

INDUSTRIAL REGULATIONS AND CONTRACTUALISATION IN ORGANISED MANUFACTURING INDUSTRY SINCE THE EARLY 1990s: A STATE LEVEL ANALYSIS USING ASI DATA

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Abstract

In the post reforms decade of the 1990s, there have been many changes that have dotted India's economic landscape. Among them, declining quality of employment growth has been a very noticeable phenomenon. Contractualisation of the workers in the manufacturing industry is a matter of grave policy concern from the perspective of inclusive growth. It has been observed that contractualisation has intensified particularly after 1994. This paper attempts to examine how industrial regulations have uniformly contributed to the contractualisation phenomenon across major states in India. Was it due to the policies that were pursued in the pre-reform period (1950-1990) or only an outcome of the New Economic Policy of 1991?

Keywords: Contractualisation, Manufacturing, Industrial Regulation, Economic Reforms.

1. Introduction

Even as contractualisation in India's organised manufacturing sector intensified in the post reforms period, it can't be attributed to the policies of the economic reforms alone. The mainstream literature blames labour legislations solely (Table 1). However, the empirical evidence does not support this argument if analysis of contractualisation is done at the state level. We observed that the forces and pattern of contractualisation at state level are akin to their nature at the national level.

Table 1: Main labour legislations in India

Category of legislations	Central labour legislations	
Related to Industrial Relations	The Trade Union Act, 1926	
	The Trade Union Amendment Act, 2011	
	The Industrial Disputes, 1947	
	The Industrial Employment(Standing Orders) Act, 1946	
Related to work conditions	The Factories Act, 1948	
	The Building & Other Construction Workers (Regulation of Employment & Conditions of Service)Act, 1996	
	The Contract Labour (Regulation and Abolition)Act, 1970	
	The Shops and Establishment Act,	
Related to wages	The Payment of wages Act, 1936	
	The Payment of wages (Amendment) Act, 2005	
	The Minimum Wages Act, 1948	
	The Payment of Bonus Act, 1965	
	The Equal Remuneration Act, 1976	
	The Dock Workers(Regulation of Employment)Act, 1948	
	The Plantation Labour Act, 1951	
	The Mines Act, 1952	
	The Merchant Shipping Act, 1958	
	Related to Social Security	The Workmen’s Compensation Act, 1923
		The Workmen’s Compensation (Amendment)Act, 2000
The Employees’ State Insurance Act, 1948		
The Payment of Gratuity Act, 1972		
The Unorganised Workers’ Social Security Act, 2008		
Related to Women and Children	The Maternity Benefit Act, 1961	
	The Child Labour (Prohibition & Regulation)Act, 1986	

Source: Singh (2022)

The growing firm size, capital intensity, and rising technical efficiency have actually constrained growth of regular employment in the organised manufacturing sector (Singh, 2022). As the wage differential between regular and contract workers widened, contractualisation grew in the entire manufacturing sector. It has increased both in capital and technology intensive industries (like coke & refined petro-products, other non-metallic products, and other transport equipment, basic metals, and chemical industries). Therefore, the scope for growth of regular

employment for huge size of unskilled labour is very limited given internal and external challenges of the organised manufacturing sector. We argue that the variation in extent of contractualisation across states is caused by state specific factors in addition to impact of industrial regulations.

The chapter is structured as follows. Section 2 gives a theoretical background of contractualisation in the manufacturing sector. Section 3 discusses the role of economic reforms policies in influencing contractualisation across states. Section 4 describes the research methodology adopted to carry out this study. Section 5 introduces the database that has been used for econometric analysis. Section 6 presents results and analyses the causes and forces of contractualisation in manufacturing industries at factory level. Section 7 presents the conclusions.

2. Industrial Regulations and Contractualisation: Theoretical Background

Even though contractualisation in India's manufacturing sector has been pushed by global factors, the roots of the problem lie in industrial policy interventions since the decade of 1970s. It was an outcome of multiplicity of labour legislations, low education level among labour and high capital intensity across industries. Despite positive spill over effects for the formal sector, contractualisation has made economic growth less inclusive, although there are contrasting views about this in the existing literature.

