

# Do Constraints to Growth Vary by Firm Size? Evidence from India Over a Period of Trade Liberalization\*

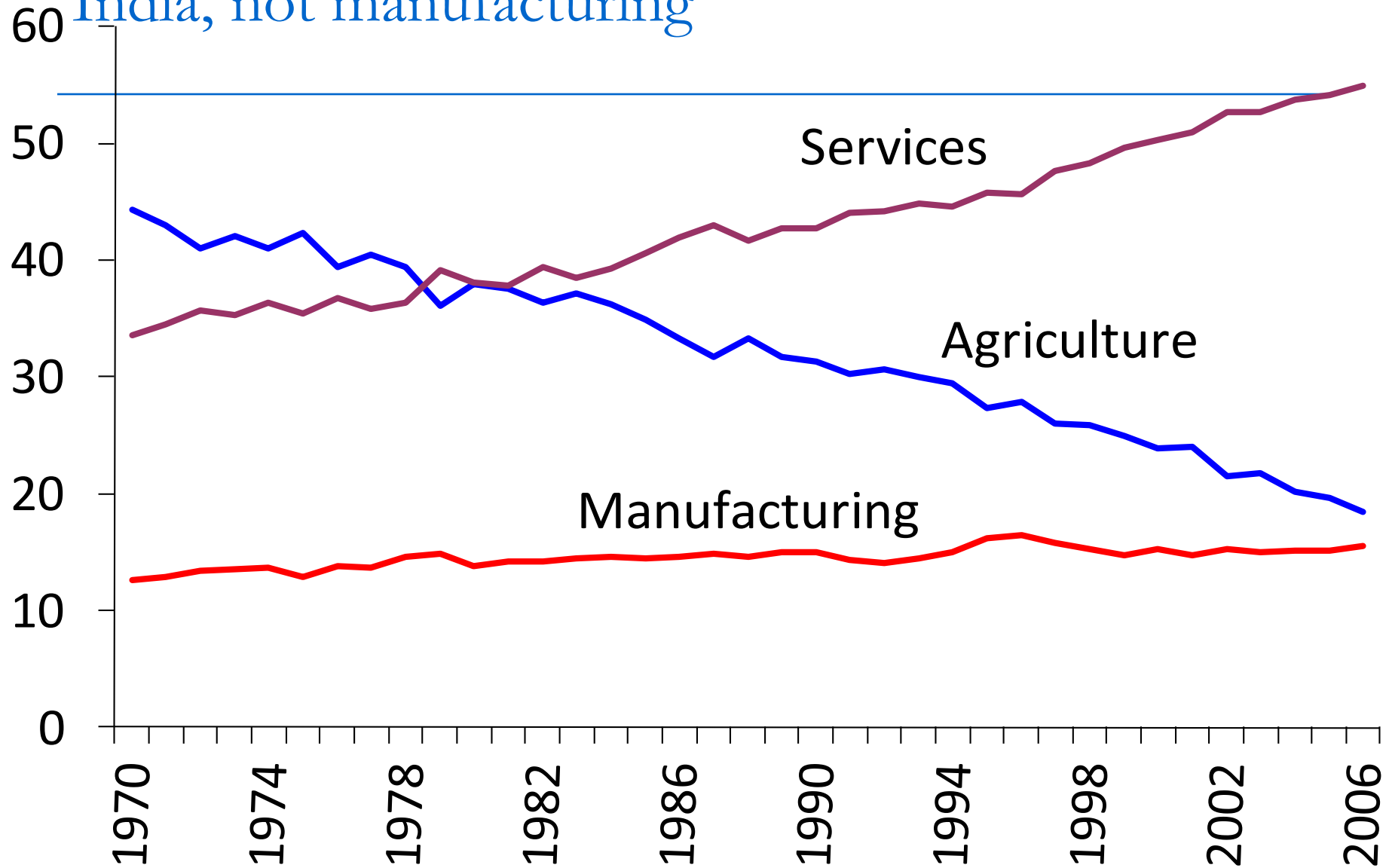
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Rana Hasan

Asian Development Bank

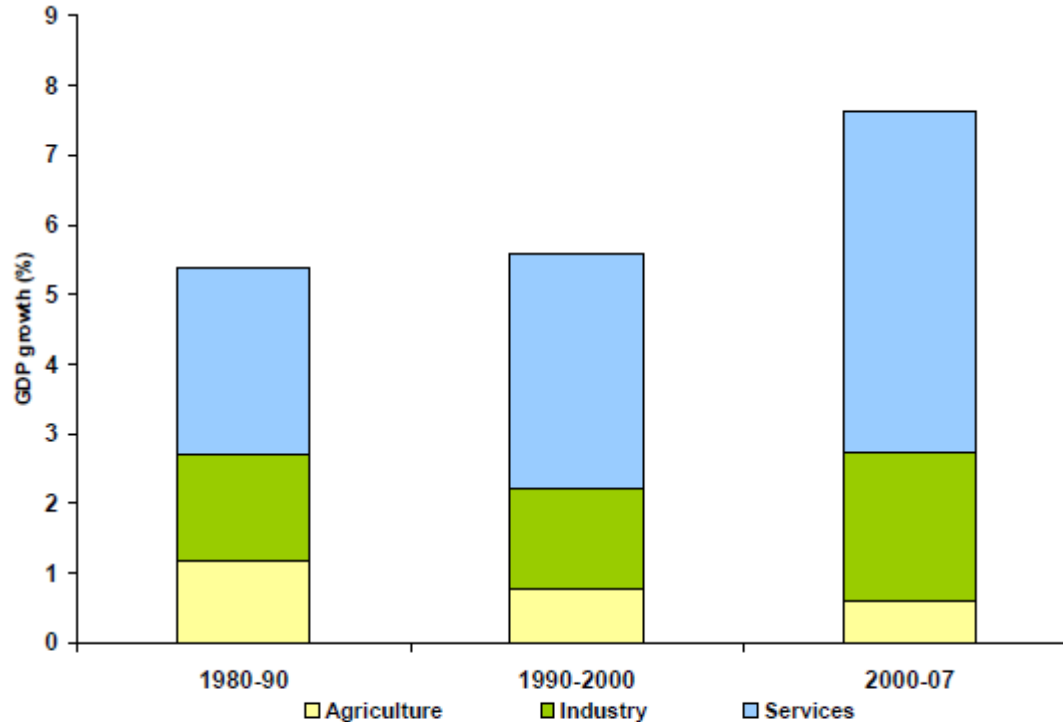
Based on previous and ongoing research with Poonam, Gupta, Utsav Kumar, Karl Jandoc and Niny Khor.

