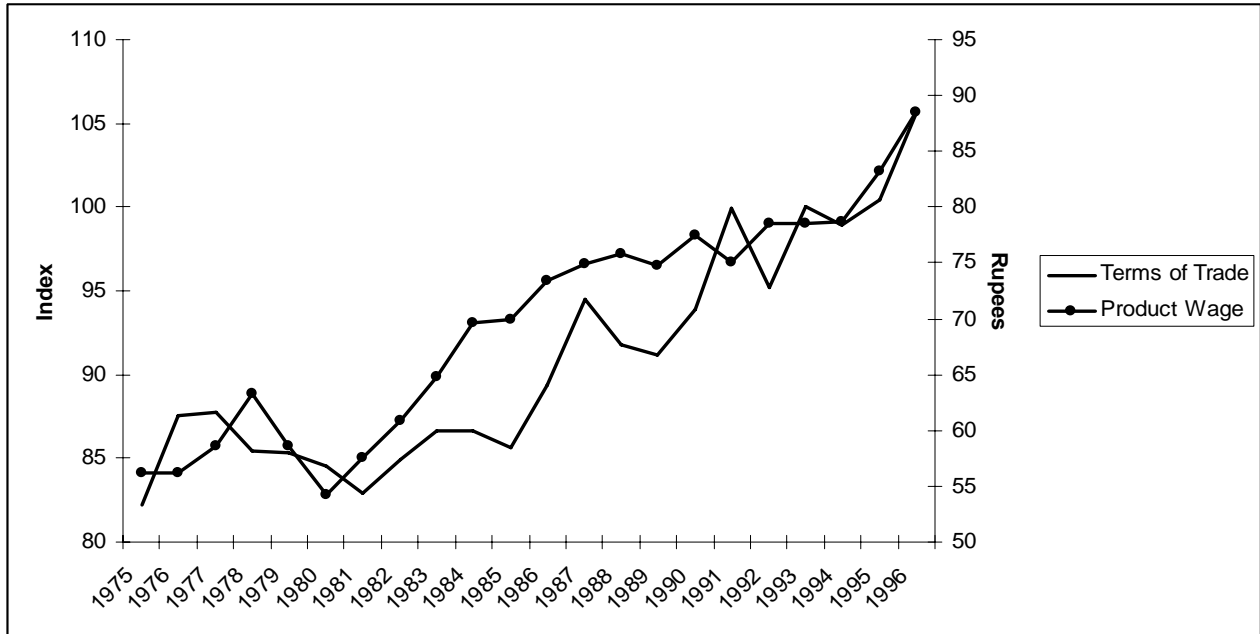
¹⁸ State-level data for import growth is not available while the data for fragmentation and union density are highly inconsistent across states. Thus, these variables were not included in the analysis.

Figure 1: Trends in Frequency and Duration of Industrial Disputes in India's Manufacturing Sector



