An African Miracle?

Richard H. Sabot Lecture, CGD

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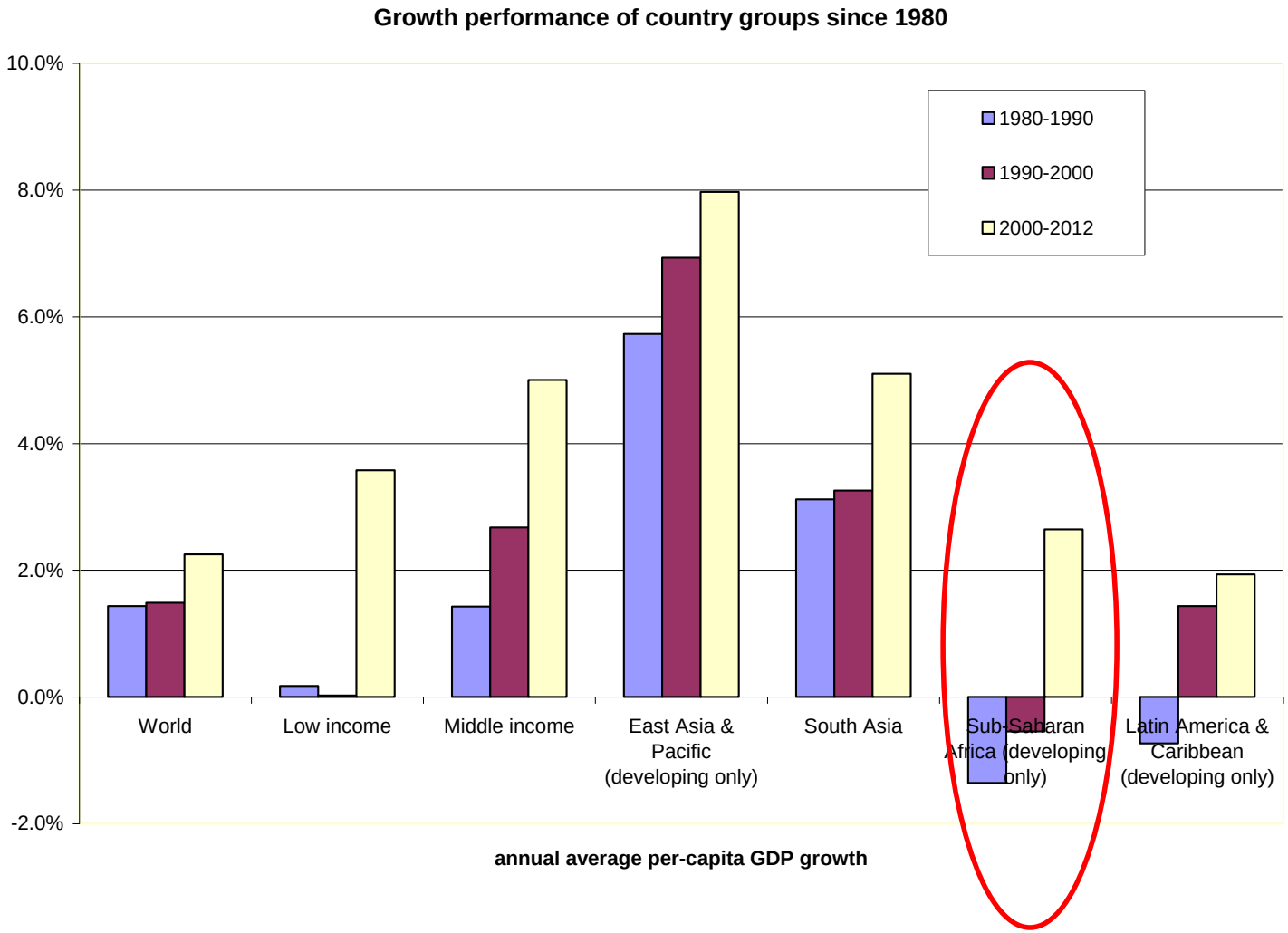
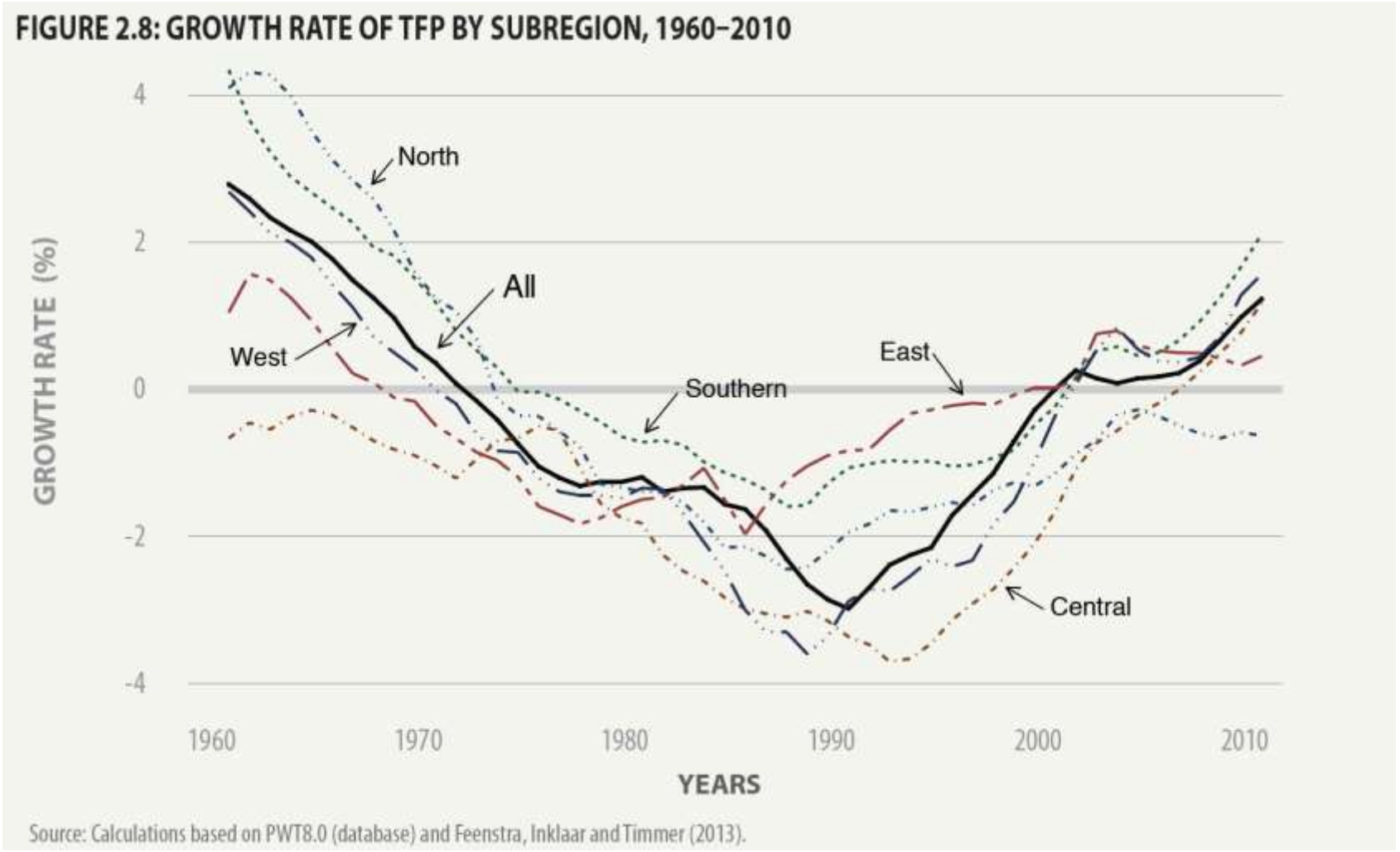
A remarkable growth turnaround in Africa (and the rest of the developing world)

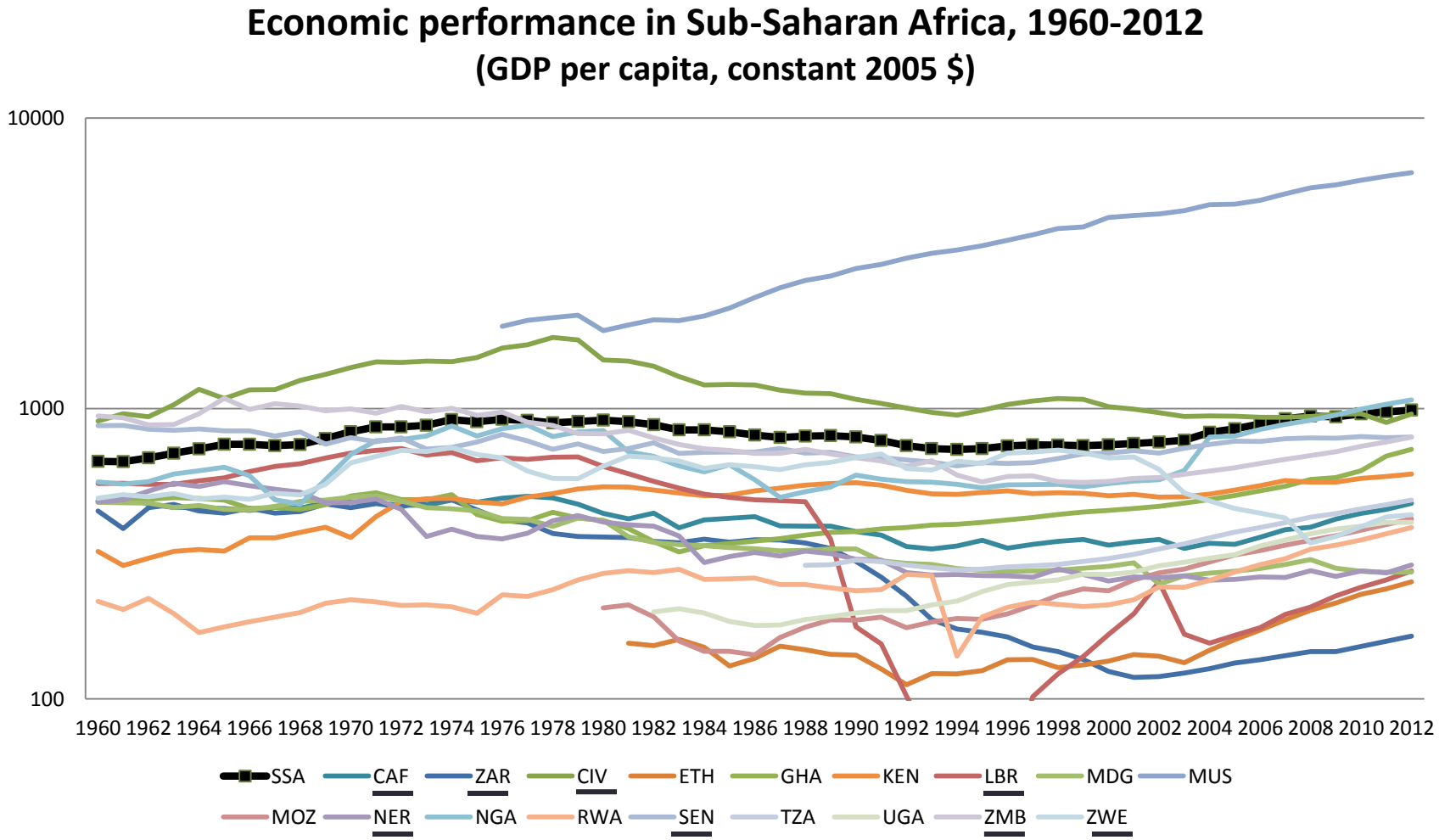


TFP growth rates are back to 1960s levels



Source: UNECA (2014)

