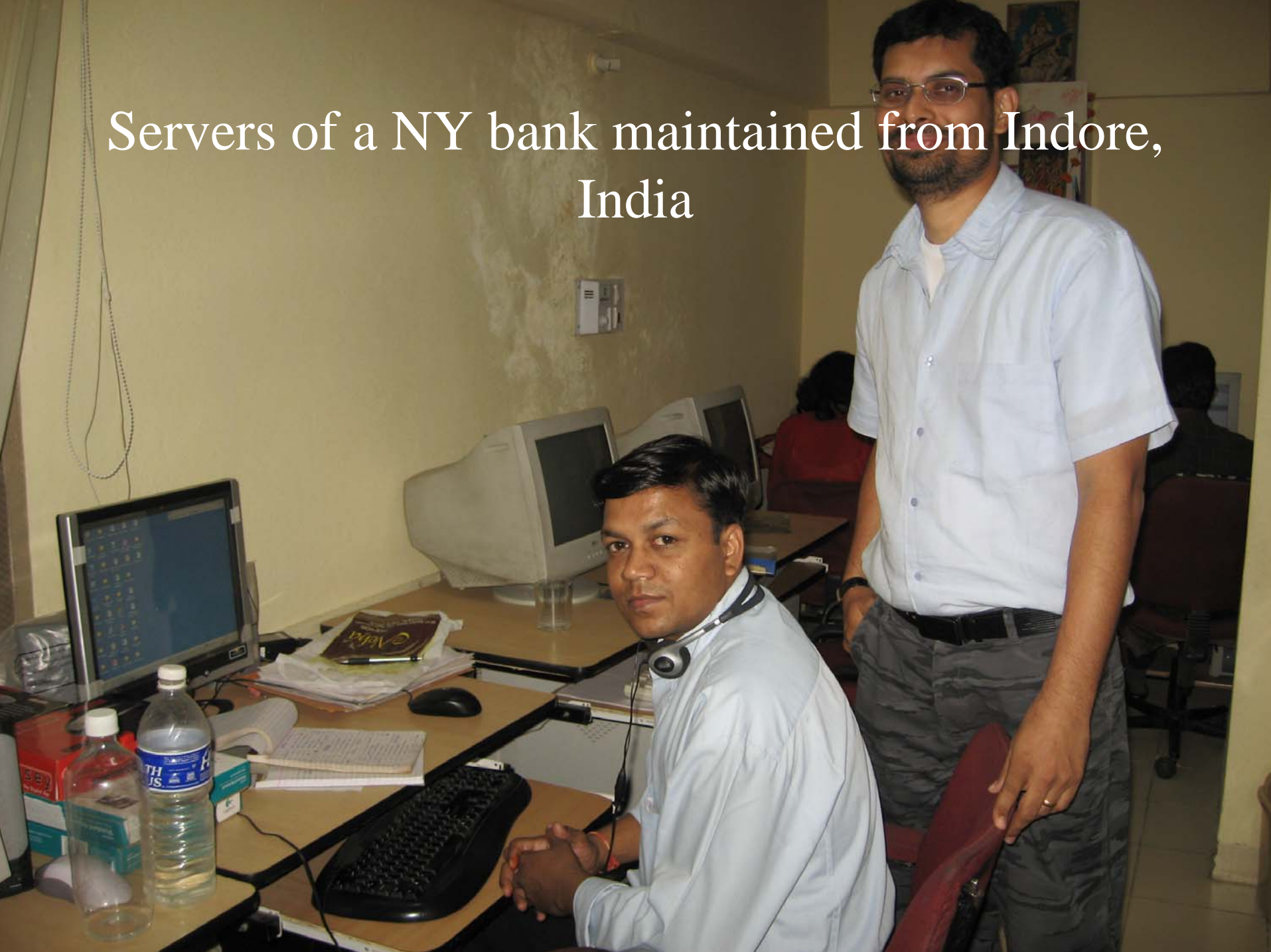


Comparing Engineering Education in India, China and the United States

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Servers of a NY bank maintained from Indore, India



The source of daytime power



Cost comparison

Name	Tuition	Cost	State Subsidy
IIT – Tier 1	40,000	200,000	75%
PESIT B'lore – Tier 2	50,000	45,000	0%
Devi Ahilya Indore – Tier 3	55,000	75,000	33%
Average US – Tier 1 State	\$7,000	\$20,000	30%
Average US – Tier 2 State	\$4,000	\$10,000	40%
Average US – Tier 2 Comm Col	\$2,000	\$6,000	66%
Average China – Tier 1	\$1,000	\$2,000	40%
Average Russia – Tier 1	\$2,500	\$7,500	60%

Comparing Tiers

	China (1.25 m p.a.) 1500 univ	India (450K p.a.) 4000 colleges	US (70K p.a.) 350 univ
Tier 1	1%	1%	15%
Tier 2	5%	15%	70%
Tier 3	94%	84%	15%

India Study

- Study of internal functioning of 25 engineering colleges in Karnataka and TN, approx. 1000 interviews so far; yet to cover: AP, Delhi, MP and Rajasthan
 - Recruitment, faculty autonomy, costs, infrastructure, industry linkages, student profile
 - Mapped against IT firms' quality rankings
- Preliminary findings
 - COE model successful
 - High funding
 - US curricula and teaching
- Private providers
 - Help to fill quality gap between COE and state colleges
 - Greater faculty autonomy, industry linkages raise quality
- India now has a good 'undergraduate factory' model

Outcomes - 1

- Access wider, more affordable.
 - Every town in Karnataka and TN has at least a Tier 3 private college; many have Tier 2
- Catch-up in less than a decade
 - US curricula
 - Same bandwidth and access to journals as US
- Private faculty salaries 2x-4x state colleges
- 90% of students' final year projects in industry
- Large IT firms are 'market makers'
- Private colleges add to system viability
 - System is a PPP and successful private providers are non-profit, but 'unaided'

Outcomes - 2

- Implications for India:
 - Quality, affordability, system viability within 10 years
 - Quality means technical competence
 - Entrepreneurship, global project management skills
 - ‘Undergraduate factory’ & low research competence
 - COEs can shift to research
 - Stanford University’s shift to grad studies
 - » 164 Ph.D, 282 MS, 184 BS
 - State-run colleges should shift to community college system
 - Firms play the role of market makers
- Implications for governance model:
 - Privatization, decentralization & industry linkages
- China: focus on state provision has led to continuance of the quality gap and higher costs; COEs shifting to research.

Emerging Paradigm from Indian study

- Have we discovered a new approach to higher education for emerging economies, consisting of:
 - PPP
 - Not-for-profit private provision
 - Regulatory intrusiveness in faculty and student selection exists, though is flexible
 - Low development costs