Some studies argue that the multiplicity of labour legislations and their arbitrariness has constrained performance of the manufacturing sector. On employment protection legislations (EPL), many economists have argued for diluting the jaws of these legislations to improve performance of the sector (Fallon and Lucas, 1991; Lucas Jr, 1993; Besley and Burgess, 2002; Dougherty, 2008). In India's context, there are many other studies that have underlined the severity of labour legislations (Ghose, 2005; Roy, 2004; Panagariya, 2008).

However, others refuted these arguments for several flaws in the methodologies used (Nagraj, 2004; Schmidt, 2005; Chaudhari, 2015; Anant et al., 2006; Sakthivel and Joddar, 2006; Sood et al., 2014).

They also argue that there were instances of blatant violations of these laws in the post reforms period. There are several others who denounce labour market informality by saying that it leads to income inequality as labour has weak bargaining power (Jose, 2008; Sharma, 2006; Rutkowski, 2006). Other studies argue that the increasing use of capital-intensive production methods by manufacturing industries has displaced regular labour (Mundle, 1993; Deshpande, 2004). The industrial concentration across states was not determined by quality of business environment only in the post-reform period. Rather this has to do with the persisting regional imbalance in industrialisation over several decades (1950-1990), which was also caused by these policy interventions (Papola, 1994b). This is revealed by Table(2). The percentage share of only three states -Maharashtra, Gujrat, and Tamil Nadu, increased sharply over after 1999-00. It is surprising that none of them is among top achiever states in terms of ease of doing business ranking. Top ranking states include Andhra Pradesh, Telangana, Haryana, Jharkhand, Gujrat as per 2018 report of World Bank. See <http://www.doing business.org>.

Table 2: State wise share in industrial distribution (2018-19) (%)

States	GVA	Mfg GVA	Workers in total industrial emp	Workers in Mfg Emp	TPE to industrial emp	TPE to total Mfg emp
Gujrat	14.6	14.84	10.05	10.08	10.14	10.2
Maharashtra	21.46	22.17	12.72	12.58	13.93	13.74
Karnataka	6.35	6.24	6.76	6.73	6.85	6.81
West Bengal	2.61	2.51	5	5.05	4.77	4.81
Tamil Nadu	10.02	10.2	15.72	15.9	15.12	15.32
Panjab	2.24	2.37	4.65	4.74	4.45	4.54
MP	2.4	2.22	2.29	2.27	2.38	2.35
AP	2.54	2.29	3.97	3.81	3.86	3.7
Rajasthan	3.07	3.02	3.41	3.4	3.47	3.46
Uttarakhand	3.98	4.03	2.99	2.97	2.86	2.86
Haryana	4.19	3.91	4.48	4.57	4.52	4.64
UP	5.71	5.39	6.72	6.69	6.74	6.69
Others	20.83	20.81	21.24	21.21	20.91	20.88
Total	100	100	100	100	100	100

Source: Author's calculations based on ASI data
*TPE-Total Persons Engaged

Without scratching into the nitty-gritty of the index, we find that these states have done well in industrial performance. However, there are structural characteristics of every state that determines its industrial performance factors (Factors such as productivity level differences, capital investment, infrastructure, human resources, regulatory framework, and human development). This index may not have captured all such factors. Papola (1994a) argued that industrial growth has diverged across states after reforms. The states like Gujrat, Maharashtra, Haryana, and Tamil Nadu were the most industrialised in 2008-09 in terms of share of the manufacturing sector to gross state domestic product. He argued that while most of states have displayed structural shift from agriculture to other sectors, Rajasthan, Orissa, and Gujrat have registered largest shift in favour of the manufacturing sector. Industrial productivity does vary across states and capital intensive is essential to raise it.

Even as capital intensity is essential for adding to productive capacity, productivity must be raised to enhance economic growth efficiently (Lewis, 1954). However, the need for more doses of capital can be avoided for improving manufacturing value added if efficient human capital is available in an economy. This will promote labour absorbing industrial growth. The chronic shortage of skilled manpower is another decisive factor underlying contractualisation. As skill formation was not among core concerns of industrial policies even in the pre-reforms period (1950-90), reform measures comprising amendments in some industrial regulations can't account for the phenomenon of contractualisation. We argue that contractualisation was not caused by the economic reforms of the early 1990s rather it resulted from lack of holistic industrial policy interventions of pre-reforms period largely.