But many countries still have to catch up to income levels of some decades ago



Is growth temporary or permanent? Reasons to be wary

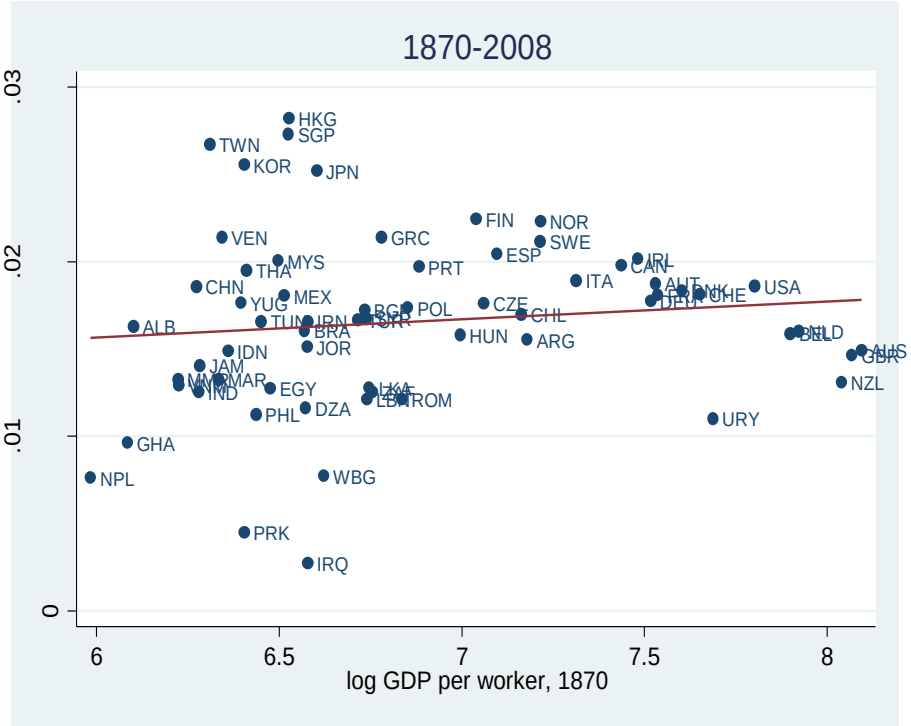
Last two decades have been particularly favorable to developing countries

- high commodity prices
- low interest rates
- plenty of foreign capital
- recovery (from civil wars and macro instability)
- the Chinese impact

So future may not look like recent past

Need to understand drivers of economic growth

Convergence is historically the exception rather than the norm



Notes: For RHS chart, variable on the vertical axis is growth of GDP per worker over four separate decades (1965-1975, 1975-1985, 1985-1995, 1995-2005), controlling for decadal fixed effects.
Source: Rodrik (2013), using data from Maddison (2010) and PWT 7.0 (2011).

Unconditional versus conditional convergence

Latecomers have access to

- technology
- capital
- markets

But face other headwinds, specific to each country

- bad policies
- weak institutions
- geographical disadvantages
- poverty traps

So conventional theory: convergence is conditional:

$$\hat{y}_j = \beta\left(\ln y^*(\boldsymbol{\Theta}_j) - \ln y_j\right) + \varepsilon_j$$

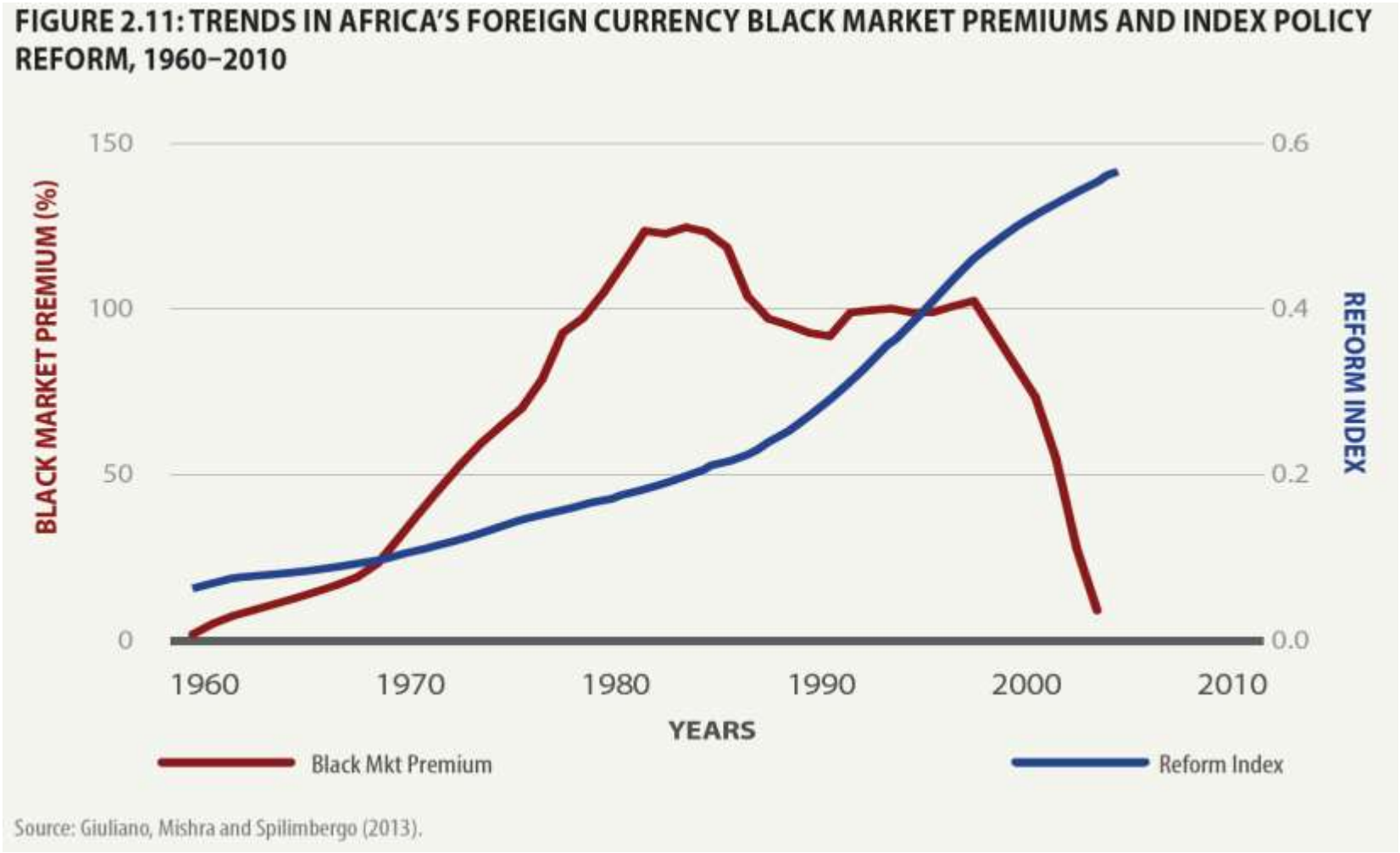
The growth “fundamentals”

Long-term convergence is conditional on:

- Institutional quality
  - governance
  - rule of law
  - “business environment”
- Human capital
  - education, skills, training

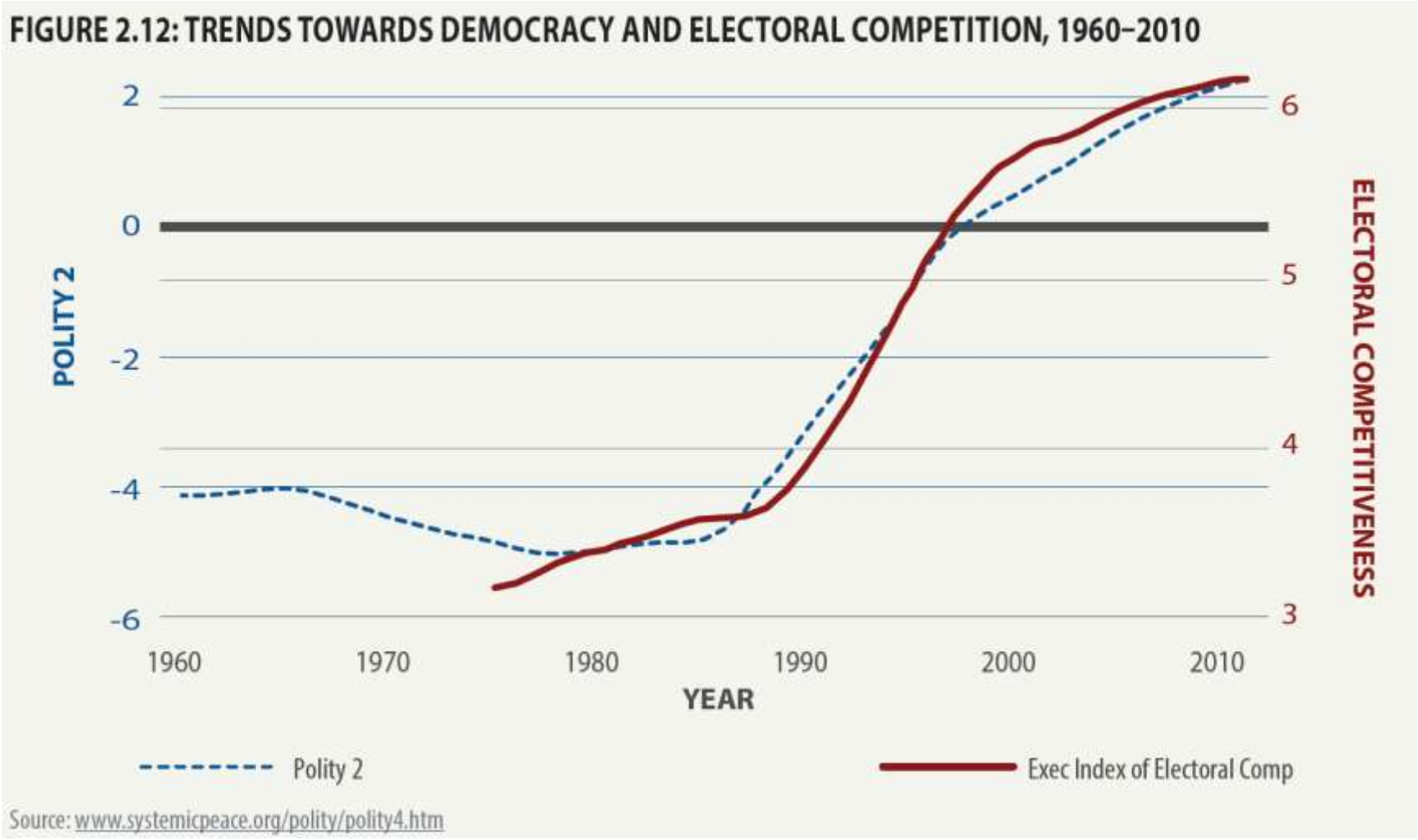
Need not take a position on debate as to which is more fundamental than other

