

INDIAN ECONOMIC DEVELOPMENT

Contemporary Issues

A Festschrift in Honour of
Professor Raj Kumar Sen

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a long-term perspective, with a strong planning component, dovetailing it with the ongoing development efforts, incorporating decentralized planning and implementation, skill training, maintenance of public assets and eventually absorbing wage-earners into mainstream employment. The path towards full employment lies in strengthening the sectors where the poor are located and stabilizing their incomes, improving their asset base, constructing basic socio-economic infrastructure at the local level, enabling access to paid work opportunities and exerting an upward pressure on market wages. Another suggestion is to extend the scheme to the urban areas also which may include drainage and sewerage sector, conservancy and slum improvement and similar ones to form the corpus of activities. It should be extended to at least 180 days in order to have a minimum impact on rural poverty and in bridging the widening rural-urban income inequality.

In view of the inter-sectoral linkages of the MGNREGS, the need to create durable assets, improve livelihood security, facilitate more flexibility in choice of works and serve better the common target groups of certain development programmes with the MGNREGS, one has to develop and disseminate convergence guidelines with different schemes and specific programmes, viz., the Indian Council of Agricultural Research, National Afforestation Programme and other schemes of Ministry of Forests and Environment, Schemes of the Ministry of Water Resources, SGSY, Watershed Development Programmes, Ministry of Agriculture and Fisheries and Schemes of the Ministry of Agriculture. To improve the NREGS, wherever possible, needs to be integrated with the Bharat Nirman Programme for strengthening rural infrastructure. The NREGS can be fruitfully used to bring a smiling face to the future India.

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Delicensing Informal Sector and Pro-Poor Growth in India

DIBYENDU MAITY

While Aghion *et al.* (2006) observed the unequal effect of delicensing in the formal sector in presence of differential labour institutions, the present study attempts to investigate the impact of delicensing on the expansion of informal sector and whether such effect leads to the pro-poor growth in India or not. Theoretically, we argue that the dismantling of the licensing raises the delegation of work from formal to informal sector and hence pushes the income of the informal sector and reduces the formal-informal wage gap. Empirically, a high correlation between delicensing and income of informal sector and also between per capita informal income and poverty reduction have been observed in panel regressions. Moreover, the convergence trend of wage gap has been significant in post-reform period. So, the delicensing has been turned out to be a pro-poor policy measure in India.

1. INTRODUCTION

Since early 1990s after the adoption of economic reform in India, the study on the impact of Economic Reform on the development has evolved as one of the great interest of economists and planners. The reform has several dimensions to investigate and how the policies have impacted on the reduction of poverty would be thought as pro-poor growth. Among the policies of reform, the investigation on the consequences of delicensing, a major agenda of industrial reform, somehow has been neglected and recent study by Aghion *et al.* (2006) has boosted such interest. They have shown the beneficial impact of the dismantling of license raj in India and but the benefit has been uneven depending upon the institutional environment in which industries are embedded. Hansen, Mitra and Ural (2006) have also provided visible impact of delicensing on poverty and support the differential impact on organised

sector among the states with differential labour legislation. While both the studies has been restricted on the organised sector, the present attempt has been made to study the impact on the delicensing on the informal sector and precisely to find out the channel through which delicensing affects the income of the down-trodden people, who live with higher incidence of poverty.

In India, the informal sector captures more than 90% of workforce and performance of this sector eventually is linked to the extent poverty reduction in the economy. The workers of informal sector may produce goods and services which are vertically linked to those in the formal sector, either as finished or semi-finished items which compete with those produced in the formal sector as well as purely non-traded consumption goods exclusive to this sector. Deregulation, economic reform and increasing global exposure should have some impact on informal activities, wages and employment. The way production is organized between the formal and informal segments should also be affected. Ability of firms to avoid minimum wage laws, certain types of taxes and need of livelihood for a vast majority of population leads to the formation of unorganised sector where significance can hardly be undermined if one is seriously interested in understanding the working of a typical developing economy. One particular issue of concern has been how informal workers can face upto the challenge of globalisation as liberal policies of a reforming economy. There are some studies which raises the possibilities of the increase of informal employment and wage relocating capital from formal to informal sector after trade reform (Goldberg and Pavnick, 2003; Marjit, 2003 and Marjit, Biswas and Ghosh, 2006). A lots of papers in Guha-Khasnobis and Kanbur (2006) edited volume analyse the state of informal enterprises in the developing world. It is more or less recognized and accepted fact that the informal sector has been survived through the outsourcing by the formal sector. The other important reason for the informal sector to thrive is a variety of low cost non-traded goods and services, which require little investment but provide employment to a large number of uneducated and otherwise jobless people. As the studies so far largely have concentrated to the subcontracting issues form trade angle, the present paper would like to explore the possibility of subcontracting after delicensing of industries.