3. Economic Reforms and Contractualisation Across States

Contractualisation across states is not impacted by amendments in industrial regulations as attempted by some states. Rather it is due to factors like import penetration, rising profit share has also contributed to extent of contractualisation particularly after 2005. Dougherty (2008) argued that amendments to industrial laws have enabled industrial performance in Indian states (Maharashtra, Karnataka, Punjab, Gujrat, and Uttar Pradesh, Tamil Nadu, and Madhya Pradesh), who amended key industrial regulations, including the Industrial Disputes Act, 1947 and the Factories Act, 1948. The Contract Act, 1970 has been amended

in states like Rajasthan, Karnataka, Gujrat, Andhra Pradesh, Punjab, and Orissa} in addition to the previous group of states.

It was observed that the states having better industrial relations have recorded an improvement in their industrial performance. This improvement has served interests of employers as profitability has increased.

We observed that profits in organised manufacturing sector increased sharply. The percentage growth in profits was to the tune of 3900 percent during entire period 1990-91-91/2014-15. Whereas emoluments increased by 1400 percent only over this period in nominal terms over 1990-91/2014-15. Profit share in distribution of value added increased sharply and highest from 1999-00 onwards which started to decline after 2007-08 only. It is but natural to conjecture that rising profit share might have induced contractualisation.

In addition to the rise in profit share, wide wage gap between regular and contract workers added to the share of contract workers. The latter earn 45 percent less than regular workers. The empirical results do validate this causality for all firms. Bhandari and Heshmati (2005) argued that wage gap between regular and contract workers is determined by factors such as education level, skills, union membership, and migration. They argue that factors like difference in labour productivity and weak bargaining power of contract workers. Table(3) reveals that wage gap for regular and contract workers is huge. Real wages of regular workers were higher than that of contract workers. The regular workers earn three fourth of total wage bill across industries barring a few industries (like food, wood, other non-metallic, leather, electronic, and fabricated metals).

The disparity in level of contractualisation across states may be due to its growing importance for industrial performance and inflow of foreign direct investment. Few states/union territories namely Maharashtra, Delhi, Tamil Nadu, Karnataka, and Gujrat which have collectively received more than 54 percent of total FDI approved since 1991. Figure (1) reveals that states of Punjab, Haryana, Rajasthan, Gujrat, Maharashtra, and Andhra Pradesh have contractualisation level above national average. Among them, Andhra Pradesh and Haryana have recorded highest level. The state of Andhra Pradesh has allowed use

of contract workers in non-core activities of any establishment under the State Amendment Andhra Pradesh Contract Labour(Regulation and Abolition) Act, 2003. However, these establishments are engaged in production activities which are normally done by contractors, do not require permanent workers, and are subject to market instability.

**Table 3: Wage gap between regular and contract workers
(at 1991 prices)**

Industry	1999-00	2005-06	2009-10	2018-19
<i>low tech industries</i>				
Food products & Beverages	46.33	39.75	52.96	75.81
Tobacco products	-263.35	-203.00	-90.76	35.99
Textiles	80.73	76.48	76.21	84.97
Apparels, Dressing & Dyeing of fur	80.86	65.53	71.15	84.74
Tanning and dressing leather	62.09	50.70	61.95	77.03
wood & products	62.76	24.15	41.51	64.96
Paper & paper products	68.94	66.67	71.41	78.89
publishing, Printing & recorded	93.76	88.53	84.68	87.71
Furniture & mfg.	62.57	78.04	76.41	83.76
<i>Medium tech industries</i>				
Coke & refined petro products	89.03	85.08	84.89	94.43
Rubber & plastics	79.98	66.84	73.33	73.25
other non-metallic products	31.61	9.97	25.79	40.69
Basic Metals	83.77	80.92	76.06	84.92
Fabricated metal products except machinery equipment	62.39	42.06	58.06	71.50
<i>High tech industries</i>				
Chemicals& Chemical products	80.37	71.05	70.28	76.65
Machinery Equipment	55.98	24.45	22.47	65.19
Office, accounting, computer	97.90	95.73	80.94	84.32
Electrical equipment	90.51	78.25	73.53	80.29
Medical, precision and optical instruments, clock & watches	94.75	86.75	79.39	92.70
Motor Vehicles, trailers, semi trailers	92.55	82.16	78.64	82.60
Other Transport Equipment	88.73	71.08	69.28	75.77
All manufacturing sector	72.92	64.58	66.09	77.52

