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The Influence of Labour Markets on FDI : Some Empirical Explorations in Export Oriented and Domestic Market Seeking FDI Across Indian States

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The Study

- This paper investigates the sensitivity of foreign direct investment to labor market rigidities in India.
- It moves beyond the traditional use of a single labour market variable (mainly wages) to a composite measure of labour market rigidities in the models of FDI.
- It distinguishes between domestic market seeking and export oriented FDI and analyses their determinants separately.
- Panel data of 11 years (1991-2001) across 25 Indian states is used for the econometric analysis

Why labour markets..

- Increasing numbers of countries have put almost similar liberal FDI policies in place, their existence is now becoming a minimum requirement, and no longer a significant point of differentiation.
- Host countries are gradually being evaluated by potential foreign investors on a broader base of policy considerations than the traditional ones.
- New policies are being embraced that have not specifically been considered in the FDI context in the past.
- Labour market reforms constitute one such policy. There is a growing recognition among governments in developing countries that labour market reforms are necessary for attracting FDI
- Though the impact of labour markets on FDI inflows has been subject to considerable debate, it remains thoroughly under researched.

Inter-state variation in FDI approvals : 1991-2001

State	Share in total FDI amount approved during 1991-2001 (%)	Share in total number of FDI collaborations approved (%)	Ratio of FDI to GSDP (%)
Maharashtra	33.92	24.12	0.674
Tamilnadu	13.55	14.01	0.479
Karnataka	11.8	12.8	0.56
Delhi	10.34	14.54	1.121
Andhra pradesh	8.8	6.58	0.31
West Bengal	8.25	3.57	0.514
Gujarat	3.7	4.89	0.175
Madhya pradesh	2.47	1.57	0.132
Uttar pradesh	1.76	4.58	0.053
Orissa	1.67	2.09	0.256
Kerala	1.19	1.71	0.083
Rajasthan	0.81	1.99	0.056
Haryana	0.75	4.41	0.085
Punjab	0.45	1.16	0.046
Goa	0.23	1.02	0.186
Bihar	0.22	0.45	0.014
Himachal Pradesh	0.0762	0.3564	0.075