After independence in 1947 India adopted a control licensing policies intending the acceleration of economic growth and industrialization without much regional disparities in income and wealth. Industries (Development and Regulation) Act of 1951 for states was the key instrument for industrialization strategy. Under the 1951 Industries Act an industrial license was required mandatory license to establish a new factory, to carry on business in an existing unlicensed factory, to significantly expand an existing factory's capacity to start a new product line and to change location. Applications for industrial licenses were made to the Ministry of Industrial Development and then reviewed by an inter-ministerial Licensing Committee (Aghion, et al. 2006). Recognizing the limitation of this bureaucratic nature of the licensing process for acceleration of industrialization in India, the policies for delicensing has been thrived to growing demand and from early 1980s onwards it has been started to

dismantle the licensing requirements. The delicensing has been initiated in 1982 and the bulk of the delicensing has been undertaken respectively in 1985, 1991 and 1997 (Aghion, et al. 2006). The dismantling these licensing requirements raises the possibility of delegation of work by reducing effective cost, by cutting down an extra-legal labour wage segment, such as cost of being audited and fined, for accessing informal workers. The delegation of work from formal to inform will raise the demand form informal work and push up the informal wage. On the other hand, formal wage will be under pressure because of the fall of demand and even in the presence of strong labour market institutions in the formal sector, the wage premium will come down. The possibilities of such a framework have been constructed with a model in the section II. A delicensed index has been constructed for broad industry division to examine the effect of it on the informal income. We have run correlation between per capital informal income and poverty ratio and estimate convergence of wage gap which has been reported in section III. Finally, section IV ends up with concluding remarks.

II. THE MODEL

The basic framework of the paper is on the line of research made in Marjit, Ghosh and Biswas (2006), Marjit, Kar and Beladi (2006) Marjit and Maiti (2007) and Koshela and Stenbacka (2007). We assume that a typical developing economy has two simultaneous producing sectors, where the production either can be undertaken in the formal sector or can be delegated to the informal sector for almost identical products. However, the technologies can be sector specific. If A_f be the capital intensive technique in formal sector and A_i be the labour intensive technique in the informal sector, the output of the respective sectors are $Y_f = (A_f L_f)^\rho$ and $Y_i = (A_i L_i)^\rho$ where labour and capital are substitutable within the sector. Now, if the sectoral output are substitutable, we can write CES production function assuming constant elasticity of substitution between two goods, $Y = \{Y_f^\rho + Y_i^\rho\}^{1/\rho}$ and $\sigma = \frac{1}{1-\rho}$, $\sigma > 0$. After substituting the output of two sectors, the production function for the economy can be written as follows.

$$Y = [b (A_f L_f)^\rho + (1 - b) (A_i L_i)^\rho]^{1/\rho} \quad (1)$$

i = Informal Sector, f = Formal Sector

L_f and L_i are respectively informal and formal labour which are effectively substitutable at $\sigma > 0$, $\rho > 0$. Here, b corresponds the amount of tasks being delegated or subcontracted to the informal sector, $0 < b < 1$. So, an increase of b would essentially mean to the some of the work previously performed by the formal workers being taken over by the informal work. As the change of b is arising out of the cost-cutting effect of delicensing, it should be thought as shift of demand for informal workers.