Source: Author's calculations based on ASI data

The lack of uniformity of the labour legislations has much influence on contents of amendments and their purview. There are dissimilar benchmarks in its application of the Contract Labour (Regulation and Abolition) Act, 1970 across these states. While it applies to all establishments employing ten or more workers in Gujarat and West Bengal, the threshold of workers is fifty in Rajasthan for this Act to apply. It may appear that favourable investment climate must have induced contractualisation. However, there is no such homogeneity in nature of contractualisation at state level. We argue that state specific conditions have influenced extent of contractualisation there which is shown by empirical analysis in subsequent sections.

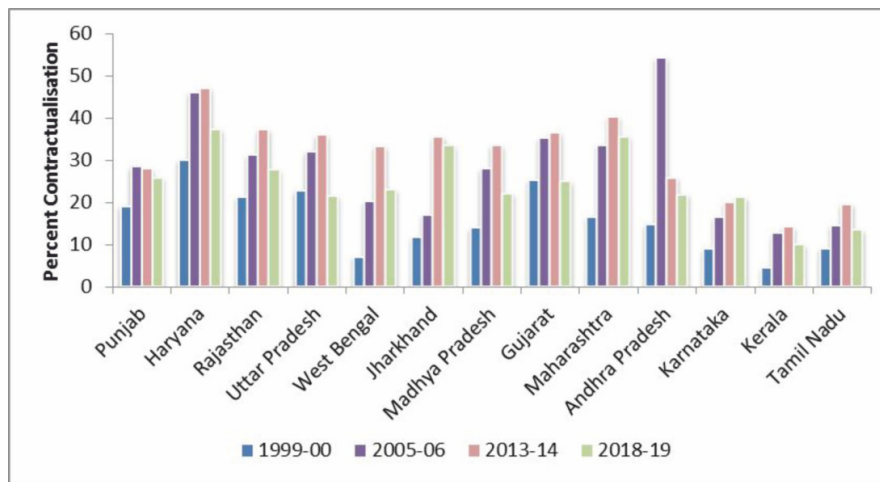


Figure 1: Contract workers in total workers in organised manufacturing across states, 1999-2019

Source: Author's estimates based on ASI data

4. Research Methodology

In comparison to empirical studies on analysis of productivity growth, there is relatively lesser literature on contractualisation and casualisation in India's manufacturing sector. Many research studies have estimated productivity to study its implications for employment growth. We have used Ordinary Least Square (OLS) method for running multiple variable regression models (Model-I & Model-II). Model-I was framed to check significance of contract workers for the manufacturing output at different points of time. Model 2, was framed to examine significant of relevant explanatory variables.

These regression models have taken four different points of time (1999-00, 2004-05, 2009-10, and 2013-14). We have used NIC-1998 classification in this study. Appropriate concordance has been done. The influence of multi-collinearity and endogeneity on estimates was thus minimized by making it a cross-sectional study. Given the huge volume of observations for every variable across the years in post reforms period, we decided to study contractualisation phenomenon at four points of time as mentioned in the beginning of this section.

Regression equation(2), has been used to find out significant determinants of contractualisation at factory level in organised manufacturing sector. In order to get BLUE estimates (Gauss Markov theorem requires a particular dataset to meet standard assumptions to satisfy the best linear unbiased estimates(BLUE) property), we have made a zero conditional mean assumption. In addition, we have assumed that error term to have equal variance E has equal variance. As data on many variables in this database suffers from problem of outliers, their values were winsorised.

The Ramsey RESET (11 Regression specification error test (RESET) which is used to detect misspecification of functional form of a regression model) and Linktest (For empirical analysis, this test is used to rule out misspecification of explanatory variables) were carried out to check for model specification and ruling out error of omitted variables from the model. There was no multi-collinearity as the value of VIF (It shows that how much coefficients of estimated variables are inflated vis-a-vis predicted variables, was very low (Wooldridge, 2015). In order to deal with it, heteroskedasticity-robust estimation was done. The estimation has been done for contribution of contract workers to output of all firms at unit level.