# Services has been the main engine of growth in India, not manufacturing



# Sectoral contribution to GDP Growth

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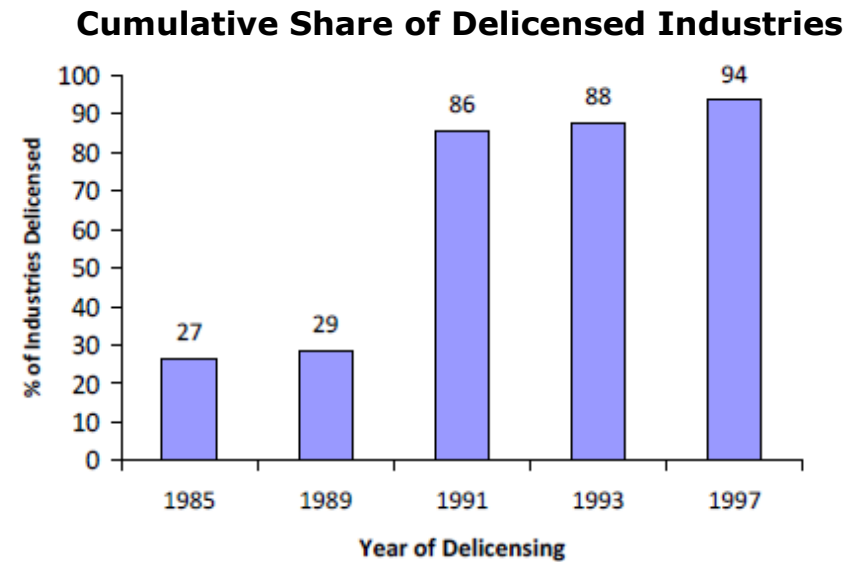
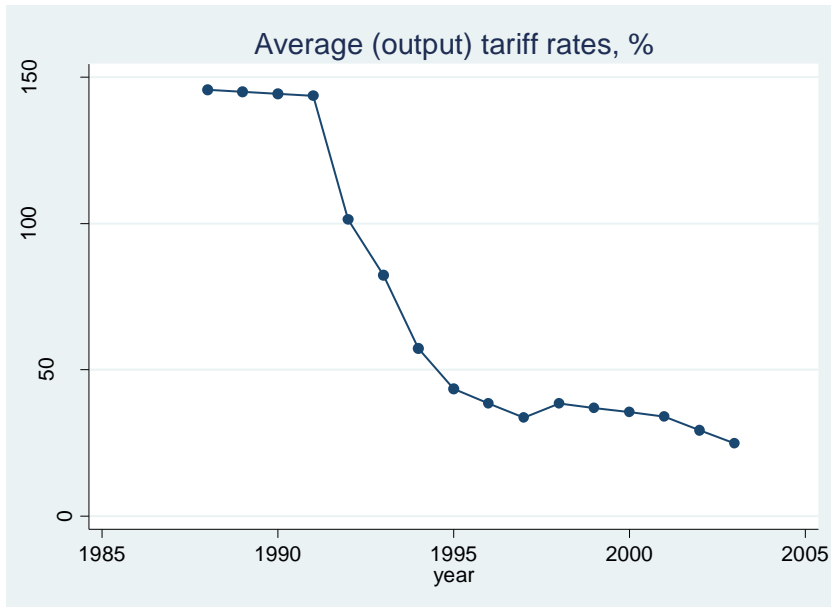


Source: CSO National accounts data, at 1999-2000 prices. Sectoral shares used in the calculation of contribution of the three sectors to overall GDP growth are based on the average shares in the three periods respectively. GDP statistics for the fiscal year 2007-08 are based on advanced estimates and are subject to revision.

Gupta et al (2009)

# Surprising given the focus of reform measures on the manufacturing sector

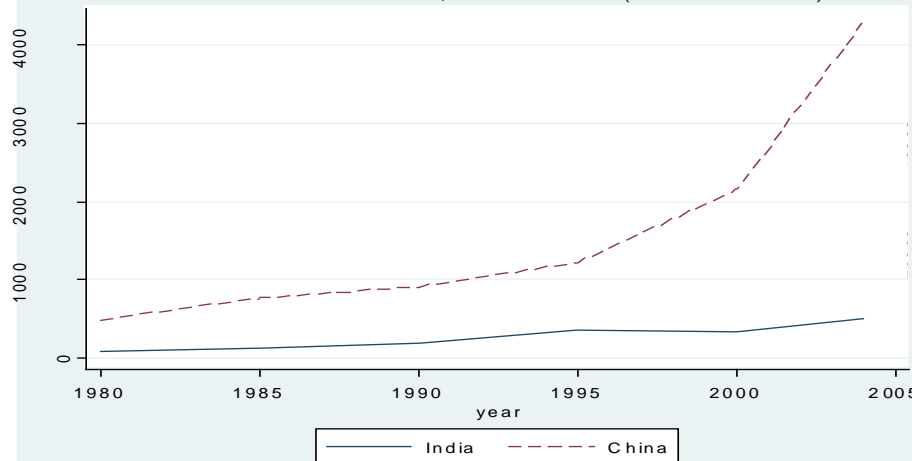
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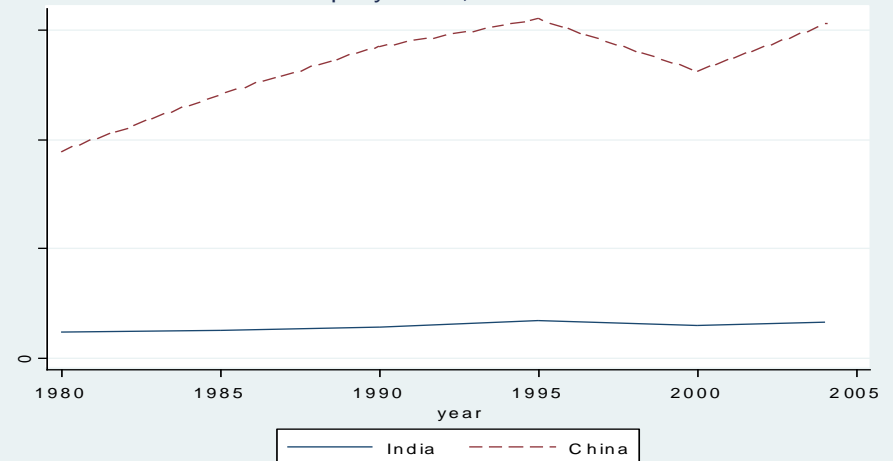
Source: Aghion et al and Gupta et al.