Let the wage rates of informal and formal workers are respectively w_i and

$w_f < w_i$. Usually the formal wage is higher than the informal wage and it is institutionally determined depending on the bargaining strength between labour market institution and firm and hence earns a wage premium. Although the strong bargaining power prevails from both ends, we can assume that the bargaining power over setting wage rate also depend on the market. On the other hand, those do not find any formal jobs and even can run independent set-up under limited liability, they crowd the informal and manage to find an alternative with a market determined wage rate. Under significant wage gap, there would be always a tendency of delegation of work to informal sector for cost minimisation. But the hiring the informal workers also requires cost. The two kinds of cost need to be considered here. One, because of the presence of licensing requirements for production set-up and capacity of utilisation, access of informal sector has been some sort of illegal. Hence, a cost arises in the form of bribery to officials to encounter these regulatory problems (Marjit, Ghosh and Biswas, 2006). Apart from this cost, there should be a sunk cost for delegation of production outside the firm because of the incomplete nature of contracts (Koskela and Stenbacka, 2007). Note that the first component can be eliminated by delicensing, but the second component of costs cannot be avoided because of the nature of contracts, and in other words the whole production can not be switched over to informal sector. Let, $\alpha(b)$ is the unit cost or marginal cost for delegation of task to be multiplied to the wage cost for addition informal worker, where $\alpha' > 0$, $\alpha'' = 0$. For example, if the total cost of delegation is $c(b) = \frac{\alpha^2}{2} b^2$, the marginal cost, $\alpha(b) = \alpha b$. Hence, the profit of the firm can be represented as follows,

$$\pi = [b(A_f L_f)^\sigma + (1-b)(A_f L_f)^\sigma]^{1-\sigma} - w_f \alpha(b) L_f - w_i L_f \tag{2}$$

Since we are looking at the effect of delegation on the wage gap, we have to solve optimum labour share and delegation of work. Using sequential game the model can be solved. In stage 1, the decision of delegation will be simultaneously and then in stage 2, wages and employment levels will be simultaneously determined in two sectors.

The profit maximising conditions for informal and formal workers are respectively,

$$\frac{\partial \pi}{\partial L_f} = b A_f^\sigma L_f^{\sigma-1} [b(A_f L_f)^\sigma + (1-b)(A_f L_f)^\sigma]^{1-\sigma} - w_f \alpha(b) = 0 \tag{3}$$

$$\frac{\partial \pi}{\partial L_i} = (1-b) A_f^\sigma L_f^{\sigma-1} [b(A_f L_f)^\sigma + (1-b)(A_f L_f)^\sigma]^{1-\sigma} - w_i = 0 \tag{4}$$

Rearranging (3) and (4), we can write

$$b A_f^\sigma [b A_f^\sigma + (1-b) A_f^\sigma \left(\frac{L_f}{L_i}\right)^\sigma]^{1-\sigma} = w_f \alpha(b) \tag{5}$$

$$(1-b) A_f^\sigma \left[b A_f^\sigma \left(\frac{L_f}{L_i}\right)^\sigma + (1-b) A_f^\sigma \right]^{1-\sigma} = w_f \tag{6}$$

Now, these two equations, (5) and (6), will solve — and b . Dividing (6) by (5), we get

$$\frac{w_f}{w_i} = \alpha(b) \frac{(1-b)}{b} \left(\frac{A_f}{A_i}\right)^\sigma \left(\frac{L_f}{L_i}\right)^{-\sigma(1-\sigma)} \tag{7}$$

Taking logarithm

$$\ln \frac{w_f}{w_i} = \ln \alpha(b) + \ln \left(\frac{1-b}{b}\right) + \sigma \ln \left(\frac{A_f}{A_i}\right) - (1-\sigma) \ln \left(\frac{L_f}{L_i}\right) \tag{8}$$

Substituting $w = \frac{w_f}{w_i}$ and ϕ , assuming $\alpha(b) = \alpha \cdot b$, $\alpha > 0$ for simplicity, we get

$$\ln w = \ln \alpha + \ln(1-b) + \frac{\sigma-1}{\sigma} \ln \left(\frac{A_f}{A_i}\right) - \frac{1}{\sigma} \ln \left(\frac{L_f}{L_i}\right) \tag{9}$$

The expression (9) is actually the equation of the demand curve for share of formal workers. Look at that the formal-informal wage gap, better to say wage premium, is inversely related to the share of formal workers as $\sigma > 0$. If the use for informal worker increases substituting the formal workers, the informal wage will fall and vice versa. Similarly, even if two workers are producing different goods (because of comparative advantages making them useful in different sectors), the greater number of informal workers will lead to a substitution of the consumption of the formal sector good by the informal sector. In both cases, this substitution effect hurts the relative earnings of informal workers.