5. Data

We have used select variables from the Annual Survey Industries (ASI) data which Central Statistical Organisation (CSO) publishes annually for the organised manufacturing sector. We have chosen the Annual Survey of Industries database for its coverage, accessibility, and availability at the firm level. It is a large database and is updated annually. The raw data of ASI for fifteen years (1998-99 to 2014-15) was arranged in usable format for processing with STATA-statistical software- as per tabulation programme that comprises information on twenty-seven variables of organised manufacturing sector for each year. Questionnaire

and flow chart of technical programme carry details to extract and match data with publish reports of Annual Survey of Industries.

5.1. Description of sample

The ASI database provides data on most of the variables for organised manufacturing industries. However, it does not collect data on tariff rates, skilled manpower, and investment climate etc. In this research, we have developed two modelsto test study significance of contract workers for the manufacturing output growth and find out determinants of contractualisation at factory level.

5.2. Construction and description of variables

We have used different indicators of the manufacturing sector performance as given in ASI data for the empirical analysis. We have used physical capital formation, imported inputs, wage gap between regular and contract workers, and supervisory staff as proxies for industrial investment climate, tariff rates, labour cost, and skilled manpower respectively.

6. Empirical results and analysis

Objectives

- 1 Examining impact of policy shift on growth of employment in manufacturing sector during 1999-00 to 2018-19
- 2 Assessing empirically determinants of contractualisation in the organised manufacturing sector.

We hypothesised that relatively easier access of large firms to imported inputs in post reforms period replaced regular work by contractual employment. In addition, factors growing profit share and higher wages of regular relative to contract workers put pressure on job quality. For a precise understanding, these dimensions have been captured in both the models that we have framed for empirical analysis.

Table 4: Description of variables used for empirical analysis

Variables	Label used	Description
CONTRACT	Contrac	Contractualisation
IMPTCOM	imp_share	Import Competition
LABCOST	cw_share	Wage gap between regular and contract workers
COSFINCAP	intt_cost	Interest cost of finance capital
INVESTCL	newcapital	Investment climate
PROFT	profit_shr	Profitability
OUTPT	log_output	Output
PHYCAP	log_invested	Total invested capital
ENERCO	log_fuels	Energy cost
LABFLEX	c_workers	Contract workers for labour flexibility
SKILLAB	super_staff	Supervisory staff

Source: Author's estimation based on ASI data

Hypotheses

1. High capital intensity induced contractualisation across the manufacturing production
2. Imported inputs displaced regular workers by contract workers
3. Labour cost is not a significant factor of contractualisation
4. Financial liberalisation has induced contractualisation
5. Rising profit share in manufacturing value added induced further contractualisation

Model I

$$\log Y_i = \beta_0 + \beta_1 \log X_{1i} + \beta_2 \log X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \epsilon_i \quad (1)$$

$$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$$

where, Y_i = output of i^{th} firm, X_{1i} = invested capital of i^{th} firm, X_{2i} = fuels of i^{th} firm, X_{3i} = contract workers of i^{th} firm, X_{4i} = supervisory staff of i^{th} firm

Model 2

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \epsilon_i \quad (2)$$

$$\beta_0 > 0, \beta_1 > 0, \beta_2 < 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0,$$

where, Y_i = contrac of i^{th} firm, X_{1i} = profit_shr of i^{th} firm, X_{2i} = cw_share of i^{th} firm, X_{3i} = intt_cost of i^{th} firm, X_{4i} = newcapital of i^{th} firm, X_{5i} = imp_share of i^{th} firm

A model similar to our Model-I has been used by Rajeev (2009) for finding out contribution of contract workers to the industrial output though it was a panel data study. Unlike it, we have framed the model-II to understand determining factors and processes of contractualisation. The dependent variable, CONTRACT, defines contractualisation as proportion of contract workers out of total workers that are engaged in each industry. The independent variables include: *PROFIT*, *LABCOST*, *COSFINCAP*, *INVESTCL*, and *IMPTCOM*. The variable *IMPTCOM* has been used as a proxy for import tariffs to see as to how import competition has influenced contractualisation. With trade liberalisation, the share of imported inputs has increased manufacturing production.

