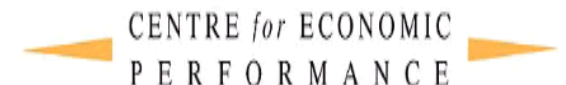


INNOVATION, MISALLOCATION & FINANCE

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World Bank Conference on “Making Growth Happen”

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INTRODUCTION

- Growth driven by TFP not accumulation of conventional factors
- Innovation not just “hard technologies”. Also managerial like Toyota Production System (Nick’s talk)
- Two aspects of technological change
 - Innovation at Global Frontier (hard!)
 - Catching-up with frontier
 - **Diffusion**: “innovations” that are new to country (but not world) or are new to firm (but not country)
 - **Reallocation**: Giving the more efficient/innovative firms a larger market share
- Mix of policies towards innovation & catch-up depends on country’s level of development

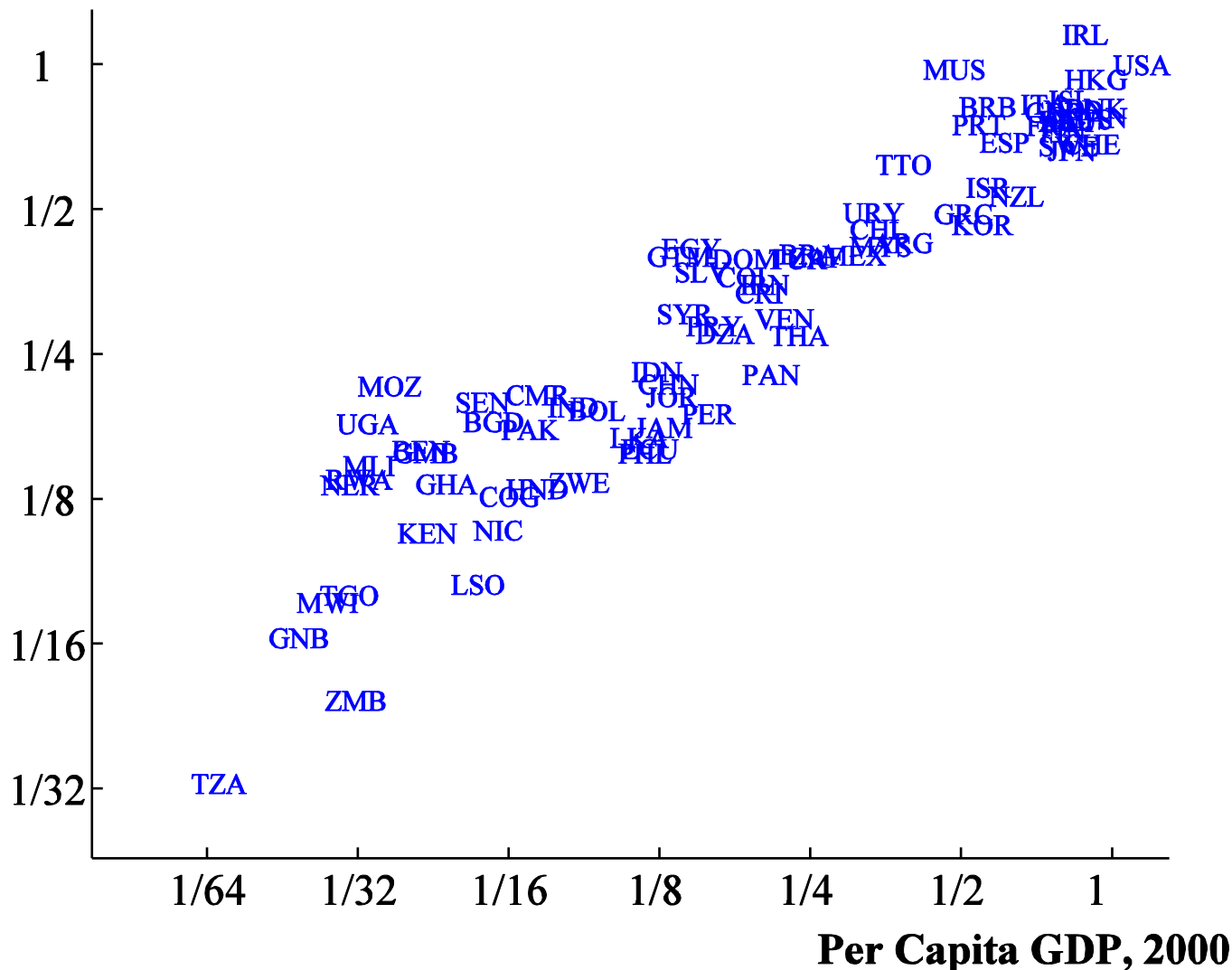
Productivity Dispersion

Barriers to Growth

Conclusions

BIG PRODUCTIVITY DIFFERENCES ACROSS COUNTRIES

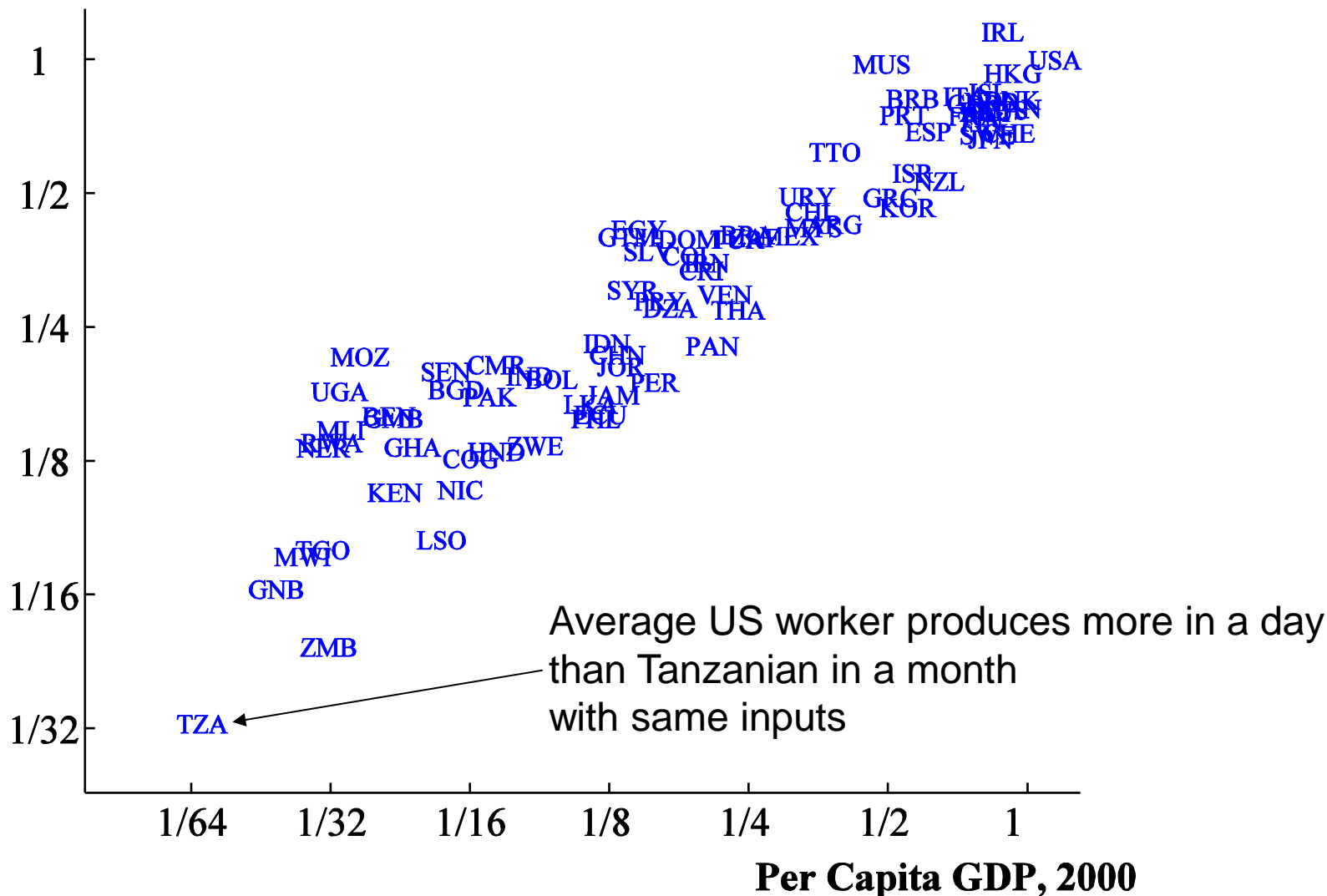
Total Factor Productivity, 2000



Source: Jones and Romer (2009). US=1

BIG PRODUCTIVITY DIFFERENCES ACROSS COUNTRIES

Total Factor Productivity, 2000



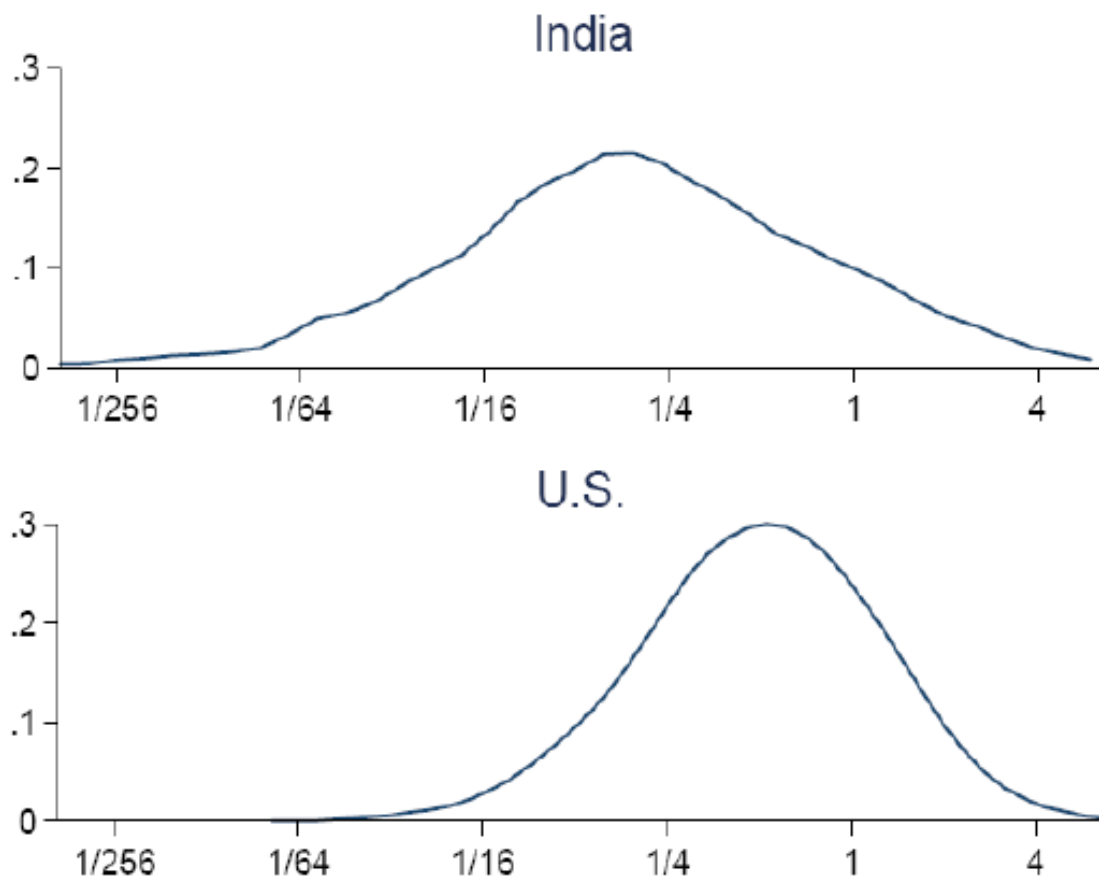
Source: Jones and Romer (2009). US=1

