

# Regional differences in labour market outcomes

Comparative study of four Indian states

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# Outline

- Motivation
- Regional disparity – trends and drivers
- Study objective and analytical framework
- Data description and methodology
- Data analysis and results
- Conclusions

# Motivation

- Regional disparities exist in growth and development trajectories within India
- Many studies analyse the trends in disparity, especially in relation to the reform process and the reasons for the regional differences
- Most focus on the differences in growth, employment and human development indicators
- Focus of this paper is to study the regional differences in labour market outcomes by looking at differences in
  - Employment distribution by sector
  - Worker status within sectors
  - Variation in enterprise size and its relation with worker status and wage

# Disparities in per capita SDP growth rate

Annual Growth Rates (%) of SDP per capita for 14 major states					
State / All India	1960-61 to 1969-70	1970-71 to 1979-80	1981-82 to 1989-90	1990-91 to 1999-2000	2004-05 to 2012-13*
Andhra Pradesh	-0.4	1.1	4.4	3.8	7.3
Bihar	-1.3	0.6	2.2	0.8	7.7
Gujarat	0.1	2.0	4.3	4.6	8.4
Haryana	2.6	2.2	3.8	2.7	6.8
Karnataka	1.2	1.8	3.6	5.2	6.0
Kerala	1.4	-0.2	2.0	4.7	7.3
Madhya Pradesh	-1.1	-1.0	1.9	3.2	6.5
Maharashtra	0.4	3.3	3.9	4.6	7.6
Orissa	7.3	0.3	3.4	1.0	4.7
Punjab	3.5	3.2	3.8	2.5	4.7
Rajasthan	-1.1	0.2	4.6	3.4	5.8
Tamil Nadu	0.1	1.6	4.0	5.4	8.6
Uttar Pradesh	-0.2	0.4	2.6	2.1	4.6
West Bengal	0.0	0.7	2.0	5.0	5.2
<b>All India</b>	<b>0.8</b>	<b>1.2</b>	<b>3.4</b>	<b>3.9</b>	<b>6.5</b>

Source: Papola (2011) except \*(last column) own calculation based on EPWRF time series data

# Theories on regional disparity

- Convergence theory : Overall economic development of different regions tend to converge
  - slower growth in high-income states and faster growth in low income states to finally converge to same levels
  - “inverted U shaped behaviour of disparities”
- Increasing divergence due to cumulative causation (Papola et al 2011)
  - states with higher initial levels of development see positive reinforcements and grow faster
  - technology and agglomeration externalities make increasing returns possible

# Regional disparity in India

- Regional disparity historically seen as a problem to be addressed through public policy
  - Establishment of public sector undertakings in less developed regions; created intra-state disparities
  - Interventionist measures gradually removed
  - Post reform: trend of greater divergence in inter-state manufacturing growth, new investment found to be spatially concentrated: concentrated decentralisation (Papola et al 2011)
    - Six states/UT accounted for 86% of approved FDI during 1991-2001 (Ramaswamy 2011)

# Drivers of regional disparity in manufacturing

- Ramaswamy (2011): Higher public investment in rich states which crowds in private investment
  - States with higher initial human capital and better power infrastructure are more likely to grow faster
- Papola (2011) capital investment, human resources, regulatory framework and infrastructure (especially power)
  - New industries go where industries exist and to states that have developed infrastructure

# Objective of this study

- How well have the benefits of growth translated to better labour market outcomes in different states
- Questions to explore
  - What are the structural differences between states?
    - Employment by sector
  - What is the variation in quality of work?
    - Worker status, wages within each sector
  - Does enterprise size matter?
  - Does the industry composition explain the disparity?
  - Can we relate worker education to the outcomes?



