

https://dspace.org/

Keynote

Anyanwu, Professor John C.

2012-06-14
http://hdl.handle.net/10539/11505

Downloaded from a DSpace repository. https://dspace.org/

African Development Bank Group

DEVELOPING KNOWLEDGE FOR ECONOMIC ADVANCEMENT IN AFRICA

Prof. John C. Anyanwu
Lead Research Economist
Development Research Department
African Development Bank
TRA, Tunis, Tunisia

KEYNOTE ADDRESS DELIVERED AT THE 2ND INTERNATIONAL CONFERENCE ON AFRICAN DIGITAL LIBRARIES AND ARCHIVES (ICADLA-2), JOHANNESBURG, SOUTH AFRICA, 17 NOVEMBER 2011

* The views expressed here are those of the author and in no way reflect those of the AfDB and its Executive Directors.

Outline of Presentation

I. BRIEF STYLIZED FACTS ON AFRICA'S ECONOMIC PERFORMANCE

II. A SNAPSHOT OF THE CONCEPT OF KNOWLEDGE AND ITS ROLE IN ECONOMIC ADVANCEMTENT

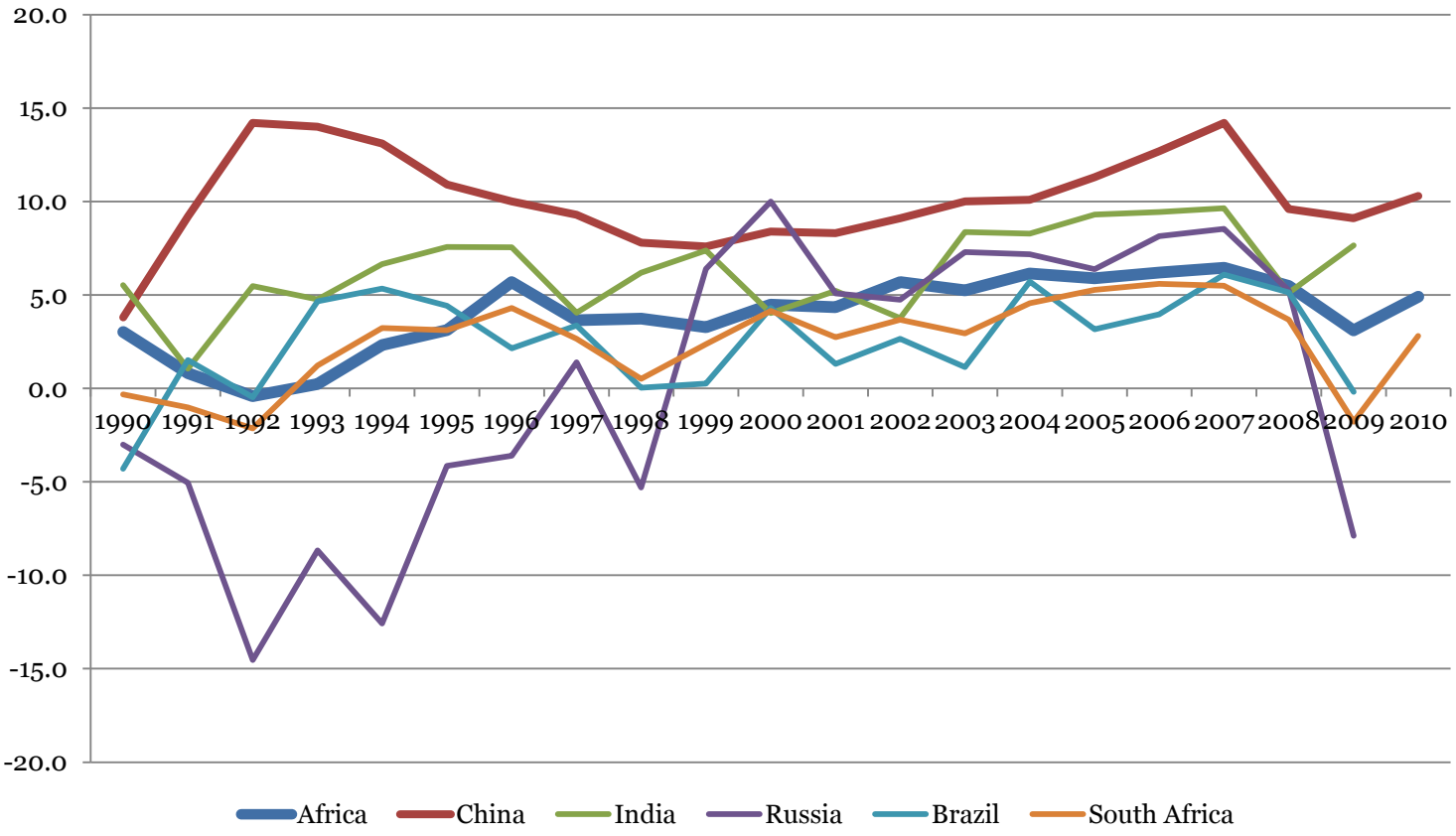
III. THE STATE OF KNOWLEDGE IN AFRICA

IV. RECOMMENDATIONS AND NEXT STEPS

V. CONCLUSION

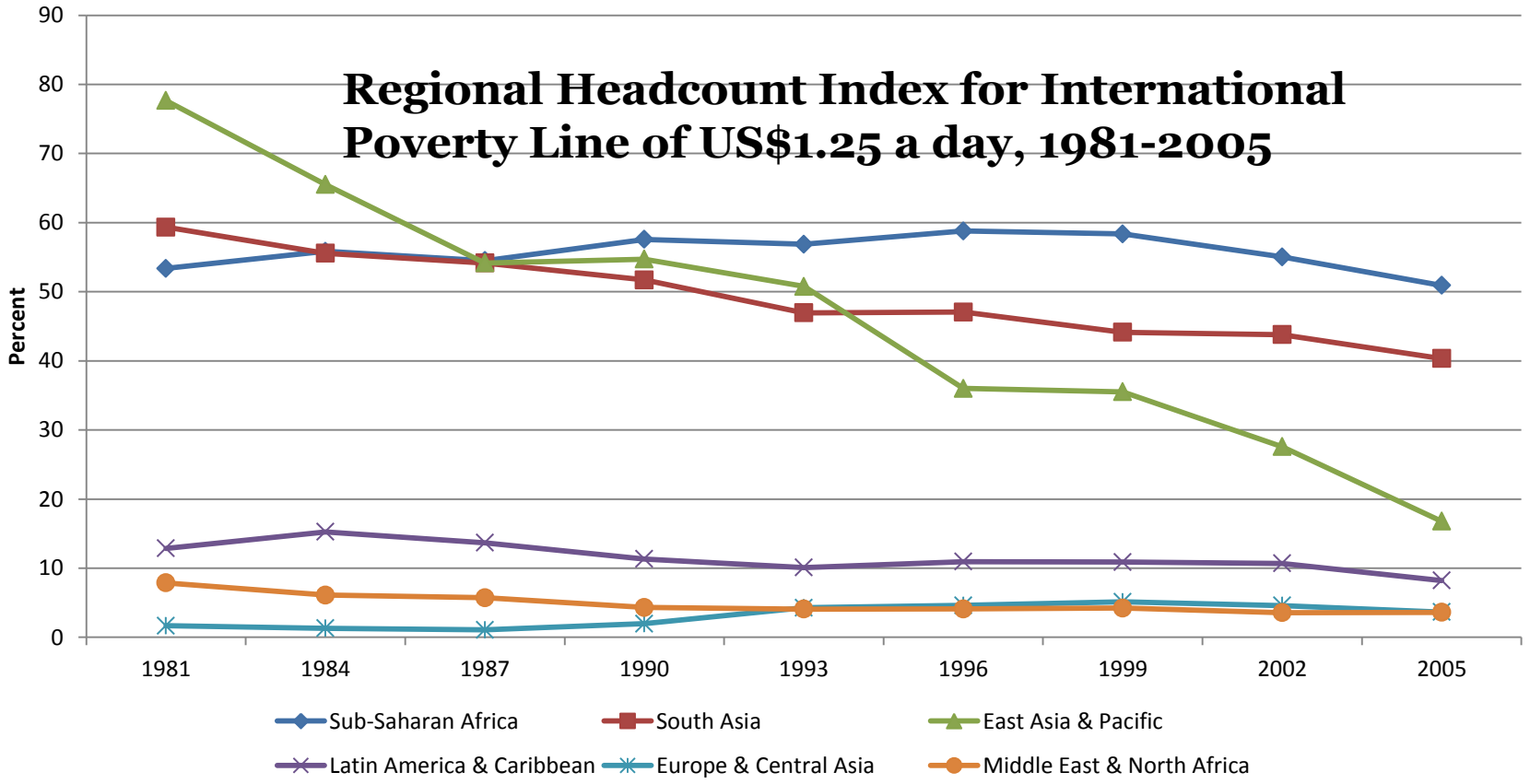
BRIEF STYLIZED FACTS ON AFRICA'S ECONOMIC PERFORMANCE

- **Robust Growth in Africa**



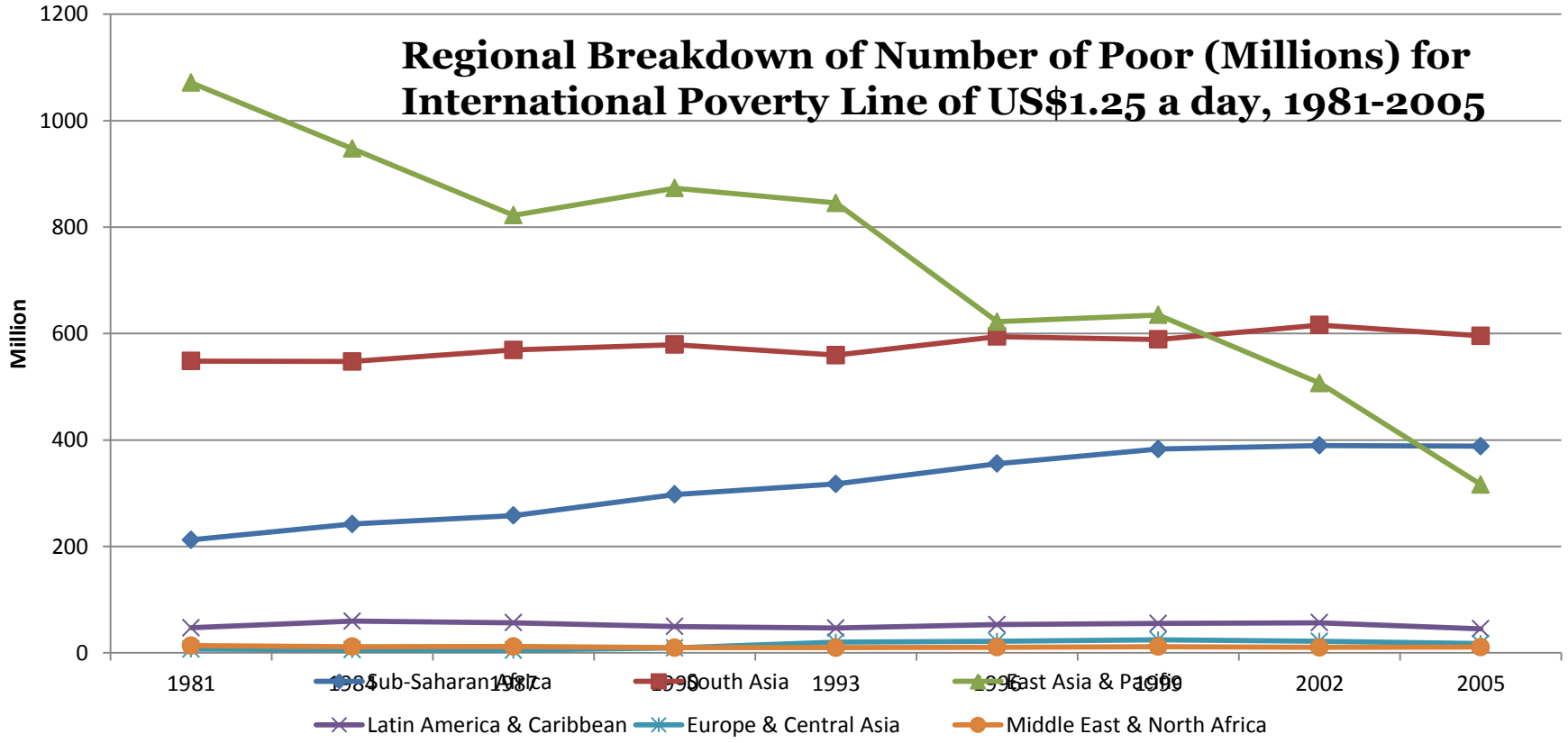
BRIEF STYLIZED FACTS ON AFRICA'S ECONOMIC PERFORMANCE

Increases in real GDP growth have not translated into significant poverty reduction in Africa



BRIEF STYLIZED FACTS ON AFRICA'S ECONOMIC PERFORMANCE

Increases in real GDP growth have not translated into reduction of the number of the poor in Africa



BRIEF STYLIZED FACTS ON AFRICA'S ECONOMIC PERFORMANCE

Africa is less competitive than other regions

Comparative Global Competitiveness Index (GCI) Performance on Broad Indices, 2010/2011