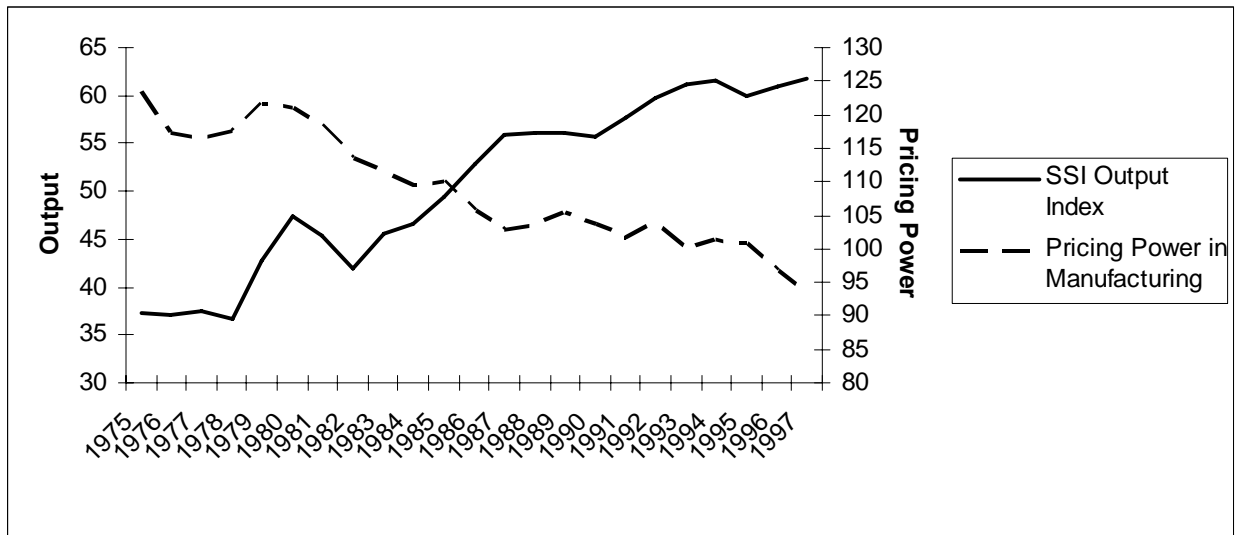
Dispute frequency is the number of industrial disputes per 1000 workers. *Dispute duration* is the number of workdays lost per striking (or locked out) worker. National-level data on the annual number of disputes, workdays lost, and number of workers involved in disputes in the manufacturing sector are available in the Laborsta database, published online by the International Labour Organization. National-level data on the number of workers in manufacturing are taken from the Annual Survey of Industries, Central Statistical Organisation, Department of Statistics, Ministry of Planning and Programme Implementation, Government of India.

Figure 2: Trends in the Terms of Trade and the Product Wage



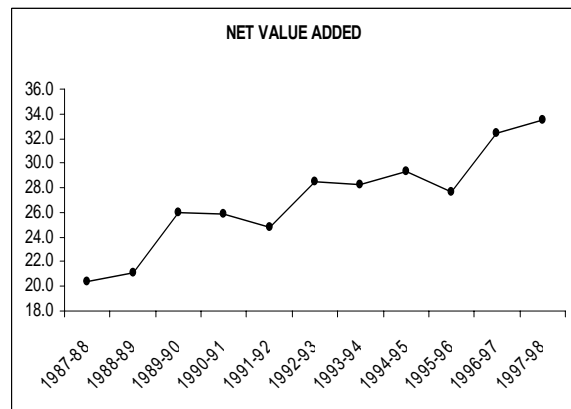
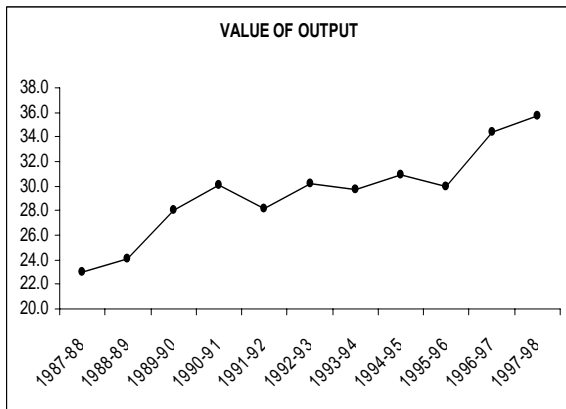
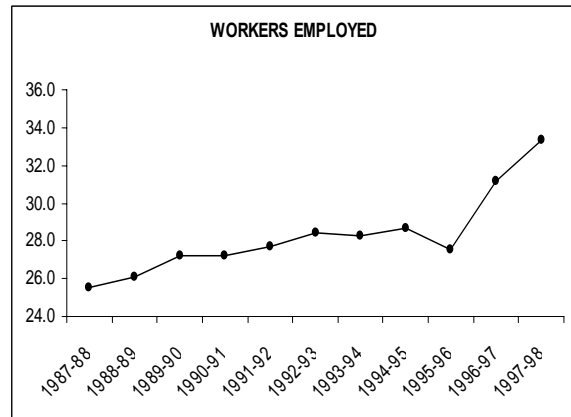
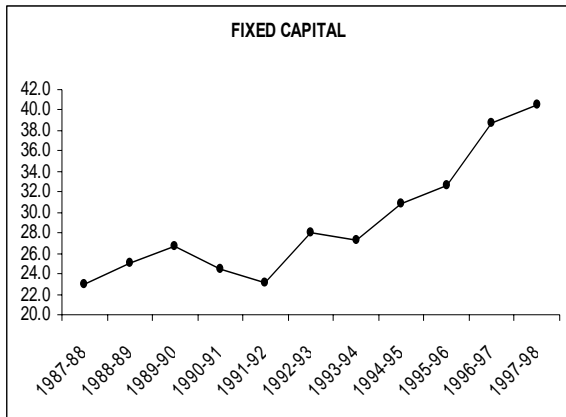
The gross agriculture-industry *terms of trade* is measured by the ratio of agriculture to manufacturing GDP deflators. The *product wage* in manufacturing is the total wage bill divided by the number of production worker days deflated by the wholesale price index of manufactured products. Data on manufacturing and agriculture output used to calculate the GDP deflators are from the National Accounts Statistics. Data on wages and production worker days are from the Annual Survey of Industries. The National Accounts Statistics, Annual Survey of Industry, and wholesale price index are published by the Central Statistical Organization, Department of Statistics, Ministry of Planning and Programme Implementation, Government of India.

