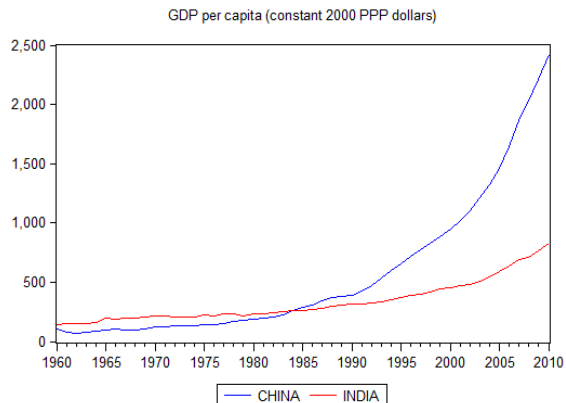# Economic Growth in Emerging Markets – A Comparison of India and China

Camilla Jensen   Wing Leong Teo
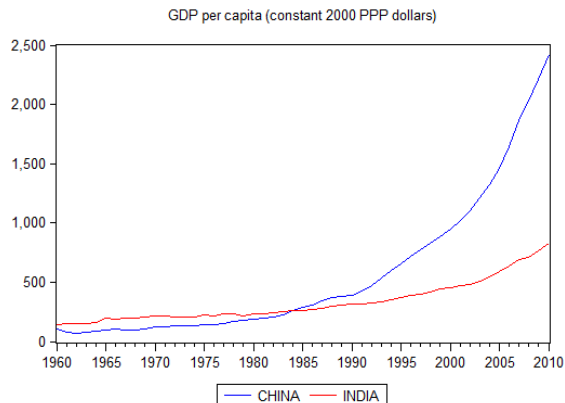
University of Nottingham
Malaysia Campus

November 4, 2011

Introduction

GDP per capita (constant 2000 PPP dollars)

-

Introduction

GDP per capita (constant 2000 PPP dollars)

-
- Between 1978-2010, China's compound annual growth rate is 8.48%
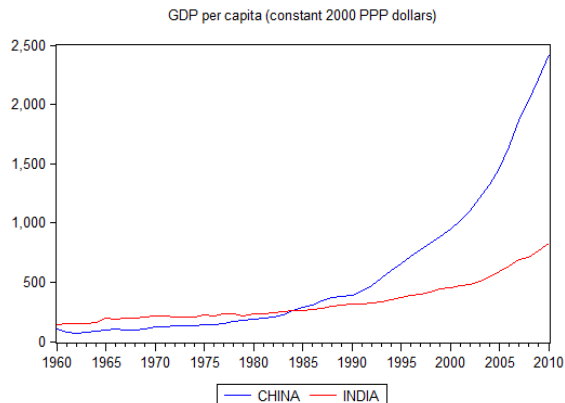
Introduction

GDP per capita (constant 2000 PPP dollars)

-
- Between 1978-2010, China's compound annual growth rate is 8.48%
- Between 1993-2010, India's compound annual growth rate is 5.15%

- An important difference in the economic growth of China and India is the significance of the industrial sector in China and the service sector in India

- An important difference in the economic growth of China and India is the significance of the industrial sector in China and the service sector in India
- Bosworth and Collins (JEP, 2008) compute that between 1993-2004

- An important difference in the economic growth of China and India is the significance of the industrial sector in China and the service sector in India
- Bosworth and Collins (JEP, 2008) compute that between 1993-2004

		% contribution to growth in output per worker			
	Total	Agriculture	Industry	Services	Reallocation
China	8.5	0.7	5.0	1.7	1.2
India	4.6	0.5	0.9	2.1	1.2

Introduction

- The goal of this paper is to take a closer look at factors that contribute to growths in the industrial and service sectors

Introduction

- The goal of this paper is to take a closer look at factors that contribute to growths in the industrial and service sectors
- Methodology: Panel regressions of growths of labor productivities in the industrial and service sectors

Methodology

- Specification

Methodology

- Specification
  - ▶ Dependent variables: growth in labor productivity in industrial (service) sector

Methodology

- Specification
  - Dependent variables: growth in labor productivity in industrial (service) sector
  - Independent variables: Initial labor productivity, ratio of investment to GDP, average years of schooling, life expectancy (Bloom et al., J. Comparative Econ 2010), trade policy

Methodology

- Specification
  - ▶ Dependent variables: growth in labor productivity in industrial (service) sector
  - ▶ Independent variables: Initial labor productivity, ratio of investment to GDP, average years of schooling, life expectancy (Bloom et al., J. Comparative Econ 2010), trade policy
  - ▶ Panel regressions of 5-year panel

Methodology

- Specification
    - Dependent variables: growth in labor productivity in industrial (service) sector
    - Independent variables: Initial labor productivity, ratio of investment to GDP, average years of schooling, life expectancy (Bloom et al., J. Comparative Econ 2010), trade policy
    - Panel regressions of 5-year panel