		SUBINDEXES		
	GCI 2010-2011	Basic requirements	Efficiency enhancers	Innovation and sophistication factors
Economy	Score	Score	Score	Score
North Africa	4.1	4.5	3.7	3.3
Sub-Saharan Africa	3.5	3.7	3.4	3.1
BRICs	4.4	4.6	4.4	3.9
Latin America & Caribbean	4.0	4.3	3.9	3.4
Southeast Asia	4.3	4.6	4.2	3.7

Source: WEF, WB and AfDB (2011)

BRIEF STYLIZED FACTS ON AFRICA'S ECONOMIC PERFORMANCE

Africa is less competitive than other regions

Global Competitiveness Index: Comparative Scores, 2010/2011

	1. Institutions	2. Infrastructure	3. Macroeconomic environment	4. Health and primary education	5. Higher education and training	6. Goods market efficiency	7. Labor market efficiency	8. Financial market development	9. Technological readiness	10. Market size	11. Business sophistication	12. Innovation
Economy	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score
Africa	3.8	2.9	4.1	4.3	3.1	3.8	4.2	3.7	2.9	2.9	3.4	2.9
BRICs	3.8	4.1	4.8	5.7	4.2	4.0	4.4	4.2	3.6	6.0	4.2	3.6
Latin America & Caribbean	3.6	3.7	4.4	5.6	4.0	3.9	4.0	4.1	3.6	3.6	3.8	2.9
Southeast Asia	4.1	3.9	5.0	5.5	4.0	4.4	4.7	4.3	3.6	3.9	4.1	3.4
OECD	4.9	5.2	4.9	6.3	5.2	4.7	4.7	4.6	5.0	4.8	4.9	4.3

Source: WEF, WB and AfDB (2011)

BRIEF STYLIZED FACTS ON AFRICA'S ECONOMIC PERFORMANCE

Africa lags behind its comparators and developed regions in key social indicators

Table 3: Comparative Basic and Social Indicators				
Indicator	Year	Africa	Developing Countries	Developed Countries
Basic Indicators				
Area ('000 Km²)		30322.57	80975.97	54658.39
Total Population (millions)	2010	1031.47	5628.53	1068.73
Urban Population (% of Total)	2010	40.04	44.76	77.66
Population Density (per Km²)	2010	3.40	66.60	23.10
GNI per Capita (US $)	2009	1525.42	2780.29	39688.06
Demographic Indicators				
Dependency Ratio (%)	2010	78.12	52.80	..
Life Expectancy at Birth - Total (years)	2010	56.02	65.68	79.81
Infant Mortality Rate (per 1,000)	2010	77.95	53.09	5.75
Child Mortality Rate (per 1,000)	2010	127.22	51.38	6.30
Total Fertility Rate (per woman)	2010	4.44	2.67	1.77
Maternal Mortality Rate (per 100,000)	2008	530.21	440.00	10.00
Health & Nutrition Indicators				
Physicians (per 100,000 people)	2007	46.71	77.00	287.00
Access to Safe Water (% of Population)	2008	64.93	83.99	99.58
Access to Health Services (% of Population)	2000	65.32	80.00	100.00
Access to Sanitation (% of Population)	2008	40.82	54.60	99.85
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2007	4.56	161.86	14.14
Child Immunization Against Tuberculosis (%)	2008	85.05	89.00	99.00
Child Immunization Against Measles (%)	2008	83.72	76.00	92.62
Daily Calorie Supply per Capita	2007	2461.74	2675.20	3284.70
Public Expenditure on Health (as % of GDP)	2008	2.41	4.00	6.87
Education Indicators				
Primary School – Total	2009	102.51252	106	101.4997
Secondary School – Total	2005	36.827545	62.31893	100.28181
Adult Literacy Rate - Total (%)	2006	64.796857	19.02674	..
Percentage of GDP Spent on Education	2008	4.563138	..	5.41659
Sources : ADB Statistics Department Databases; World Bank: World Development Indicators UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports.				
Note : ... : Data Not Available.				

A SNAPSHOT OF THE CONCEPT OF KNOWLEDGE AND ITS ROLE IN ECONOMIC ADVANCEMTENT

Knowledge is a multi-dimensional concept, consisting of ideas, facts, mental constructs, information, stories, pictures, data, instructions, and the sum total of symbolic structures possessed by individuals, institutions, and societies, which guide behaviour in all walks of life and in all spheres of public and private activity.

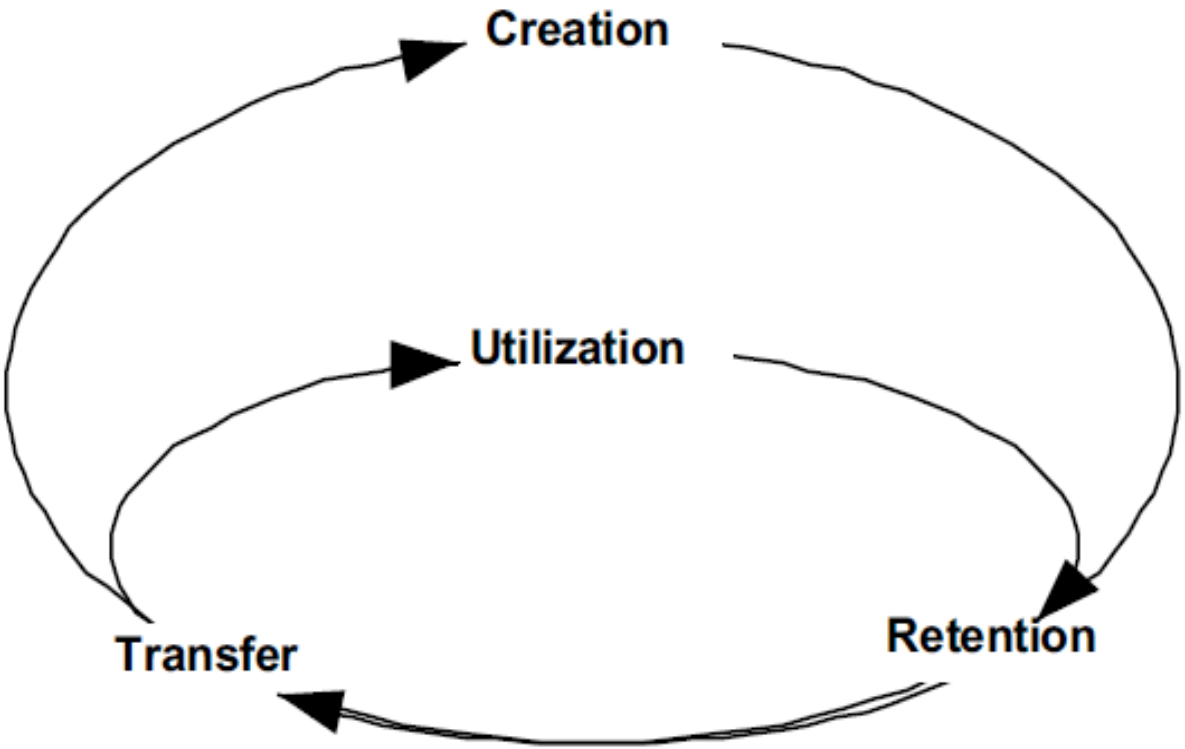
Forms of Knowledge and Ways of their Acquisition

	Explicit knowledge as a		Implicit/Tacit knowledge
	Public good	Private good	
On-market acquisition	-	-Purchase of patents, licenses, software - Contracted research	-Hiring and service contracts with carriers of implicit knowledge
Off-market acquisition	-Apprenticeship in public institutions -Learning through texts and software	Spillover in the form of: - Reverse engineering - Learning-by-watching - Learning on basis of patent documentation	Spillover in the form of: -Learning-by-doing -Learning-by-watching -Learning-by-interacting

Source: Kober (2009)

A SNAPSHOT OF THE CONCEPT OF KNOWLEDGE AND ITS ROLE IN ECONOMIC ADVANCEMTENT

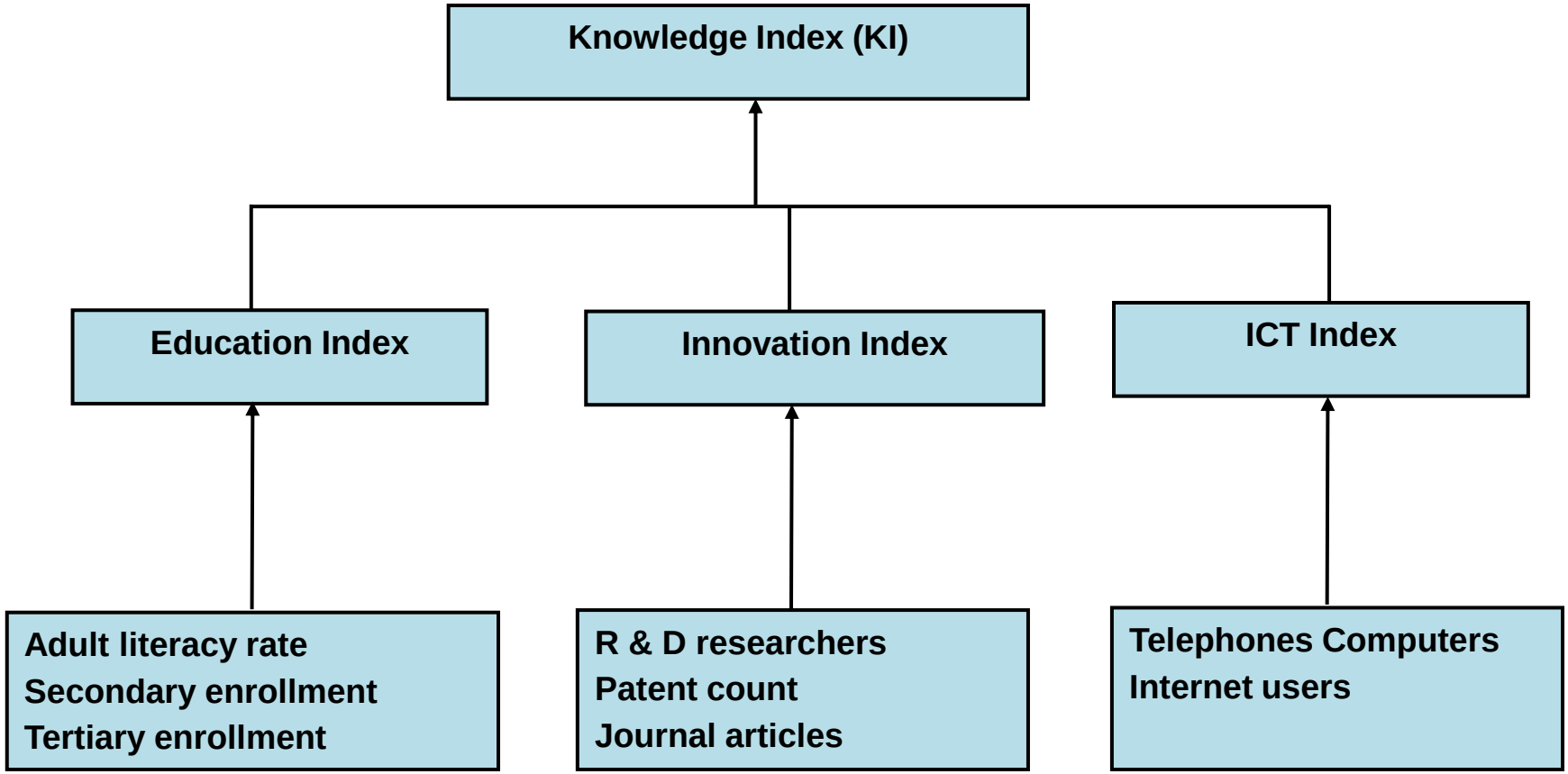
The General Knowledge Model



Source: Newman and Conrad (1999)