# Analytical Framework

- Growth leads to structural transformation leading to decline in agriculture and rise in manufacturing and services in % GDP share
- Gordon-Gupta (2003): Suggest two stages of growth
  - Stage I: Both industry and services shares increase : driven by traditional services
  - Stage II: Industry share declines and services increases : driven by modern services

**India, Sectoral Shares in GDP, 1950-2003**  
(Percent of GDP)

	Agriculture	Industry	Services	
1950	58	15	28	
1980	38	24	38	Stage I
1990	33	27	41	
2000	24	27	49	Stage II
2003 <sup>#</sup>	22	27	51	

Source: Gordon-Gupta 2003

# Structural composition and labour outcomes

- Structural transformation accompanied by shift in employment from primary sector to secondary and tertiary sectors
  - However, big rise in services output in India not accompanied by a similar rise in employment share (“jobless” growth)
  - relatively high % employment in agriculture compared to % GDP share due to lower productivity
- Study of sectoral composition of employment key to understanding extent of structural transformation spurred by economic growth
  - Labour market outcomes expected to vary between sectors (for example: Service sector jobs often termed “good jobs” - Ghani -Kharas 2010)

# Quality of employment

- Employment quality : worker status, casualisation of labour, informality of work, wage earnings, access to social benefits etc.
- Worker status:
  - Regular waged workers (RW), Casual waged (CW) and Self-employed (SE)



- Regular waged (RW) workers earned on average 3.3 times more than casual waged workers (CW): driven in large part by difference in number of days of employment (Mazumdar-Sarkar 2013)
- Difficult to judge job quality difference between CW and SE but SE often tends to be subsistence entrepreneurship (Ramaswamy – Agrawal 2012)

# Quality of employment

- Informal sector employment – closely related to casualisation (Ramaswamy – Agrawal 2012)
  - Jobs in enterprises not covered by labour or social security regulations (unregistered sector enterprises)
  - high turnover with little regularity of employment
  - difficult to capture in employment data. Sum of shares of CW and SE often used as proxy. RW share used as indicator of formal employment
- Employment quality comparison between manufacturing and services sector in urban India (Ramaswamy-Agrawal 2012)
  - Significantly higher incidence of informal employment in services compared to manufacturing
  - Greater wage inequality in services sector compared to manufacturing
- Study of worker status within each sector will provide important determinants of job quality

# Enterprise size

- Enterprise size can be used to capture informality in employment since <10 size enterprise are not required to register
- Mazumdar-sarkar 2013 : Detailed study of relation of enterprise size with productivity and wages for DME and ASI enterprises
  - Bi-polar distribution of employment with respect to enterprise size with a “missing middle” and significant productivity differences
  - Productivity and wages increase with enterprise size in Indian manufacturing
  - Wage ladder for male wage workers : CW workers in unregistered manufacturing < RW workers in unregistered manufacturing < small sized registered manufacturing < large sized registered manufacturing
- Employment distribution and wage distribution by enterprise size will be useful in determining employment quality

# Industry composition

- Services: Eichengreen and Gupta (2009) differentiate between traditional, hybrid and modern services and relate changes in their share of output with rising per capita incomes
  - Traditional services: public admin, defence, trade, transportation  
Hybrid services: education, health, hotels, community services;  
Modern services: ICT, legal, banking, real estate etc.
  - Traditional services share tends to decline as incomes grow
  - Modern services are fastest growing in India
- Manufacturing (Mazumdar-sarkar 2013):
  - Industry level segmentation: Some dominated by ASI enterprises, some with unregistered enterprises and 16 industries (at 5-digit level) have significant overlap between both (by employment)
  - Capital intensive industries (basic metals, chemicals etc.) vs. labour intensive industries (textiles, apparel, food, tobacco etc.)

# Education

- Worker education and skills – input as well as outcome of economic growth
- Ramaswamy- Agrawal (2012):
  - Larger proportion of higher educated workers in services compared to manufacturing
  - Wages increase with levels of education, esp in service sector
  - Manufacturing more likely to absorb labour with lower skills
- Eichengreen and Gupta (2011) : skill mix used by manufacturing and services converging and both sectors viable destinations for low skilled labour
- Variation of attributes such as worker status and wages by level of worker education will be useful in understanding difference in labour outcomes across states

# Data description

- Dataset
  - NSS 68<sup>th</sup> Round (2011-12) employment-unemployment
- Comparative study of four states
  - Maharashtra , Gujarat, Tamil Nadu and UP
  - Top four states in terms of manufacturing output
  - Difference in extent of industrialisation and productivity

2011-12 share of sector in NSDP (constant prices with base 2004-05)