- Data

Methodology

- Specification
  - ▶ Dependent variables: growth in labor productivity in industrial (service) sector
  - ▶ Independent variables: Initial labor productivity, ratio of investment to GDP, average years of schooling, life expectancy (Bloom et al., J. Comparative Econ 2010), trade policy
  - ▶ Panel regressions of 5-year panel

- Data
  - ▶ McMillan and Rodrick (NBER working paper, 2011), sectorial output and employments in 37 countries, including developed and developing countries

Methodology

- Specification
  - ▶ Dependent variables: growth in labor productivity in industrial (service) sector
  - ▶ Independent variables: Initial labor productivity, ratio of investment to GDP, average years of schooling, life expectancy (Bloom et al., J. Comparative Econ 2010), trade policy
  - ▶ Panel regressions of 5-year panel

- Data
  - ▶ McMillan and Rodrick (NBER working paper, 2011), sectorial output and employments in 37 countries, including developed and developing countries
  - ▶ World Development Indicator

Methodology

- Specification
  - ▶ Dependent variables: growth in labor productivity in industrial (service) sector
  - ▶ Independent variables: Initial labor productivity, ratio of investment to GDP, average years of schooling, life expectancy (Bloom et al., J. Comparative Econ 2010), trade policy
  - ▶ Panel regressions of 5-year panel

- Data
  - ▶ McMillan and Rodrick (NBER working paper, 2011), sectorial output and employments in 37 countries, including developed and developing countries
  - ▶ World Development Indicator
  - ▶ Barro and Lee (2010)

Methodology

- Specification
  - ▶ Dependent variables: growth in labor productivity in industrial (service) sector
  - ▶ Independent variables: Initial labor productivity, ratio of investment to GDP, average years of schooling, life expectancy (Bloom et al., J. Comparative Econ 2010), trade policy
  - ▶ Panel regressions of 5-year panel

- Data
  - ▶ McMillan and Rodrick (NBER working paper, 2011), sectorial output and employments in 37 countries, including developed and developing countries
  - ▶ World Development Indicator
  - ▶ Barro and Lee (2010)
  - ▶ Sample: 1960-2005

Trade policy

- (Export + Import)/GDP often used as a measure of trade openness

Trade policy

- (Export + Import)/GDP often used as a measure of trade openness
- However, countries with large population tend to be more "closed", while richer countries tend to participate more in trade

Trade policy

- (Export + Import)/GDP often used as a measure of trade openness
- However, countries with large population tend to be more "closed", while richer countries tend to participate more in trade
- To adjust for these two effects, run regression below and use residual as a measure of trade policy, following Bloom et al. (2010)

Trade policy

- (Export + Import)/GDP often used as a measure of trade openness
- However, countries with large population tend to be more "closed", while richer countries tend to participate more in trade
- To adjust for these two effects, run regression below and use residual as a measure of trade policy, following Bloom et al. (2010)
- ln trade = 9.38 -0.29 ln population + 0.11 ln GDP per capita

Trade policy

- (Export + Import)/GDP often used as a measure of trade openness
- However, countries with large population tend to be more "closed", while richer countries tend to participate more in trade
- To adjust for these two effects, run regression below and use residual as a measure of trade policy, following Bloom et al. (2010)
- ln trade = 9.38 -0.29 ln population + 0.11 ln GDP per capita
- $\qquad$ (0.23) (0.01) $\qquad$ (0.02) , $R^2 = 0.35, N = 1442$

Baseline results

	Growth of industry labor productivity
Constant	15.33***
	(5.18)
Log initial labor productivity	-3.31***
	(0.56)
Ratio of investment to GDP	0.07*
	(0.04)
Average years of schooling	0.34***
	(0.13)
Life expectancy	0.23***
	(0.05)
Trade policy	0.45
	(0.44)
N	230
R^2	0.345

-

Baseline results

-

	Growth of industry labor productivity	Growth of service labor productivity
Constant	15.33***	0.77
	(5.18)	(3.05)
Log initial labor productivity	-3.31***	-0.55
	(0.56)	(0.43)
Ratio of investment to GDP	0.07*	0.06
	(0.04)	(0.04)
Average years of schooling	0.34***	0.08
	(0.13)	(0.11)
Life expectancy	0.23***	0.06
	(0.05)	(0.05)
Trade policy	0.45	1.44***
	(0.44)	(0.31)
N	230	230
R^2	0.345	0.197

Baseline results

- Interestingly, trade policy is not significant for growth of labor productivity in the industrial sector, but highly significant for service sector

Baseline results

- Interestingly, trade policy is not significant for growth of labor productivity in the industrial sector, but highly significant for service sector

- Average years of schooling is not significant for growth of labor productivity in the service sector, but highly significant for industrial sector

Unadjusted trade openness

	Growth of industry labor productivity
Constant	16.43***
	(5.19)
Log initial labor productivity	-3.40***
	(0.56)
Ratio of investment to GDP	**0.09****
	(0.04)
Average years of schooling	0.33***
	(0.13)
Life expectancy	0.23***
	(0.05)
Log trade openness	**-0.17**
	(0.31)
N	230
R^2	0.343

