

Manufacturing Skills Gaps in the Indian and Global Contexts

Aashish Mehta (University of California-Santa Barbara)

with thanks to Deboshree Ghosh (ICRIER)

2 September 2014

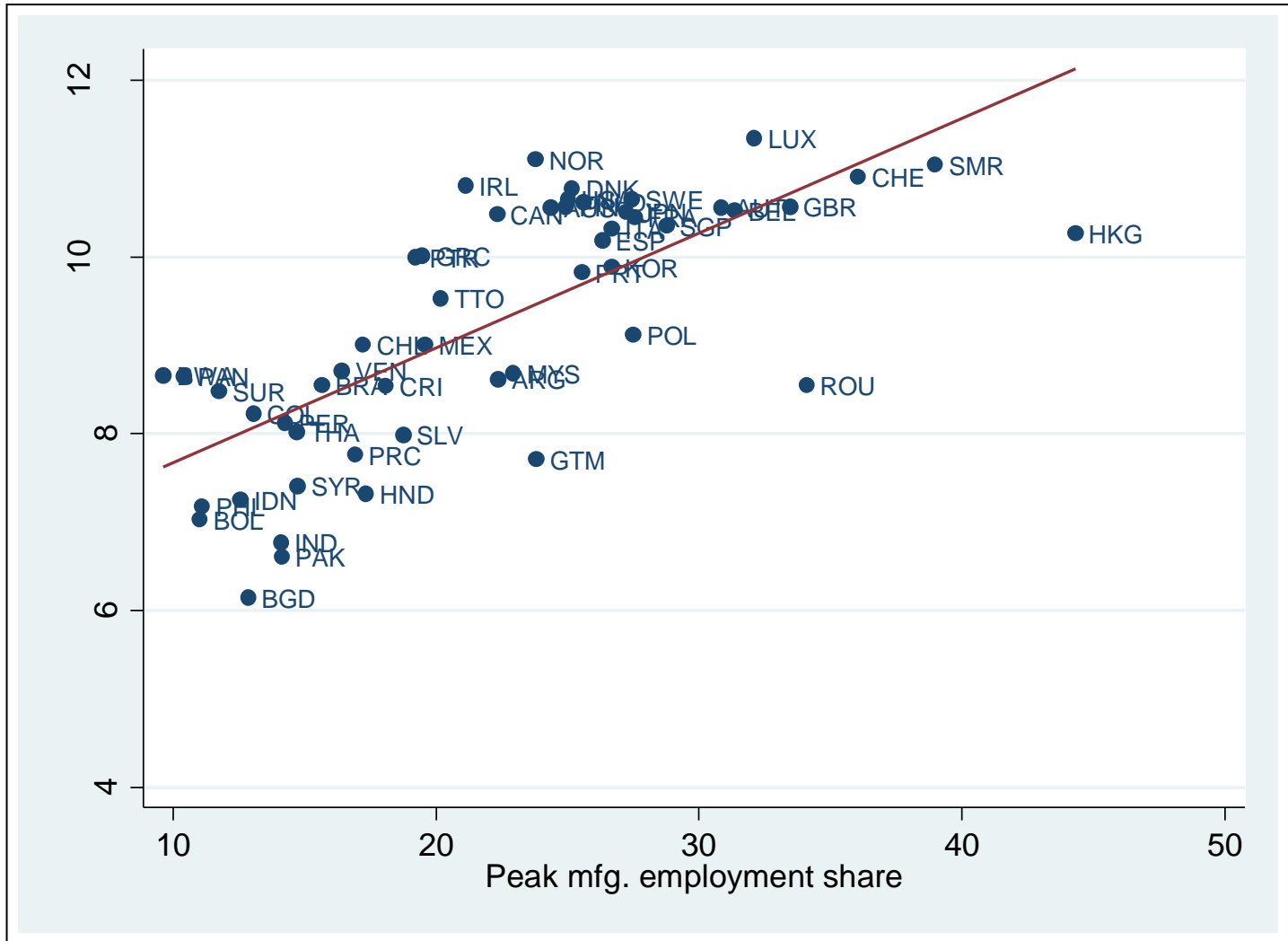
At: Indian Council for Research on International Economic Relations