Source: EPWRF

	Agriculture and allied activities	Industry	Services	Total
UP	23%	21%	56%	100%
Gujarat	11%	36%	52%	100%
Maharashtra	8%	26%	66%	100%
Tamil Nadu	7%	27%	65%	100%
All India	15%	24%	61%	100%

Based on NSDP (Constant prices with base year 2004-05)

	# Manufacturing workers (UPS)	Mfg output in lakhs(2011-12)	output/worker (Rs)
UP	62,60,267	42,98,735	68,667
Gujarat	43,55,603	88,11,690	2,02,307
Maha	49,70,393	1,24,46,951	2,50,422
Tamil Nadu	53,80,903	66,68,365	1,23,927
<b>All India</b>	<b>4,53,11,697</b>	<b>5,98,12,089</b>	<b>1,32,001</b>



# Extent of industrialisation across states

- Top 3 industrialised states in terms of GSDP share
  - Gujarat: rapidly growing
  - Maharashtra: stagnation in share of manufacturing
  - TN: declining share of manufacturing
- UP – lagging in industrialisation share, but largest in terms of employment share in manufacturing

Share of Manufacturing in Total GSDP (%) at 1993–94 Prices

	<i>Major States</i>	1980–81	1990–91	2000–01	2008–09
1	Andhra Pradesh	13.86	15.32	13.69	12.05
2	Bihar(+)	9.92	12.56	9.17 (3.73)	13.27 (2.50)
3	Gujarat*	18.92	26.14	30.41	29.94
4	Haryana**	13.65	19.10	20.59	20.00
5	Karnataka	15.25	18.63	17.26	19.85
6	Kerala*	9.52	11.11	11.68	9.96
7	Madhya Pradesh (+)	11.11	15.50	16.46 (15.08)	15.35 (12.73)
8	Maharashtra*	24.92	26.08	23.93	23.46
9	Orissa	9.08	11.29	12.13	17.04
10	Punjab	9.21	13.61	15.96	16.05
11	Rajasthan	12.43	12.36	16.50	15.63
12	Tamil Nadu	31.47	28.54	24.36	23.32
13	Uttar Pradesh (+)	9.01	13.87	13.85 (14.00)	14.02 (14.01)
14	West Bengal*	20.31	17.80	17.28	16.37

Source: Papola 2011

# Employment distribution by sectors— methodology

- Structural patterns: Distribution of prime-aged (15-59) workers by four sectors defined as follows:
  - Agriculture (NIC 011 – 032 codes)
  - Construction and mining (NIC codes 051- 099 and 410-439)
  - Manufacturing (NIC codes 101 – 332)
  - Services (NIC codes 351 to 390, 451 to 982)
- Rural vs. urban to understand the extent of urbanisation for each state
- Male vs. female to understand gender differences by state

# State-wise share in employment by sectors

Based on NSS 68th round (2011-12) employment-unemployment data					
UPS workers (aged 15-59)	Agriculture	Construction and Mining	Manufacturing	Services	State's share of All India employment
UTTAR PRADESH	13.0%	17.8%	13.8%	11.0%	13.1%
MAHARASHTRA	10.8%	6.5%	11.0%	12.7%	10.9%
ANDHRA PRADESH	10.5%	7.0%	7.6%	9.3%	9.4%
WEST BENGAL	6.7%	5.9%	11.5%	8.1%	7.7%
TAMIL NADU	5.3%	6.6%	11.9%	8.2%	7.2%
BIHAR	8.2%	5.7%	2.5%	4.6%	6.1%
KARNATAKA	6.5%	3.4%	5.8%	6.6%	6.1%
MADHYA PRADESH	7.6%	7.1%	3.2%	4.5%	6.0%
GUJARAT	5.9%	2.8%	9.6%	5.4%	5.9%
RAJASTHAN	5.4%	9.7%	4.1%	4.2%	5.4%
Others	20.20%	27.5%	19.1%	25.4%	22.5%
All India	100.0%	100.0%	100.0%	100.0%	100.0%

- The four states account for 37% of all India workers
- They are four out of the five highest ranked states w.r.t. manufacturing employment