A SNAPSHOT OF THE CONCEPT OF KNOWLEDGE AND ITS ROLE IN ECONOMIC ADVANCEMTENT

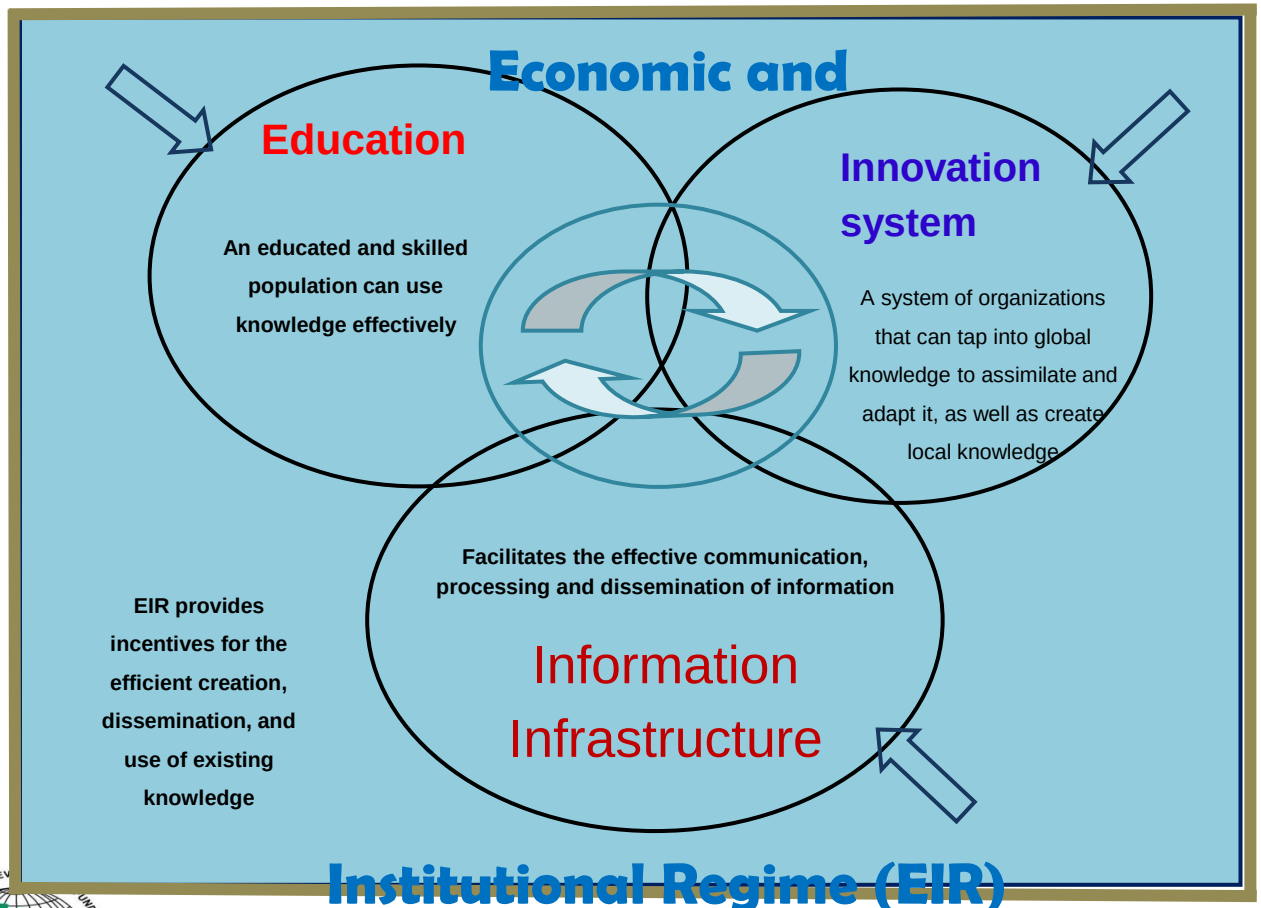
- **Relationships of Knowledge Index and Indicators**



Source: Adapted from World Bank Institute (2007)

A SNAPSHOT OF THE CONCEPT OF KNOWLEDGE AND ITS ROLE IN ECONOMIC ADVANCEMTENT

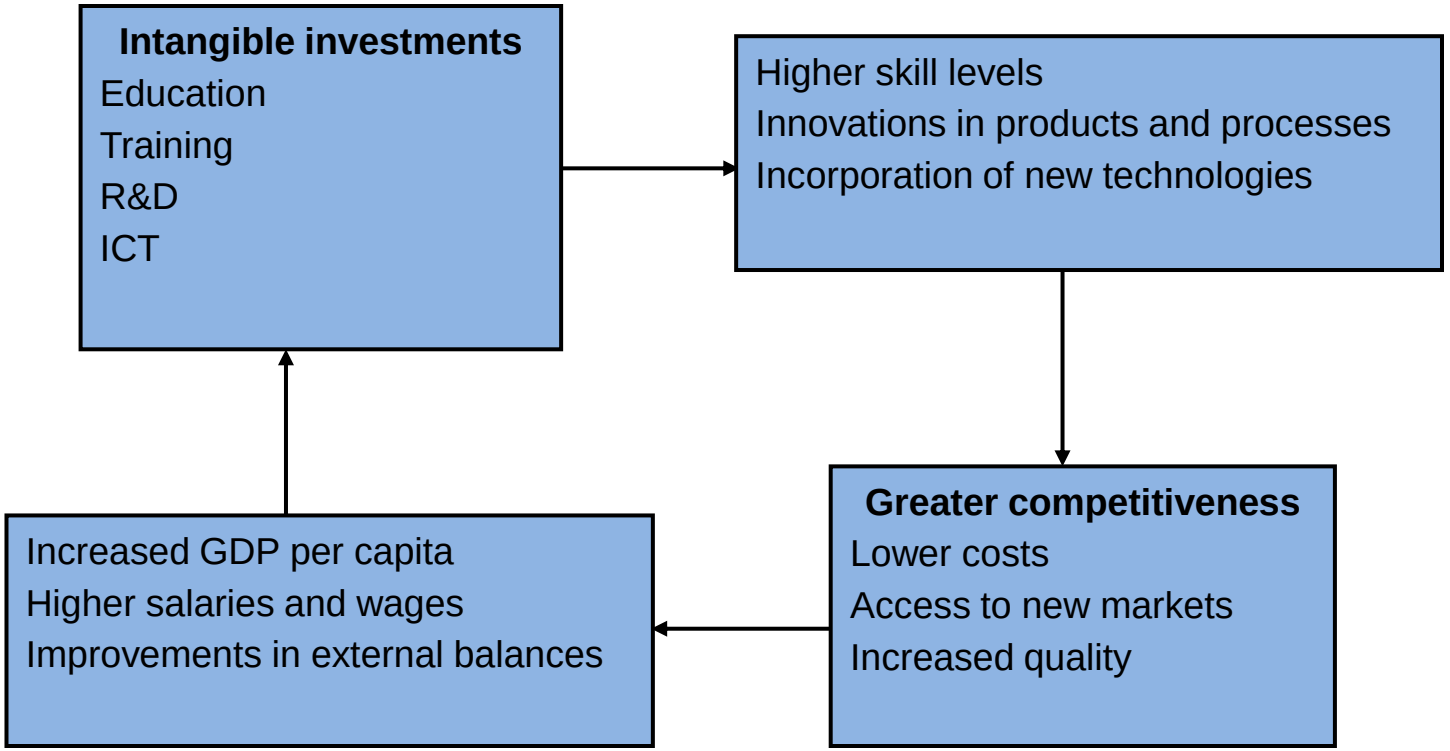
- **The Three Interactive Pillars of the Knowledge Interacting with Economic and Institution Regime (EIR)**



Source: Adapted from World Bank Institute (2007)

A SNAPSHOT OF THE CONCEPT OF KNOWLEDGE AND ITS ROLE IN ECONOMIC ADVANCEMTENT

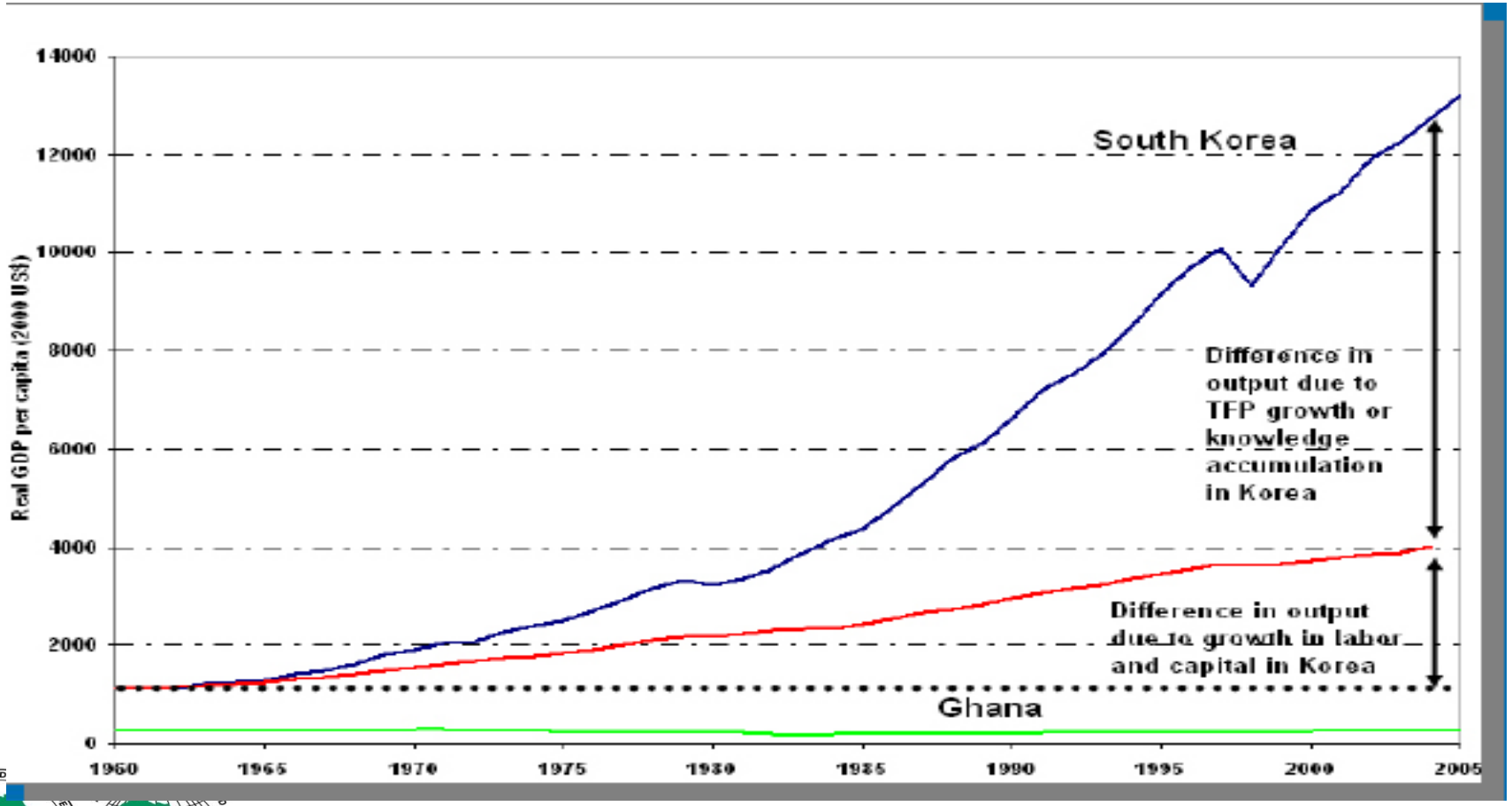
- **Effects of Knowledge on Competitiveness and Economic Advancement**



Source: Adapted from World Bank Institute (2007)

A SNAPSHOT OF THE CONCEPT OF KNOWLEDGE AND ITS ROLE IN ECONOMIC ADVANCEMTENT

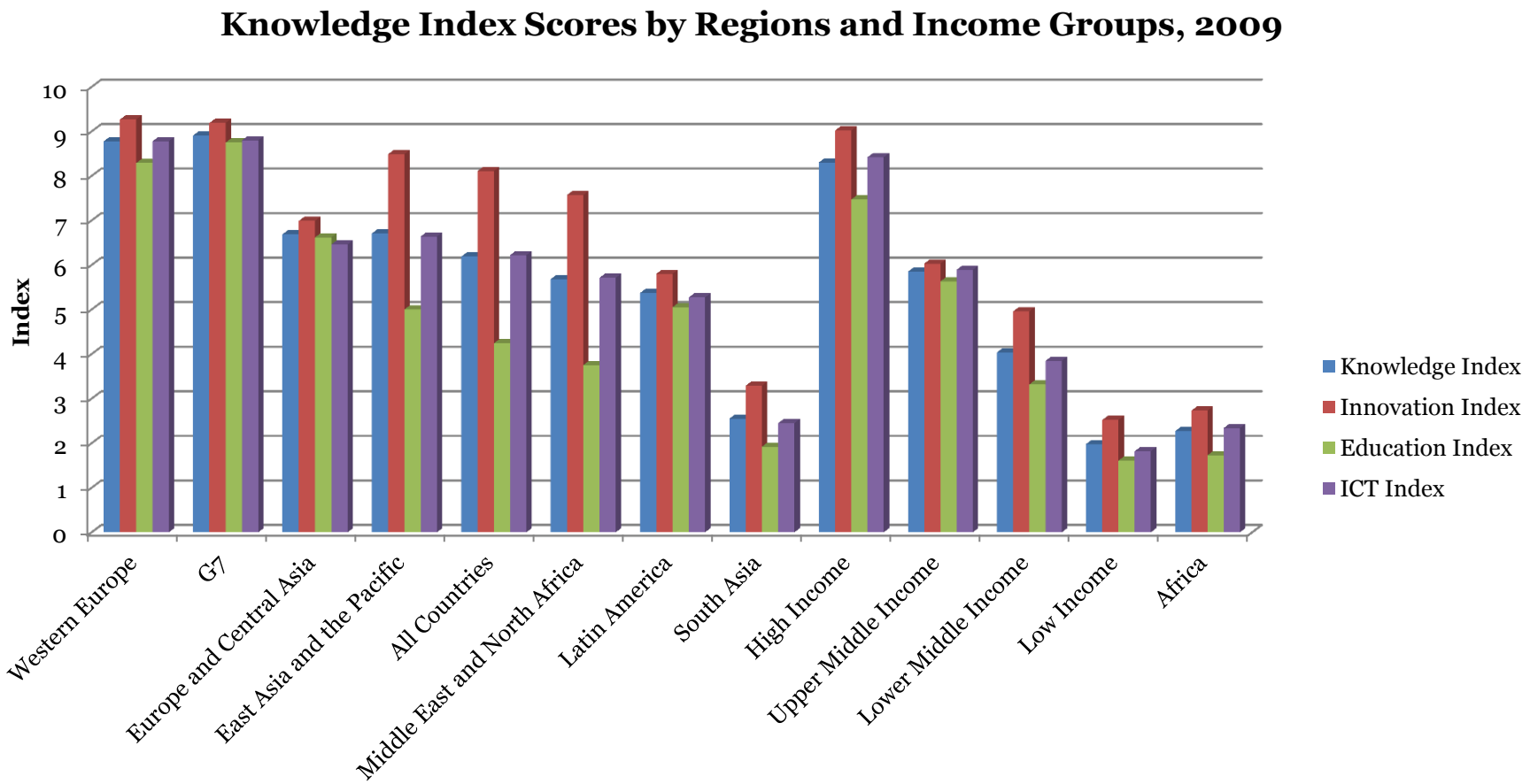
- **Illustration of Knowledge as the Foundation of Economic Advancement: South Korea vs Ghana**