# Some comparisons with China ...

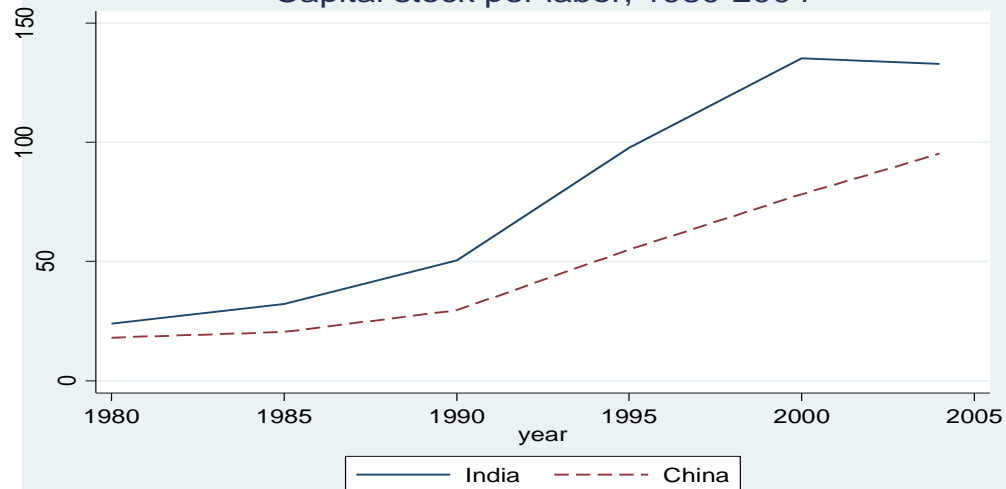
Gross value added, 1980-2004 (in thousands)



Employment, 1980-2004



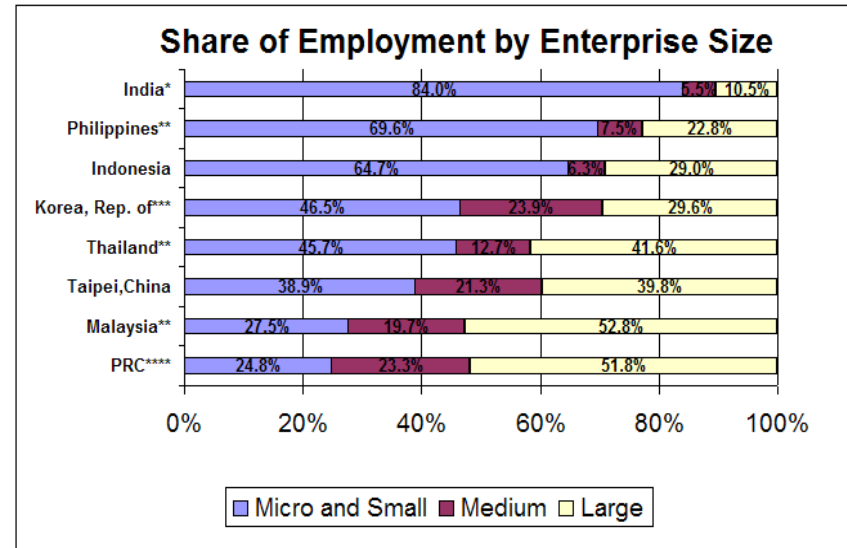
Capital stock per labor, 1980-2004



Capital stock per labor in thousands of 1995 Chinese Yuan per labor.

# In the meantime, Indian firms continue to remain small

- Microenterprises (1-4) and small enterprises (5-49) account for 84% of total manufacturing employment in India (37.5 million out of 44.6 million in 2005)
- This is a very high share in comparison to many comparators in the region (for which detailed size distribution data is available).



Notes: Micro and Small: 1-49 workers in all countries except Thailand (1-50 workers); Medium: 50-199 in all countries except Thailand (51-200 workers); Large: 200 or more workers in all countries except Thailand (more than 200 workers)

\* India's manufacturing employment includes workers in own-account manufacturing enterprises (OAME)

\*\* includes imputation for the self-employed based on differentials between LFS and enterprise survey/census data

\*\*\* data on Korean microenterprises are not available

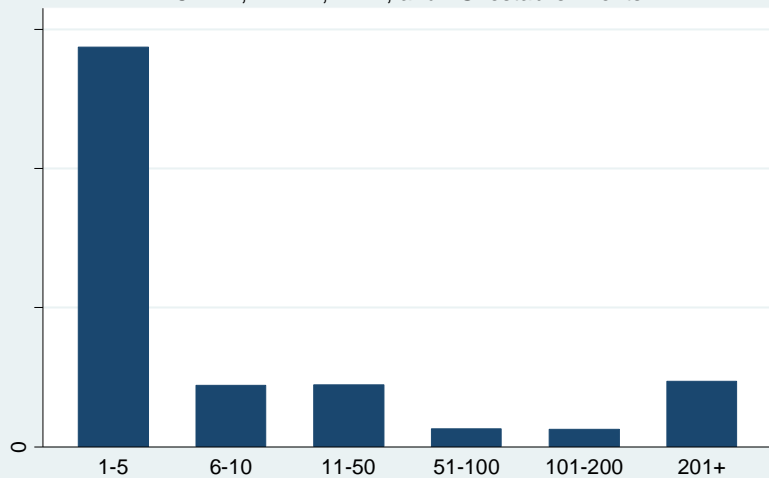
\*\*\*\* adds the 5.9 million self-employed described in Box 3.1

Source: ADB staff estimates

# In fact, very small...

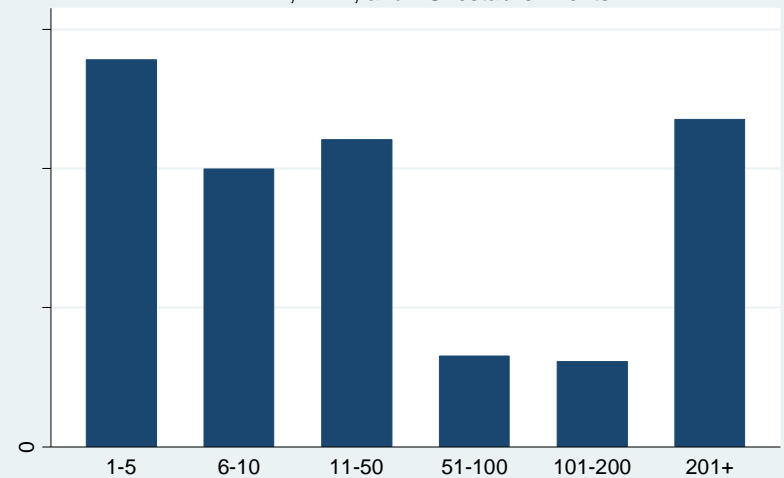
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Employment by employment size groups  
OAME, NDME, DME, and ASI establishments