# Employment distribution within state by sector

Based on NSS 68th round (2011-12) employment-unemployment data					
% of UPS employment (aged 15-59)	Agriculture	Construction and Mining	Manufact uring	Services	State total
UP	45%	16%	14%	25%	100%
Gujarat	45%	6%	21%	28%	100%
Maharashtra	45%	7%	13%	35%	100%
Tamil Nadu	33%	11%	21%	34%	100%
<b>All India</b>	<b>45%</b>	<b>12%</b>	<b>13%</b>	<b>30%</b>	<b>100%</b>

- Tamil Nadu: significantly lower share of agriculture (33%). Highest share in manufacturing and services (55%) amongst the 4 states (national avg: 43%). UP has a low of 39%
- Gujarat and TN both have a high 21% share in manufacturing
- Maharashtra has a high share in services but low in manufacturing (compared to national average)
- UP has higher share of employment in construction & mining than in manufacturing

# Employment quality – data description

- Distribution of worker status within sectors for each state
  - Self employed (SE): status 11, 12, 21
  - Regular wage worker (RW): status 31
  - Casual wage worker (CW): status 41, 42, 51
- Worker status distribution by level of education
- Focus on prime-aged (15-59) male workers only
  - Variety of factors determine worker participation of women hence study focuses on men

# Employment by worker type

Based on NSS 68th round (2011-12) employment-unemployment data									
Manufacturing					Services				
UPS 15-59 aged males in Manufacturing	CW	RWE	SE	Total	UPS 15-59 aged males in Services	CW	RWE	SE	Total
UP	25%	31%	44%	100%	UP	8%	32%	59%	100%
Gujarat	5%	69%	25%	100%	Gujarat	4%	46%	50%	100%
Maharashtra	8%	67%	26%	100%	Maharashtra	4%	55%	41%	100%
Tamil Nadu	25%	49%	26%	100%	Tamil Nadu	13%	52%	35%	100%
<b>All India</b>	<b>18%</b>	<b>45%</b>	<b>37%</b>	<b>100%</b>	<b>All India</b>	<b>7%</b>	<b>44%</b>	<b>49%</b>	<b>100%</b>

- All India: RW share comparable between manufacturing and services
- Manufacturing: high share of RW workers in Gujarat and Maharashtra suggesting large formal sector. Tamil Nadu: high level of casualisation.
- Services: Maharashtra and TN have a high share of RW employment
- UP significantly low share of RWE in both mfg and services indicating large informal employment

# Employment by worker type: Rural/urban

Manufacturing employment % based on NSS 68th round (2011-12) employment-unemployment data								
UPS 15-59 aged males in Manufacturing	Rural				Urban			
	CW	RWE	SE	Rural total	CW	RWE	SE	Urban total
UP	33%	22%	45%	100%	16%	39%	44%	100%
Gujarat	8%	68%	24%	100%	4%	70%	26%	100%
Maharashtra	13%	54%	33%	100%	5%	72%	22%	100%
Tamil Nadu	32%	40%	27%	100%	20%	55%	26%	100%
<b>All India</b>	<b>25%</b>	<b>33%</b>	<b>42%</b>	<b>100%</b>	<b>12%</b>	<b>56%</b>	<b>32%</b>	<b>100%</b>