Source: Adapted from World Bank Institute (2007)

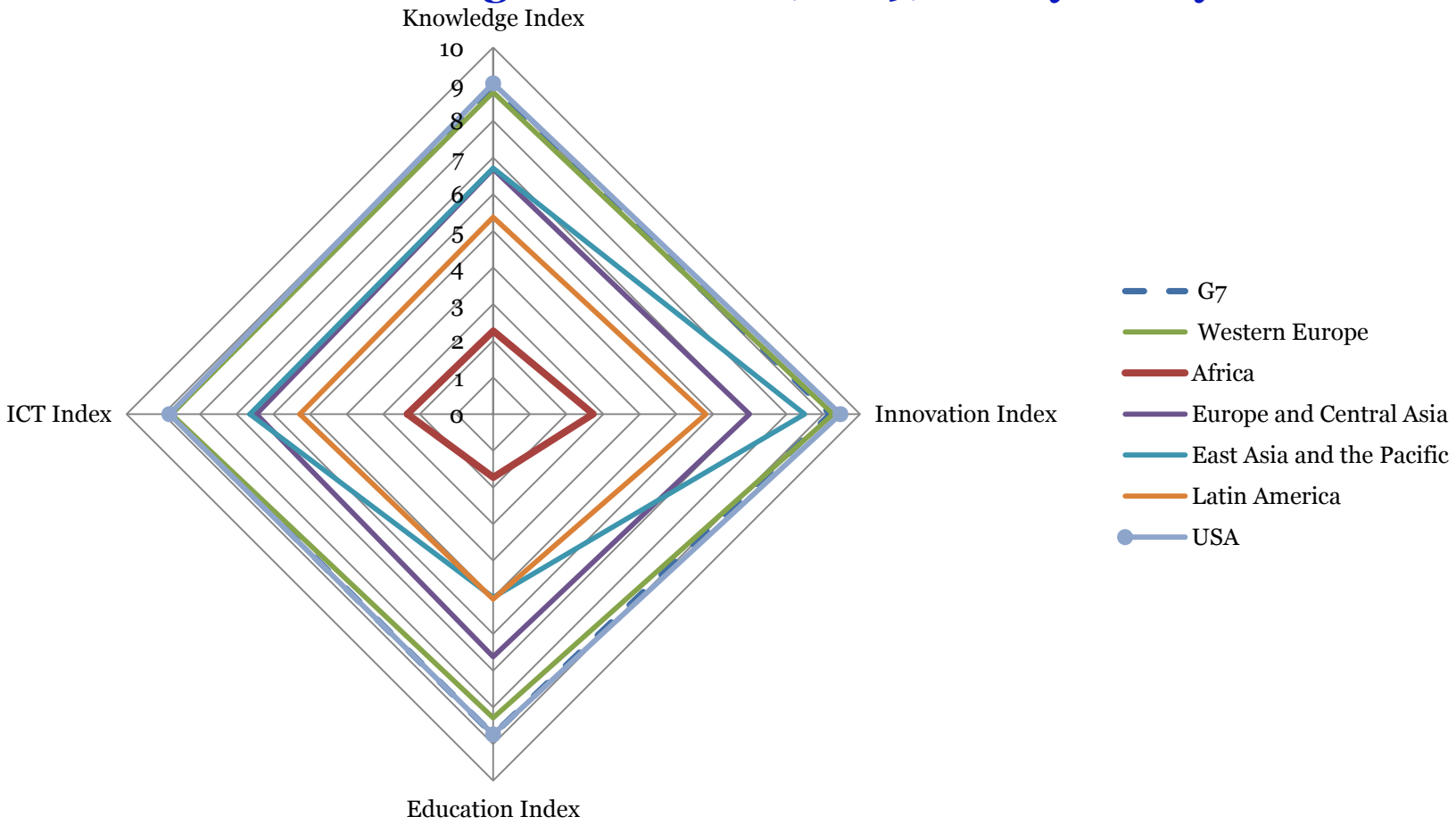
THE STATE OF KNOWLEDGE IN AFRICA

In terms of knowledge index, Africa is trumped by other regions



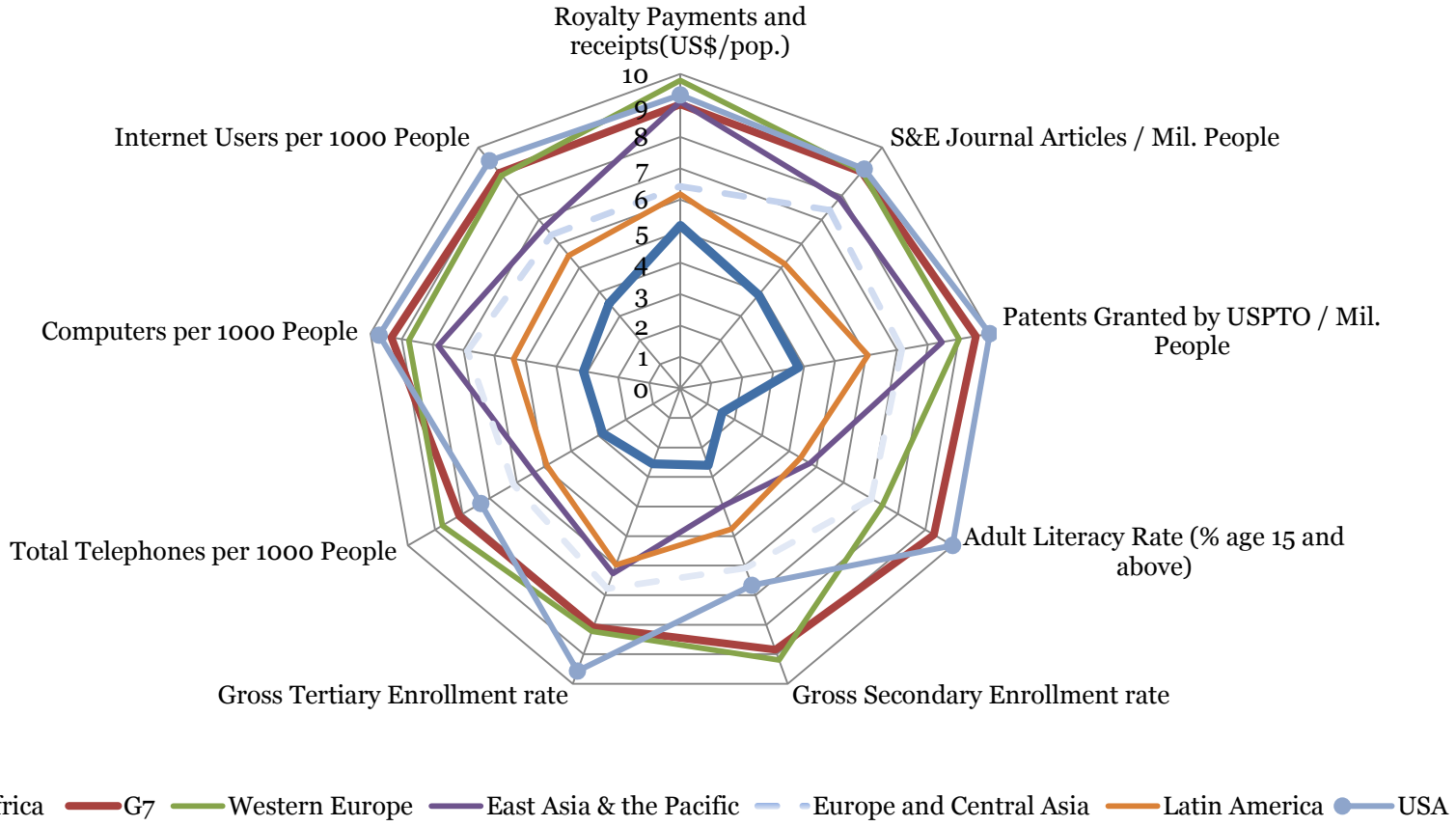
THE STATE OF KNOWLEDGE IN AFRICA

Africa's Knowledge Scorecard (2009) is Abysmally Poor



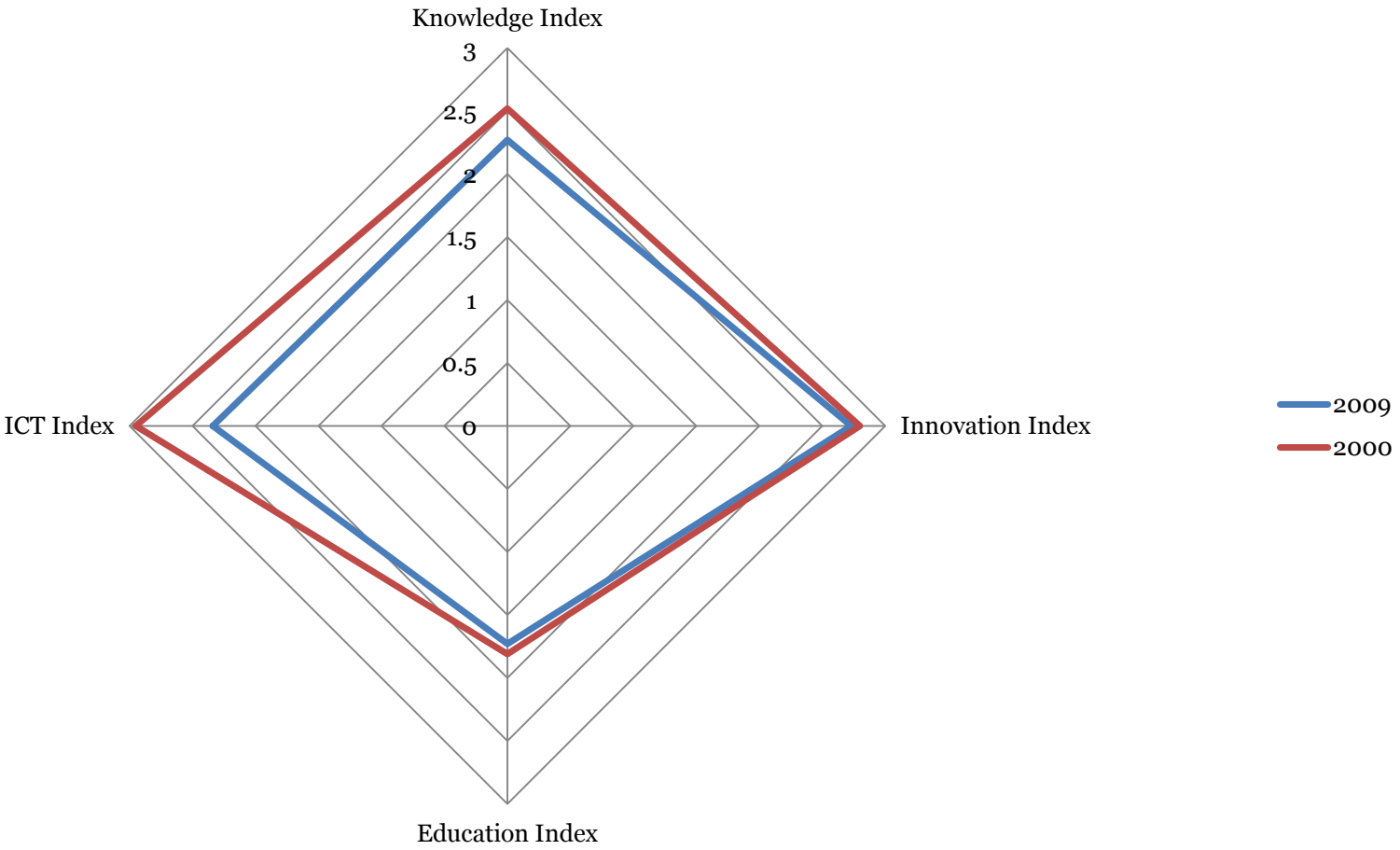
THE STATE OF KNOWLEDGE IN AFRICA

Africa is Lagging on All Components of Knowledge