Source: Authors' estimates based on NSSO 2005-06 (R62) and ASI 2004-05

Employment by employment size groups  
NDME, DME, and ASI establishments

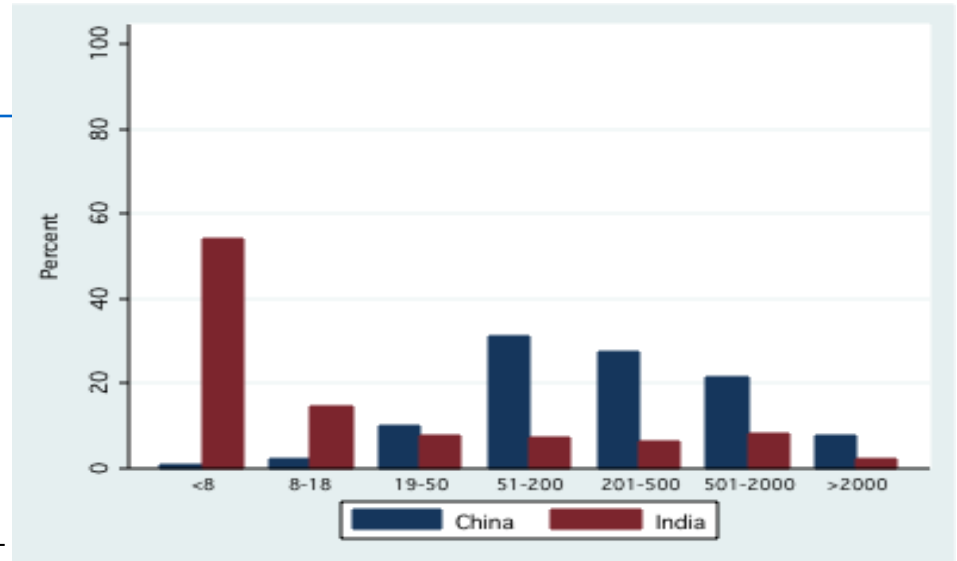


Source: Authors' estimates based on NSSO 2005-06 (R62) and ASI 2004-05

## Why does this matter?

### Case of apparel

- Many Indian apparel producers operate at very small scales
- It is not profitable to utilize modern production methods at very low scales
- “Productivity is low not because tailors are using the wrong technology given their size, but because tailoring firms are too small to benefit from the best technologies....” (Banerjee & Duflo)



\*Size is defined in terms of number of employees.

### Spreading Machine





# What could be constraining (relative) dynamism of Indian manufacturing?

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- Infrastructural deficiencies
- Labor regulation
- Financing constraints
- Hysteresis (e.g., small-scale industry reservations)
- Land acquisition
- Labor quality/skills
- Coordination failures and/or learning related externalities (e.g., electronics a-la Hausmann and Rodrik)

# Quick aside on labor regulations

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- Many regulations at Central and State level
- Industrial Disputes Act
  - Requires permission of government for laying off workers (for firms with 100+ workers since 1982)
  - Sets conciliation, arbitration, and adjudication procedures to be followed in the event of a dispute
  - Requires 21 days notice for changes to service conditions

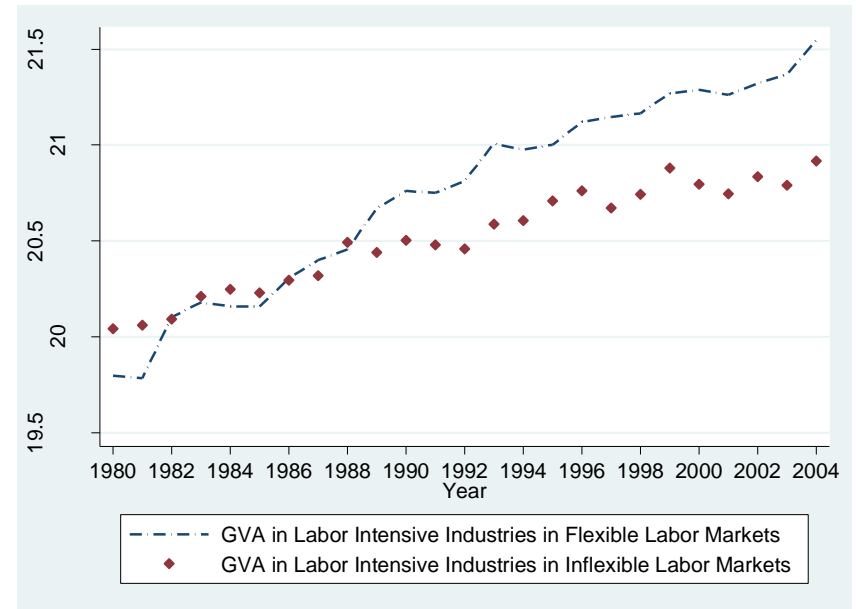
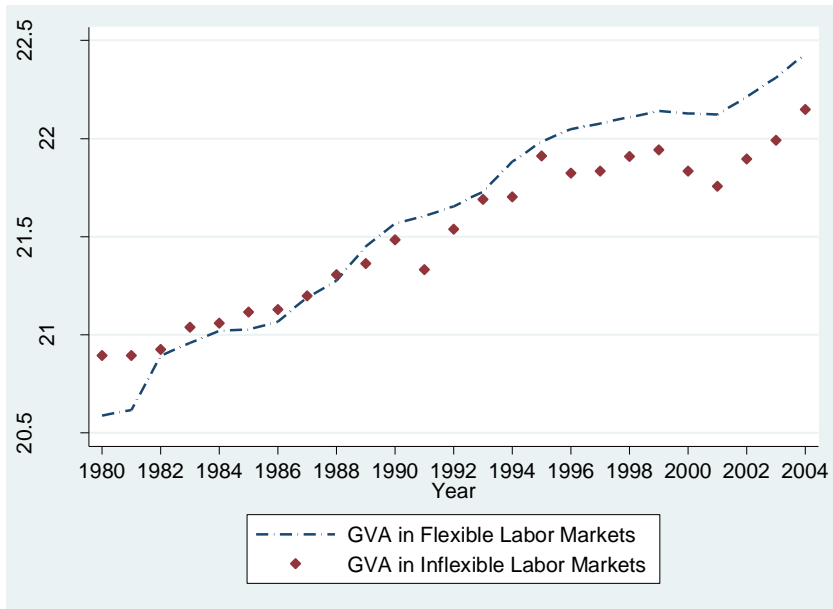
# Econometric studies on the impact of potential constraints on Indian manufacturing