Africa's fundamentals: better policies



Source: UNECA (2014)

Africa's fundamentals: democratization



Source: UNECA (2014)

Africa's fundamentals: fewer civil wars

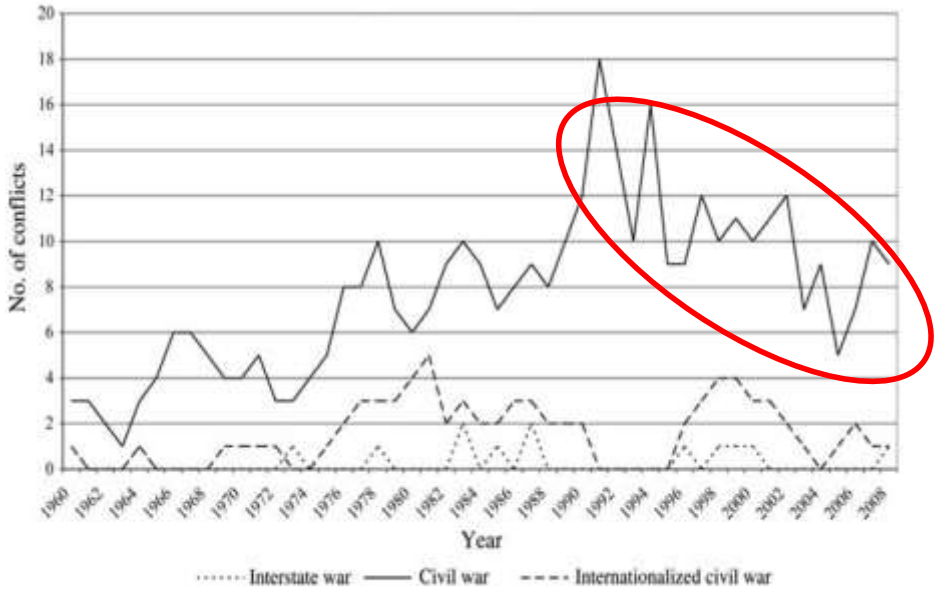


Figure 1. Armed conflicts in sub-Saharan Africa by type, 1960–2008.

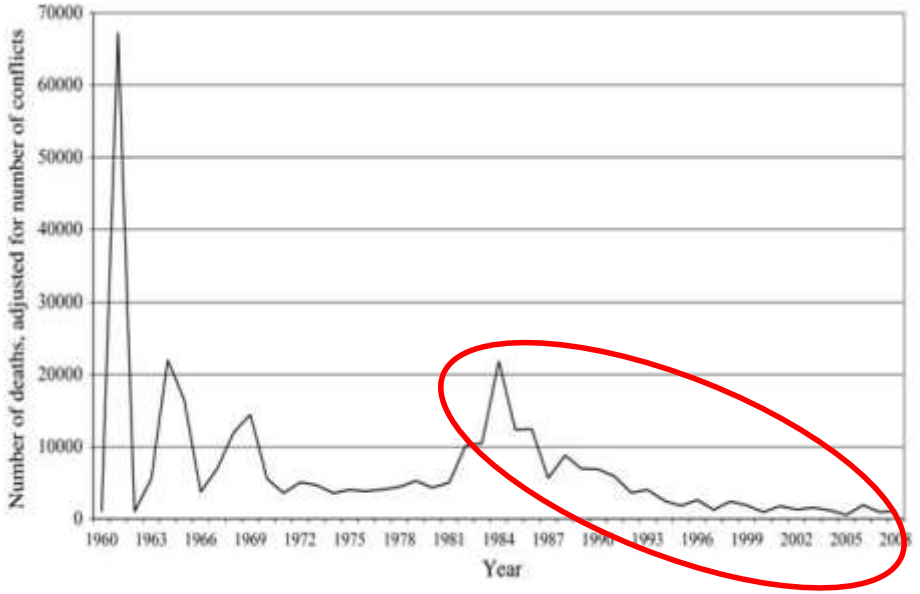


Figure 4. Battle deaths in civil wars in sub-Saharan Africa, 1960–2008.

Source: Straus (2012)

The empirical disconnect between fundamentals and growth

- Empirical relationship between fundamentals and growth strong in levels (i.e., in long-run), but not so much in growth rates
  - there is only weak relationship between growth and
    - improvements in institutional quality,
    - standard measures of economic reform (except in the extremes),
    - increases in educational attainment
- High-performing Asian countries have been weak on many of the fundamentals during much of their growth
- Latin American growth post-1990 has been subpar despite significant improvements in governance and policy
  - e.g. Mexico

The policy disconnect between fundamentals and growth

- Institutions: measured as “rule of law,” “expropriation risk”
  - broadly defined, these have large effects on long-run levels of income
  - but no clear, easily exploitable mapping from institutions as “rules of the game” to institutions as “policy”
- Democracy, as example
  - recent paper by Acemoglu et al. (2014) finds full democratization produces ≈20% increase in GDP per capita over 30 years
    - growth effect is 0.6 percent per year -- not insignificant, but it’s temporary and phased out over time
  - typical cross-country findings (in levels) with “expropriation risk,” “rule of law” suggest much larger magnitudes
    - “as much as 75% of the [income] gap between high and low institutions countries” (Acemoglu, Gallego, Robinson, 2014, p. 3)

Another look at convergence

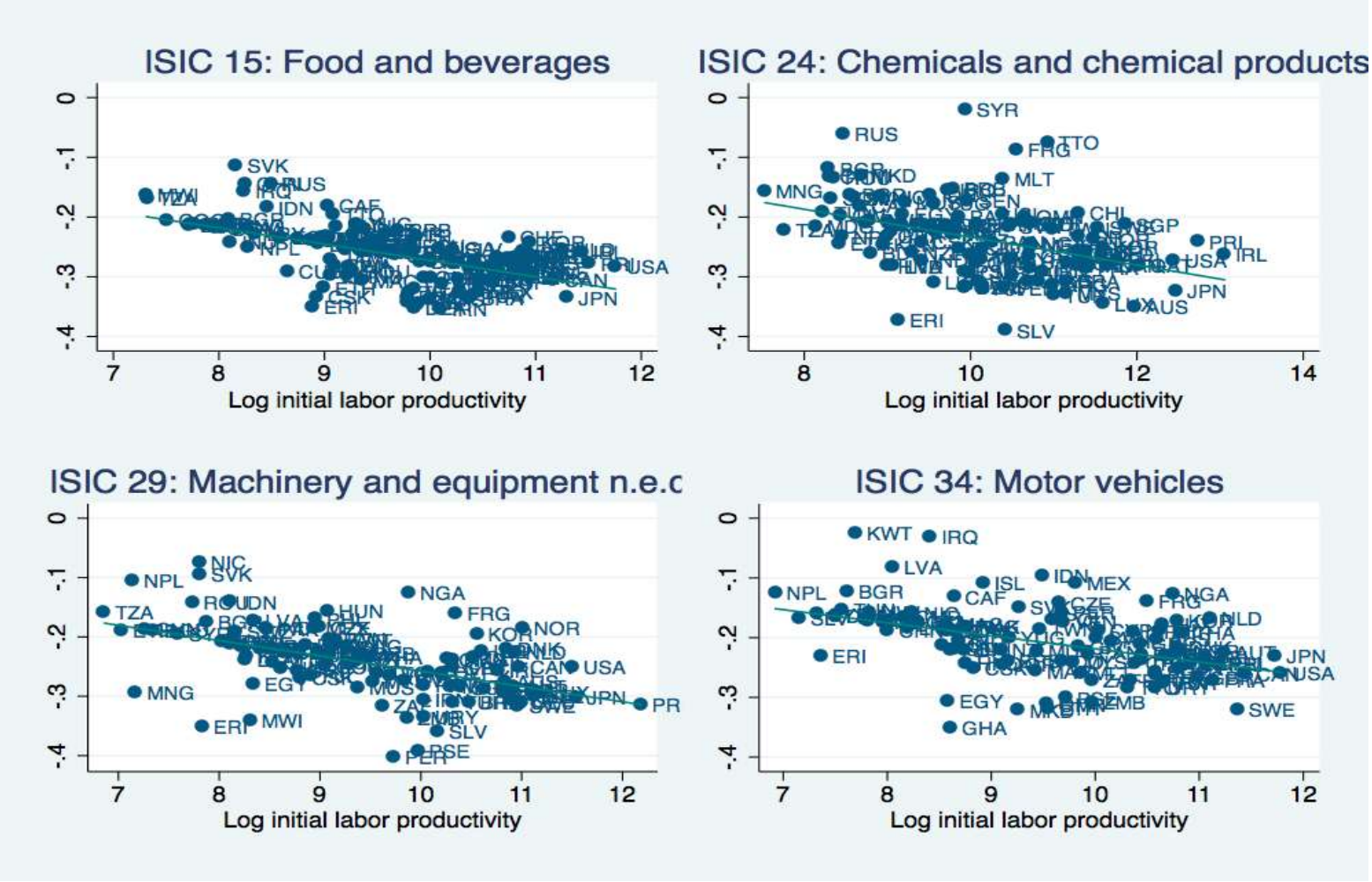
So standard growth equation does not do a very good job of describing growth miracles

$$\hat{y}_j = \beta\left(\ln y^*(\boldsymbol{\Theta}_j) - \ln y_j\right) + \varepsilon_j$$