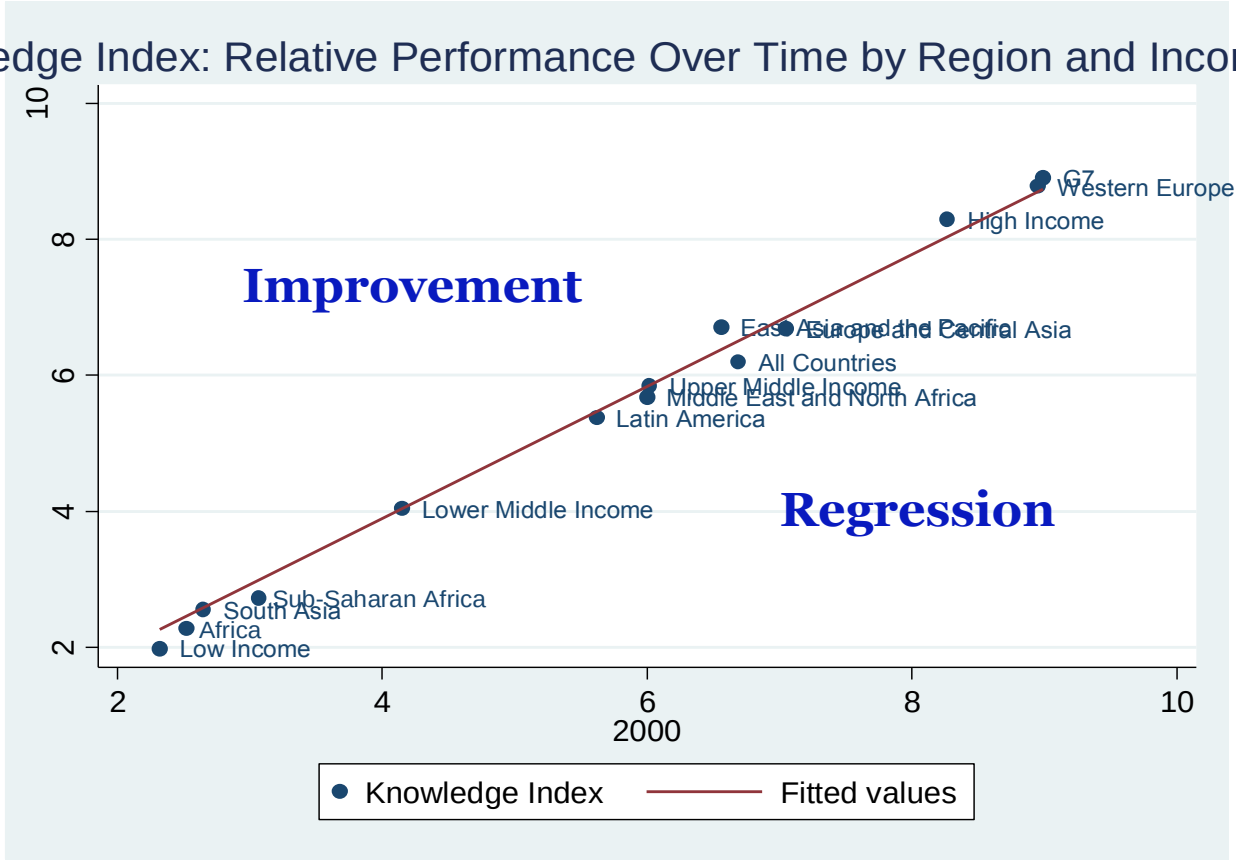
THE STATE OF KNOWLEDGE IN AFRICA

Declining Knowledge in Africa



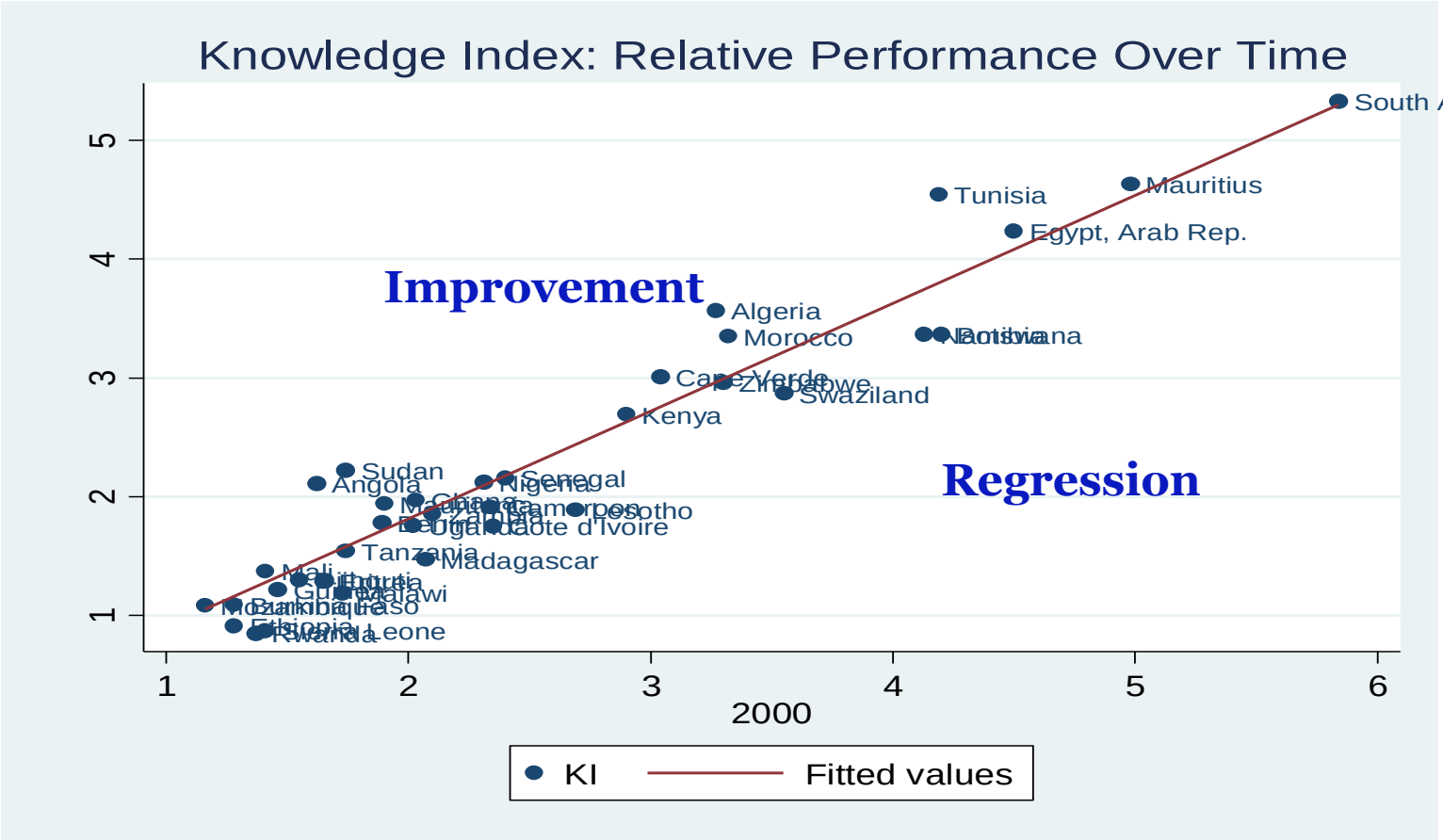
THE STATE OF KNOWLEDGE IN AFRICA

Retreating Knowledge in Africa



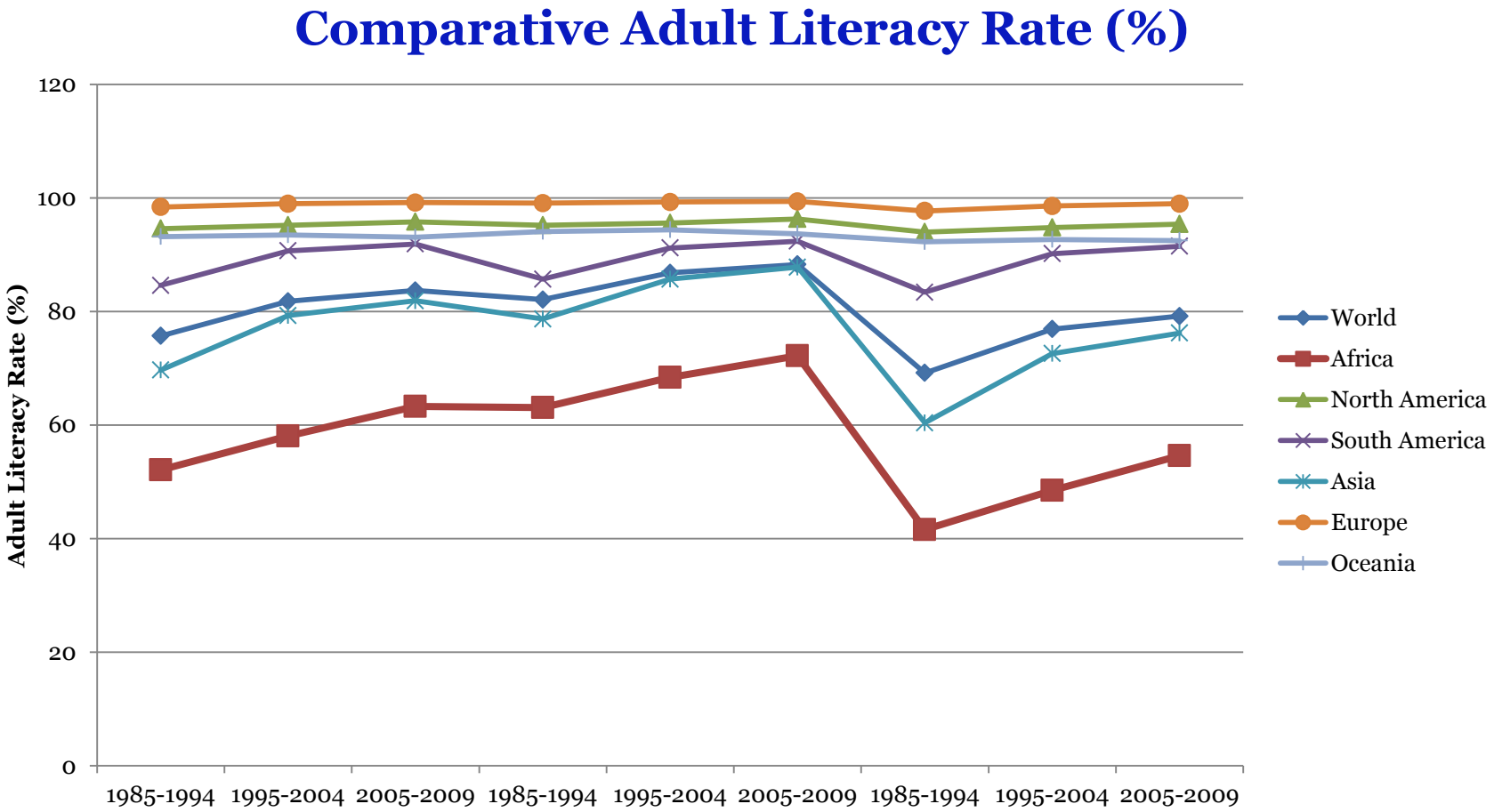
THE STATE OF KNOWLEDGE IN AFRICA

Retreating Knowledge in Africa



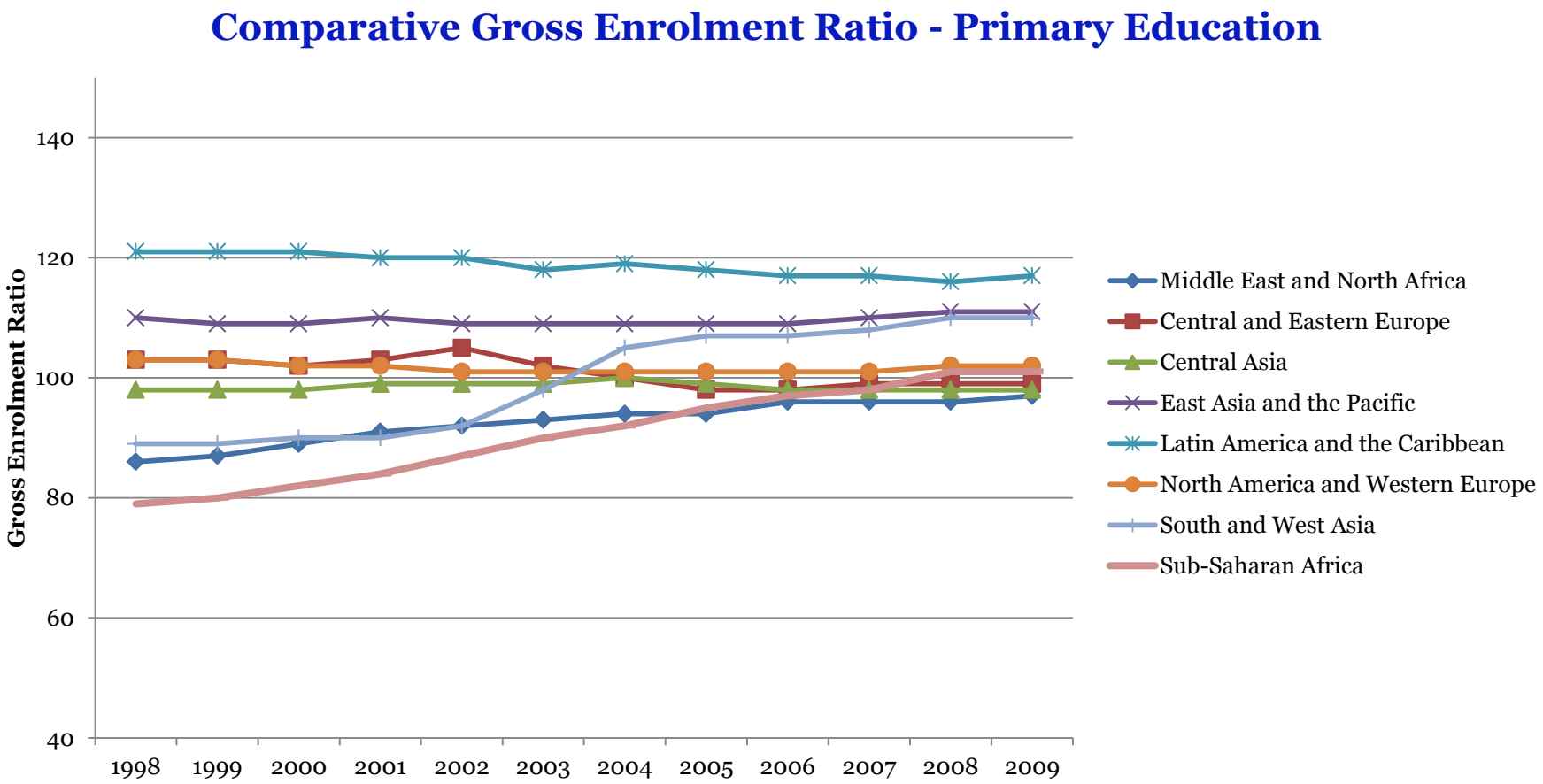
THE STATE OF KNOWLEDGE IN AFRICA

Africa is poorest in Adult Literacy