Figure 3: Trends in SSI Output and Pricing Power in Manufacturing



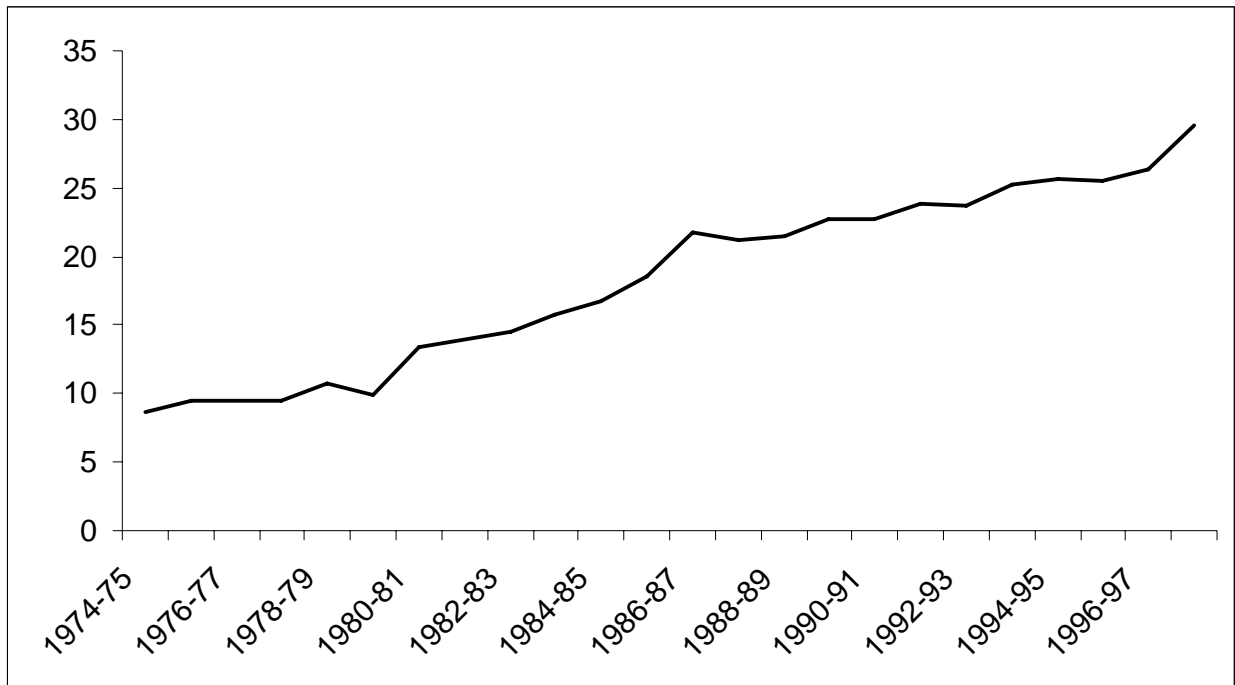
The *SSI Output Index* is the ratio of total output produced in small-scale industrial (SSI) units to total output in the manufacturing sector. The *pricing power of manufacturing* is measured as the gross terms of trade between manufacturing and all other sectors, or the ratio of manufacturing to non-manufacturing GDP deflators. Data on SSI output comes from Small Scale Industries in India, Office of the Development Commissioner, Ministry of Small Scale Industries, Government of India. Data on total output in manufacturing and non-manufacturing sectors is from the National Accounts Statistics, Central Statistical Organisation, Department of Statistics, Ministry of Planning and Programme Implementation, Government of India.