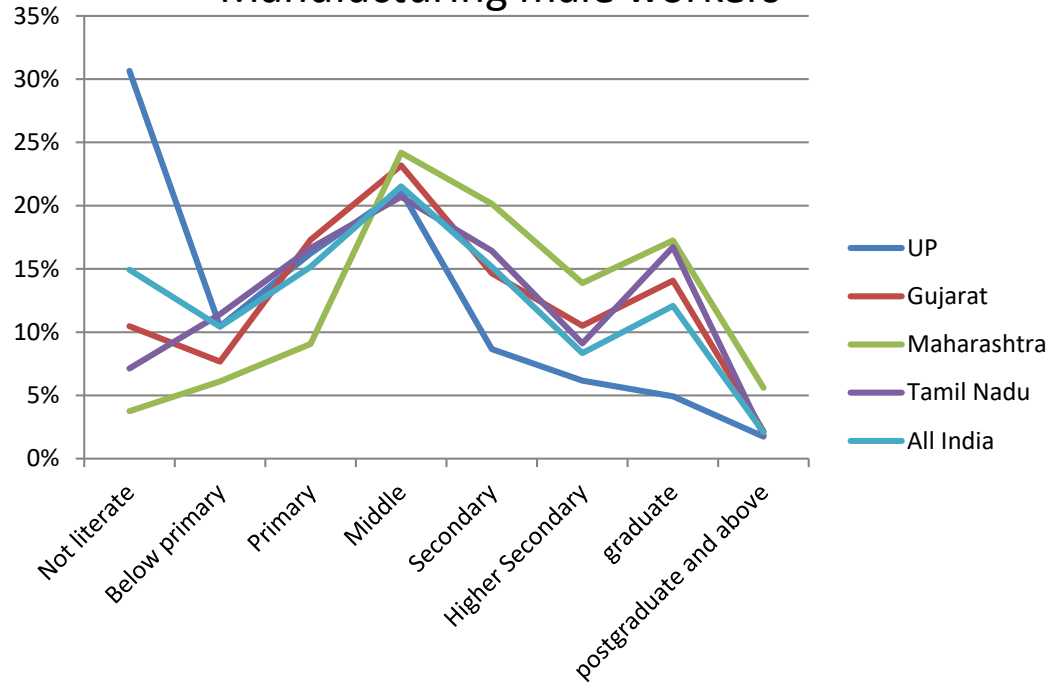
  

Services employment % based on NSS 68th round (2011-12) employment-unemployment data								
UPS 15-59 aged males in services	Rural				Urban			
	CW	RWE	SE	Rural total	CW	RWE	SE	Urban total
UP	10%	30%	60%	100%	6%	35%	58%	100%
Gujarat	7%	40%	53%	100%	2%	48%	49%	100%
Maharashtra	7%	48%	45%	100%	3%	57%	40%	100%
Tamil Nadu	17%	50%	33%	100%	10%	53%	36%	100%
<b>All India</b>	<b>10%</b>	<b>37%</b>	<b>54%</b>	<b>100%</b>	<b>5%</b>	<b>50%</b>	<b>45%</b>	<b>100%</b>

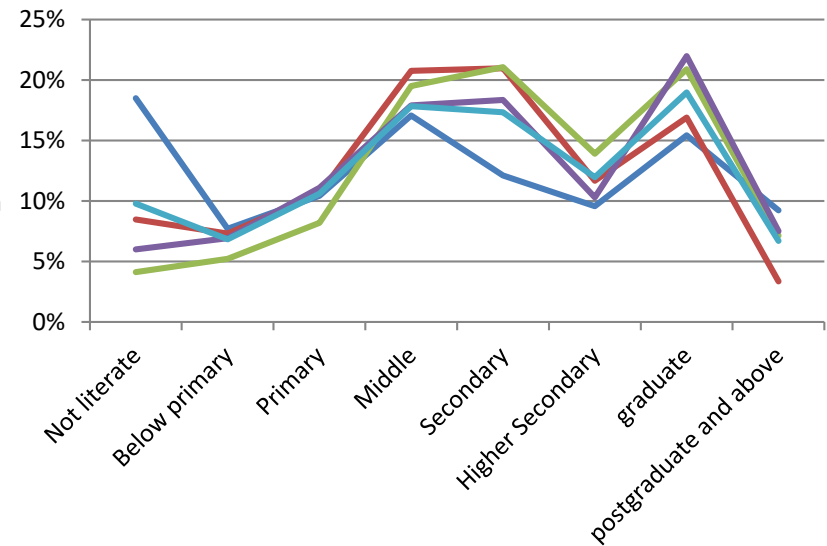
- All India: RWE much higher in urban areas. casualisation higher in rural areas
- Ghani –Goswami 2012 : growing trend of urbanization of manufacturing employment in India but opposite trend in mfg output, explained by rising employment share of unorganized sector in urban areas. Note: Gujarat RWE%
- Services: TN has a high RWE% in services in both rural as well as urban areas.