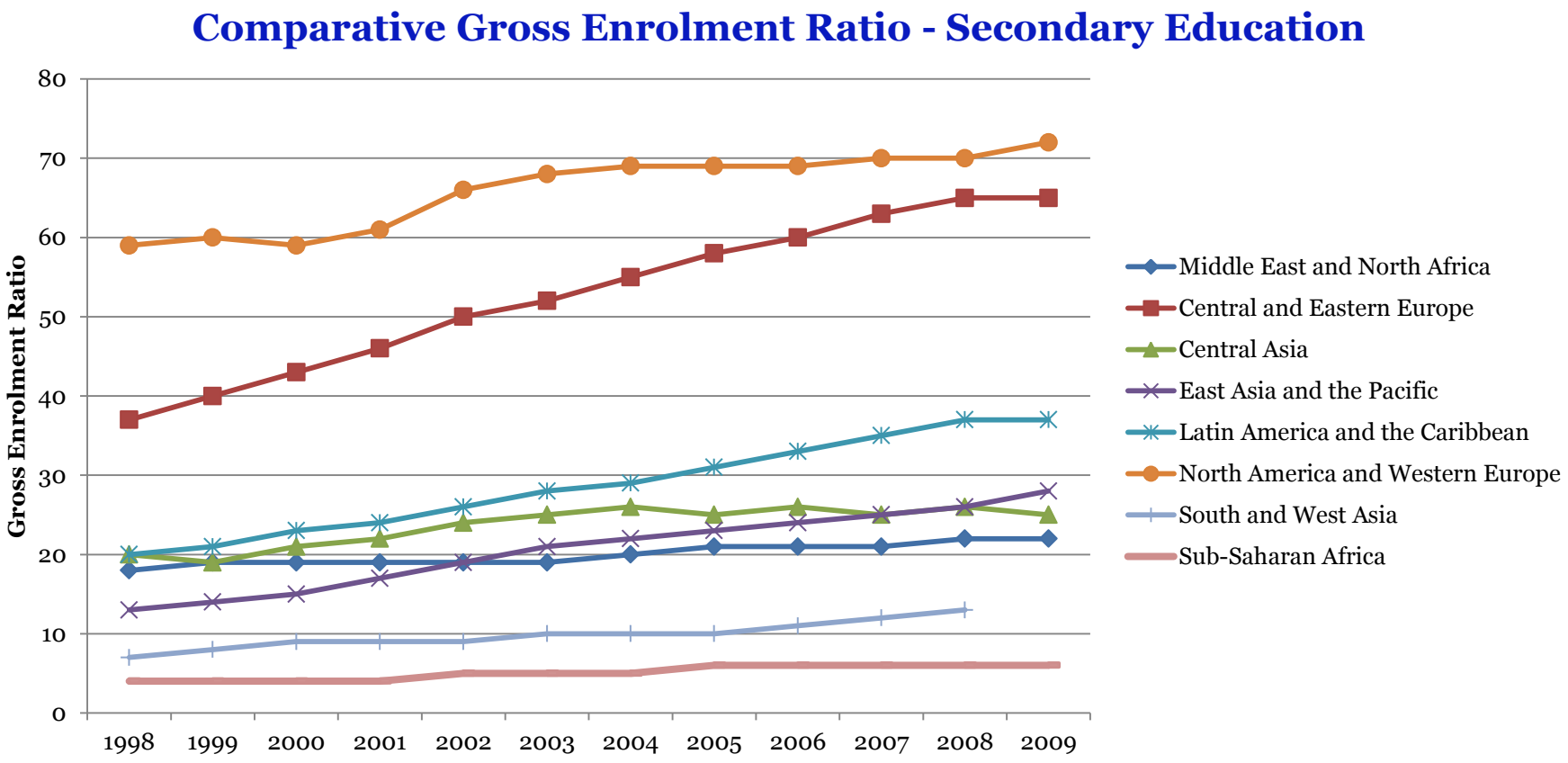
THE STATE OF KNOWLEDGE IN AFRICA

SSA's primary school Enrolment is Improving



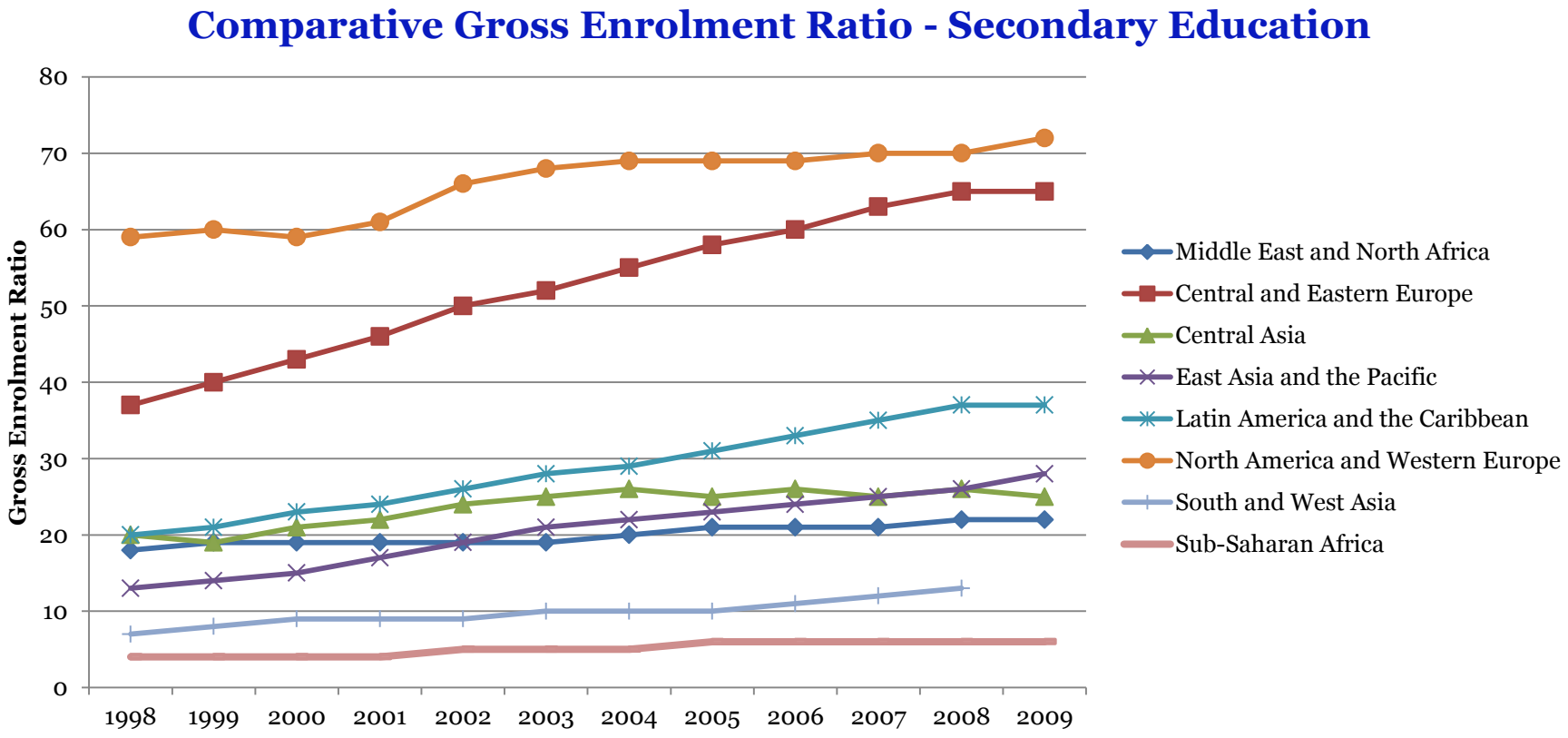
THE STATE OF KNOWLEDGE IN AFRICA

SSA trails behind all the regions of the world on secondary school enrolment



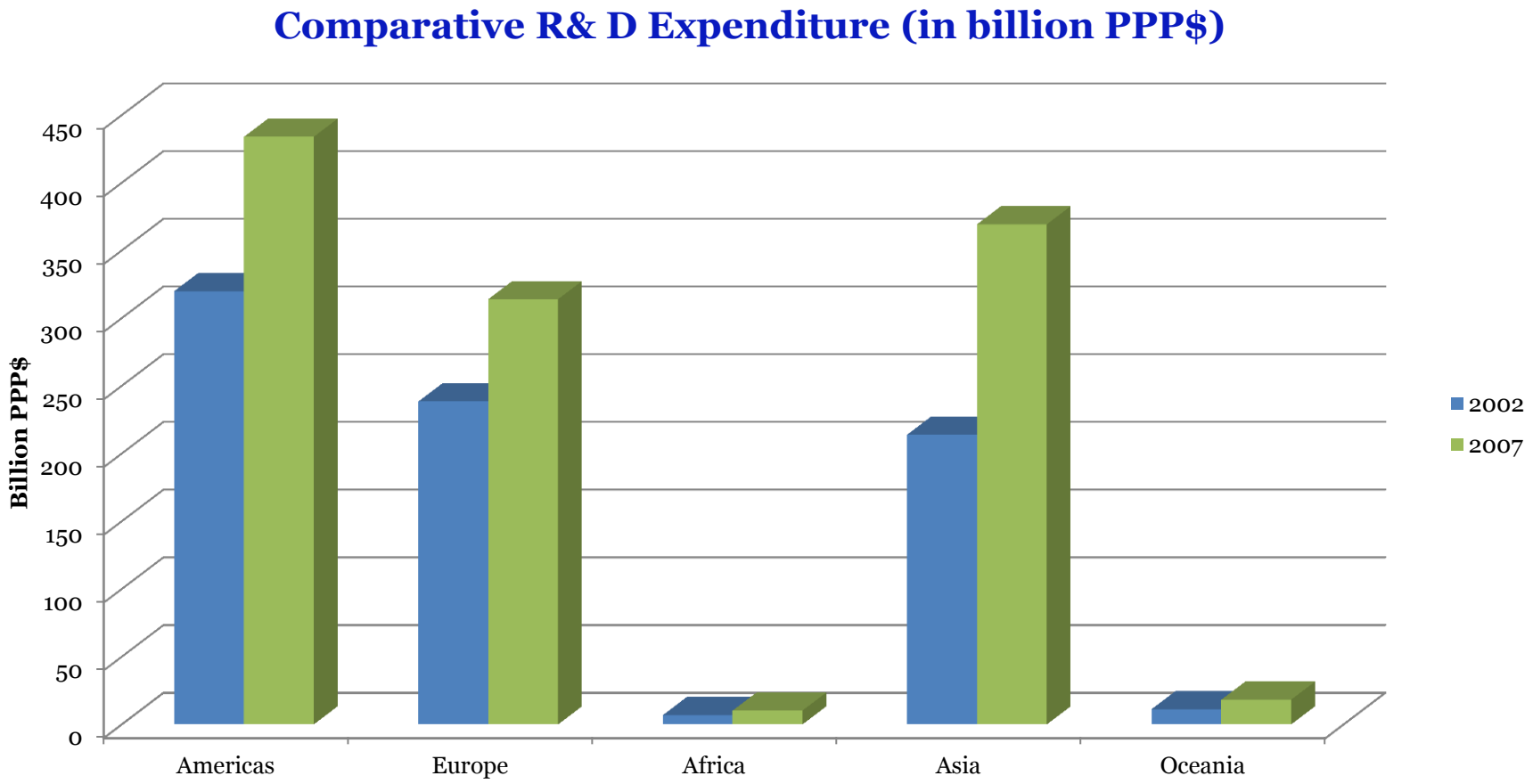
THE STATE OF KNOWLEDGE IN AFRICA

SSA trails below the rest of the regions in terms of tertiary education enrolment