Figure 4: Percentage of Investment, Employment and Output in Rural Areas



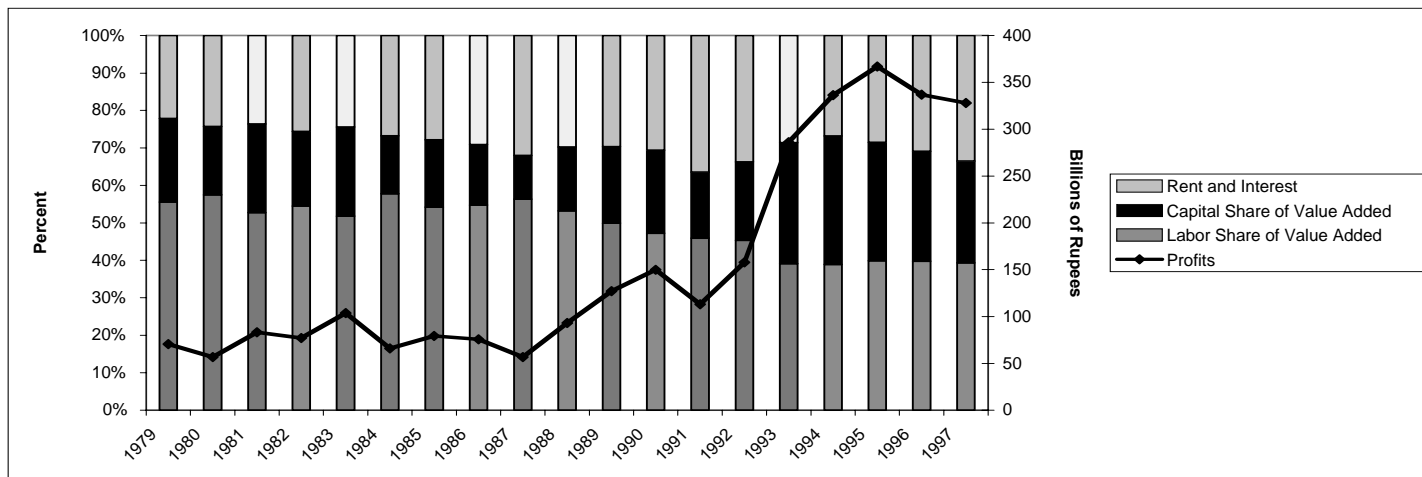
Source: Annual Survey of Industries, Central Statistical Organisation, Department of Statistics, Ministry of Planning and Programme Implementation, Government of India.

Figure 5: Unemployment Index for Manufacturing Workers, 1974-1997



The *unemployment index* is the ratio of unemployed to employed workers in the manufacturing sector. The number of unemployed workers in manufacturing is reported in the Laborsta database, published online by the International Labour Organization to Number of unemployed workers. These data are from employment exchanges in India and are based on the previous work experience of unemployed job applicants. The number of employed workers in the manufacturing sector comes from the Annual Survey of Industries, Central Statistical Organisation, Department of Statistics, Ministry of Planning and Programme Implementation, Government of India.

Figure 6: Trends in Profits and Net Value Added



Source: Annual Survey of Industries, Central Statistical Organisation, Department of Statistics, Ministry of Planning and Programme Implementation, Government of India.