A complementary perspective: structural change

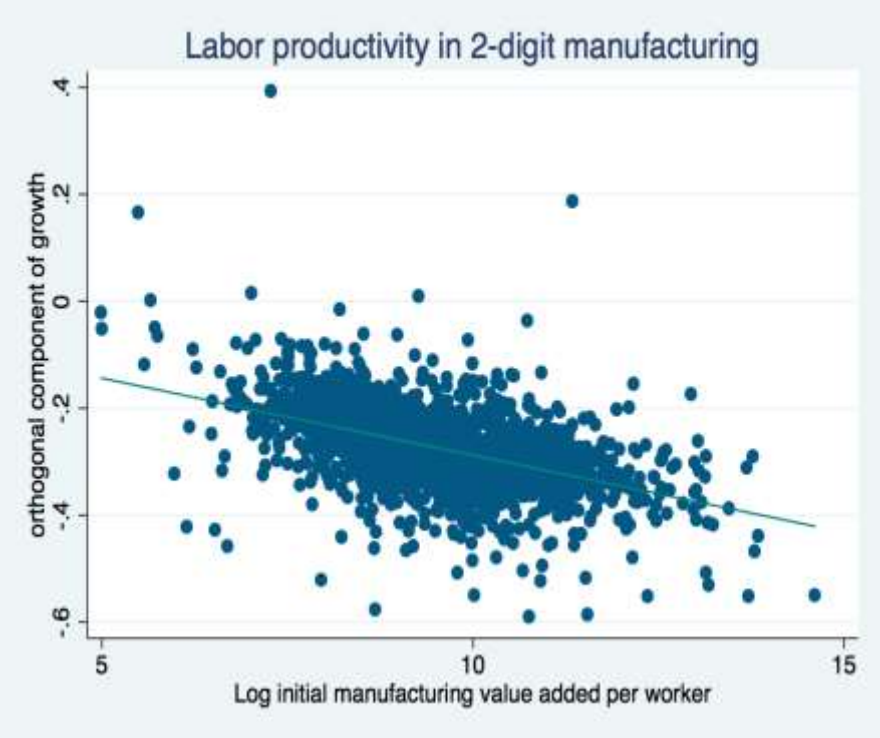
- economic dualism
  - sectors that have different productive trajectories
- unconditional convergence in modern industries

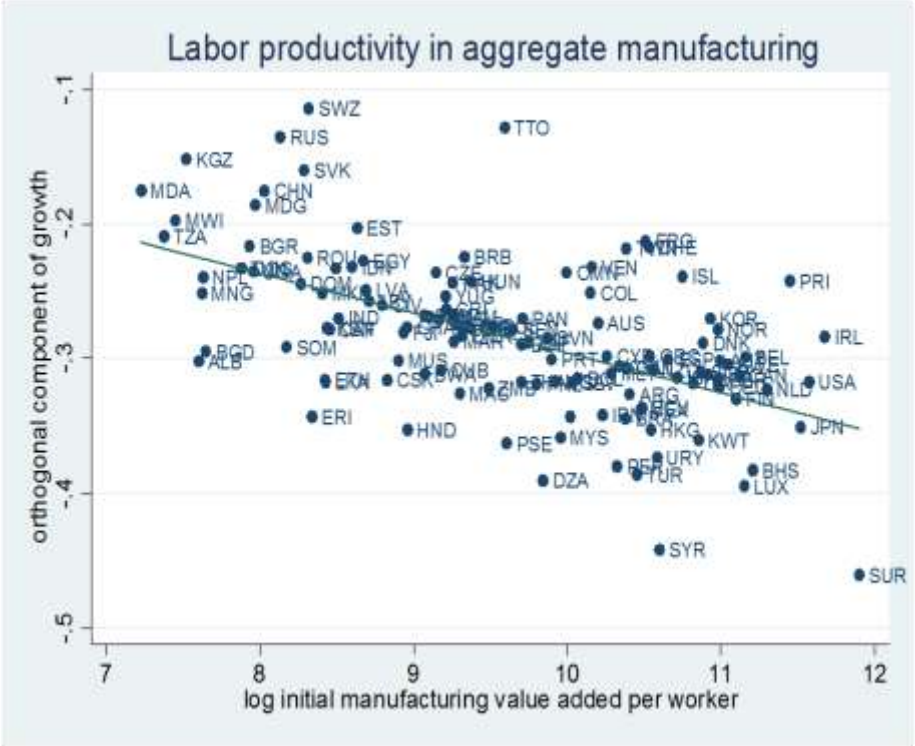
There *is* unconditional convergence -- in (formal) manufacturing industries



Notes: Vertical axis represents growth in labor productivity over subsequent decade (controlling for period fixed effects). Data are for the latest 10-year period available.
Source: Rodrik (2013)

--- regardless of period, sector, or aggregation



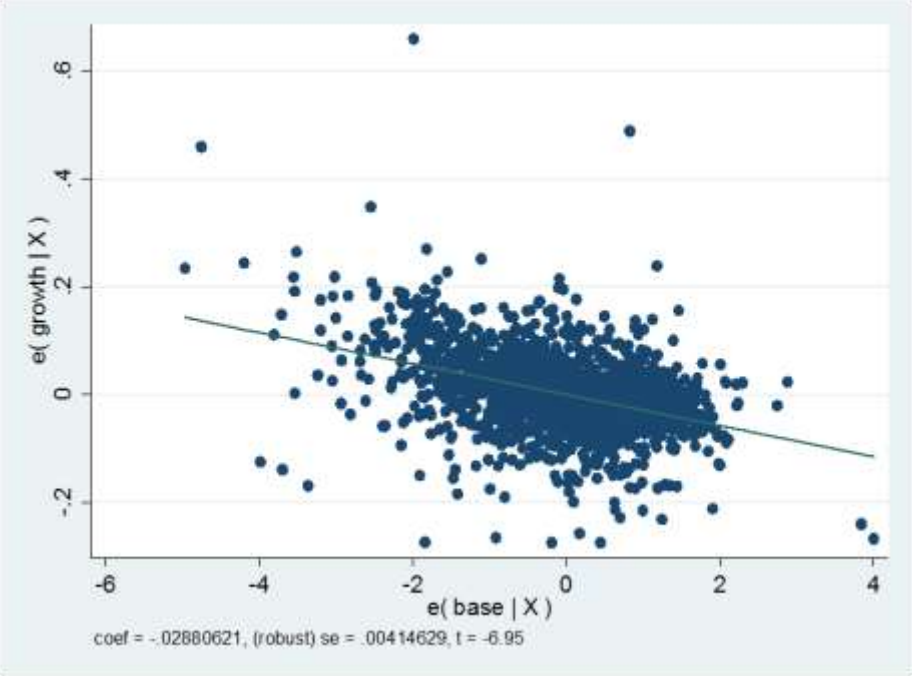


$\beta \approx 2.9\%$ (t-stat ≈ 7), implying a half-life for full convergence of 40-50 years!

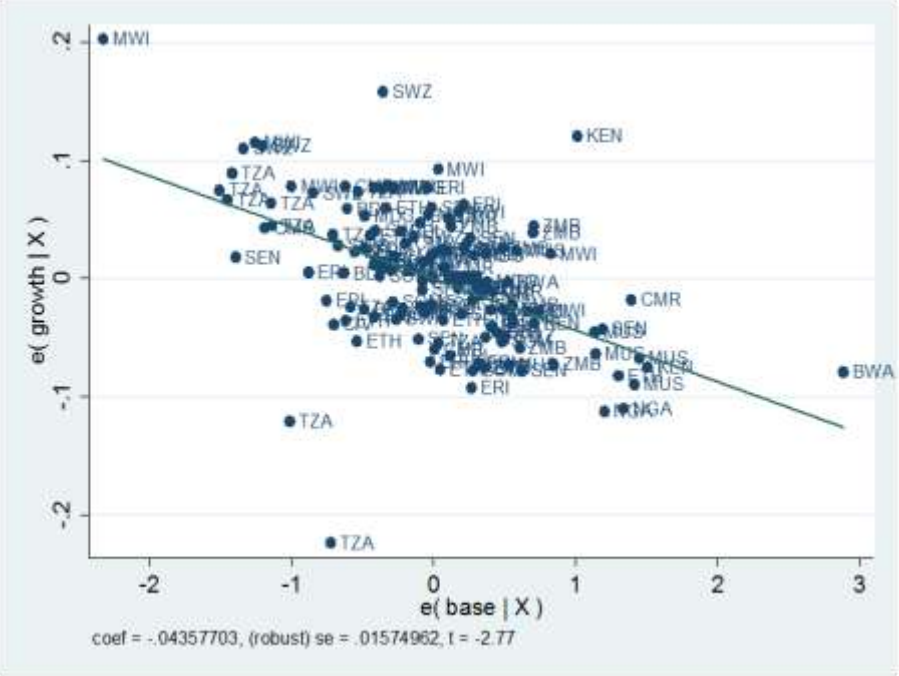
Notes: Data are for the latest 10-year period available. On LHS chart, each dot represents a 2-digit manufacturing industry in a specific country; vertical axis represents growth rate of labor productivity (controlling for period, industry, and period×industry fixed effects).
Source: Rodrik (2013)

African manufacturing seems no different (1)