The demand function also includes two parameters namely $\frac{A_f}{A_i}$, known as skill premium, and b , delegation effect. The demand curve will be shifted upward for the rise of technological difference and will be shifted downward for the rise of delegation effect.

Now, in the second stage, the optimum delegation decision will be solved from the maximisation of (2) with respect to b .

$$\frac{\partial}{\partial b} \left[b(A_f L_f)^\sigma - (A_f L_f)^\sigma \right] [b(A_f L_f)^\sigma + (1-b)(A_f L_f)^\sigma]^{1-\sigma} = w_f \alpha' L_f \tag{10}$$

Rewriting (9), we get

$$\left[A_i^\sigma - A_f^\sigma \left(\frac{L_f}{L_i}\right)^\sigma \right] \left[b A_i^\sigma + (1-b) A_f^\sigma \left(\frac{L_f}{L_i}\right)^\sigma \right]^{1-\sigma} = p w_f \alpha' \tag{11}$$

The expression (11) suggests the equilibrium condition for delegation. So, the optimum b could be solved from (11) and supply function of labour share can be shown in terms of b . Substituting (5) into (11), we get

$$\left\{ A_f^p - A_f \left(\frac{L_f}{L_i} \right)^p \right\} = \rho \alpha' \frac{b A_f^p}{\alpha(b)} \tag{12}$$

Putting $\alpha(b) = \alpha \cdot b$, $\alpha > 0$

$$\left\{ A_f^p - A_f \left(\frac{L_f}{L_i} \right)^p \right\} = \rho \alpha' b \tag{13}$$

Then,

$$\left(\frac{L_f}{L_i} \right)^p = (1 - \rho) \frac{A_f^p}{A_f} \text{ Or, } \frac{L_f}{L_i} = (1 - \rho)^{\frac{1}{p}} \left(\frac{A_f}{A_i} \right)^{\frac{1}{p}} \tag{14}$$

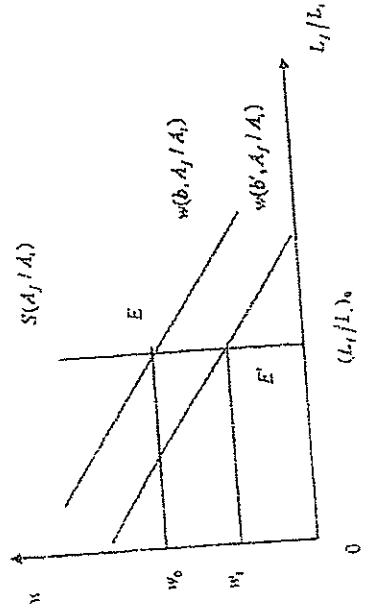
Taking logarithmic value of (13), we get

$$\ln \left(\frac{L_f}{L_i} \right) = \frac{1}{p} \ln(1 - \rho) - \ln \left(\frac{A_f}{A_i} \right)$$

The expression (15) is the supply function which perfectly inelastic.

Proposition 1: A rise of b leads the tendency of convergence of wage gap and demand and supply curve for relative share of formal workers together will provide an equilibrium rate of wage or formal wage premium (Fig. 1). Now the equilibrium wage premium depends on b , A_f / A_i and σ (shown in 16). A rise of b means the shift in demand for informal workers and fall of demand from formal workers. Because the marginal cost for delegation itself has shifted backward. The net effect leads to the downward shift of demand curve of relative share and the equilibrium will be reached at E' .

Figure 1: Delegation Effect on Wage Premium



$$\ln w = \ln \alpha + \ln(1 - b) + \ln \left(\frac{A_f}{A_i} \right) + \frac{1}{(\sigma - 1)} \ln \sigma \tag{16}$$

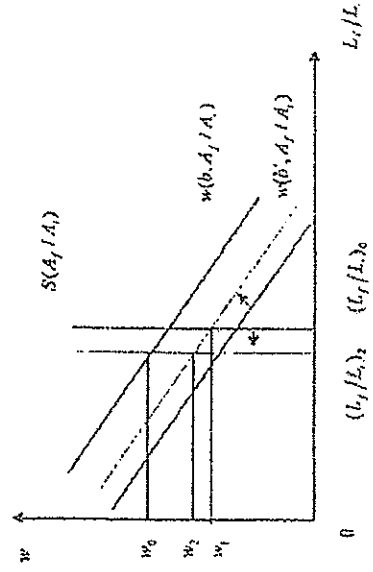
$$\frac{\partial \ln w}{\partial b} = - \frac{1}{(1 - b)} < 0$$

Proposition 11: (i) If the delegation along with technology supply to informal sector, the convergence of wage will be faster and (ii) if delegation for technological expansion informal sector, still the delegation effect will dominate.