Structure of the Presentation

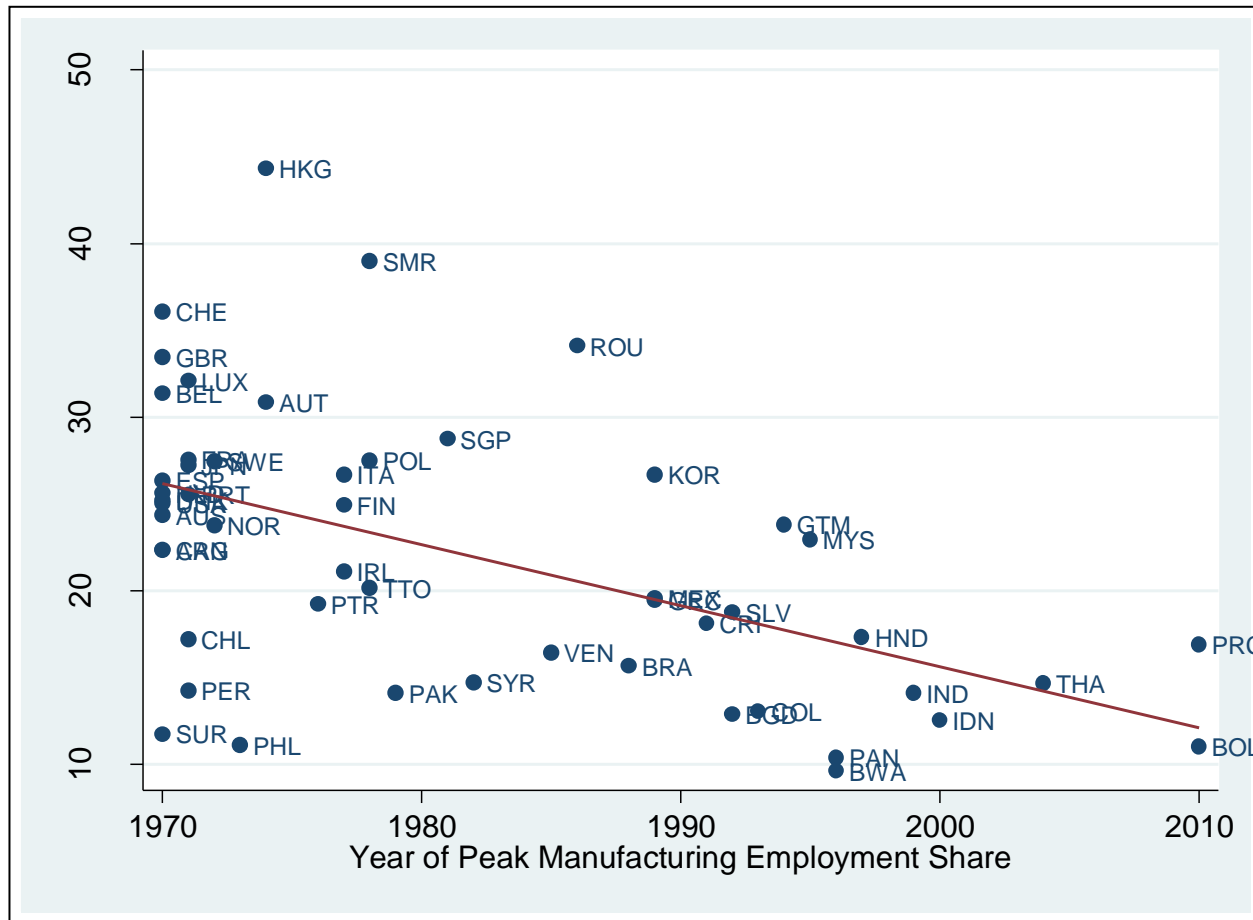
1. Introduction: Manufacturing jobs, Trainability and “skill gaps”.
2. Economists are skeptical about skill gaps.
3. Resolution: Two different meanings of “skill gaps”.
4. Conclusions / Policy Responses

1. Introduction.

Manufacturing job creation is the right target



.... But it has become much harder to sustain manufacturing employment globally.



Note: X-axis shows the year in which the 7-year moving average of the manufacturing sector's employment share peaked.

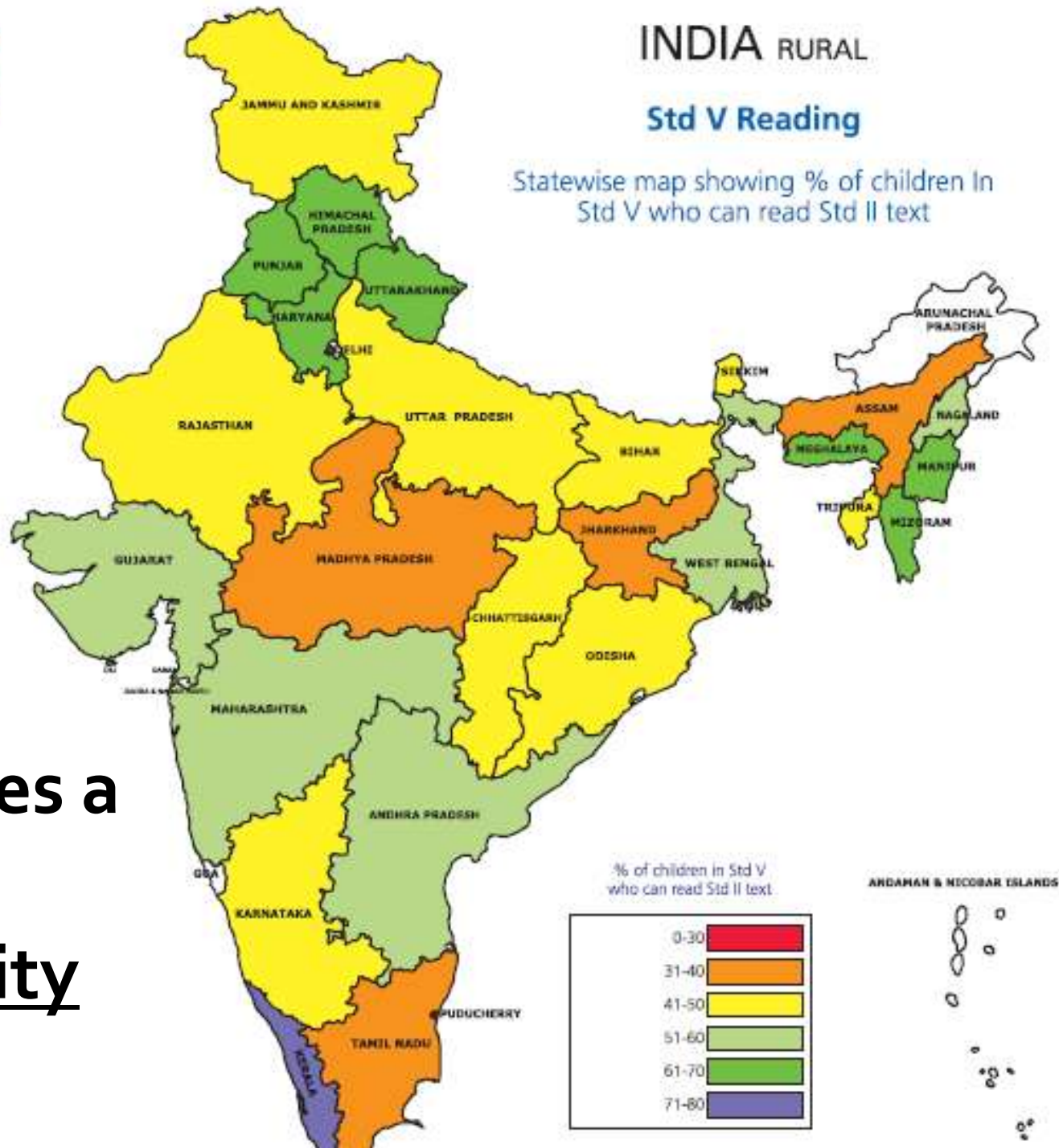
Definitions of Concepts:

- Skill: The ability to execute a task efficiently.
- Training: Instruction to assist workers in developing particular skills, usually involving supervised practice.
 - Offered at work or in dedicated programs.
- Education: Imparting of generic, foundational skills in schools.
- Operational Assumption: Foundational skills are a requirement for effective training.

INDIA RURAL

Std V Reading

Statewise map showing % of children in Std V who can read Std II text

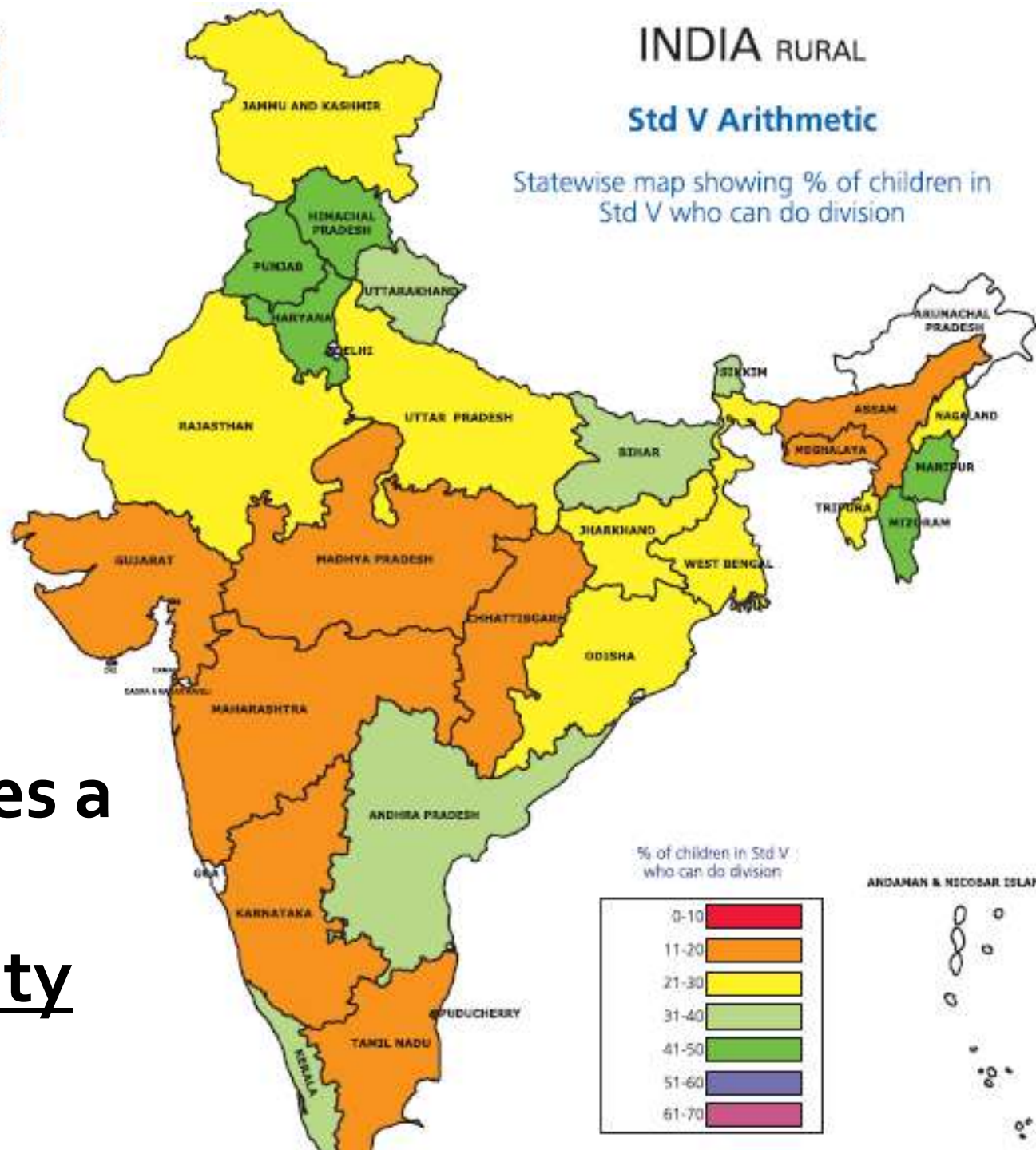


India faces a massive trainability gap.