Full sample: 115 countries



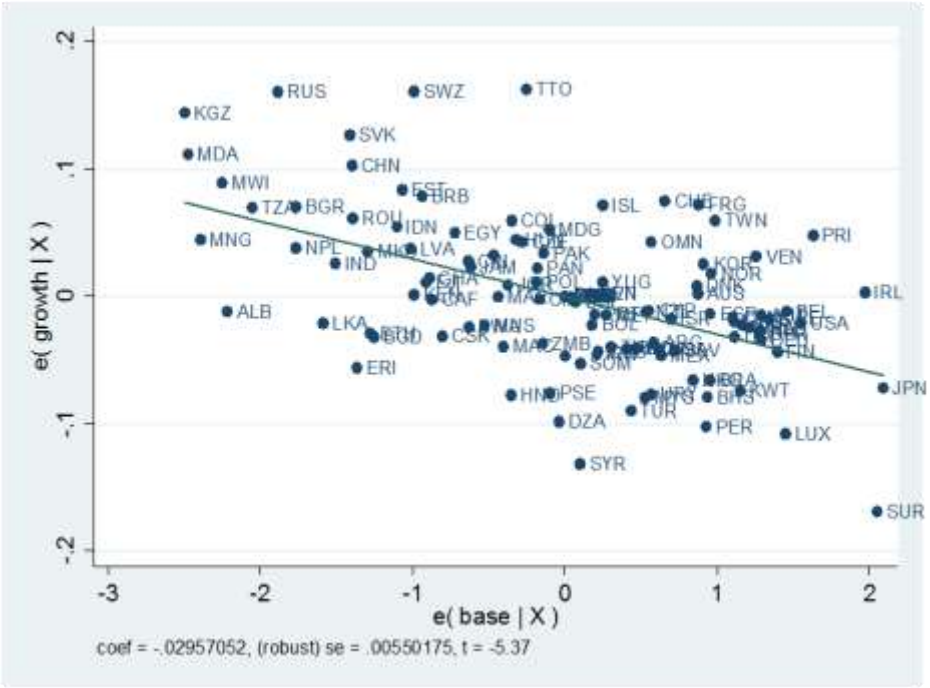
Sub-Saharan Africa: 20 countries



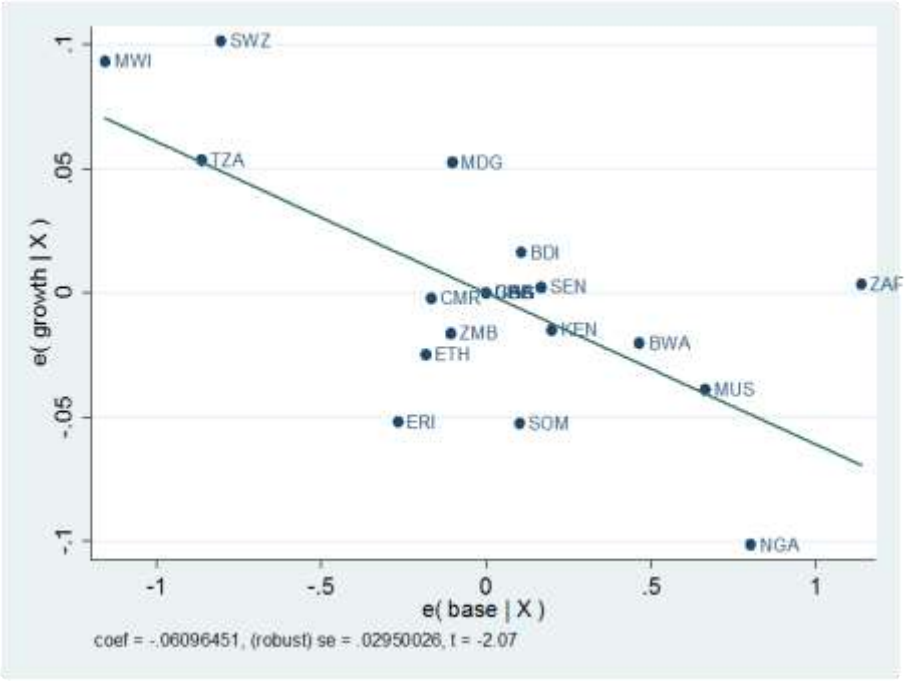
Each observation represents a 2-digit manufacturing industry, for the latest 10 year period for which data are available. The horizontal axis is the log of VA per worker in base period, and the vertical axis is its growth rate over the subsequent decade. Period, industry, and period x industry controls are included.

African manufacturing seems no different (2)

Full sample



Sub-Saharan Africa



Each observation represents aggregate manufacturing industry in a specific country, for the latest 10 year period for which data are available. The horizontal axis is the log of VA per worker in base period, and the vertical axis is its growth rate over the subsequent decade. Period controls are included.

Putting it together

$$\hat{y} = \beta(\ln y^*(\boldsymbol{\theta}) - \ln y) \quad \text{(A)}$$

$$+ \alpha_M \pi_M \beta_M (\ln y_M^* - \ln y_M) \quad \text{(B)}$$

$$+ (\pi_M - \pi_T) d\alpha_M \quad \text{(C)}$$

Putting it together

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(A) Conditional convergence, dependent on accumulation of fundamental capabilities (human capital and institutional quality)

-- a slow process

Putting it together

$$\hat{y} = \beta(\ln y^*(\boldsymbol{\theta}) - \ln y) \quad \text{(A)}$$

$$+ \alpha_M \pi_M \beta_M (\ln y_M^* - \ln y_M) \quad \text{(B)}$$

$$+ (\pi_M - \pi_T) d\alpha_M \quad \text{(C)}$$

(B) Unconditional convergence in (formal) manufacturing

-- rapid, but quantitatively small due to small initial share of manufacturing

Putting it together

$$\hat{y} = \beta(\ln y^*(\boldsymbol{\theta}) - \ln y) \quad \text{(A)}$$

$$+ \alpha_M \pi_M \beta_M (\ln y_M^* - \ln y_M) \quad \text{(B)}$$

$$+ (\pi_M - \pi_T) d\alpha_M \quad \text{(C)}$$

(C) Structural change
-- industrialization in particular

A typology of growth processes/outcomes

Investment in fundamentals (human capital, institutions)	Structural transformation, industrialization (dα)	
	slow	*rapid*
slow	(1) no growth	(1) episodic growth
rapid	(1) slow growth	(1) rapid, sustained growth

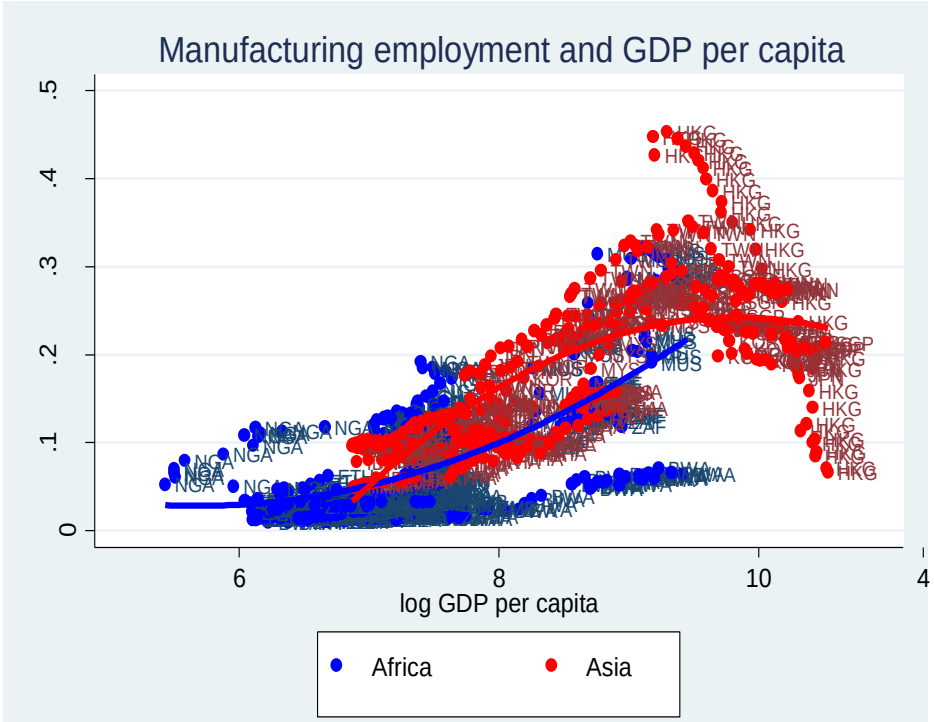
Industrialization in Africa

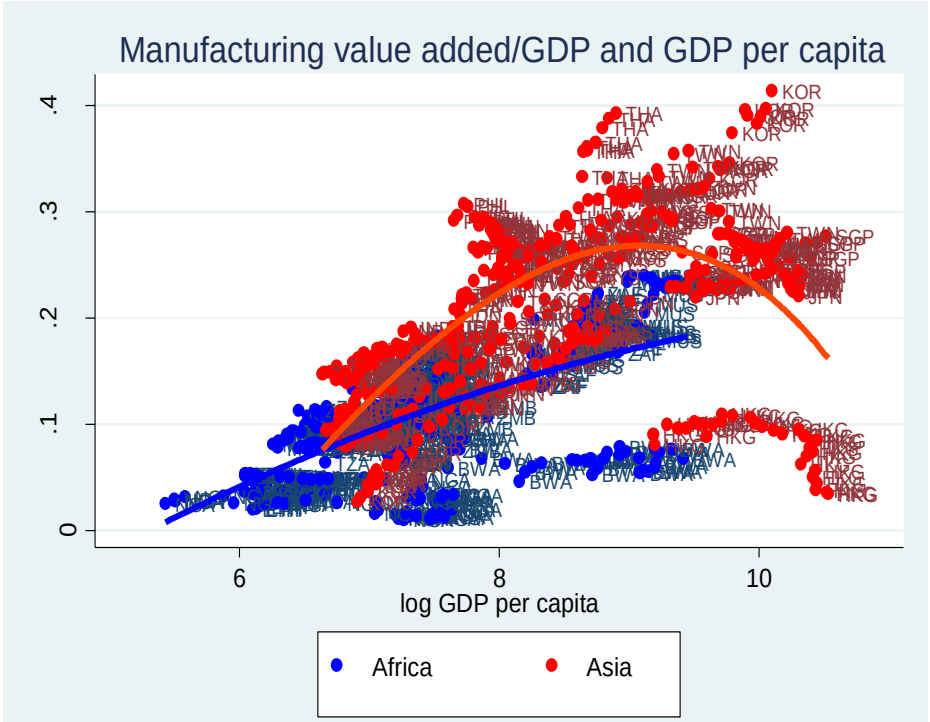
Table 2. GDP, employment, and relative productivity levels across countries and sectors, 1960 -2010

	Value added				Employment				Relative productivity levels			
	1960	1975	1990	2010	1960	1975	1990	2010	1960	1975	1990	2010
Agriculture	**37.6**	**29.2**	**24.9**	**22.4**	**72.7**	**66.0**	**61.6**	**49.8**	**0.5**	**0.4**	**0.4**	**0.4**
Industry	**24.3**	**30.0**	**32.6**	**27.8**	**9.3**	**13.1**	**14.3**	**13.4**	**4.4**	**3.7**	**3.5**	**2.6**
Mining	8.1	6.2	11.2	8.9	1.7	1.5	1.5	0.9	15.7	22.4	23.3	19.5
Manufacturing	9.2	14.7	14.0	10.1	4.7	7.8	8.9	8.3	2.5	2.8	2.4	1.6
Other industry	7.1	9.2	7.3	8.9	3.0	3.8	3.9	4.2	8.5	5.8	5.3	2.9
Services	**38.1**	**40.7**	**42.6**	**49.8**	**18.0**	**20.9**	**24.1**	**36.8**	**2.7**	**2.5**	**2.4**	**1.6**
Market services	24.5	25.5	28.1	34.0	8.8	10.3	12.9	23.5	4.5	3.4	3.0	1.8
Distribution services	*21.5*	*20.8*	*22.7*	*25.4*	*8.2*	*9.5*	*11.4*	*20.1*	*4.6*	*3.2*	*2.7*	*1.5*
Fin. and bus. ser.	*3.0*	*4.7*	*5.4*	*8.6*	*0.6*	*0.8*	*1.5*	*3.4*	*6.1*	*8.9*	*10.4*	*8.1*
Non-market services	13.6	15.2	14.4	15.8	9.2	10.6	11.2	13.3	1.8	1.7	1.8	1.3
Government services	*10.5*	*11.7*	*11.5*	*12.2*	*4.2*	*5.0*	*6.4*	*8.7*	*2.8*	*2.5*	*2.5*	*1.7*
Other services	*3.1*	*3.5*	*2.9*	*3.5*	*5.4*	*6.1*	*5.3*	*5.4*	*0.9*	*0.9*	*1.0*	*1.0*
Total economy	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**1.0**	**1.0**	**1.0**	**1.0**

Source: de Vries, Timmer, and de Vries (2013)