The variable *COSFINCAP* is used for studying impact of financial liberalisation on use of contract workers. It is hypothesised that financial liberalisation tends to raise capital intensity in production due to declining interest cost of institutional credit. The relatively easier access of big industries this type of credit prompts them to respond actively to slight changes in interest rates. Hence, declining interest rate tends to encourage producers to replace labour factor with machinery and capital in production process.

The variable *INVESTCL* is used to know the statistical significance of investment climate for contractualisation of workforce. Last but not the least, *LABCOST* was included to find out whether wage gap between regular and contract workers has enhanced use of contract workers largely. As wages of regular workers go up, employment of contract workers will go up. Thus, contractualisation will increase in medium and big industries and, in turn, which would impact feasibility of realising inclusive growth in the country.

6.1. Determinants of contractualisation across states

The growing profit share and higher labour cost of regular workers are two key factors that have expedited contractualisation of the manufacturing jobs across states with some exceptions (Singh, 2022). We find that if it has to anything to do with rigidity or flexibility of industrial regulations. In states such as Tamil Nadu, Uttar Pradesh, Andhra Pradesh, Rajasthan, and Karnataka, which have flexible regulations have seen no lesser degree of contractualisation than that in Bengal, Odisha, and Maharashtra where industrial regulations are rigid.

We also find that in case of Tamil Nadu and Gujrat it was wage gap which was statistically significant as revealed by table(5c) and table(5a). The process of contractualisation is influenced by many factors at state level. In case of Gujrat, it is wage gap that was that main catalyst for contractualisation as shown by table(5a). All other factors simply did not matter. Unlike inference made by Hirway and Shah (2011), capital intensity is not statistically significant. They had argued that industries in the state had become more capital which led to informalisation of jobs.

Table 5a: Contractualisation in Gujrat

Contrac	1999-00	2004-05	2009-10	2013-14	2018-19
imp_share	na	376.80	-34.59**	-873.90	0.160***
		-281.00	-12.30	-615.70	-0.0133
intt_cost	na	0.00	0.00	-0.0450*	-0.13
		0.00	0.00	-0.02	-0.0677
profit_shr	na	0.00	0.0000126**	0.00	-0.000522***
		0.00	0.00	0.00	-0.0000673
cw_share	na	0.802***	-0.0000878***	0.00	0.226***
		-0.02	0.00	0.00	-0.0111
newcapital	na	-19.85	0.00	0.01	-82.17***
		-87.98	0.00	-0.02	-17.59
_cons	na	0.220***	0.00261***	1.001***	0.179***
		-0.01	0.00	0.00	-0.00421
N		1059	1503	60	11008
R2		0.661	0.004	0.238	0.204

Source: Author's estimates, Note: Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Unlike Gujrat, all explanatory variables were influential in deciding the quantum and pace of contractualisation in Maharashtra. Table(5b) shows that the impact of wage gap, import competition, and investment climate was maximum for all these years in explaining this phenomenon. However, year 2004-05 stands out in this respect as the coefficient value of these variables were very high. The value of R2 was also high.

Table(5c) reveals that in case of Tamil Nadu, contractualisation process was not influenced much by variables in the model. We find that except 2009-10, variables were not statistically significant. For this year, factors such as imported inputs, profits, labour cost were instrumental for contractualisation.

Table 5b: Contractualisation in Maharashtra

Contra	1999-00	2004-05	2009-10	2013-14	2018-19
imp_share	na	-210.5*	58.53***	-221.7***	0.0861***
		-82.60	-10.35	-63.78	-0.0151
intt_cost	na	-0.0520*	0.0195***	0.00273***	-0.204***
		-0.02	0.00	0.00	-0.0282
profit_shr	na	0.000217***	0.0000152***	0.00	0.000364
		0.00	0.00	0.00	-0.000431
cw_share	na	0.816***	-0.0000625***	-0.0217***	0.123***
		-0.01	0.00	0.00	-0.00603
newcapital	na	561.50	0.000766*	0.00	-335.9***
		-2470.20	0.00	0.00	-49.03
_cons	na	0.218***	0.00265***	1.021***	0.429***
		0.00	0.00	0.00	-0.00484
N	na	4095.00	4788.00	548.00	11736
R2		0.75	0.05	0.61	0.099