INDIA RURAL

Std V Arithmetic

Statewise map showing % of children in Std V who can do division



India faces a massive trainability gap.

Industry Reports Skill Gaps

- The National Skills Development Council has prepared sector studies, listing key positions, and skills gaps against each.

	Number of Positions Listed	Number of Positions deemed to suffer a skills gap.
Leather	11	9
Textiles and Garments	32	32
Food Processing	38	38
Electronics	17	11
Auto accessories	62	62

The Key Issue: Prioritization

- Mehrotra et al. (2013) estimate that 249 million workers (GOI has said 500 million) will need secondary, formal vocational training or technical education by 2022.
 - Where to allocate the available budget?
- Human cost: “Skill development” usually implies less general, transferable skills than does quality basic education.
 - What skills will enhance workers’ employment prospects?
- Manufacturing firms face other problems besides skill.
 - Which skills constraints and which other constraints must be relaxed to enhance the growth of employment in each industry?



The costs of providing pre-service training that is not needed/ appropriate:

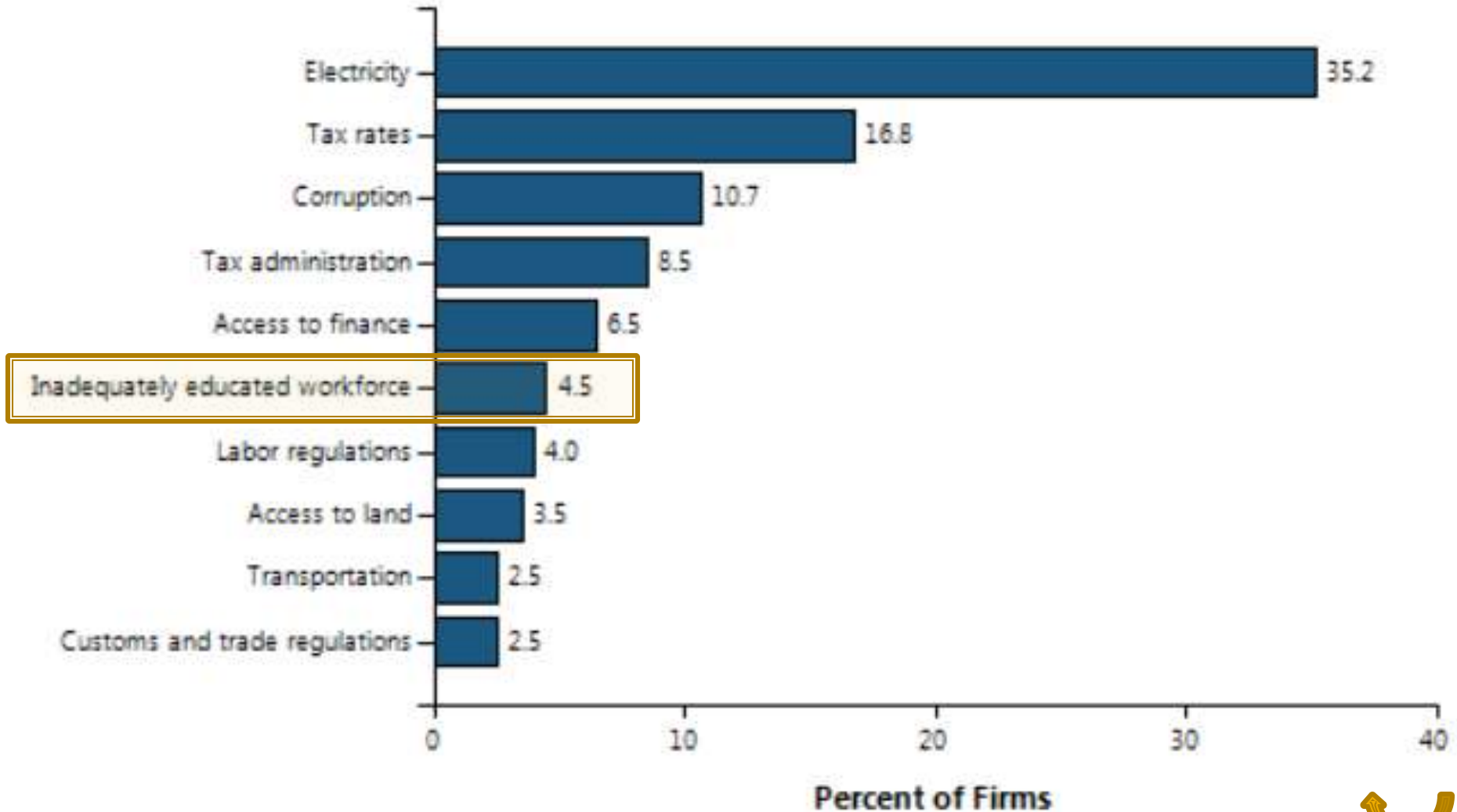
- “Our survey found there to be three reasons for unemployment [amongst ITI/ATS graduates]. First there could be a limited growth and demand in the labor market as 33.7 percent of respondents reported that jobs were not available. Second, there could be mismatch between the skills attained and those actually in demand; that is why 37.5 percent reported that they were waiting for jobs. Third, industries are offering low wages, which they are not accepting.”