# Worker education level distribution

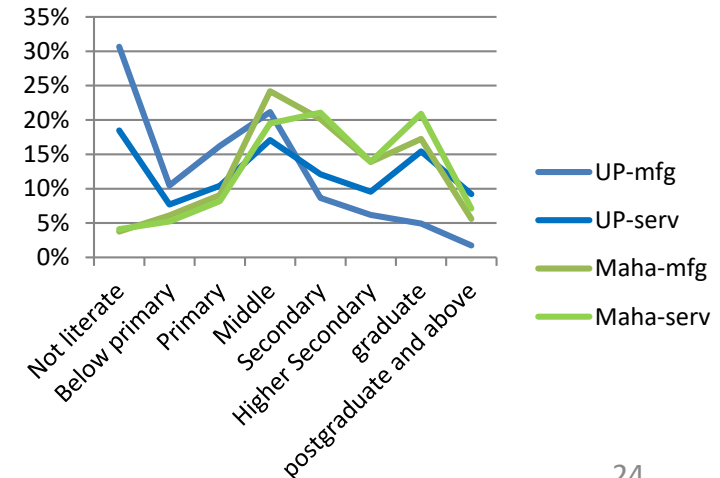
## Manufacturing male workers



## Services male workers



- All India: 38% workers high sec or more in services compared to 29% in manufacturing
- Worker education level in Gujarat is much worse than Maha and TN
- Sectoral polarisation is most stark in UP and least stark in Maharashtra perhaps suggesting skill convergence between sectors (Eichengreen-Gupta 2011)





# Education level and worker status

Maleworkers (aged 14-59). Year 2011-12 NSS 68th round data				
Manufacturing				
All India	CW	RWE	SE	Total
illiterate	27%	9%	17%	15%
secondary and below	66%	58%	67%	63%
higher sec and above	7%	34%	17%	22%
Total	100%	100%	100%	100%
Services				
All India	CW	RWE	SE	Total
illiterate	22%	5%	12%	10%
secondary and below	70%	43%	59%	53%
higher sec and above	8%	52%	29%	38%
Total	100%	100%	100%	100%

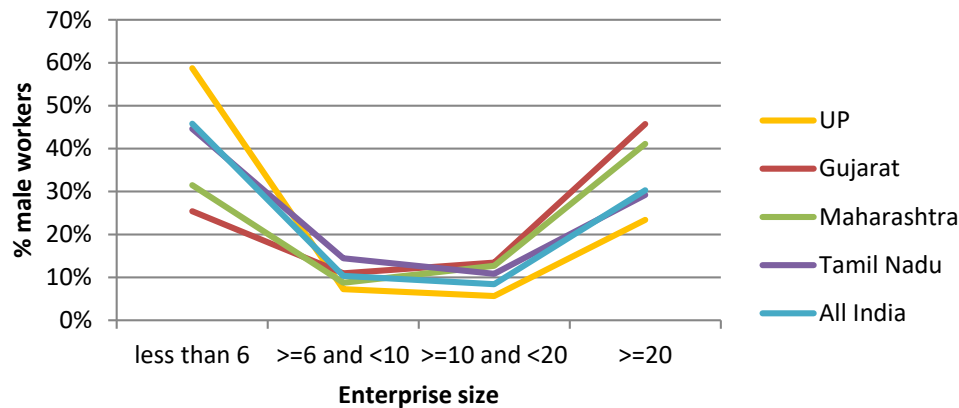
- RWE employees are higher educated, followed by self-employed. Casual workers have lowest education levels

# Enterprise size – data description

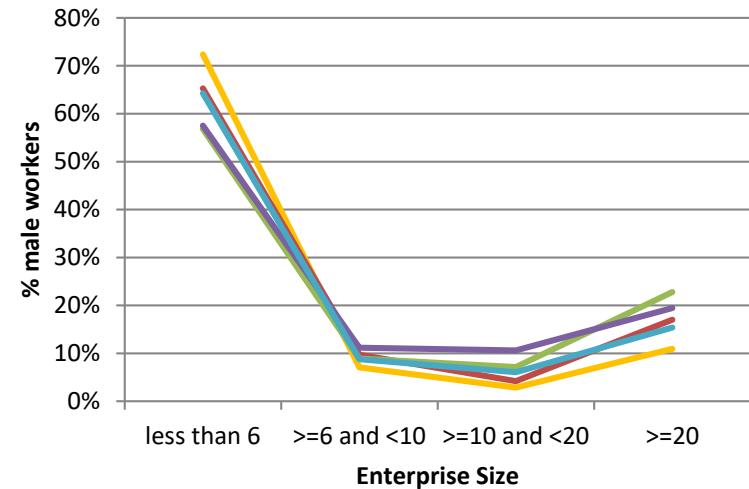
- NSS employment data asks workers about the number of employees in the enterprises where they work. Options are
  - <6, >=6 but <10, >=10 but <20 , >=20, not known
  - Data available for both principal status as well as subsidiary status: principal status has been used
- Distribution of employment and worker status across different enterprise size