…is lagging behind, even controlling for incomes

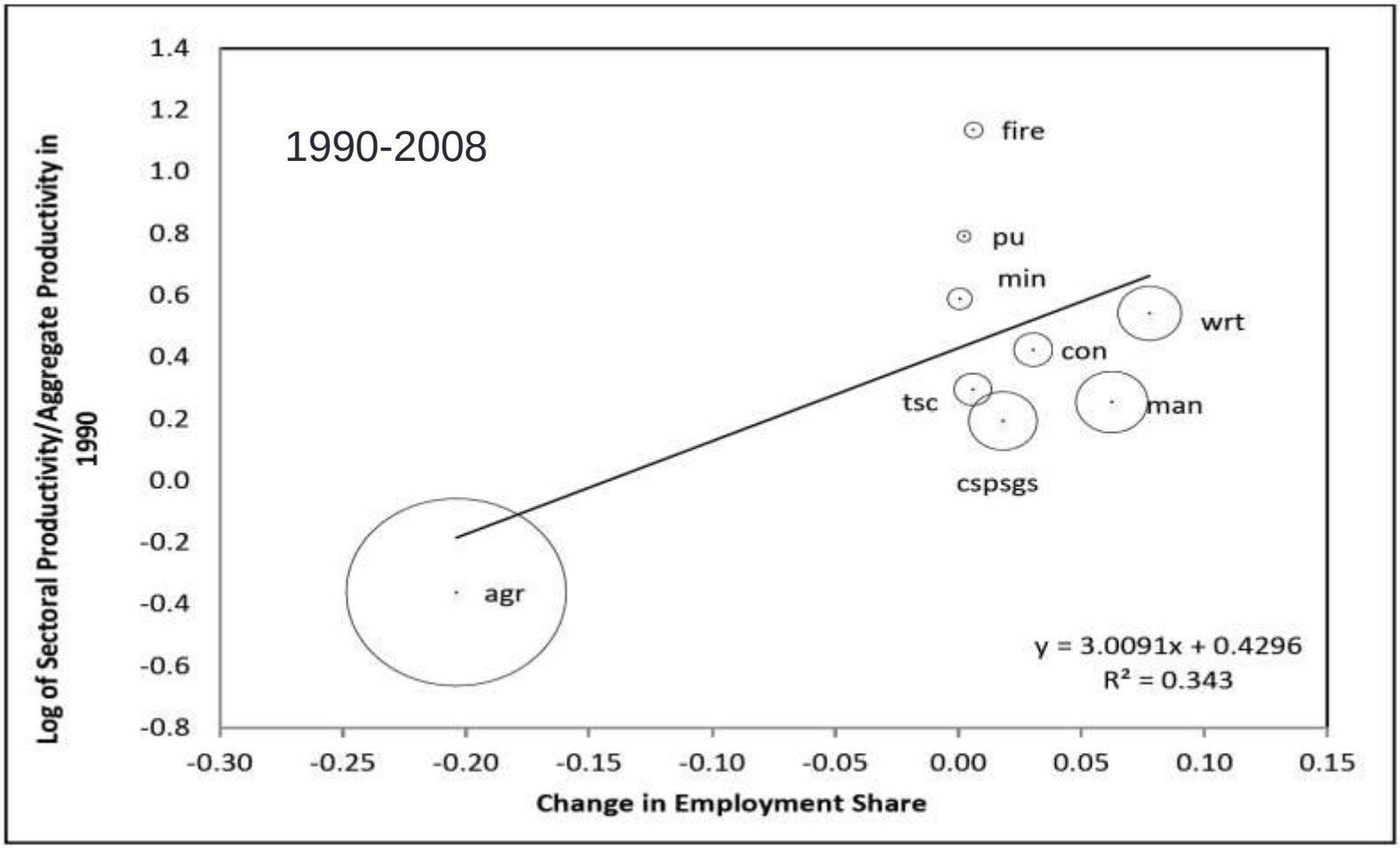




Africa: Botswana, Ethiopia, Ghana, Kenya, Mauritius, Malawi, Nigeria, Senegal, Tanzania, South Africa, and Zimbabwe.

Asia: Hong Kong, Indonesia, India, Japan, Korea, Malaysia, the Philippines, Singapore, Thailand, Taiwan, and Vietnam.

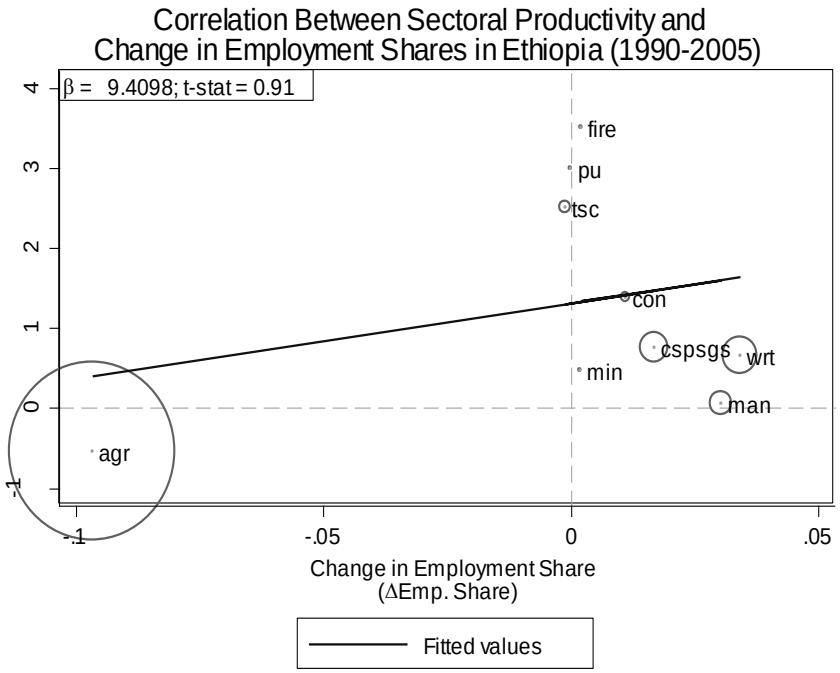
Structural change in Vietnam versus…



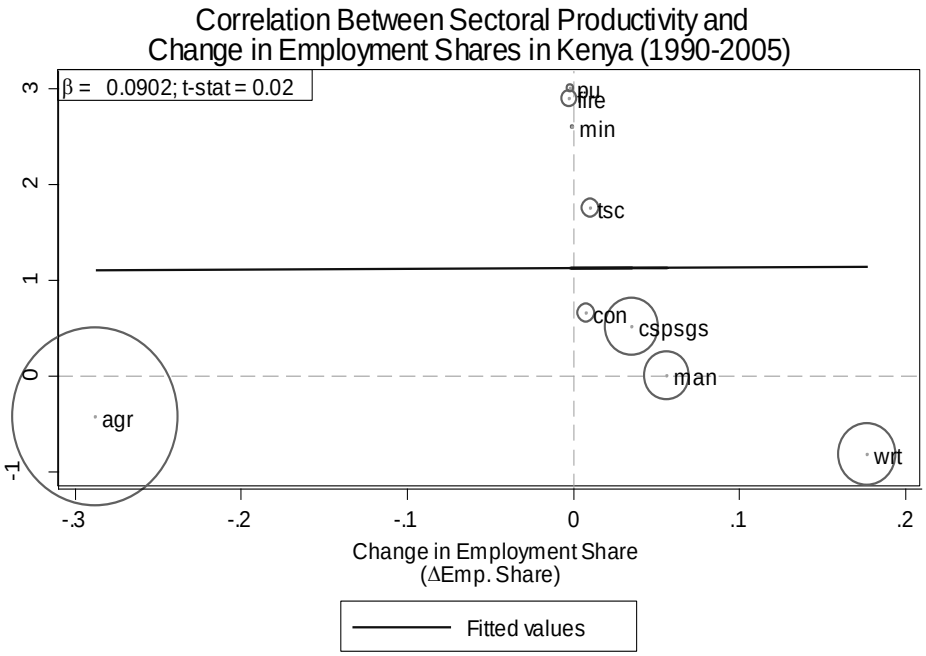
Notes: Authors' calculations based on data from the GSO. The bubble sizes indicate the share of total employment in 1990. For sector abbreviations refer to Table A.1.

Source: McCaig and Pavcnik (2013)

… Africa



*Note: Size of circle represents employment share in 1990
**Note:β denotes coeff. of independent variable in regression equation:
ln(p/P) ¤ + βΔEmp. Share
Source: Authors' calculations with data from National Bank of Ethiopia and Ethiopia's Ministry of Finance

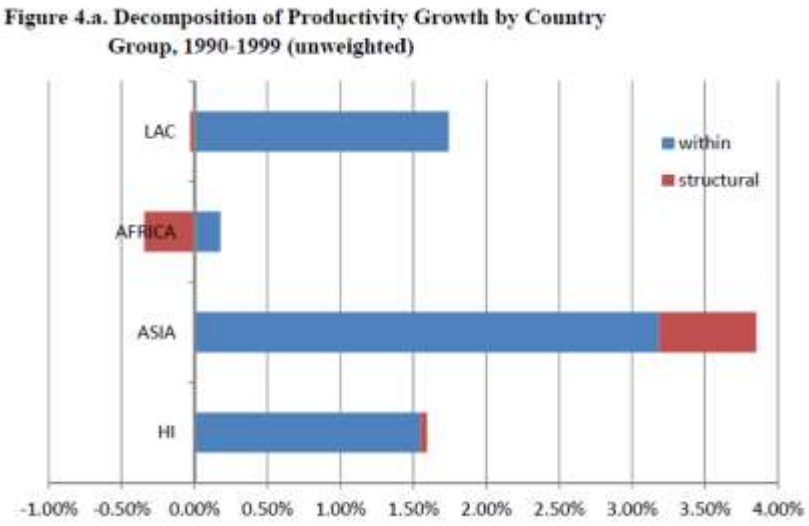


*Note: Size of circle represents employment share in 1990
**Note:β denotes coeff. of independent variable in regression equation:
ln(p/P) ¤ + βΔEmp. Share
Source: Authors' calculations with data from Kenya National Bureau of Statistics, Central Bureau of Statistics, UN National Accounts Statistics and ILO's KILM

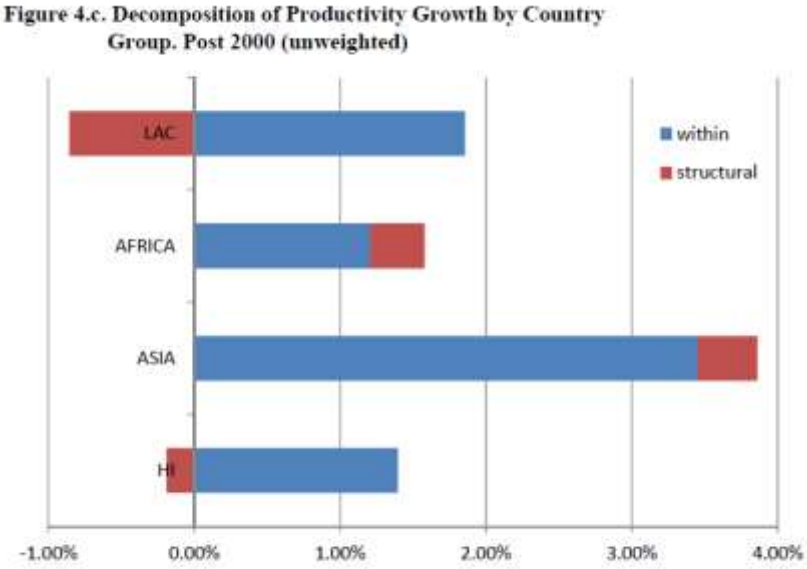
Source: McMillan and Rodrik (2008)