Institute of Applied Manpower Research (In Press)

- 25% of economically active persons with formal vocational training report that it did not help them to find a job (NSS 2009-10).



Other problems often trump skills.



The missing link: Wages

- “The biggest beneficiaries of [NSQF] are the learners who can judge the relative value of a quality qualification at a particular level on the framework and make informed decisions about their career progression paths.”
- Wage premiums earned by skilled workers are not discussed in either the NSQF, nor the sector reports prepared by/for the sector skill councils.

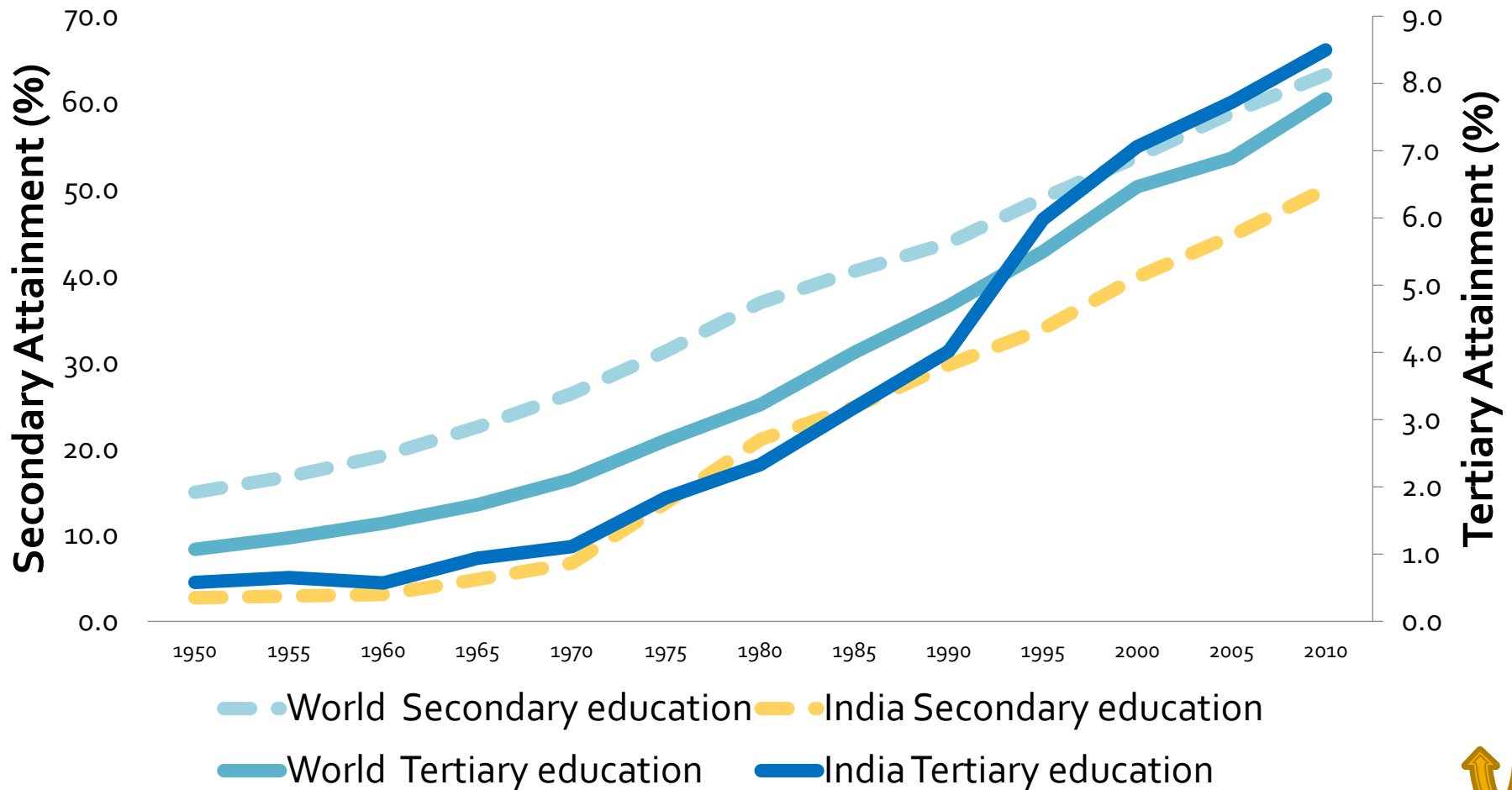
2. Economic approaches suggest skepticism about “skill gaps”

Four reasons to be skeptical.

1. Why is nobody responding to the skill gap?
 - Why is industry outsourcing last-mile training: a function it used to perform, claims is vital, and argues (rightly) that academia is hopeless at?
2. Why now? The world is overflowing with educated workers – many unemployed.
3. Some “skill prices” have been falling.
4. Labor intensive manufacturing is one of the last places we would expect to find skill gaps.