Inter-state variations in Export oriented FDI Approvals : 1991-2001

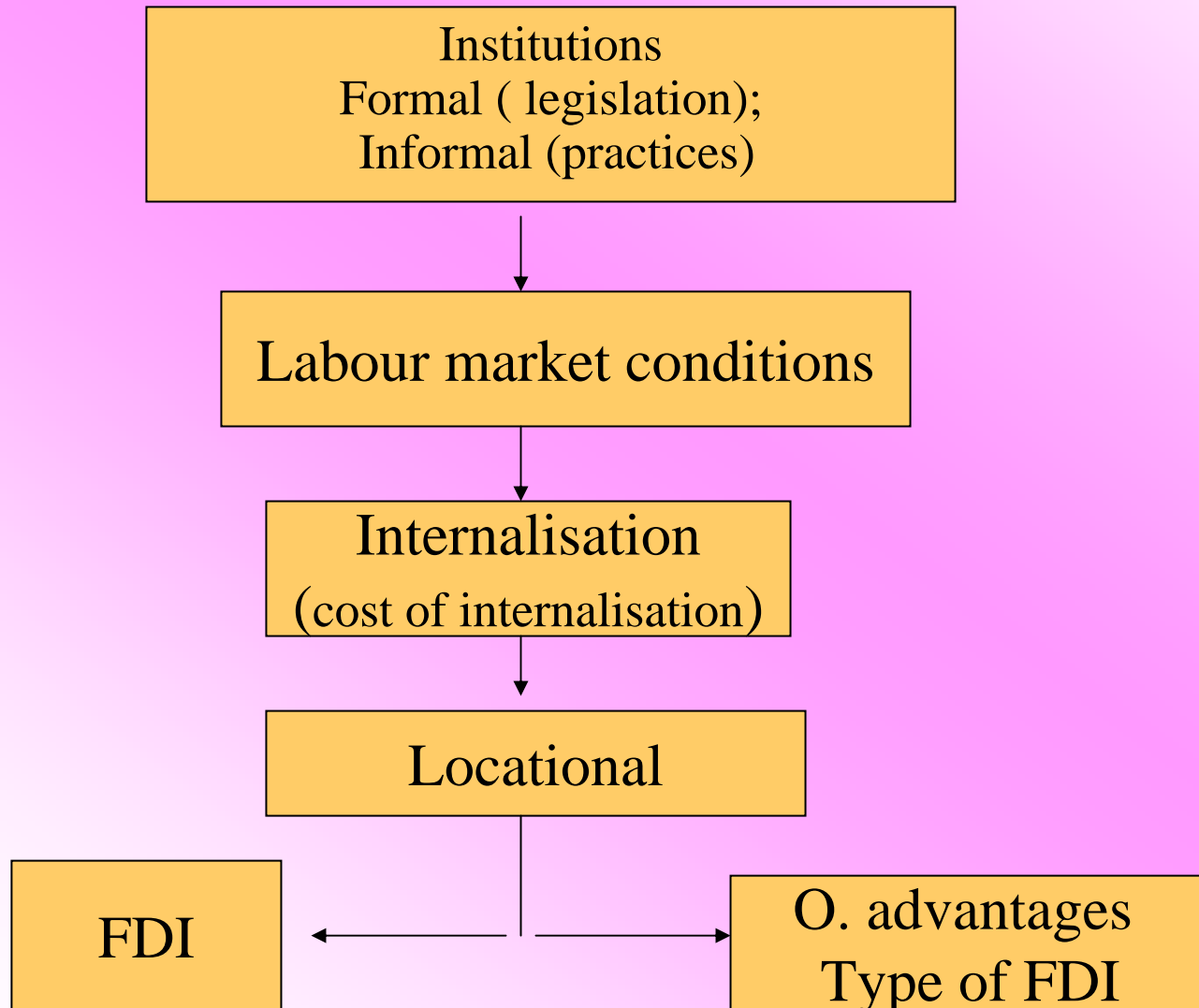
State	Share in the total EOU FDI amount (%)	Share in the number of EOU FDI approvals (%)
Andhra pradesh	35.601	20.558
Tamilnadu	24.770	22.589
Maharashtra	18.397	19.882
Gujarat	7.874	6.599
West bengal	4.336	3.046
Uttar pradesh	4.218	6.599
Kerala	2.318	4.569
Orissa	0.764	0.592
Karnataka	0.756	6.684
Madhya Pradesh	0.436	3.130
Haryana	0.116	1.184
Rajasthan	0.115	1.269
Delhi	0.102	1.015
Punjab	0.098	1.523
Goa	0.065	0.254
Himachal pradesh	0.018	0.085
Jammu & Kashmir	0.010	0.085
Bihar	0.004	0.254
Tripura	0.001	0.085

Three things may thus be observed...

- One, there are wide variations in the FDI inflows across states.
- Two, the distribution of export oriented exports is more skewed as compared with overall FDI. Only seven states accounted for over 97% of the total amount of export oriented FDI during 1991-2001 whereas the top seven states account for 83% of total FDI approvals.
- Three, state-wise distribution of export oriented FDI approvals differ from that of total FDI approvals. We may therefore expect difference in the determinants of the market seeking and export oriented FDI.