Structural change in Africa has not been always conducive to growth

1990-1999



post-2000



Sources: McMillan (2014)

Informality dominates in African manufacturing

Manufacturing employment shares, GGDC and UNIDO datasets, 1990

(percent)

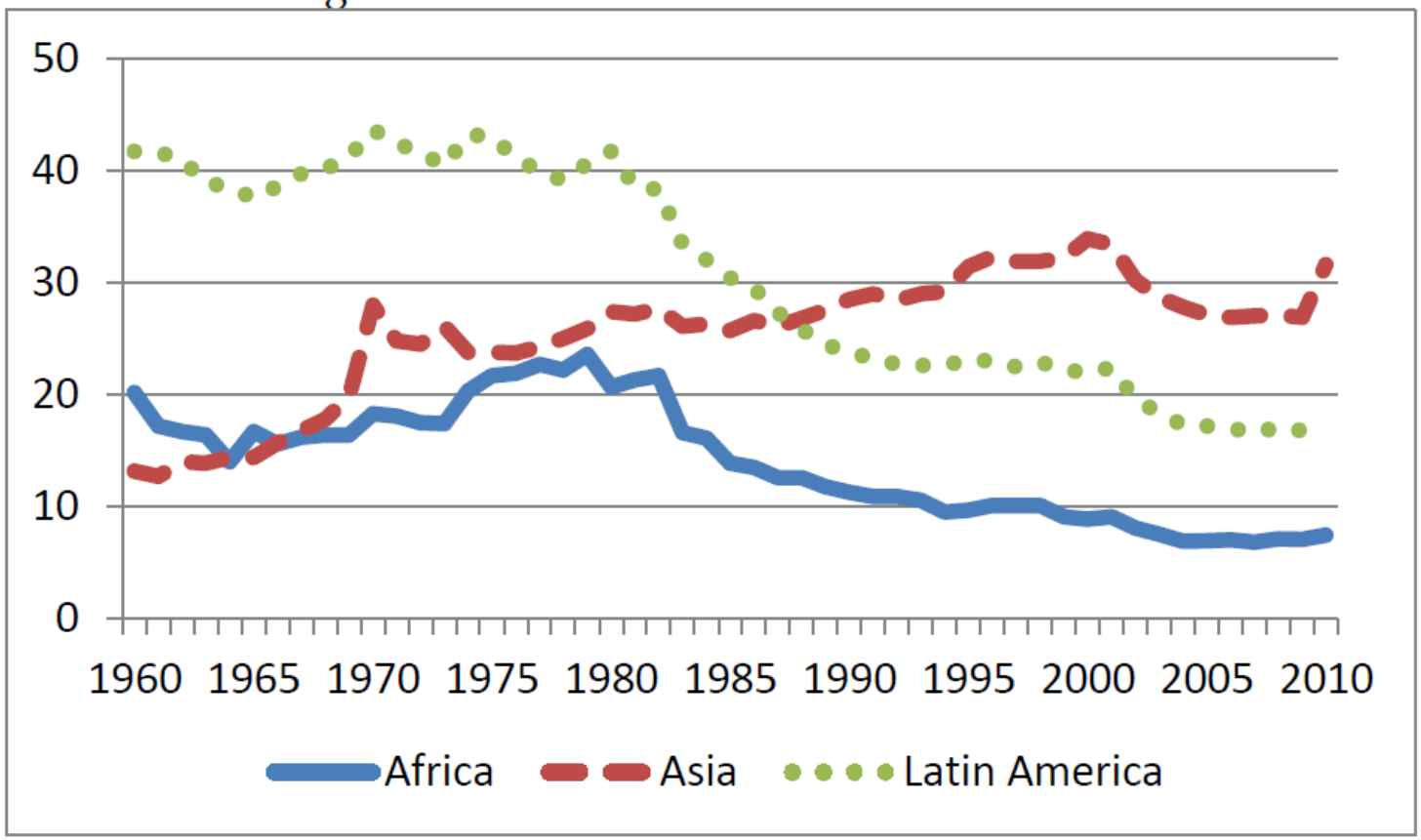
	year	UNIDO	GGDC	ratio
BWA	2008	3.6	6.4	56%
ETH	2008	0.3	5.3	6%
GHA	2003	1.0	11.2	9%
KEN	2007	1.5	12.9	12%
MUS	2008	16.3	21.5	76%
MWI	2008	0.7	4.3	16%
NGA	1996	1.4	6.6	21%
SEN	2002	0.5	8.9	6%
TZA	2007	0.5	2.3	22%
ZAF	2008	7.0	13.1	53%
ZMB	1994	1.5	2.9	52%

Difference in coverage between two data sets: GGDC (which covers informal employment) and UNIDO (which is mostly formal, registered firms)

Which may be why (aggregate) manufacturing in Africa is not converging

Figure 1. An international perspective on productivity (USA = 100)

A. manufacturing



Source: de Vries, Timmer, and de Vries (2013)

Formal/wage employment very low and often declining across entire economy

Table 3: Distribution of employment by sector (share of the labourforce %)

	Tanzania		Uganda		Nigeria	
	1992	2001	1992	2000	1999	2006
Wage Employment	7.9	7.8	15.3	13.3	19.5	12.4
Government	5.7	3.0	5.4	3.4	12.5	7.0
Private	2.2	4.7	9.9	9.9	7.0	5.4
Self Employed/Family	10.9	18.7	7.6	10.3	30.2	28.1
Agriculture	80.4	72.3	76.2	75.5	48.4	57.3
Unemployed	0.8	1.3	0.9	0.9	4.6	3.6

Sources: Kingdon et al. (2006); Haywood and Teal (2009).

Notes: For Nigeria, private wage employment includes NGOs and international organizations.

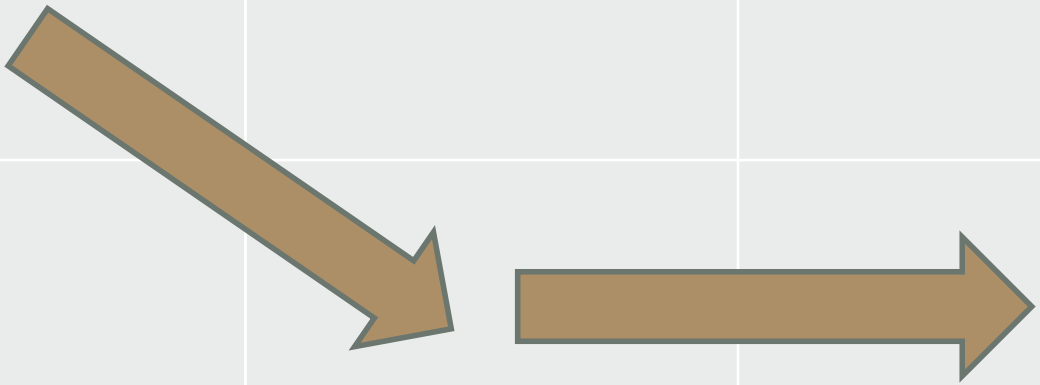
Source: Golub and Hayat (2014)

Patterns of structural change

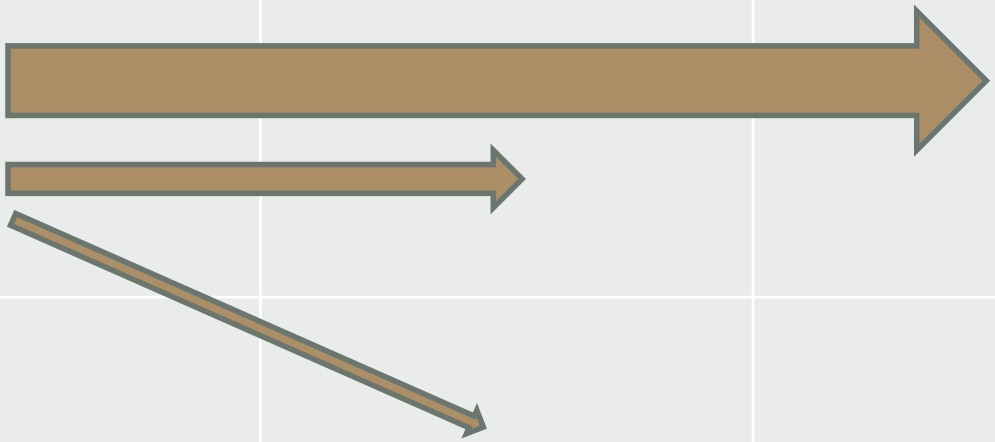
	agriculture	manufacturing	services
informal			
organized			

Patterns of structural change: East Asia and advanced countries

	agriculture	manufacturing	services
informal			
organized			



Patterns of structural change: Africa

	agriculture	manufacturing	services
informal			
organized			

High-growth scenarios for Africa

1. Revive industrialization?
2. Agriculture-led growth through non-traditional agricultural products?
3. Raise productivity in services?
4. Growth based on natural resources?