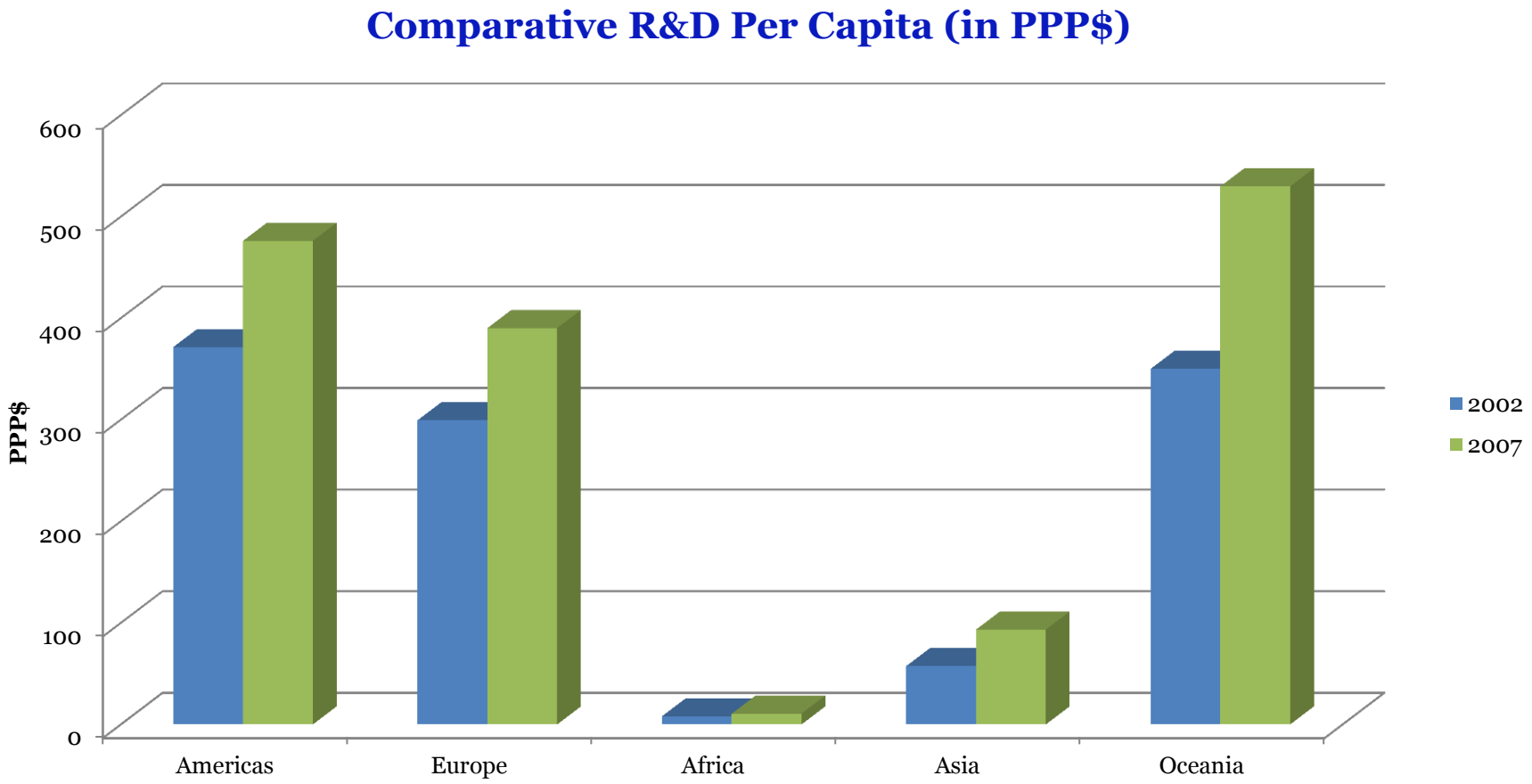
THE STATE OF KNOWLEDGE IN AFRICA

Africa lags behind other regions by a wide margin in terms of research and development (R&D) investment



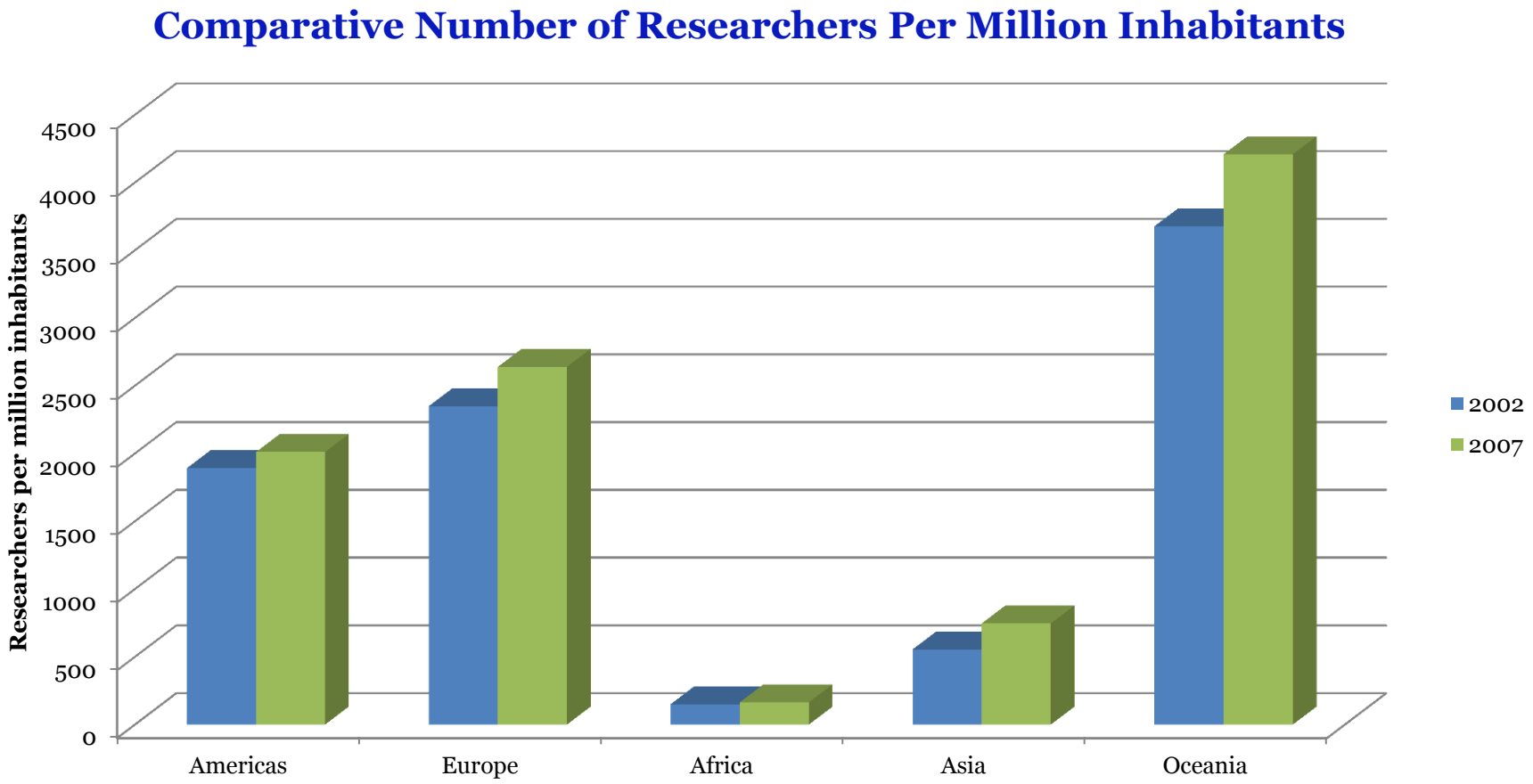
THE STATE OF KNOWLEDGE IN AFRICA

Africa lags behind other regions by a wide margin in terms of research and development (R&D) investment



THE STATE OF KNOWLEDGE IN AFRICA

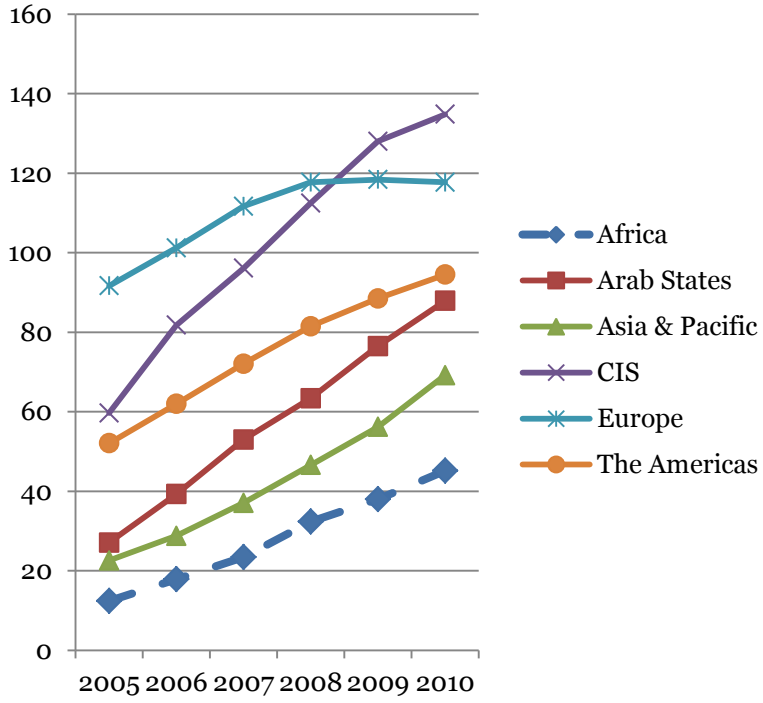
Africa also has relatively the lowest levels in terms of the number of researchers in R&D per million people



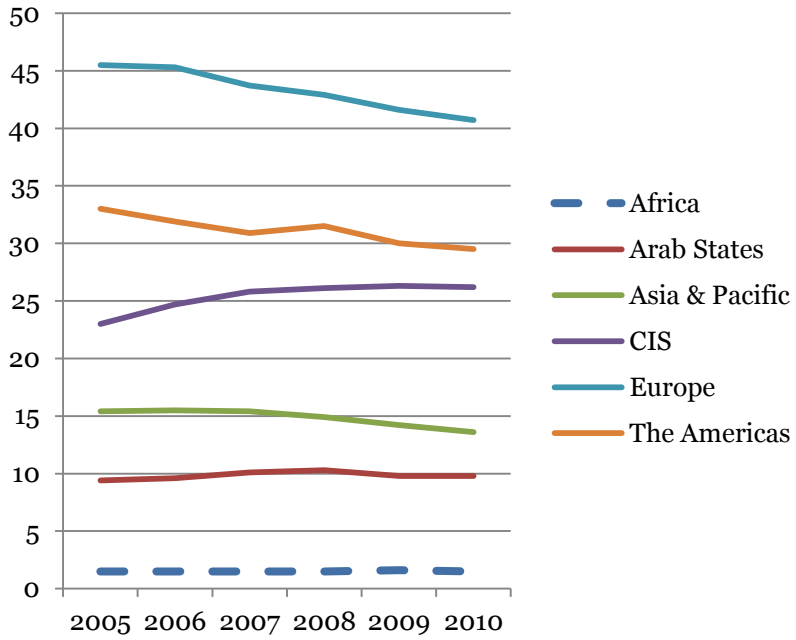
THE STATE OF KNOWLEDGE IN AFRICA

Africa has the lowest levels of mobile cellular subscriptions & fixed telephone lines

Mobile Cellular Subscriptions (Per 100 Inhabitants)



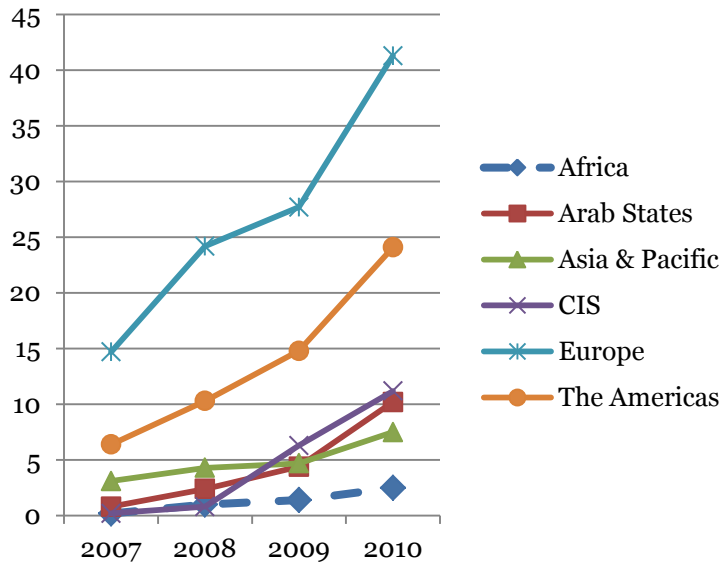
Fixed Telephone Lines (Per 100 Inhabitants) by Region