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- Labor regulation: Besley and Burgess (2004); Aghion et al (2008); and Ahsan and Pages (2007)
- Financing constraints: Banerjee and Duflo (2008)
- Combination of constraints (infrastructure, labor regulations, and access to finance): Gupta et al (2008) and Li et al (2011)

- 
- Aghion et al and Gupta et al examine the effects of potential constraints in the context of delicensing reforms.
  - Both exploit state level variation in the business environment (regulatory characteristics and infrastructure)
  - Gupta et al further exploit industry characteristics – e.g., if the bite of labor regulations is greater for labor intensive industries, do we see labor intensive industries doing relatively poorly in states with pro employee regulations?

# Example: Value added across state type and industry type



# Methodology

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$$\begin{aligned} y_{ist} = & \alpha_{is} d_{is} + \beta_{st} d_{st} + \theta_i \text{trend}_i \\ & + \gamma (\text{delicensing}_{it}) \\ & + \delta (\text{industry characteristic}_i * \text{delicensing}_{it}) + \pi \\ & (\text{state characteristic}_s * \text{delicensing}_{it}) \\ & + \tau (\text{state characteristic}_s * \text{industry} \\ & \text{characteristic}_i * \text{delicensing}_{it}) \\ & + \mu \text{ other controls} + \varepsilon_{ist} \end{aligned}$$

# Key results....

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- Post-delicensing: industries dependent on infrastructure, dependent on the financial sector and the labor intensive industries have grown less
  - Infrastructure, financial sector imperfections, labor regulations emerging as bottlenecks on growth?
- Post-delicensing: states with more developed infrastructure, and financial sector have grown faster.
- Labor intensive industries have grown slowly, particularly in states with pro labor regulations.
- Employment generation has been slower in states with pro labor regulations

# An ongoing extension

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- Introduce informal manufacturing into the picture
- Use establishment level data for formal and informal firms
- Allow the effects of the business environment on firms to vary by firm size
- Introduce trade liberalization into the analysis
  - Are the effects of trade liberalization contingent on the business environment and firm size?
  - In particular: Does growth in VA and employment vary by state-level differences in “business environment” characteristics and enterprise size?



# Econometric specification (1)

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- Baseline:

$$\ln Y_{jkst} = \beta_j + \beta_k + \beta_s + \mu TREN D_{jt} + \gamma (Z_s * TREN D_{jt}) + \varepsilon_{jkst}$$

- $Y_{jkst}$ : measure of industrial performance (gross value added or employment)
- $Z$  the set of state policy environment and characteristics
- $j$ : size group a firm belongs to,  $k$ : industry,  $s$ : state,  $t$ : time
- $G$ : size groups -- micro enterprises (1-5 workers), small firms (6-49 workers), medium-sized firms (50-199 workers), large firms (200 or more workers).
- $TREN D$ : linear time trend, varies by the size group  $j$
- $\beta_j, \beta_k, \beta_s$  respectively denote size group, industry and state fixed effects.

# Econometric specification (2)

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- Augmented

$$\begin{aligned} \ln Y_{jkst} = & \beta_j + \beta_k + \beta_s + \theta TARIFF_{kt} + \pi(G_j * TARIFF_{kt}) \\ & + \gamma (Z_s * TARIFF_{jt}) \\ & + \tau(Z_s * TARIFF_{jt} * G_j) + \varepsilon_{jkst} \end{aligned}$$

- Triple interaction term captures heterogeneity of effects of tariffs across firm-size groups in various business environment

# Data: firms

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- Annual Survey of Industry:
  - Covers firms that are *registered* under the Factories Act (firms that use electricity and hire more than 10 workers)
  - Survey of registered firms with less than 100/200 workers
  - Census for registered firms bigger than 100/200 workers
- NSSO survey:
  - A once in five-year survey of “unorganized” (or informal) enterprises
- 3 rounds in 1994, 2000, 2005
- Build panel of state-industry data on value added and employment for four types of firms: micro enterprises (1-5 workers) and small (6-49 workers), medium (50-199 workers), and large sized (200 or more workers) firms.

# Descriptive Statistics

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**Table 1. Number of Firms in ASI and NSSO, 1994, 2000 and 2005**

Dataset	1994		2000		2005	
	Sample	Population	Sample	Population	Sample	Population
ASI	47,121	97,846	26,611	106,205	33,838	110,873
NSSO	142,780	11,575,745	196,385	16,306,696	72,109	16,496,285
of which:						
OAME	110,899	9,908,945	129,921	14,163,075	48,049	14,182,576
NDME	19,010	1,112,885	42,384	1,556,979	15,311	1,669,454
DME	12,871	553,915	24,080	586,642	8,749	644,255

note: ASI = Annual Survey of Industries; NSSO = National Sample Survey Organisation Survey of Unorganised Manufacturing Enterprises

OAME = own-account manufacturing enterprises; NDME = non-directory manufacturing enterprises; DME = directory of manufacturing enterprises

Source: Authors computations based on ASI (various years) and NSSO (various years)

# State-level characteristics

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- Physical infrastructure indices (principal components):
  - Kumar (2002) and Ghosh and De (2004)
- Financial development:
  - Kumar (2002), Ghosh and De (2004);
  - Proportion of firms in each state reporting “shortage of capital” (from NSSO);
  - Proportion of firms in each state acquiring loans from any formal institution (from NSSO)
- Labor Market Flexibility:
  - Besley and Burgess (2004) → Flex1
  - Hasan, Mitra, Ramaswamy (2006) → Flex2
  - Gupta, Hasan and Kumar (2009) → Flex3 [drawing upon Besley and Burgess, OECD (2007), and Bhattacharjea (2006 and 2008)]
  - Share of contract workers in formal sector
- Product Market Regulations
  - Gupta, Hasan and Kumar (2009) [drawing upon OECD (2007) and World Bank (2004)]