Theoretical framework

The theoretical underpinning is provided by integrating the OLI framework of FDI with the 'institutional theory



The Model

- $FDIEOU = A1 (MKTSIZE) + A2(MKTGRTH) + A3(LABCOST) + A4(LABRDGT) + A5(EDUCATION) + A6(RDS) + A7(DEVINDE X) + A8(MINERALS) + A9 EPZ$
- $FDIDOM = A1 (MKTSIZE) + A2(MKTGRTH) + A3(LABCOST) + A4(LABRDGT) + A5(EDUCATION) + A6(RDS) + A7(DEVINDE X) + A8(MINERALS)$

The dependent variable : Foreign Direct Investment

- Two sets of indicators of the dependent variable are used. While one set of variables represents the number of approvals (Discreet), the other is concerned with the share of each state in total approvals (continuous).
- NOFDIEOU_{it} : No. of foreign collaboration involving equity approved in the export oriented sector in state i in year t
- NOFDIDOM_{it} : No. of domestic market seeking foreign collaborations involving foreign equity approved in state i in year t
- Set II
- ShareFDIEOU_{it} : Share of state i in total number of export oriented FDI approvals in year t
- ShareFDIDOM_{it} : Share of state i in total number of domestic market seeking FDI approvals in year t
- (Gaps in the year-wise data on amount)

Construction of the dependent variable

- Rigidity in wage determination: Residual of
- $WAGEDET_{it} = W_{it} - (a_i + a_{1i} \text{Productivity}_{it})$
- Rigidities in wage structure
- $WAGEST_{it}$: the ratio of other benefits to wages in state i in year t
- $UNION_{it}$: Total membership of unions/ total workers in state i in year t
- $INDREL_{it}$: mandays lost in industrial disputes/ total mandays in state i in year t
- To overcome the problem of multi collinearity linked to correlation of these variables, we have developed a composite labour market rigidity index using the Principal Component Analysis. The PCs were calculated after logarithmic transformation from annual panel data

Inter-state variations in labour market conditions

- Legislation : In India, labour market regulations are in the concurrent list. In practice, major labour laws come under the jurisprudence of the Centre. State governments may pass amendments or some bye laws affecting labor laws. This introduces, and also allows for the possibility of heterogeneity in labour market conditions at the state level.
- Practices: Besides, Indian states differ considerably in terms of economic, social, political and historical processes. These disparities which shape the labour institutions influence the enforcement of the laws. Labour market conditions therefore are likely to differ widely across states.
- The inter-state analysis makes it possible to keep a number of national level factors (FDI policies, trade policies, macro economic policy, exchange rates and regional and bilateral treaties) constant while allowing us to focus on labour markets.

Control variables

- LABOUR COST per manday in state i in year t was deflated by the industrial workers' consumer price index in state i in year
- HUMAN CAPITAL : (Share of individuals with higher education : $EDUCATION_{it}$) : Ratio of enrolment in graduate and above courses to total enrolment in state i in year t
- TECHNOLOGICAL DEVELOPMENT (R&D expenditure intensity, RDS_{it}) = Total industrial R&D expenditure in state i in year t / Gross state domestic Product at current price in state i in year.
- ECONOMIC DEVELOPMENT: It is a composite measure capturing 4 different aspects of development namely, per capita income, extent of industrialisation, nature of industrialisation and infrastructure.

Cont...

- **INFRASTRUCTURE** : is a composite index of PCA of four different aspects of core industrial infrastructure namely, railway route length per 000 sq. km of area, density of roads per '000 sq.km of geographical area, No. of fixed lines per 1000 population and the installed capacity of electricity generation normalised by population
- $MKTSIZE_{it}$: log of net domestic product in state i in year t at factor cost at 1993-94 prices.
- $MKTGRTH_{it}$: growth rate in state net domestic product at factor cost at 1993-94 prices in state i in year t
- $MINERAL_{it}$: Total value of mineral production per square km. of area in state i in year t
- **SEZ/EPZ**: Dummy for the presence of SEZ/EPZ

Estimation Techniques

- Discrete model : the dependent variable is a non negative discrete variable. Poisson regression model is widely used in such cases. But rejected due to over dispersion. Therefore, results based on the negative binomial specification were reported.
- *Continuous : Panel corrected standard errors Model (PCSE). PCSE technique controls for the problems of heteroskedasticity and serial autocorrelation and hence generates reliable results.*
- *The ‘Cook –Weisberg’ test for heteroskedasticity indicated the existence of heteroskedasticity. The ‘Woolridge Test’ of auto correlation suggested the presence of autocorrelation.*