Marjit (2003) has shown the possibility of technological shift for the rise of informal wage and Maiti (2000) in the survey has shown the evidence of supply of qualitative raw material, technical know-how and fixed assets to the informal producers along with the delegation of work. NSS report on organised manufacturing in 2000-01 also supports this claim. If the technology is supplied to the informal producers, A_f / A_i will fall. As a result the demand curve will be shifted downward further and supply curve will be shifted outward. The net effect will push down the wage premium (Fig. 2).

Now if we assume that technological expansion has made some work redundant for formal sector and those works will be delegated. Then, demand curve will tend shift upward, but can not be out weighted delegation effect and supply curve will be shifted inward. However, net effect of delegation still dominates. Suppose that there is a technological shift in the formal sector along with the delegation. So, even in presence of technological expansion in formal sector, delegation effect dominates to pull down the wage premium.

Figure 2: Effect of Delegation and Formal Technical Expansion on Wage Premium



$$S_{jt} = \frac{N_{jt}}{N_t}$$

We have run the following panel regression.

$$Y_{jt} = \alpha_0 + \beta_1 P_{jt} + \gamma X_{jt} + u_{jt} \tag{17}$$

Y_{jt} is the log of gross value added of the j^{th} industry group of s^{th} state in t^{th} period. α_0 is the state fixed effect. X_{jt} are some exogenous control variables in the model and u_{jt} is the random disturbance term. Among the control variables, we prefer to use openness index of the Indian states by Marjit, Kar and Maiti (2007). The way it has been constructed, all sorts of restrictions on factor mobility and resource abundance has been accounted.

To examine the relationship between informal income and poverty reduction, we run the following panel regression.

$$P_{jt} = \alpha_1 + \beta_2 S_{jt} + \gamma X_{jt} + u_{jt} \tag{18}$$

P_{jt} is the head count poverty ratio of s^{th} state at t^{th} period. The poverty ratio is measured in terms of head-count ratio (India Stat Website). I_{jt} is the per capital informal income (from NSSO) of the s^{th} state at t^{th} period. X_{jt} and u_{jt} have been defined for previous equation.

To examine the trend of wage ratio between sectors, the following regression has been run.

$$\frac{1}{T} \ln(w_{s,t,T} / w_{s,t}) = \alpha + (e^{-\rho} - 1) \ln w_{s,t} + \gamma X_{s,t} + u_{s,t} \tag{19}$$

Where $w_{s,t,T}$ is the formal-informal wage ratio of s^{th} state at the t^{th} period, $w_{s,t}$ is the formal-informal wage ratio s^{th} at the previous period and T is difference of two periods. $X_{s,t}$ and $u_{s,t}$ are as usual and ρ is the rate of convergence. Wage has been deflated by the consumer price index for industrial workers (RBI Website).

Results

At first, we have run the simple GLS regression of informal income on delicensed index without and with regional openness according to equation (17) and then checked whether state fixed is strong or not. In both case, the delicensed index has turned out to be highly significant and state fixed effect has not been significant (Table 2). Hence, there is no reason to deny the positive role of delicensing on the growth of informal income. The rise of the informal income can be thought as an increase of delegation rate. Since NSS report on earlier does not cover organisation characteristic, we can not find any comparative statistics. However, Table 3 gives an idea on how the contractual employment has increased even in the organised manufacturing sector. A host of current literature are upcoming which are addressing the increasing trend of subcontracting to informal sector. Maiti (2007) with an extensive survey in India observe that owing to exposure of reform independent production has been fragmented and more specific jobs have been delegating to specialised