# State-level characteristics

	Physical Infrastructure		Financial Development				Labor Regulations			Product Market Regulations
	Ghosh and De	Kumar	Ghosh and De	Kumar	Loans from Formal Sources	Difficulty of Obtaining Capital	Besley and Burgess	Hasan, Mitra and Ramaswamy	Gupta, Hasan and Kumar	Gupta Hasan and Kumar
							(flex 1)	(flex 2)	(flex 3)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh	1	0	1	0	0	1	1	1	0	
Assam	0	0	0	0	0	0	0	0	0	
Bihar	0	0	0	0	0	0	0	0	0	
Gujarat	1	1	1	1	0	1	0	1	0	
Haryana	1	1	1	1	1	1	0	0	1	
Karnataka	0	0	1	1	1	1	1	1	1	
Kerala	1	1	1	1	1	1	1	0	0	
Madhya Pradesh	0	0	0	0	0	0	0	0	0	
Maharashtra	1	1	1	1	1	1	0	1	0	
Orissa	0	0	0	0	1	0	0	0	0	
Punjab	1	1	0	1	1	0	0	0	1	
Rajasthan	0	0	0	0	1	0	1	1	0	
Tamil Nadu	1	1	1	1	0	1	1	1	1	
Uttar Pradesh	0	0	0	0	0	0	0	1	0	
West Bengal	0	0	0	1	0	0	0	0	0	

note: see text for descriptions of each measure;

For infrastructure and finance: 1=more developed; 0=less developed

For labor regulations: 1=pro-employer ; 0=pro-employee

For product market regulations: 1=competitive; 0=restrictive

# Results on growth in VA and employment

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- Relative to large firms, micro enterprises tend to grow slower, and small and medium-sized firms tend to grow faster in states with a better business environment.
- These results are consistent with the notion that business environment related constraints to growth impinge the most on small and medium-sized firms.

# Results on tariff reductions

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- Reductions in tariff rates are associated with increases in value added and employment among micro enterprises in states with better business environments.
- In these states, small and medium-sized firms tend to experience lower growth of value added and employment relative to larger firms on account of reductions in tariffs.
- It is difficult to say why the results for trade liberalization differ from those involving just the analysis of trend growth in value added and employment.
- However, the results on trade liberalization are consistent with the recent work of Nataraj (2009)
- To the extent that many of the elements of the business environment that we consider in this paper make for a more competitive environment, the effects of trade liberalization are likely to be felt more quickly and/or more fully in states with a better business environment.



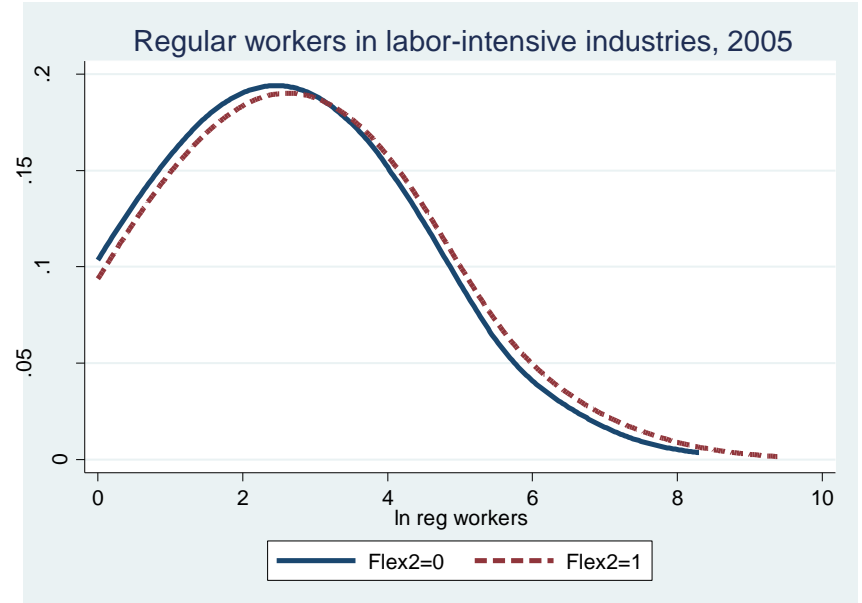
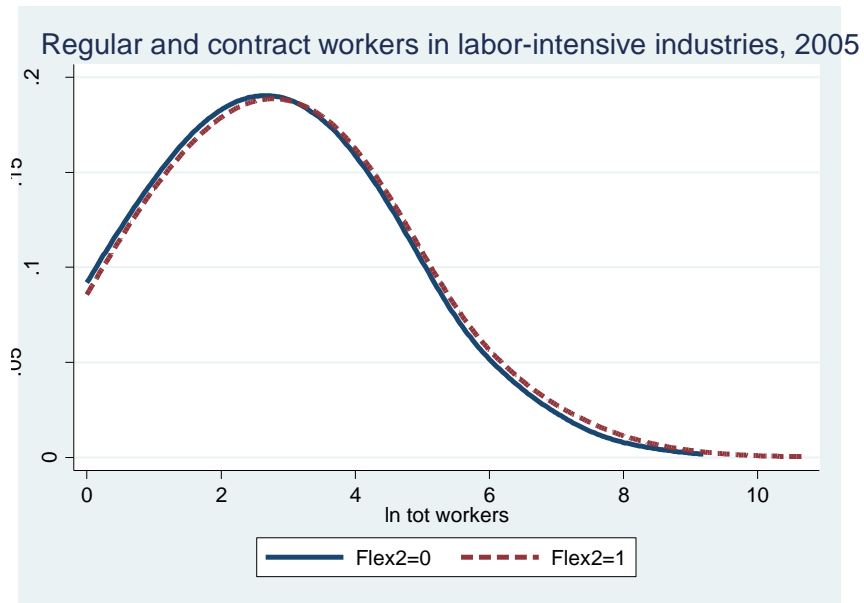
# Tying the results to the policy debate

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- Results on infrastructure are the least controversial
- General acceptance of the notion that a “good” business environment is key for manufacturing dynamism
- Results on labor regulation attract the most attention and criticism
  - Problems with the state-level coding
  - The issue of contract labor as a way of getting around labor laws
- As does the idea that (very) small firms may not be very dynamic

# Aside: Can the coding be all that bad?

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Perhaps implementation of the National Manufacturing Policy will give us the experiment we need...