# Employment distribution by enterprise size

## Manufacturing



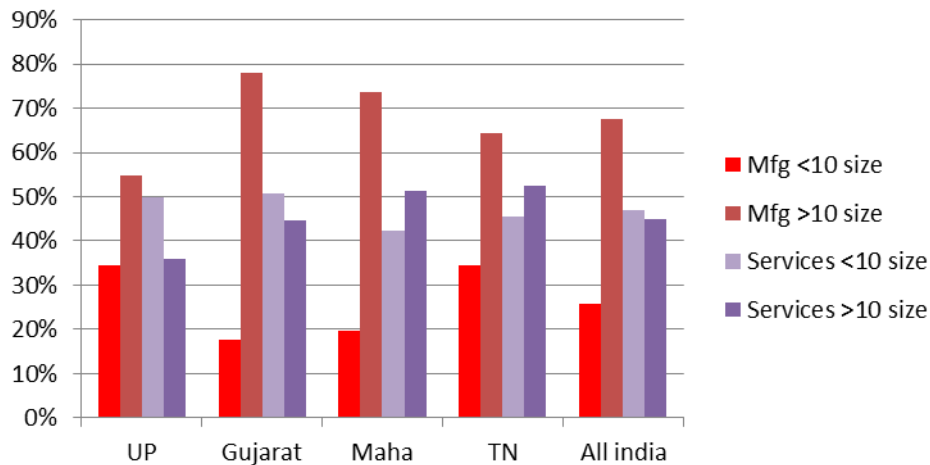
## Services



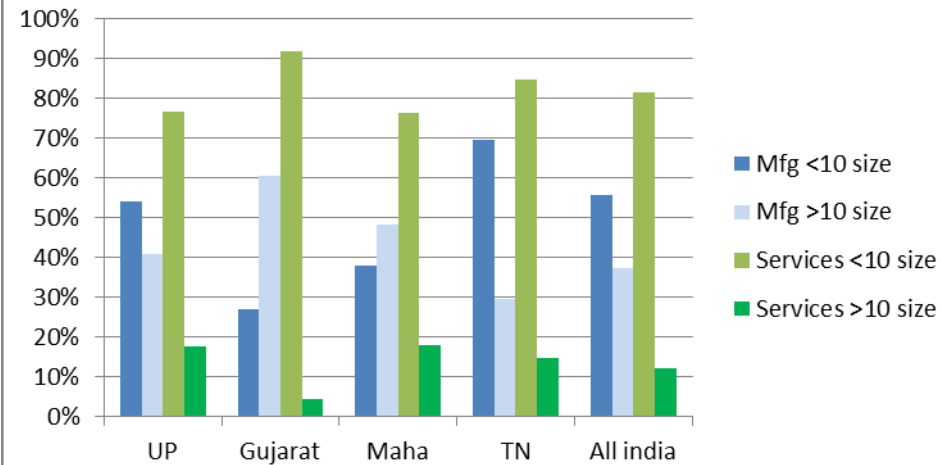
- Services dominated by small-sized enterprises
- Manufacturing : Gujarat and Maharashtra have high% employment in >20 sized enterprises and UP has a high % of employment in small enterprises

# Capturing informality through enterprise size

**%RWE distribution by enterprise size**



**% CW distribution by enterprise size**



- Higher % of RWE in manufacturing are in formal enterprises compared to services
- Higher % of CW in services are in informal enterprises of <10 workers size
- Gujarat has high share of formality in mfg but higher share of informality in services
- TN has higher informality in manufacturing with a high% of CW employment and 70% of it in informal enterprises