Unadjusted trade openness

	Growth of industry labor productivity	Growth of service labor productivity
Constant	16.43***	1.12
	(5.19)	(3.12)
Log initial labor productivity	-3.40***	**-0.74***
	(0.56)	(0.44)
Ratio of investment to GDP	**0.09****	**0.11****
	(0.04)	(0.04)
Average years of schooling	0.33***	0.05
	(0.13)	(0.11)
Life expectancy	0.23***	0.06
	(0.05)	(0.05)
Log trade openness	**-0.17**	**0.19**
	(0.31)	(0.24)
N	230	230
R^2	0.343	0.154

Sector specific trade

	Growth of industry labor productivity
Constant	15.37***
	(5.17)
Log initial labor productivity	-3.29***
	(0.55)
Ratio of investment to GDP	**0.06**
	(0.04)
Average years of schooling	0.34***
	(0.13)
Life expectancy	0.23***
	(0.05)
Trade policy	0.58
	(0.43)
N	229
R^2	0.345

Sector specific trade

-

	Growth of industry labor productivity	Growth of service labor productivity
Constant	15.37***	-0.18
	(5.17)	(3.80)
Log initial labor productivity	-3.29***	-0.49
	(0.55)	(0.58)
Ratio of investment to GDP	**0.06**	**0.08***
	(0.04)	(0.04)
Average years of schooling	0.34***	0.05
	(0.13)	(0.13)
Life expectancy	0.23***	0.06
	(0.05)	(0.07)
Trade policy	0.58	1.11*
	(0.43)	(0.56)
N	**229**	**171**
R^2	0.345	0.153

Total and agriculture

-

	Growth of total labor productivity	Growth of agricultur labor productivity
Constant	2.85	-2.20
	(1.86)	(2.41)
Log initial labor productivity	-1.48***	-0.85**
	(0.37)	(0.43)
Ratio of investment to GDP	0.11***	0.01
	(0.03)	(0.04)
Average years of schooling	0.09	0.16
	(0.08)	(0.15)
Life expectancy	0.15***	0.16**
	(0.04)	(0.06)
Trade policy	0.94***	-0.10
	(0.26)	(0.52)
N	230	230
R^2	0.376	0.108

Labor Productivity in China
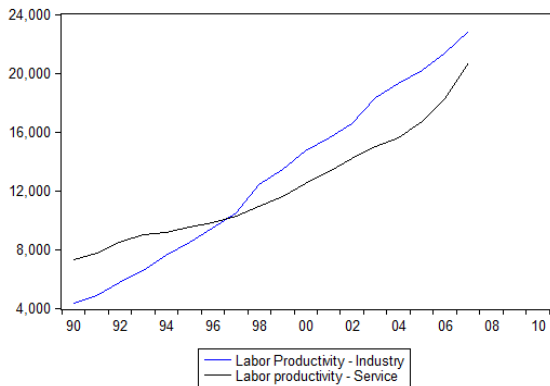
Year-to-year growth rate of labor productivity - China
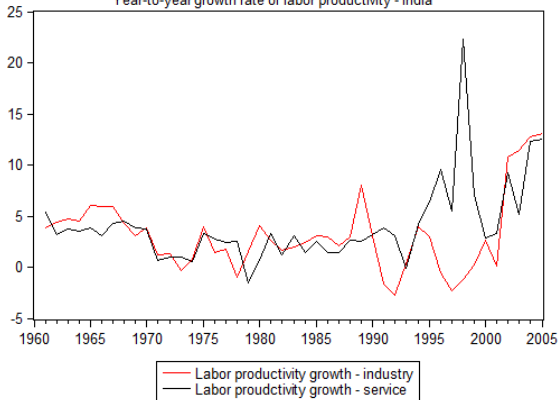
Legend:
— Labor productivity growth - industry
— Laobr productivity growth - service

Labor Productivtiy in India

Year-to-year growth rate of labor productivity - India

Labor productivity growth - industry
Labor proudctivity growth - service

Implications and conclusion

- Labor productivity growth in industry in China has slowed down - convergence effect?

Implications and conclusion

- Labor productivity growth in industry in China has slowed down - convergence effect?
- More room for labor productivity growth in service in China

Implications and conclusion

- Labor productivity growth in industry in China has slowed down - convergence effect?
- More room for labor productivity growth in service in China
- For India, labor productivity growth in industry and service increase

Implications and conclusion

- Labor productivity growth in industry in China has slowed down - convergence effect?
- More room for labor productivity growth in service in China
- For India, labor productivity growth in industry and service increase
- The insignificance of average years of schooling for labor productivity growth in service maybe a good news for developing countries

Implications and conclusion

- Labor productivity growth in industry in China has slowed down - convergence effect?
- More room for labor productivity growth in service in China
- For India, labor productivity growth in industry and service increase
- The insignificance of average years of schooling for labor productivity growth in service maybe a good news for developing countries
- Still room for labor reallocation from agriculture to industry and service