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- National Investment and Manufacturing Zones
  - **Fund for paying severance to workers**
  - **Third party inspections for compliance of both environment and labour norms.**
  - A single window clearance mechanism to cut red-tape
  - Fiscal incentives, especially for the micro, small and medium enterprises.
  - Tax breaks for skill development institutes.
  - A Technology Acquisition Fund
  - Special support to employment-intensive industries to ensure job creation

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# Thank you

Rana Hasan

India Resident Mission  
Asian Development Bank

[www.adb.org](http://www.adb.org)

# Some features of the data

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- OAME dominate the national landscape. There were 14.2 million of such enterprises compared to around 1.4 million of the other two combined in 2005.
- However, 76% of such enterprises are based in rural areas.
- Once we think in terms of urban areas only, the distribution is more balanced (3.4 million OAME versus 1.4 million of the other two)
- In fact, the other two generate more employment in urban areas than OAME -- 7.2 million versus 5.6 million, respectively. (The corresponding rural employment figures: 5.2 million versus 17.5 million!)

# Growth by Size Group and Product Market Regulations (Trend)

Dependent Variable: Log of Value Added	
VARIABLES	(5)
MICRO	-2.906*** [0.0845]
SMALL	-2.036*** [0.0726]
MEDIUM	-1.691*** [0.0765]
TREND	0.0405*** [0.00917]
TREND*MICRO	0.0618*** [0.0124]
TREND*SMALL	0.0257** [0.0111]
TREND*MEDIUM	0.0232** [0.0117]
PMR*TREND	-0.00508 [0.00728]
PMR*MICRO*TREND	-0.0264*** [0.00807]
PMR*SMALL*TREND	0.0267*** [0.00758]
PMR*MEDIUM*TREND	0.0166** [0.00815]
Constant	19.70*** [0.225]
Industry Indicators	Yes
State Indicators	Yes
Observations	15,125
R-squared	0.412

Robust standard errors in brackets  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Dependent Variable: Log of Employment	
VARIABLES	(5)
TREND	0.0785*** [0.00498]
TREND*MICRO	-0.0267*** [0.00613]
TREND*SMALL	-0.0488*** [0.00507]
TREND*MEDIUM	-0.113*** [0.00516]
PMR*TREND	-0.00422 [0.00586]
PMR*MICRO*TREND	-0.0305*** [0.00695]
PMR*SMALL*TREND	0.0294*** [0.00594]
PMR*MEDIUM*TREND	0.0216*** [0.00617]
Constant	7.374*** [0.193]
Industry Indicators	Yes
State Indicators	Yes
Observations	16,700
R-squared	0.365

Robust standard errors in brackets  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Growth by Size Group and Product Market Regulations (Tariff)

Dependent Variable: Log of Value Added	
VARIABLES	(5)
MICRO	-2.204*** [0.0857]
SMALL	-1.738*** [0.0778]
MEDIUM	-1.466*** [0.0816]
TARIFF	0.00119 [0.00198]
TARIFF*MICRO	-0.00613*** [0.00123]
TARIFF*SMALL	-0.00256** [0.00107]
TARIFF*MEDIUM	-0.00153 [0.00112]
PMR*TARIFF	-1.74e-05 [0.000692]
PMR*MICRO*TARIFF	-0.00378*** [0.000791]
PMR*SMALL*TARIFF	0.00285*** [0.000692]
PMR*MEDIUM*TARIFF	0.00133* [0.000732]
Constant	19.57*** [0.296]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	15,125
R-squared	0.415

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Dependent Variable: Log of Employment	
VARIABLES	(5)
TARIFF	0.00804*** [0.00164]
TARIFF*MICRO	-0.00691*** [0.000617]
TARIFF*SMALL	-0.00843*** [0.000502]
TARIFF*MEDIUM	-0.0134*** [0.000500]
PMR*TARIFF	-0.000634 [0.000579]
PMR*MICRO*TARIFF	-0.00358*** [0.000707]
PMR*SMALL*TARIFF	0.00316*** [0.000591]
PMR*MEDIUM*TARIFF	0.00176*** [0.000597]
Constant	7.328*** [0.261]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	16,700
R-squared	0.374

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Infrastructure (Trend)

Dependent Variable: Log of Value Added	
VARIABLES	(1)
MICRO	-2.907*** [0.0844]
SMALL	-2.035*** [0.0726]
MEDIUM	-1.692*** [0.0765]
TREND	0.0366** [0.0187]
TREND*MICRO	0.124*** [0.0216]
TREND*SMALL	0.00682 [0.0198]
TREND*MEDIUM	-0.0125 [0.0216]
INFRA*TREND	0.000684 [0.00334]
INFRA*MICRO*TREND	-0.0135*** [0.00372]
INFRA*SMALL*TREND	0.00428 [0.00343]
INFRA*MEDIUM*TREND	0.00812** [0.00381]
Constant	19.70*** [0.225]
Industry Indicators	Yes
State Indicators	Yes
Observations	15,125
R-squared	0.411

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Dependent Variable: Log of Employment	
VARIABLES	(1)
TREND	0.0524*** [0.0141]
TREND*MICRO	0.0791*** [0.0165]
TREND*SMALL	-0.0575*** [0.0143]
TREND*MEDIUM	-0.131*** [0.0149]
INFRA*TREND	0.00544* [0.00282]
INFRA*MICRO*TREND	-0.0229*** [0.00328]
INFRA*SMALL*TREND	0.00221 [0.00286]
INFRA*MEDIUM*TREND	0.00434 [0.00299]
Constant	7.383*** [0.191]
Industry Indicators	Yes
State Indicators	Yes
Observations	16,700
R-squared	0.365

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



# Infrastructure (Tariff)

Dependent Variable: Log of Value Added	
VARIABLES	(1)
MICRO	-2.204*** [0.0857]
SMALL	-1.741*** [0.0778]
MEDIUM	-1.464*** [0.0816]
TARIFF	0.000227 [0.00254]
TARIFF*MICRO	0.000640 [0.00214]
TARIFF*SMALL	-0.00489*** [0.00189]
TARIFF*MEDIUM	-0.00335* [0.00200]
INFRA*TARIFF	0.000223 [0.000330]
INFRA*MICRO*TARIFF	-0.00148*** [0.000377]
INFRA*SMALL*TARIFF	0.000531 [0.000336]
INFRA*MEDIUM*TARIFF	0.000416 [0.000357]
Constant	19.57*** [0.297]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	15,125
R-squared	0.413

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Dependent Variable: Log of Employment	
VARIABLES	(1)
TARIFF	0.00643*** [0.00212]
TARIFF*MICRO	0.00312* [0.00169]
TARIFF*SMALL	-0.00984*** [0.00146]
TARIFF*MEDIUM	-0.0151*** [0.00147]
INFRA*TARIFF	0.000343 [0.000282]
INFRA*MICRO*TARIFF	-0.00219*** [0.000336]
INFRA*SMALL*TARIFF	0.000330 [0.000295]
INFRA*MEDIUM*TARIFF	0.000421 [0.000294]
Constant	7.332*** [0.261]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	16,700
R-squared	0.372