Source: Author's estimates, Note: Standard errors in parentheses

* p <0.05, ** p <0.01, *** p <0.001

Table 5c: Contractualisation in Tamil Nadu

Contrac	1999-00	2004-05	2009-10	2013-14	2018-19
imp_share	na	376.80	-34.59**	-873.90	0.160***
		-281.00	-12.30	-615.70	-0.0133
intt_cost	na	0.00	0.00	-0.0450*	-0.13
		0.00	0.00	-0.02	-0.0677
profit_shr	na	0.00	0.0000126**	0.00	-0.000522***
		0.00	0.00	0.00	-0.0000673
cw_share	na	0.802***	-0.0000878***	0.00	0.226***
		-0.02	0.00	0.00	-0.0111
newcapital	na	-19.85	0.00	0.01	-82.17***
		-87.98	0.00	-0.02	-17.59
_cons	na	0.220***	0.00261***	1.001***	0.179***
		-0.01	0.00	0.00	-0.00421
N		1059	1503	60	11008
R2		0.661	0.004	0.238	0.204

Source: Author's estimates, Note: Standard errors in parentheses

* p <0.05, ** p <0.01, *** p <0.001

Table(5d) discloses that for state of Karnataka, factors such as imported inputs, interest cost, profit share, and wage of regular workers were significant for 2004-05 and 2009-10. However, only imported inputs and profit share mattered for contractualisation in 2013-14.

Table 5d: Contractualisation in Karnataka

Contrac	1999-00	2004-05	2009-10	2013-14	2018-19
imp_share	-0.06	2462.8***	40.56***	-732.8***	-0.116***
	-0.03	-327.40	-11.11	-33.60	-0.017
intt_cost	0.534***	-0.686***	0.0125**	0.00	-0.397***
	-0.12	-0.11	0.00	0.00	-0.107
profit_shr	0.0290***	0.0312***	0.000104***	-0.000111***	-0.00127***
	-0.01	0.00	0.00	0.00	-0.000289
cw_share	0.00000999***	0.851***	-0.000446***	0.00	0.159***
	0.00	-0.01	0.00	0.00	-0.011
newcapital	-3793.5***	8795.10	0.00	0.00	-0.00454***
	-912.90	-6583.40	0.00	0.00	-0.0000811
_cons	0.122***	0.177***	0.00169***	1.002***	0.338***
	-0.01	-0.01	0.00	0.00	-0.00704
N	266	450	487	132	6224
R2	0.785	0.839	0.283	0.908	0.142

Source: Author's estimates, Note: Standard errors in parentheses

* p <0.05, ** p <0.01, *** p <0.001

Table 5e: Contractualisation in Andhra Pradesh

Contrac	1999-00	2004-05	2009-10	2013-14	2018-19
imp_share	-0.09	376.80	-34.59**	-873.90	0.156***
	-0.06	-281.00	-12.30	-615.70	-0.0235
intt_cost	-0.07	0.00	0.00	-0.0450*	-0.123
	-0.04	0.00	0.00	-0.02	-0.133
profit_shr	0.00616*	0.00	0.0000126**	0.00	-0.00202***
	0.00	0.00	0.00	0.00	-0.000544
cw_share	0.00000752***	0.802***	-0.0000878***	0.00	0.146***
	0.00	-0.02	0.00	0.00	-0.0133
newcapital	8525.7***	-19.85	0.00	0.01	-46.89**
	-2066.70	-87.98	0.00	-0.02	-14.29
_cons	0.212***	0.220***	0.00261***	1.001***	0.308***
	-0.02	-0.01	0.00	0.00	-0.0101
N	326	1059	1503	60	2504
R2	0.473	0.661	0.004	0.238	0.158

Source: Author's estimates, Note: Standard errors in parentheses

* p <0.05, ** p <0.01, *** p <0.001

The scenario changed for Andhra Pradesh where only labour cost has emerged as the only factor behind this phenomenon as shown by table(5e).