III. EMPIRICAL METHOD

Database and Methodology

The model yields a prediction and that could be tested and such type of study on informal sector always suffers adequacy of information. The informal sector itself does not maintain proper accounts and has not been well-documented for empirical study. The National Sample Survey Organisation reports the information on informal industries (more specifically, unorganised industries in Indian context) since 1978-79 and conducts survey each after five years, i.e., 1978-79, 1984-85, 1989-90, 1994-94 and 2000-01. But, the problem is that these survey rounds do not provide all information in details. However, we have taken the Gross Value Added of the industries for informal income of major seventeen states at the 2-digit level. The report on 2000-01 has followed new definition of industrial coding according to NIC definition 1998, which is different from earlier rounds. In order to capture the impact of delicensing, we should loose the information on 2000-01 and looking at the 3-digit specification we have arrived into 12 major industry groups throughout the time span (Table 1) and this has been also used in Marjit, Kar and Maiti (2007). The manufacturing price index has been used to deflate the GVA at 1993-94 prices (RBI website).

TABLE 1

NIC 1987 and 1998 Classifications

Industry	1987 code		1998 code	
Food, Beverages and Tobacco	20-22		01405	15-16
Textiles	23-26		17-18	
Wood	27		20	
Paper	28		21-22	
Leather	29		19	
Chemical	30		24	
Rubber Plastics and Petroleum	31		23,25	
Non-metal	32		26	
Basic-Metals	33		27	
Metal Products	34		28	
Machinery and Equipment	35-36		29-33,36	
Transport	37-38		34-35	

Source: Marjit, Kar and Maiti (2007) and Summary Statistics, ASI (1997, 1998).

Aglietti, et al. (2006) has done excellent job identified the delicensing code according to NIC in 1987 and has used them as dummy variables into the model to examine the impact on organised manufacturing. Further Hansen, Mitra and Ural (2006) have taken the share of production of the delicensed industries at the state level as a proxy. As we have arrived at the broad industry division, it is better to construct a proxy variable for the extent of delicensing for these industries in stead of using the dummy variables S_{jt} is the share of delicensed industries for j^{th} industry group upto t^{th} time period, i.e.,

182 tied supplier while the formal producer concentrate on marketing and trading activities.

TABLE 2
Informal Income of Major States of India at the 2-digit Level, 1978-2000

Independent Variables	Log Informal Income	Log Informal Income
Delicensed Index	1.62*	1.58*
Regional Openness	0.27	0.02
Hausman		0.65

*Significant at 1% level.

We have run separate GLS regressions for combined, rural and urban poverty ratio on per capital informal income for major 17 states of India with regional openness as control variable. In all cases, the per capital informal income is highly correlated with the poverty (Table 4). So, one can not ignore the growth of informal income on the poverty reduction both in rural and urban area.

TABLE 3
Employment Characteristics of Organized Manufacturing in India, 1998-2003

Employment Characteristics	1998-99	1999-2000	2000-01	2001-02	2002-03
Persons Employed (%)	100	100	100	100	100
1. Workers	74.1	76.8	76.8	76.9	77.6
1.1 Directly Employed	62.6	61.7	61.1	60.1	59.7
1.2 Employed Through Contractors	11.5	15.2	15.7	16.7	17.9
2. Employees Other than Workers	25.9	23.2	22.3	22.3	21.5
2.1 Supervisory and Managerial Staff	11.7	10.0	9.5	9.7	9.4
2.2 Other Employees	14.2	13.2	12.7	12.6	12.2
No. of Persons Employed ('000)	8588581	8172836	7957780	7750366	7935948

Source: Annual Survey of Industries, Government of India.

TABLE 4
Head-count Poverty Ratio in India by Rural, Urban and Combined from 1978-2000

Independent variables	Combined Poverty ratio	Rural Poverty ratio	Urban Poverty ratio
Per capital informal income	-0.06*	-0.07*	-0.05*
Regional Openness	0.39	0.46	-0.07
Hausman	0.73	0.61	0.84

*Represents significant at 1% level.