Diagram 1: Hypothesized Causal Relationships

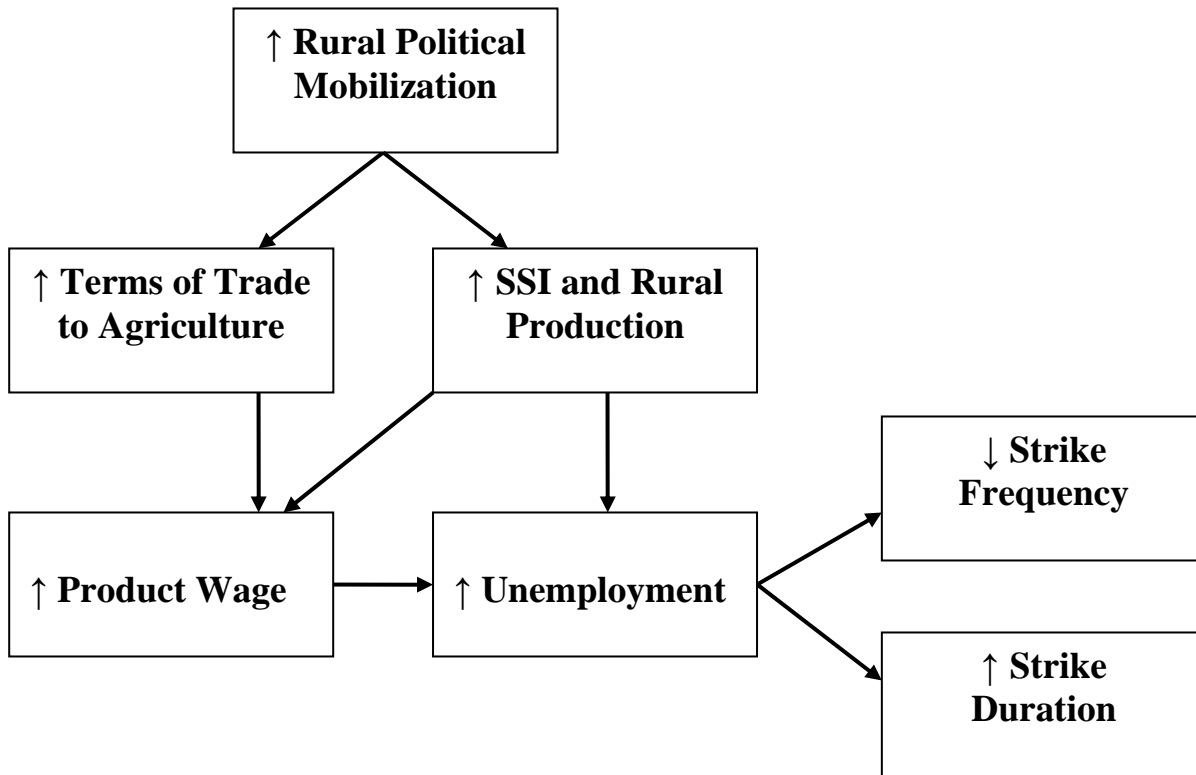


Table 1: National Time Series Regression Models of Strike Frequency and Duration

	FREQUENCY			DURATION		
UNEMPLOYMENT _{t-1}	-.01364*** (.00463)			3.8025*** (1.1187)		
PWAGE _{t-1}	-.01381** (.00475)			2.1059 (1.4152)		
SSIOUTPUT _{t-1}	-.00644* (.00307)			1.4861* (.80971)		
IMPORTS _{t-1}	-.01395 (.01274)	-.03009* (.01541)	-.00947 (.01375)	-.06053 (3.1124)	.78736 (4.6048)	-1.7211 (.80971)
RWAGE _{t-1}	.00042 (.00385)	.00500 (.00490)	-.00144 (.00409)	-.55197 (.93009)	-.50014 (1.4484)	.16260 (1.0800)
TOTAL OUTPUT _{t-1}	.00023 (.00034)	.00063 (.00043)	.00067 (.00036)	-.08026 (.08217)	-.07386 (.12727)	-.01683 (.09535)
FRAGMENTATION	1.68e-6 (1.18e-5)	3.49e-6 (1.2e-5)	-.00006 (.00001)	-.00490 (.00287)	-.00445 (.00363)	-.00294 (.00339)
DENSITY	-.00083 (.00316)	.00110 (.00310)	.00054 (.00339)	.89563 (.79031)	.36351 (.95502)	.49483 (.93178)
1982				60.612*** (11.517)	65.333*** (14.273)	62.717*** (13.813)
Constant	.49062*** (.22973)	.85840*** (.23198)	.72369*** (.24521)	47.662 (55.676)	-33.090 (69.480)	-15.656 (64.787)
Number of Observations	23	23	23	23	23	23
Adjusted R-Squared	.7594	.7574	.7090	.7408	.6002	.6253