Negative Binomial distribution Model

	NOFDIEOU		NOFDIDOM	
	1	2	3	4
MKTGRTH	0.001765	0.002234	0.007318	0.008078
	(0.13)	(0.17)	(0.99)	(1.06)
MKTSIZE	1.1635	1.174409	1.340055	1.322764
	(5.99)	(6.03)	(8.6)	(8.04)
DEVINDEX	0.467507	0.543095	0.604487	0.631687
	(3.31)	(3.53)	(4.93)	(4.96)
LABRGDT	-0.29774	-0.31131	-0.17679	-0.18755
	(-1.68)	(-1.76)	(-1.46)	(-1.49)
LABCOST	-0.96667	-1.18614	0.603268	0.607666
	(-1.62)	(-1.66)	(1.18)	(1.2)
EDUCATION		-8.15929	6.677243	4.665455
		(-1.11)	(1.69)	(0.9)
MINERALS	-2.9E-05	0.000201		0.003857
	(-0.03)	(0.2)		(0.65)
RDS				-22.1916
				(-0.9)
EPZ	0.392719	0.296465		
	(1.55)	(1.31)		
CONSTANT	-22.0097	-21.9408	-25.3969	-24.982
	(-5.92)	(-5.91)	(-8.53)	(-7.97)
Wald chi2	102.78	106.4	204.96	207.29
No of obs	163	163	151	151

Panel Corrected Standard Error Models

	shareFDIEOU		shareFDIDOM	
MKTGRTH	-0.0000834	-0.0000832	0.0546341	
	(-1.38)	(-1.38)	(-1.51)	
MKTSIZE	0.002409	0.0035591	0.0154939	-0.0151429
	(2.85)^a	(3.96)^a	(3.99)^a	(3.87)^a
DEVINDEX	0.0024431	0.0024821	0.0169142	0.0155478
	(2.96)^a	(2.88)^a	(3.52)^a	(3.3)^a
LABRGDT	-0.001449	-0.0015279	-0.005285	-0.0046859
	(-2.96)^a	(-2.34)^b	(-1.67)^c	(-1.48)
LABCOST	-0.0073312	-0.0087994	0.0019917	0.0102636
	(-1.66)^c	(-1.71)^c	(0.08)	(0.43)
EDUCATION	-0.0389547	-0.0559711	-0.059996	-0.0297209
	(-0.61)	(-0.86)	(-0.17)	(-0.08)
MINERALS	5.83E-06	7.52E-06	-0.0000287	-0.0000298
	(1.55)	(1.67)^c	(-1.06)	(-1.08)
RDS	0.1232142	0.0639925	6.802874	6.613321
	(0.38)	(0.2)	(4.67)^a	(4.41)^a
EPZ	0.0039922			
	(2.13)^b			
CONSTANT	-0.0386483	-0.0580765	-0.2640641	-0.2651332
	(-2.51)^a	(-3.61)^a	(-3.52)^a	(-3.54)^a
Wald chi2	41.93	37.17	77.9	72.84
No of obs	156	156	151	151
^a significant at 1%, ^b significant at 5% · ^c significant at 10% (Two tailed tests are used)				

Implications

- The effect of labour market rigidities and labour cost is more pronounced for the export oriented FDI as compared with the domestic market seeking FDI.
- Due to stiff political opposition any major change in labor laws may be ruled out. However, the government would do well by concentrating on reforms in the export sector.
- It is documented in the literature that export oriented FDI may have greater spill over effects also (India vs China)
- The presence of EPZs is also found to be a relevant pull factor for export oriented FDI even though attracting FDI is not a stated objective of the EPZ policy in India
- Econometric evidence found in the study suggests that infrastructure and regional development are key factors in attracting higher FDI both in the export and domestic market sectors.