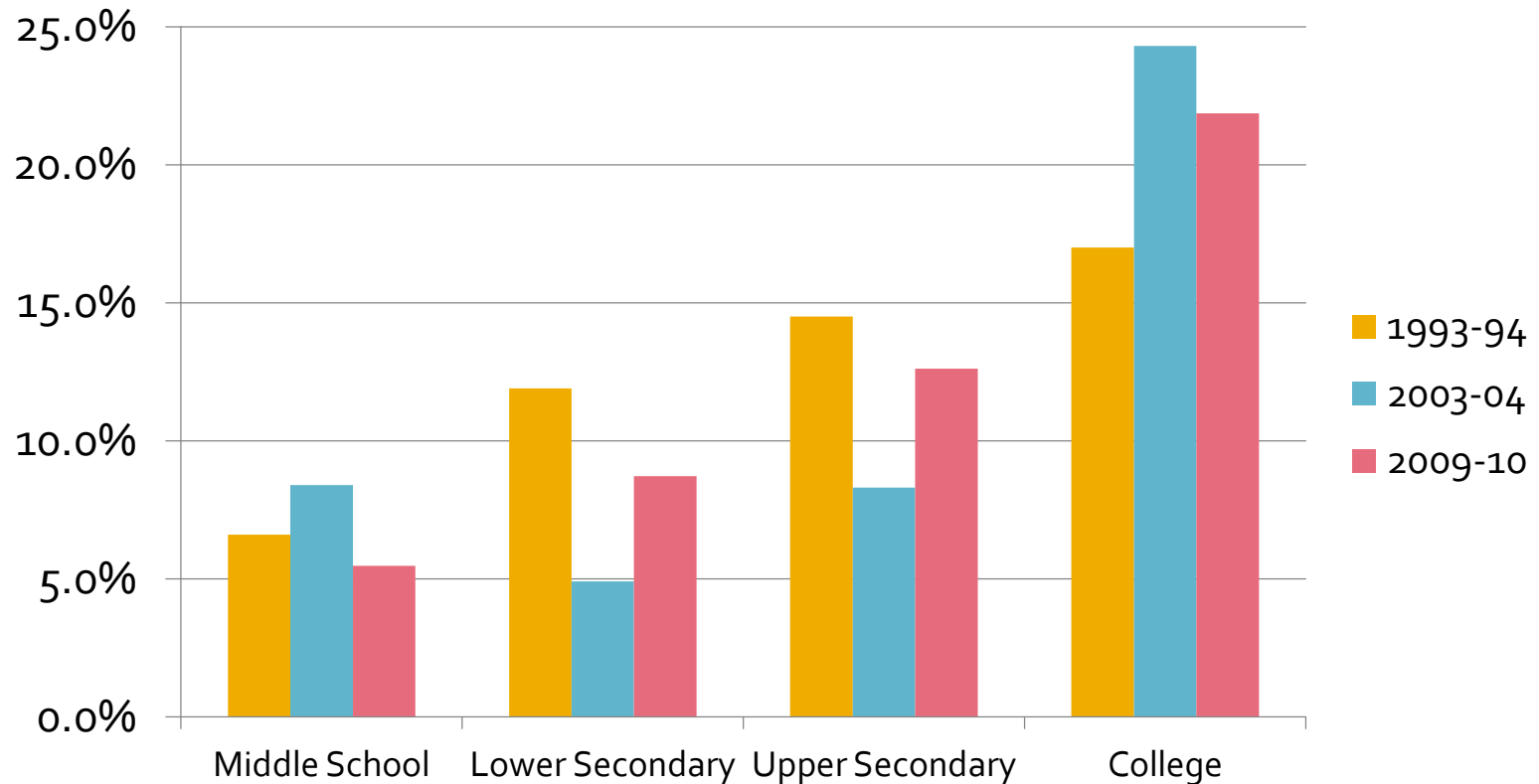
A country/world awash in educated workers.