Notes: Standard errors are reported in parentheses, * significant at 10 percent, **significant at 5 percent, *** significant at 1 percent. Dispute frequency (FREQUENCY) is the number of industrial disputes per 1000 workers. Dispute duration (DURATION) is the number of workdays lost per striking (or locked out) worker. The unemployment index (UNEMPLOYMENT) is the ratio of employed to unemployed workers in the manufacturing sector. The product wage in manufacturing (PWAGE) is the total wage bill divided by the number of production worker days deflated by the wholesale price index of manufactured products. The SSI Output Index (SSIOUTPUT) is the ratio of total output produced in small-scale industrial (SSI) units to total output in the manufacturing sector. The level of imports (IMPORTS) is measured as the ratio of the value of imports to that of the Gross Domestic Product. The real wage (RWAGE) is the total wage bill divided by the number of production worker days deflated by the consumer price index for industrial workers. In this model, industrial output (TOTAL OUTPUT) is an index of the total volume of industrial output in India. Fragmentation in the union movement (FRAGMENTATION) is measured as the total number of registered unions. Union density (DENSITY) is the percentage of paid employees who are union members. For information regarding the data used to construct these variables, see the online data appendix, available at <http://home.gwu.edu/~ejt>.

Table 2: State-Level Pooled CSTS Models of Dispute Frequency and Duration						
	FREQUENCY			DURATION		
EMPLOYMENT _{t-1}	.00629*** (.00175)			-2.0010** (.82429)		
PWAGE _{t-1}		-.00245*** (.00086)			-.04487 (.26126)	
SSIOUTPUT _{t-1}			-.00730*** (.00237)			-1.1621 (.98172)
RWAGE _{t-1}	-.00155*** (.00038)	.00048 (.00088)	-.00184*** (.00035)	.38228*** (.10638)	.53468** (.25869)	.50063*** (.10529)
TOTAL OUTPUT _{t-1}	-8.34e-06*** (2.50e-06)	-2.65e-07 (3.17e-06)	5.99e-06 (4.08e-06)	.00165 (.00101)	.00079 (.00090)	.00251 (.00156)
MAHARASHTRA 1982				133.11*** (28.282)	128.91*** (30.446)	129.21*** (29.951)
Fixed State Effects	YES	YES	YES	YES	YES	YES
Constant	.16067*** (.04474)	.24106*** (.02780)	.24276*** (.02897)	30.853** (12.817)	1.4488 (8.2964)	.08441 (8.3101)
Number of Observations	345	345	345	345	345	345
R-Squared	.5524	.5593	.5492	.5723	.5572	.5602

Notes: Standard errors are reported in parentheses, * significant at 10 percent, **significant at 5 percent, *** significant at 1 percent. Dispute frequency (FREQUENCY) is the number of industrial disputes per 1000 workers. Dispute duration (DURATION) is the number of workdays lost per striking (or locked out) worker. Employment in industry (EMPLOYMENT) is the per capita number of workers employed in the industrial sector. The product wage in manufacturing (PWAGE) is the total wage bill divided by the number of production worker days deflated by the wholesale price index of manufactured products. The SSI Output Index (SSIOUTPUT) is the ratio of total output produced in unregistered manufacturing sector to total output in the manufacturing sector. The real wage (RWAGE) is the total wage bill divided by the number of production worker days deflated by the consumer price index for industrial workers. In this model, industrial output (TOTAL OUTPUT) is the per capita volume of industrial output in each state. For information regarding the data used to construct these variables, see the online data appendix, available at <http://home.gwu.edu/~ejt>.