As the large sections of the population are wage earner, we have run GLS on the wage ratio specified in (19). One major problem is that NSS report before 1989-90 does not cover the wage information. However, for the period

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from 1989 to 2001, informal wage has increased sharply in all the states while the formal wages are either more or less stagnant or have declined in most cases (Table 5). To estimate equation (19), we also run GLS and check the state fixed effect.

$$\frac{1}{T} \ln \left(\frac{w_{i,t+T}}{w_{i,t}} \right) = 0.04 * -0.13 * \ln w_{i,t} + 0.001 X_{i,t} \quad (20)$$

R² = 0.58, Hausman = 0.13. From the estimated equation, $\beta = -2.39$, i.e., the converging rate of wage gap is -2.39% per annum.

TABLE 5
Annual Real Wage per Worker by States

State	Formal wage			Informal wage		
	1989-90	1994-95	2000-01	1989-90	1994-95	2000-01
Andhra Pradesh	15632	18577	16637	2535	7441	7037
Assam	12661	15836	15836	3308	5324	7181
Bihar	40594	45614	47838	3607	5293	7974
Chhatisgarh	23478	23610	25715	6852	10739	12663
Haryana	27319	28486	27315	4460	9175	11028
Himachal Pradesh	21033	23157	21607	4912	6748	13009
Karnataka	28979	30313	28620	4446	8342	8392
Kerala	22728	20249	20249	2958	7530	9718
Madhya Pradesh	28356	30283	31362	4038	7966	8249
Maharashtra	42005	43694	37943	5233	10674	12695
Orissa	26777	27338	33683	3087	5781	6592
Punjab	23226	28693	20596	2958	8026	11274
Rajasthan	26315	29136	24311	978	8008	12177
Tamil Nadu	24483	24200	20796	3151	6812	9945
Uttar Pradesh	27224	29734	21663	3250	6036	8405
West Bengal	31611	32042	32630	5283	6828	8358
All India	27787	29820	25977	3710	7684	10064

Source: ASI and NSSO.

IV. CONCLUDING REMARKS

Among the policy variables of economic reform, India adopts delicensing policy of the industries from early 1980s which has turned out to be pro-poor policy measures. We argue with a simple model that as delicensing policy has cut down the extra-legal cost for delegation of production, the demand for informal labour increases and as result the informal income rises and wage gap between two sectors tends to converge with more delegation effect. We have constructed delicensed index for the broad industry division at the 2-digit for major state to see the impact on informal and the result are highly significant and positive. We have also found the significant impact of the growth of per capita informal income on poverty reduction and converging trend of wage gap between formal and informal.

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APPENDIX

Substituting (15) into (8), we get

$$\ln w = \ln \alpha + \ln(1-b) + \ln \left(\frac{A_f}{A_i} \right) - \frac{(1-\rho)}{\rho} \ln(1-\rho) \tag{A.1}$$

Substituting $\sigma = \frac{1}{1-\rho}$, we get

$$\ln w = \ln \alpha + \ln(1-b) + \ln \left(\frac{A_f}{A_i} \right) - \frac{1}{(\sigma-1)} \ln \left(\frac{1}{\sigma} \right) \tag{A.2}$$

$$\ln w = \ln \alpha + \ln(1-b) + \ln \left(\frac{A_f}{A_i} \right) + \frac{1}{(\sigma-1)} \ln \sigma \tag{A.3}$$

Proof of Proposition I:

Differentiating (A2) with respect to b

$$\frac{\partial \ln w}{\partial b} = -\frac{1}{(1-b)} < 0 \text{ and } \frac{1}{(1-b)} > 1$$

As we have assumed, $c(b) = \frac{c^2}{2}$, $b = b^{-1} (1/\alpha)$ at a given total cost. This implies that b is inversely related to α . Once the marginal rate of cost for delegation falls the demand for delegation will be shifted upward.

Proof of Proposition II:

Differentiating (9) with respect to $\ln(A_f/A_i)$, we get

$$\frac{\partial \ln w}{\partial \ln(A_f/A_i)} = \frac{\sigma-1}{\sigma} > 0. \tag{A.4}$$

This is actually a fraction as $\sigma > 0$. On the other hand, delegation effect is greater than one. So,

$$\left| \frac{\partial \ln w}{\partial b} \right| > \left| \frac{\partial \ln w}{\partial \ln(A_f/A_i)} \right| \tag{A.5}$$

Differentiating (16) with respect to $\ln(A_f/A_i)$, we get net effect

$$\frac{\partial \ln w}{\partial \ln(A_f/A_i)} = 1 \tag{A.6}$$