Education Attainment for Population Aged 15 and Over

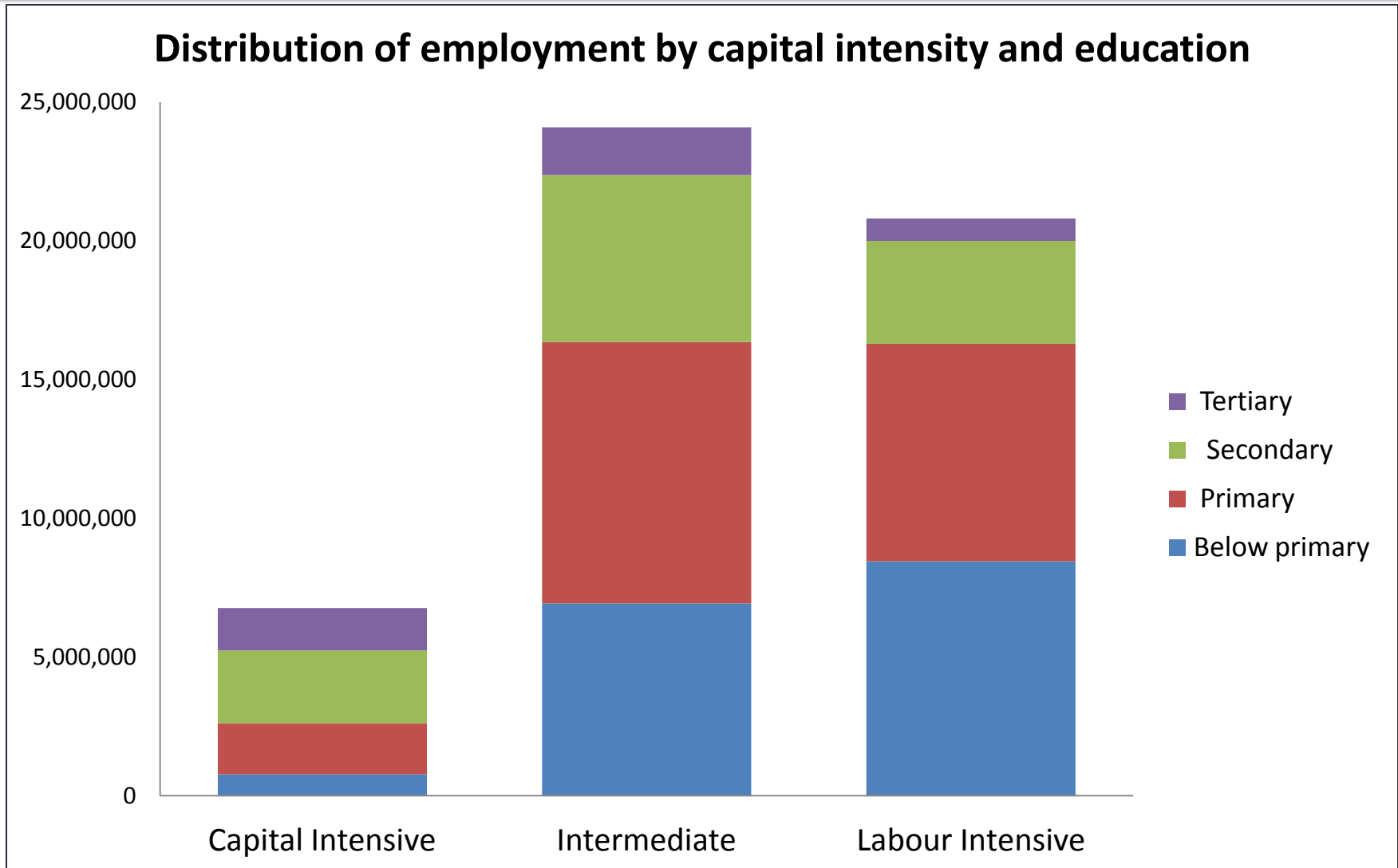


Stagnant or falling "skill prices"

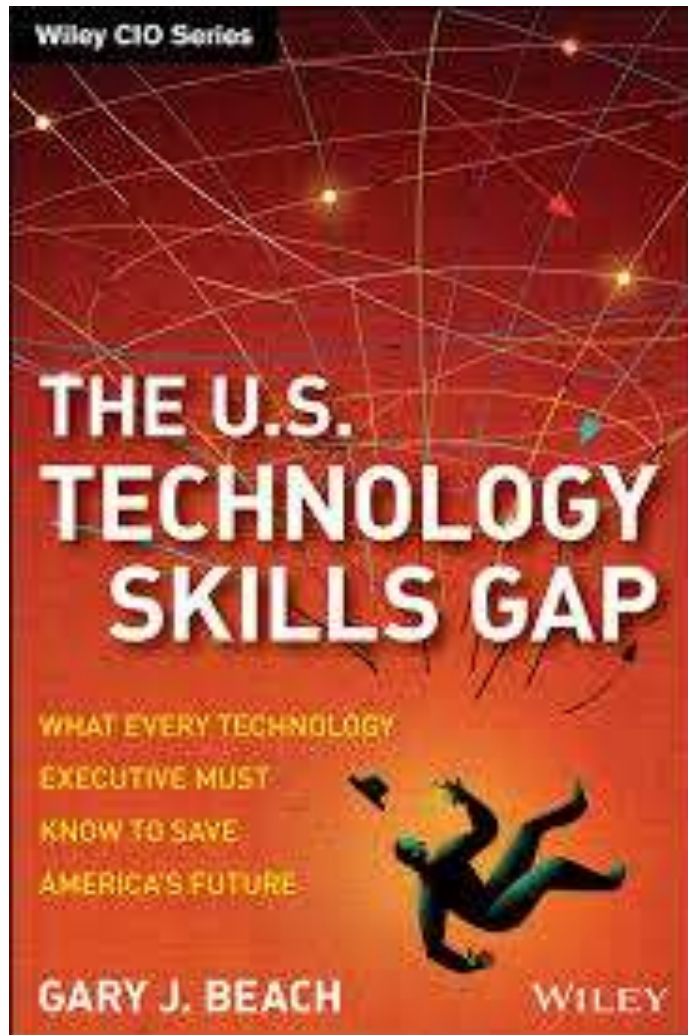
Return on each year of educational investment
(workers 5-9 years in labor market)



**Most manufacturing is not education-intensive.
Presumably, if it was training-intensive, it would be.**



Confusion everywhere: Alarm Amongst U.S. Employers...



...but much more sober assessments by economists.

“The job market has worsened for young workers in S&E fields relative to many other high-level occupations, which discourages U.S. students from going on in S&E, but which still has sufficient rewards to attract large immigrant flows, particularly from developing countries.”

Richard Freeman

Director, Technology Workforce Project
National Bureau of Economic Research

3. Resolution: Two different meanings of “skill gap”

Type I (Economic) Skill Gaps

- Definition: The benefits of increasing supply of the skill exceed the costs of doing so.
 - Absent serious labor market distortions, the wage difference between skilled and unskilled workers performing the same task will be large.
- Type I skill gaps are inefficient, and call for policy response.
- Workers investing in these skills will benefit.
- Compelling evidence of Type I skills gaps in Indian manufacturing is sparse.