PRODUCTIVITY DISPERSION & MISALLOCATION

- **Large cross sectional dispersion within countries**
 - Within US SIC4, plant labor productivity 90th-10th $\approx 4x$ (TFP $\approx 2x$). Syverson (2011)
 - Even larger productivity variation outside US
- Suggests that reallocation of output from less productive to more productive firms could result in large welfare gains
 - Hsieh & Klenow (2009) estimate Indian TFP up by 50% if reallocation improved to US levels
 - These frictions could be due to capital markets misallocating funds. But could be many other factors (taxes, regulations, corruption, adjustment frictions)

DISTRIBUTION OF PLANT TFP DIFFERENCES IN US VS. INDIA

HIGHER US TFP DUE TO REALLOCATION - THINNER "TAIL" OF LESS PRODUCTIVE PLANTS



Source: Hsieh and Klenow (2009); US mean=1

Productivity Dispersion

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BARRIERS TO GROWTH I: INNOVATION

- Innovation is information so multiple market failures:
 - **Knowledge spillovers.** You benefit from my ideas without having to (full price) pay for developing them, i.e. diffusion easier than frontier innovation
 - High risk & uncertainty so may be severe **financial constraints** (Arrow, 1962)
- Evidence for private under-provision of R&D in OECD due to knowledge spillovers
 - Bloom, Schankerman & Van Reenen (2013) find social returns to R&D 3x larger than private returns
 - Implies R&D subsidies good idea
 - Developing countries not doing frontier innovation
 - R&D helps catch-up Griffith et al (2004), but not for non-OECD (Goni-Maloney, 2013) where other things more important

BARRIERS TO GROWTH II: MISALLOCATION

- What frictions holding back growth of successful firms?
 - Finance
 - Weak Competition (e.g. product market regulations)
 - Labor regulations (e.g. size contingent)
 - Rule of law
 - Culture (e.g. trust important)
- Finance
 - **International** capital markets access. Obsfeld (2009) survey ambiguous: creates volatility
 - **Domestic** finance more important, esp banks. Are incumbents giving funds to well connected insiders rather than the more productive firms?
 - Focus on micro-finance (entrepreneurs), but post-entry growth maybe more important

CONCLUSION: GROWTH “DIAGNOSTICS”

- Country-specific investigation over which are main barriers to growth
 - Misallocation
 - Diffusion
- Sometimes finance, but often other regulatory hurdles
- Correcting the market failures requires government action
 - Example of skills & training