# Wage distribution – data description

- NSS employment data provides person-days worked and weekly earnings data corresponding to the current activity status for the past 7 days
  - No data for self-employed workers
- Distribution of average daily wage by worker status (wages earned / person days) for prime-aged men workers
- Distribution of average daily wage earned by enterprise size
  - Note: enterprise size corresponding to usual principal status is being used since this data is unavailable for current daily status.
  - This assumes low worker mobility across enterprise size

# Wage distribution

Average daily wage as per current daily status for prime aged working men (based on NSS 68th round employment - unemployment data)		
Avg daily wage in Rupees		
	Manufacturing	Services
<b>UP</b>		
CW	155	142
RWE	250	444
<b>Gujarat</b>		
CW	152	116
RWE	261	357
<b>Maharashtra</b>		
CW	165	148
RWE	484	496
<b>Tamil Nadu</b>		
CW	183	213
RWE	295	427
<b>All India</b>		
CW	<b>164</b>	<b>172</b>
RWE	<b>325</b>	<b>454</b>

- As expected, average RW wages higher than CW. Greater wage inequality in services – consistent with findings of Ramaswamy-Agrawal 2012
- Gujarat has the lowest wages among the 4 states consistent with Hirway-Shah 2011 study that observes that rapid growth of SDP in Gujarat has not accompanied a similar rise in wages. Increase in productivity is not being passed on to the workers.
- Maharashtra has the highest average wage for RWE and TN has highest for CW

# Wage distribution by enterprise size for RW workers

Average daily wage distribution by enterprise size for prime-aged <b>regular-waged</b> working men ** (based on NSS 68th round employment - unemployment data)					
<b>Manufacturing</b>	<b>UP</b>	<b>Gujarat</b>	<b>Maharashtra</b>	<b>Tamil Nadu</b>	<b>All India</b>
>=20 workers	331	267	610	342	394
>=6 and <20	210	260	292	262	242
less than 6	153	206	225	208	190
Average across all sizes	<b>249</b>	<b>261</b>	<b>490</b>	<b>295</b>	<b>326</b>
<b>Services</b>	<b>UP</b>	<b>Gujarat</b>	<b>Maharashtra</b>	<b>Tamil Nadu</b>	<b>All India</b>
>=20 workers	672	435	698	604	661
>=6 and <20	470	391	432	429	443
less than 6	212	239	248	219	233
Average across all sizes	<b>449</b>	<b>357</b>	<b>500</b>	<b>429</b>	<b>457</b>
<p>** Wage data is for the current daily work while the enterprise size data is for the usual principal work. Results assume low worker mobility across enterprise size. Workers with a mismatch in principal status and principal sector with daily status and daily sector respectively have been eliminated (retained 98% of person days)</p>					

- Increasing average daily wage with increasing enterprise size in both manufacturing and services sectors

# Industry composition in services sector

Based on NSS 68th round employment-enemployment data					
Male workers in services	UP	Gujarat	Maharashtra	TN	All India
Traditional Services	63%	65%	57%	57%	60%
Hybrid Services	24%	25%	24%	24%	24%
Modern Services	13%	11%	19%	19%	15%
<b>Grand Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

- Maharashtra and Tamil Nadu – higher employment in modern services compared to UP and Gujarat



# Conclusions

- Sectoral share of employment has not kept up with the sector wise output share
- Tamil Nadu has seen more of the Lewisian shift away from agriculture: it has lower enterprise sizes, lower productivity and high informality in manufacturing
- Gujarat has a larger share of RW employment and more large sized enterprises, suggesting more formal employment for male workers in manufacturing
  - This is so even in rural areas, consistent with Ghani's (2011) observation of formal sector moving into rural areas.
  - However, very low wages for workers indicate productivity gains go more towards profits than labour wages
  - High informality in service sector employment

# Conclusions

- UP shows a consistently poor picture in terms of employment quality and wages
  - construction forms a big part of employment picture here
- Maharashtra seems to have the best labour outcomes
  - In both services and manufacturing with highest wages and high share of formal employment
  - Signs of convergence between skills and wages between manufacturing and services (along the lines of Eichengreen-Gupta 2011). But this needs to be explored further
- Service sector composition
  - TN and Maharashtra have higher share of services employment in modern services compared to Gujarat and UP
- Enterprise size has a strong relationship with average wages of regular wage workers, no pattern for casual wage workers

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