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Finance (Trend)

Dependent Variable: Log of Value Added	
(2)	
VARIABLES	
MICRO	-2.905*** [0.0844]
SMALL	-2.033*** [0.0726]
MEDIUM	-1.691*** [0.0765]
TREND	0.0761*** [0.0274]
TREND*MICRO	0.123*** [0.0305]
TREND*SMALL	-0.0661** [0.0287]
TREND*MEDIUM	-0.0266 [0.0309]
FIN*TREND	-0.00666 [0.00467]
FIN*MICRO*TREND	-0.0117** [0.00512]
FIN*SMALL*TREND	0.0173*** [0.00488]
FIN*MEDIUM*TREND	0.00949* [0.00524]
Constant	19.71*** [0.226]
Industry Indicators	Yes
State Indicators	Yes
Observations	15,125
R-squared	0.411

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Dependent Variable: Log of Employment	
(2)	
VARIABLES	
TREND	0.117*** [0.0212]
TREND*MICRO	0.0140 [0.0249]
TREND*SMALL	-0.167*** [0.0214]
TREND*MEDIUM	-0.185*** [0.0225]
FIN*TREND	-0.00711* [0.00377]
FIN*MICRO*TREND	-0.00783* [0.00446]
FIN*SMALL*TREND	0.0223*** [0.00383]
FIN*MEDIUM*TREND	0.0136*** [0.00402]
Constant	7.364*** [0.194]
Industry Indicators	Yes
State Indicators	Yes
Observations	16,700
R-squared	0.363

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Finance (Tariff)

Dependent Variable: Log of Value Added	
(2)	
VARIABLES	
MICRO	-2.212*** [0.0856]
SMALL	-1.740*** [0.0777]
MEDIUM	-1.466*** [0.0816]
TARIFF	0.00306 [0.00314]
TARIFF*MICRO	0.000605 [0.00300]
TARIFF*SMALL	-0.0135*** [0.00264]
TARIFF*MEDIUM	-0.00835*** [0.00278]
FIN*TARIFF	-0.000341 [0.000444]
FIN*MICRO*TARIFF	-0.00127** [0.000510]
FIN*SMALL*TARIFF	0.00207*** [0.000440]
FIN*MEDIUM*TARIFF	0.00128*** [0.000471]
Constant	19.55*** [0.298]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	15,125
R-squared	0.414

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Dependent Variable: Log of Employment	
(2)	
VARIABLES	
TARIFF	0.0129*** [0.00266]
TARIFF*MICRO	-0.00174 [0.00256]
TARIFF*SMALL	-0.0213*** [0.00218]
TARIFF*MEDIUM	-0.0206*** [0.00222]
FIN*TARIFF	-0.000905** [0.000386]
FIN*MICRO*TARIFF	-0.000994** [0.000460]
FIN*SMALL*TARIFF	0.00243*** [0.000388]
FIN*MEDIUM*TARIFF	0.00136*** [0.000398]
Constant	7.321*** [0.263]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	16,700
R-squared	0.372

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Labor Market Flexibility (Trend)

Dependent Variable: Log of Value Added	
VARIABLES	(4)
MICRO	-2.904*** [0.0844]
SMALL	-2.033*** [0.0726]
MEDIUM	-1.691*** [0.0765]
TREND	0.0479*** [0.0110]
TREND*MICRO	0.0744*** [0.0140]
TREND*SMALL	0.0135 [0.0126]
TREND*MEDIUM	0.0151 [0.0135]
FLEX2*TREND	-0.0161 [0.0120]
FLEX2*MICRO*TREND	-0.0292** [0.0134]
FLEX2*SMALL*TREND	0.0271** [0.0127]
FLEX2*MEDIUM*TREND	0.0193 [0.0134]
Constant	19.74*** [0.227]
Industry Indicators	Yes
State Indicators	Yes
Observations	15,125
R-squared	0.411
Robust standard errors in brackets	
*** p<0.01, ** p<0.05, * p<0.1	

Dependent Variable: Log of Employment	
VARIABLES	(4)
TREND	0.0904*** [0.00698]
TREND*MICRO	-0.0216** [0.00838]
TREND*SMALL	-0.0686*** [0.00705]
TREND*MEDIUM	-0.130*** [0.00732]
FLEX2*TREND	-0.0252*** [0.00971]
FLEX2*MICRO*TREND	-0.0124 [0.0117]
FLEX2*SMALL*TREND	0.0428*** [0.00994]
FLEX2*MEDIUM*TREND	0.0379*** [0.0102]
Constant	7.398*** [0.195]
Industry Indicators	Yes
State Indicators	Yes
Observations	16,700
R-squared	0.362
Robust standard errors in brackets	
*** p<0.01, ** p<0.05, * p<0.1	

# Labor Market Flexibility (Tariff)

Dependent Variable: Log of Value Added  
(4)

VARIABLES

MICRO	-2.218*** [0.0855]
SMALL	-1.742*** [0.0777]
MEDIUM	-1.467*** [0.0815]
TARIFF	0.00153 [0.00207]
TARIFF*MICRO	-0.00477*** [0.00139]
TARIFF*SMALL	-0.00466*** [0.00122]
TARIFF*MEDIUM	-0.00313** [0.00127]
FLEX2*TARIFF	-0.000522 [0.00114]
FLEX2*MICRO*TARIFF	-0.00269** [0.00131]
FLEX2*SMALL*TARIFF	0.00475*** [0.00114]
FLEX2*MEDIUM*TARIFF	0.00348*** [0.00120]
Constant	19.53*** [0.300]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	15,125
R-squared	0.413

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Dependent Variable: Log of Employment

(4)

VARIABLES

TARIFF	0.00891*** [0.00171]
TARIFF*MICRO	-0.00622*** [0.000842]
TARIFF*SMALL	-0.0111*** [0.000699]
TARIFF*MEDIUM	-0.0152*** [0.000700]
FLEX2*TARIFF	-0.00168* [0.000958]
FLEX2*MICRO*TARIFF	-0.00156 [0.00119]
FLEX2*SMALL*TARIFF	0.00583*** [0.000978]
FLEX2*MEDIUM*TARIFF	0.00392*** [0.000988]
Constant	7.297*** [0.265]
Industry Indicators	Yes
State Indicators	Yes
Year Indicators	Yes
Observations	16,700
R-squared	0.371

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Sectoral shares in GDP, 2006**