Type II (Commercial) Skill Gaps

- Employers' lament: "I can't find skilled workers at wages I can afford to pay."
- A competitive firm's labor budget:
 $(\text{Affordable CTC}) * L \equiv P * Q - \text{Other Input Costs} - \text{Fixed Costs}$
- Type II skill gap:
 $\text{Affordable CTC} < \text{Skilled Workers Reserve Wage} + \text{Non-Wage Labor Costs}.$
- A Type II skill gap becomes more likely when:
 - Fixed costs are high relative to output (Q).
 - Labor Productivity (Q/L) is low.
 - Globalization reduces output prices (P) and more firms become competitive.
 - The economy is doing well.
 - Education levels rise!!

Economic vs. Commercial Skill Gaps

	Economic (Type I)	Commercial (Type II)
Definition	Benefits of skilling exceed cost	Cannot attract skilled labor at affordable wages.
Cost of skilling to workers considered?	Yes	No
Cost of skilling to the govt. considered?	Yes	No
It is efficient to invest in the skill? (Benefits exceed costs)	Yes	Not necessarily. In many cases no.
Workers benefit from this investment	Benefits distributed between workers and firms. Depends on competitiveness of labor market, who bears training cost.	Not necessarily
Industry benefits from this investment		Yes, but industry may need other things more.

A Real Example: Skills Gaps in India's Apparel Sector (Work with Rana Hasan, Raginee Baruah & Nidhi Kapoor)

- Industry reports skill gaps in all 32 positions.
- Yet, production workers (~90% of employees):
 - pick up required skills on the job in only 4-6 weeks (interviews);
 - earned only 2% wage increments for each additional year of lower secondary education (NSS 2010).
- Firms with 10+ employees pay 30% higher wages than those with less than 6 employees.

Where do skills bite?

- Machine maintenance and repair
- Modern shop floor management
- Survey responses highly consistent with Bloom et al's study of textile plants in Maharashtra on use of modern management practices (pictures on right)



SILK MILLS
EX

GREY FIBRE INSPECTION AND DAILY PRODUCTION OF PICES

Sl. No.	Name of the Mill	Capacity (Spindles)	Actual Production (Pices)	Percentage of Capacity Utilized	Remarks
1
2
3
4
5
6
7
8
9
10

10/1/2000

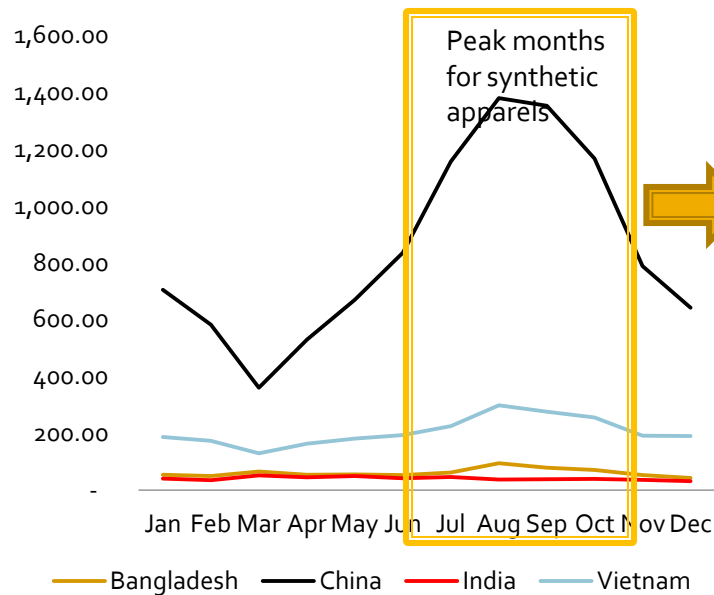
Up-stream issue: Missing out on global markets for synthetic clothing

2003	2007	2011
PRC (12.9%)	PRC (36.4%)	PRC (40.8%)
Vietnam (5.1%)	Vietnam (7.9%)	Vietnam (11.6%)
Bangladesh (3.1%)	Bangladesh (2.7%)	Bangladesh (2.8%)
India (2.1%)	India (1.3%)	India (1.9%)

Implications of the 'missing hump' on production and management decisions for an Indian firm

Source: Otexa database, Wisedge Report, Birnbaum AEPC Study 2013

Import arrivals for synthetic apparel into US, 2011 (\$ million)



Production patterns in response to import demand- months in operation													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Asian comparators	1/2		1/2	1	1	1	1	1	1/2	1	1	1	9
India	1	1	1	1/2						1	1	1	6 1/2

- Fixed costs are amortized over a relatively shorter period
- High incidence of 'flexible'/contractual labor force

4. Conclusions

1. Fix the trainability gap – the quality of basic education.
 - Main source of skill gaps.
 - Biggest source of social stratification/unrest.
2. Prioritize Type I skill gaps; make sure solutions to Type II skill gaps are worth it to workers.
3. Give labor-intensive industries the support they need most. This may or may not be skills, depending on the industry.
 - Send economists (labor and IO) and disinterested industry experts into factories to observe and to interact at length with workers, supervisors and management.
 - Require sector skill councils to provide wage-based evidence of skill gaps.
4. To assess upward mobility implications India badly needs large longitudinal surveys of workers that capture the education system in detail.