1. Revive industrialization?

- Is “poor business climate” the main culprit?
  - costs of power, transport, corruption, regulations, security, contract enforcement, uncertainty… (Gelb, Meyer, and Ramachandran 2014)
- If so, remedy is clear-cut
  - for tradable industries, an undervalued exchange rate compensates for these costs
  - where culprit for slow industrialization is market failures, undervalued exchange rate also substitutes for industrial policy,
- The obstacles that industrialization faces are more deep-seated
  - premature de-industrialization a common feature across developing world
  - driven by global competition, demand patterns, and technology

With appropriate exchange rate, Africa *can* compete with China and Vietnam in certain industries

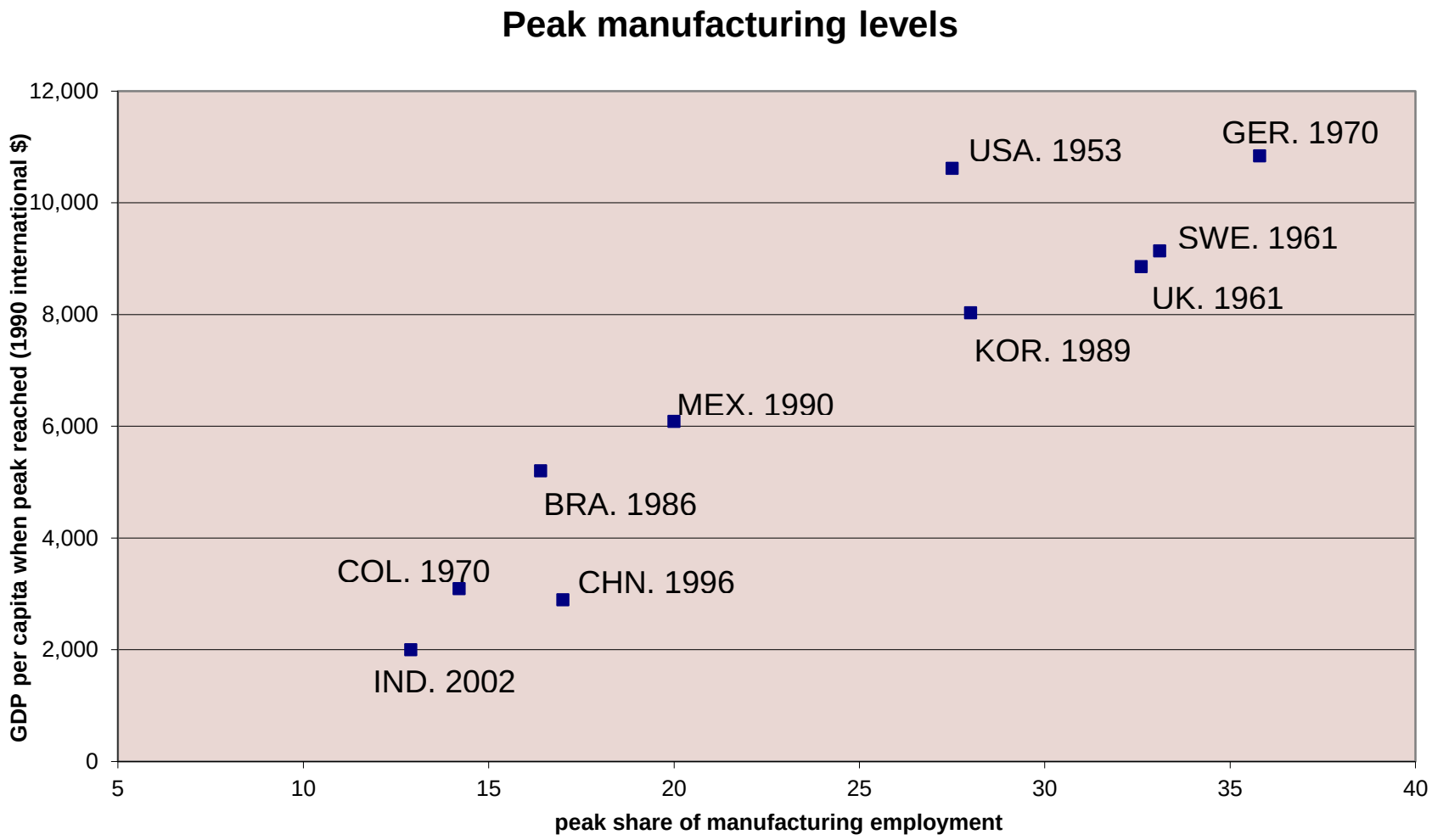
Table 3.1 Relative wages and productivity in manufacturing, 2011

	China	Vietnam	Ethiopia	Tanzania
Wage (monthly) relative to China				
Polo shirts	100	42	24	48
Wooden chairs	100	51	23	27
Leather loafers	100	27	12	37
Productivity (items produced per day) relative to China				
Polo shirts	100	42	49	47
Wooden chairs	100	6	1	1
Leather loafers	100	70	80	100
Unit labor cost (wages-productivity ratio) relative to China				
Polo shirts	100	101	50	102
Wooden chairs	100	888	2,592	1,884
Leather loafers	100	39	15	37

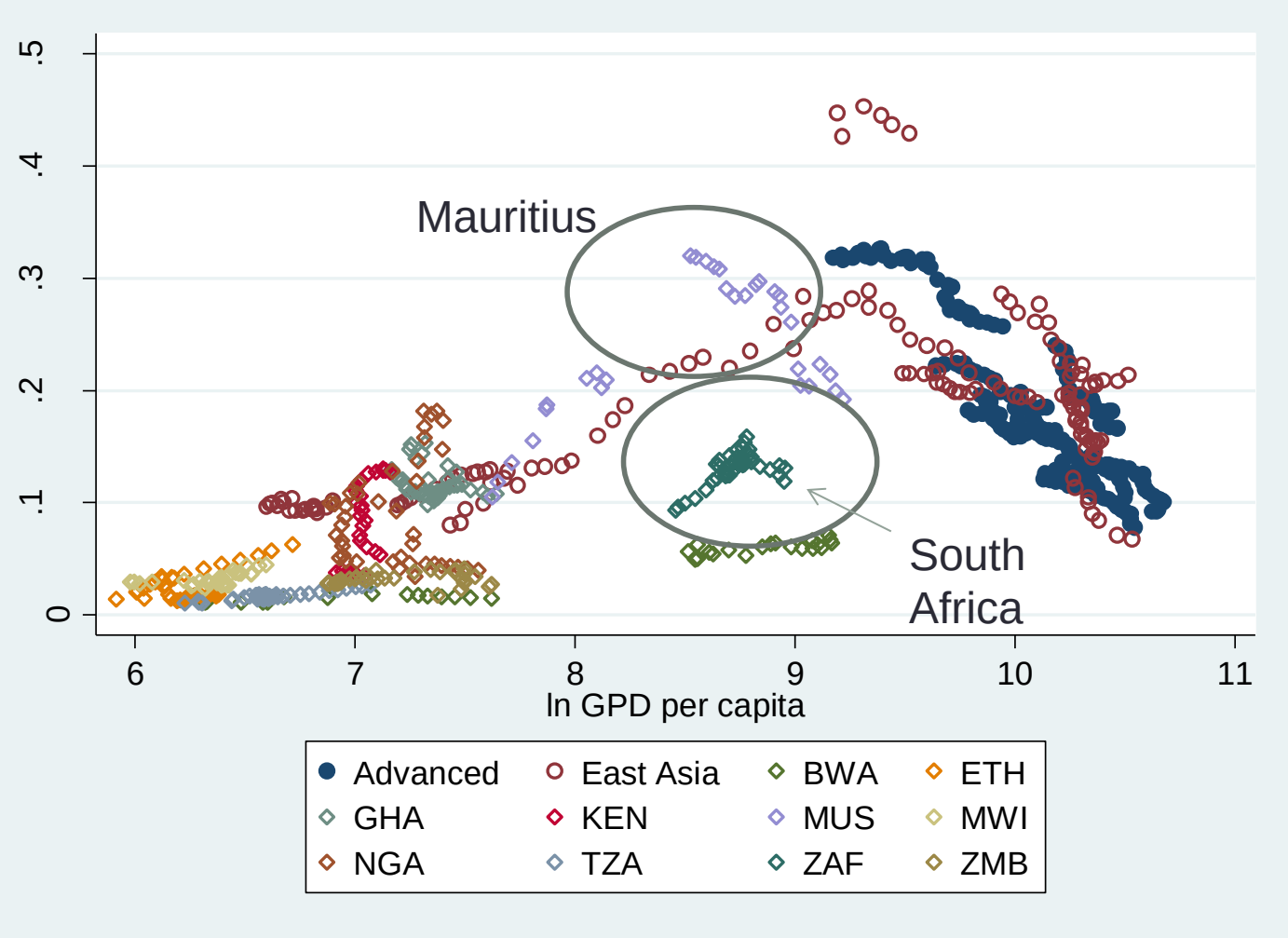
Source: Constructed using data from Dinh and others (2012).

Source: African Center for Economic Transformation (2014)

Premature industrialization is a general problem for today's developing countries



De-industrialization in Africa



Manufacturing employment share against per-capita GDP

2. Non-traditional agricultural products?

- Agricultural diversification hindered by many of the same obstacles as manufacturing
  - “poor business climate” (e.g., Golub and Hayat 2014)
- Plus, it requires extensive government effort in technology, land issues, standard setting, input provision,
- Again, role for exchange rate policy as compensatory tool
- Diversification and productivity growth in agriculture have played important role in Asia in early growth
  - China, Vietnam
- But few successful cases of:
  - sustained growth based on agricultural exports
    - which is what agricultural diversification entails
  - slowing down of outmigration from rural to urban areas
    - so creation of high-productivity urban jobs will remain a challenge

3. Raise productivity in services?

- Remember: services are not an escalator sector like manufacturing
- Requires steady and broad-based accumulation of capabilities in human capital, institutions, and governance
  - "technologies" less tradable and more context-specific
  - complementarities across policy domains

Structural transformation, industrialization (dα)

Investment in fundamentals (human capital, institutions)	*slow*	*rapid*
slow	(1) no growth	(1) episodic growth
rapid	(1) slow growth	(1) rapid, sustained growth

4. Growth based on natural resources?

- Downsides are well known:
  - resource sectors are capital intensive and absorb little labor
  - crowding out of other tradables (Dutch disease)
  - volatility of terms of trade
  - difficulty of managing/sharing resource rents
- Very few countries have succeeded
  - A few small countries with atypical situations

Sustained rapid growth based on natural resources has been exceedingly uncommon

Countries that have grown at 4.5 per annum per capita (or faster) over 30 years or more

Before 1950			After 1950		
Country	fastest growth rate achieved over three decades (%)	period	Country	fastest growth rate achieved over three decades (%)	period
Before 1900			Italy	5.9	1945-1975
Australia	5.8	1823-1853	Spain	4.9	1949-1980
New Zealand	7.1	1840-1870	Portugal	4.6	1950-1980
			Greece	7.3	1945-1975
Between 1900 and 1950			Israel	4.7	1953-1983
Venezuela	5.5	1907-1939	Yugoslavia	4.9	1952-1982
			Ireland	4.6	1976-2006
			Iraq	5.3	1950-1980
			Saudi Arabia	6.1	1950-1980
			Libya	7.4	1950-1980
			Oman	7.4	1955-1985
			Botswana	7.3	1960-1991
			Cape Verde	5.5	1977-2007
			Equatorial Guinea	9.3	1974-2004
			Japan	7.4	1945-1975
			North Korea	4.7	1951-1981
			Taiwan	7.2	1946-1976
			South Korea	7.3	1965-1995
			Singapore	6.7	1964-1995
			Hong Kong	6.0	1958-1988
			Malaysia	5.1	1967-1997
			Indonesia	4.7	1967-1997
			Burma	4.9	1977-2007
			China	6.7	1976-2007

Industrializers in the European periphery and East Asia

Is an African miracle possible?

- Balance of evidence suggests caution
- Much of recent high growth is due to temporary boosts:
  - highly advantageous external context
  - making up of lost ground
- Main benefit of continent's improved institutional/macro framework is to establish stability (rather than ignite take-off)
- Best we can expect is moderate, but steady growth
  - sustained 2% growth per annum is not bad!
- If we do get growth miracles, they will look very different from those we have experienced to date, which have been based on rapid industrialization