Table 5f: Contractualisation in Rajasthan

Contrac	1999-00	2004-05	2009-10	2013-14	2018-19
imp_share	0.0729	2462.8***	40.56***	-732.8***	0.0509
	-0.0458	-327.4	-11.11	-33.6	-0.0302
intt_cost	0.0246*	-0.686***	0.0125**	0.0039	-0.127
	-0.011	-0.105	-0.00455	-0.00401	-0.162
profit_shr	0.00577	0.0312***	0.000104***	-0.000111***	0.00197
	-0.0033	-0.00458	-2.46E-05	-0.0000313	-0.00184
cw_share	0.0000110***	0.851***	-0.000446***	-0.000363	0.355***
	-0.000000465	-0.014	-4.82E-05	-0.00207	-0.0302
newcapital	596.8	8795.1	0.00127	-0.000012	-575.0***
	-1895.4	-6583.4	-0.0013	-0.00000683	-101.4
_cons	0.104***	0.177***	0.00169***	1.002***	0.286***
	-0.016	-0.0103	-0.000112	-0.00223	-0.0109
N	194	450	487	132	2704
R2	0.722	0.839	0.283	0.908	0.216

Source: Author's estimates, Note: Standard errors in parentheses

* p <0.05, ** p <0.01, *** p <0.001

There were other factors like imports and profits were also responsible in the year 2009-10. The state has carried out substantial labour reforms¹⁶ in past few years. As shown by table(5f), in case of Rajasthan, all factors except invested capital were significant for all years except 2013-14 in which imported inputs and profits only contributed to contractualisation.

Contractualisation across firms was pulled up by factors like rising import penetration, profit share, labour cost of regular workers, and declining cost of finance capital. However, the impact of wage gap on contractualisation was highest as the value of *R2* increased fast as we included wage gap in the regression. Across states, contractualisation was caused by factors like investment climate, profit share, and labour cost. The empirical results bring home the point that amendments in the industrial regulations that were carried out in some states have not enabled them to achieve any decline in contractualisation.

Unlike the existing studies, we have endeavoured to explore find an answer to the question as to what are the specific factors that contributed to contractualisation at firm level in post reforms period. As suggested by other studies that decision to hire contract workers is procedures for issuing a license to contractors has been made less time consuming.

The amendments made to the Factory Act,1956, the ID Act,1947, and the Contract Labour(Regulation and Absorption) Act,1970. The definition of a factory has been changed for both power using and without power using units. Under the Industrial Disputes Act, the threshold of workers for lay off and retrenchment has been increased from previously 100 workers to 300 workers. The use of contractual workers has got a policy push as administrative not just about inefficiency in labour use(Bhandari and Heshmati, 2005). It can't be about investment climate and business environment either. Had it been so, industrial performance would have remained low in states such as West Bengal, Odisha, and Maharashtra which are known for relatively more rigid labour laws.

In our results, we find that factors like growing import penetration, profits ,declining cost of financial capital, and high wage gap of regular workers were statistically significant for all firms in general. Thus, rapid growth of contractualisation in the manufacturing industries was attributable to them. Contrary to the inferences Besley and Burgess (2002), we have found that industrial relations environment does not matter much for deciding the quality of manufacturing employment growth across states. They concluded that pro- worker regulations tend to cause low investment, employment, productivity, and output in registered manufacturing industries. In our empirical results, we found that the states that have made substantial amendments to the Contract Act(Regulation and Absorption)1970 have not seen any improvement in quality of employment.

The way forward

Contractualisation of the workers in India's organised manufacturing sector has risen rapidly since early 1990s.It is reflected by trends in industrial database of Annual Survey of Industries(ASI).The empirical results that overall factors such as import penetration, profit share, labour cost, and cost of finance capital were key determinants of contractualisation across organised manufacturing sector. We have also

observed that productivity and small size of India's manufacturing sector have resulted from inappropriate industrial regulations.

In addition, nature of determinants did change for cross state contractualisation. Nonetheless, it is certain that policies of economic reforms were not accountable solely for contractualisation. Across states, contractualisation was caused by factors like investment climate, profit share, and labour cost. We have found that amendments in the industrial regulations have not enabled the concerned states to achieve any decline in contractualisation. On the basis of our empirical results we may recommend that urgent policy interventions must be initiated to remove multiple industrial regulations that constrain the performance of the manufacturing sector. The relevant industrial regulations must be amended so as to facilitate faster industrial growth.

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