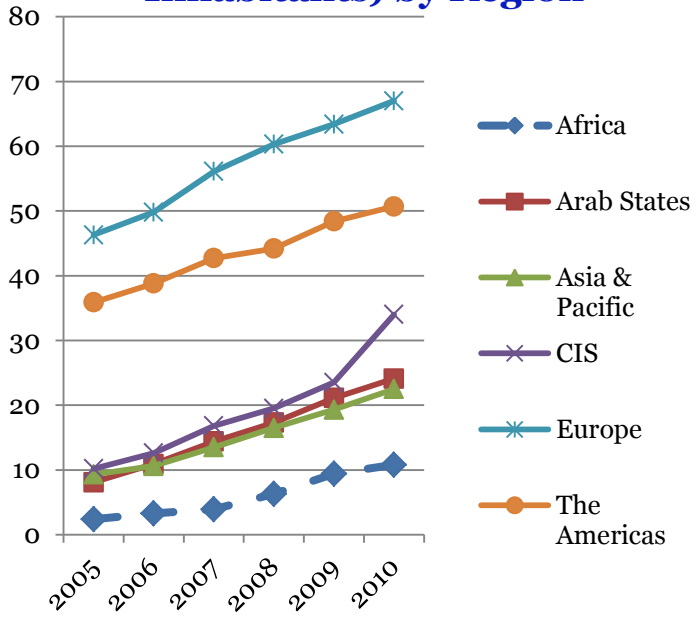
THE STATE OF KNOWLEDGE IN AFRICA

Africa has the lowest levels of active mobile broadband subscriptions & Internet users

Active Mobile Broadband Subscriptions (per 100 Inhabitants) by Region

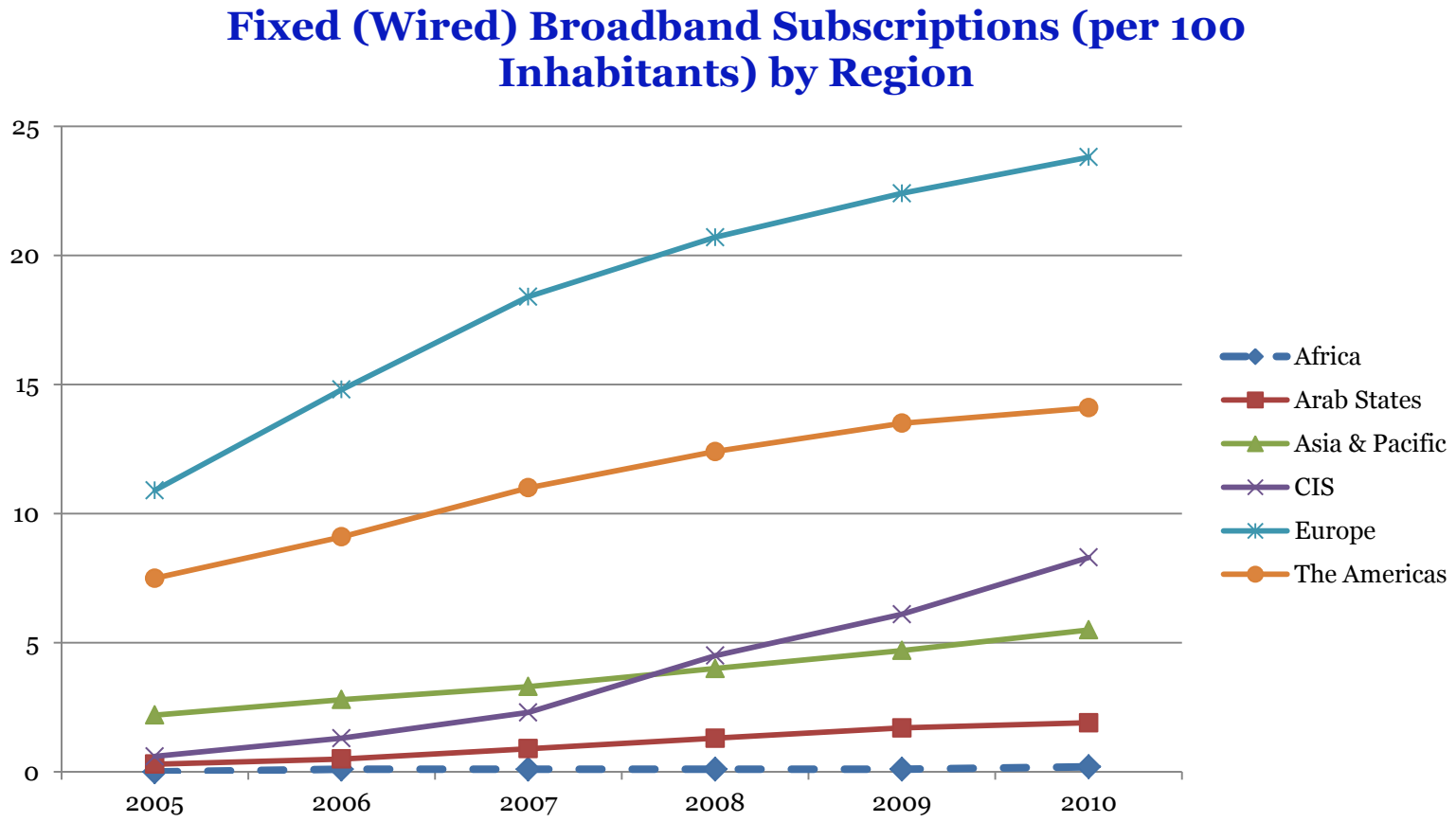


Internet Users (per 100 Inhabitants) by Region



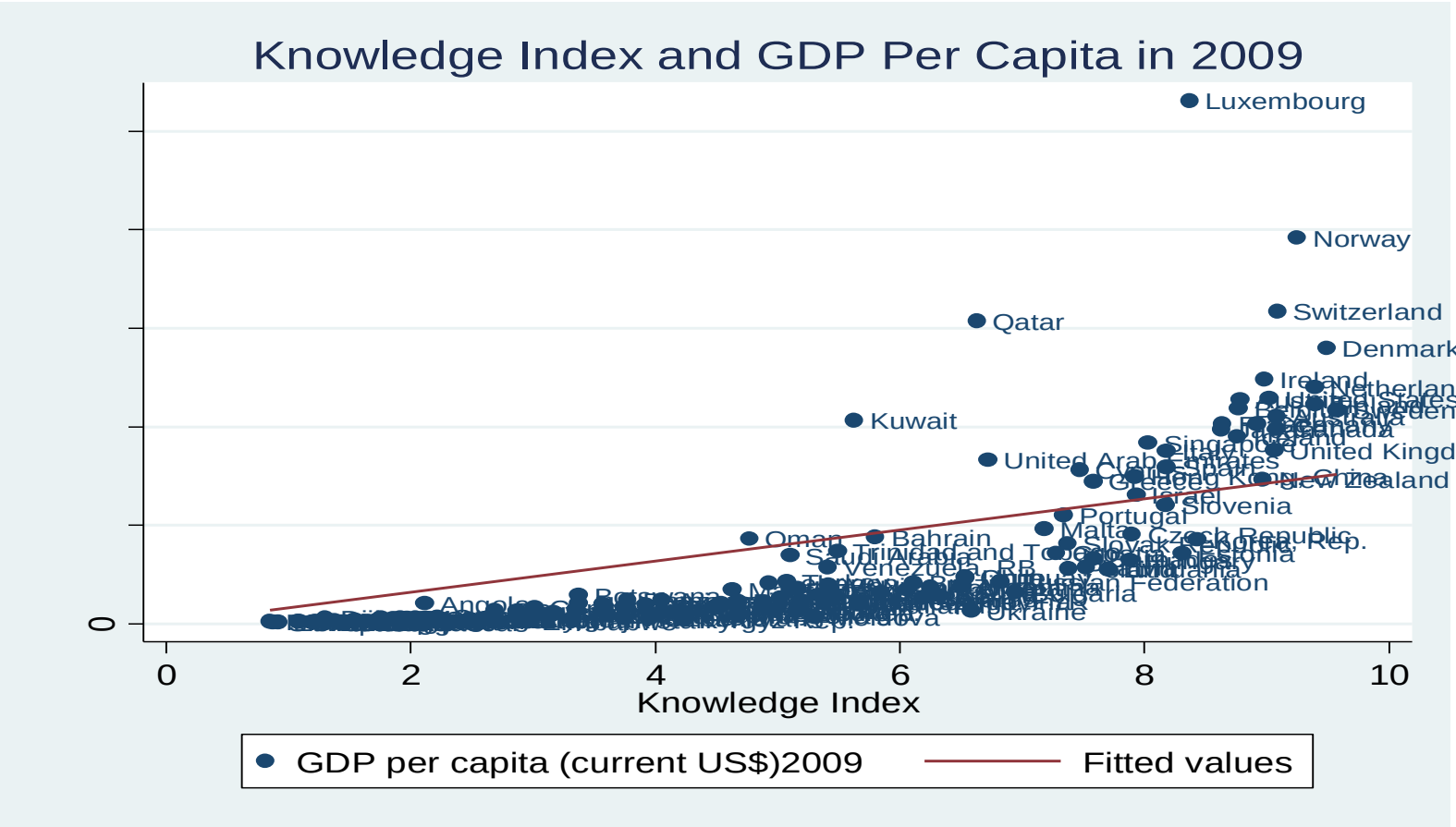
THE STATE OF KNOWLEDGE IN AFRICA

Africa has the lowest levels of fixed broadband subscriptions



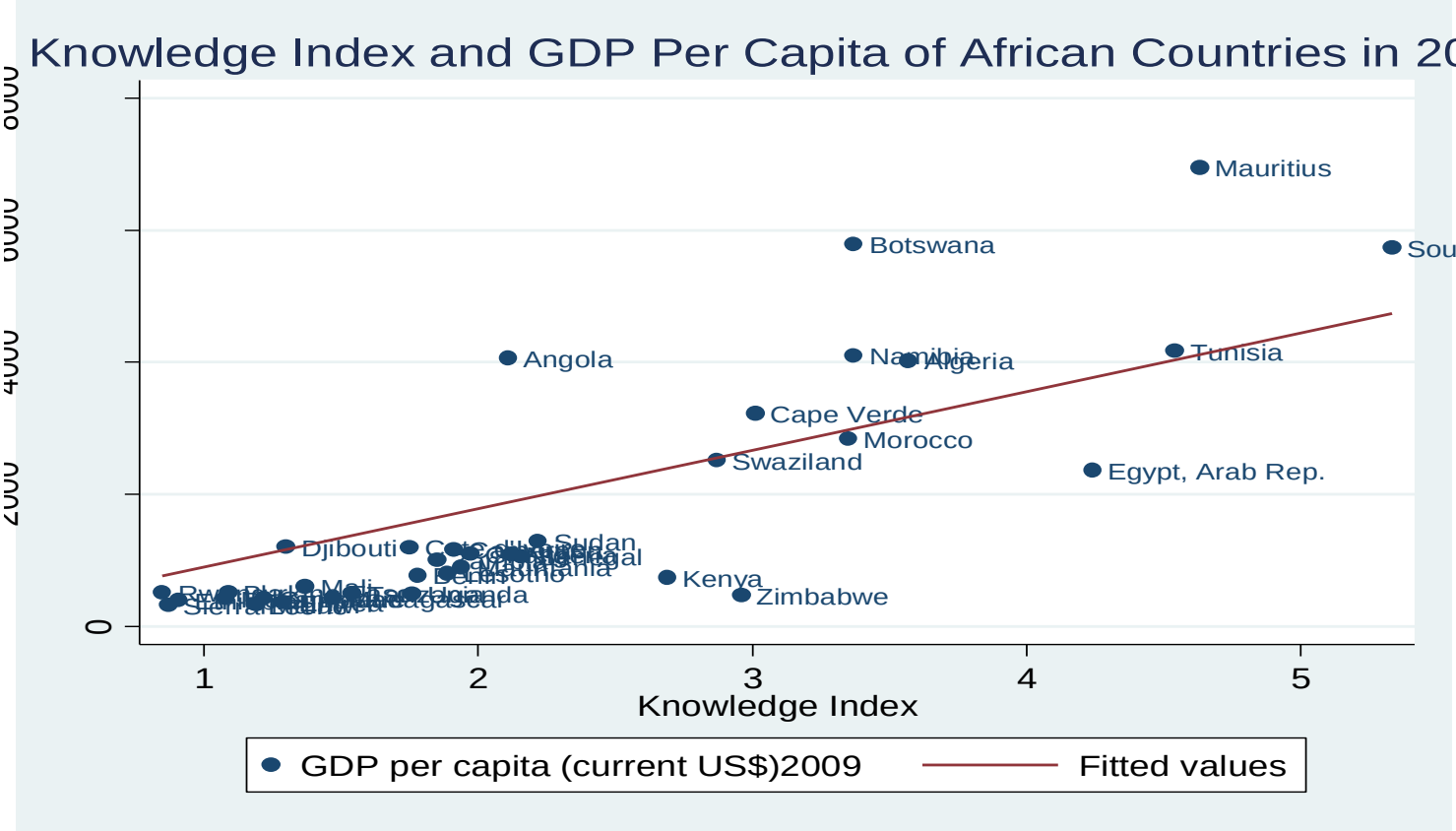
THE STATE OF KNOWLEDGE IN AFRICA

Positive Correlation between Knowledge and Current Economic Performance – Dominance of Advanced Economies



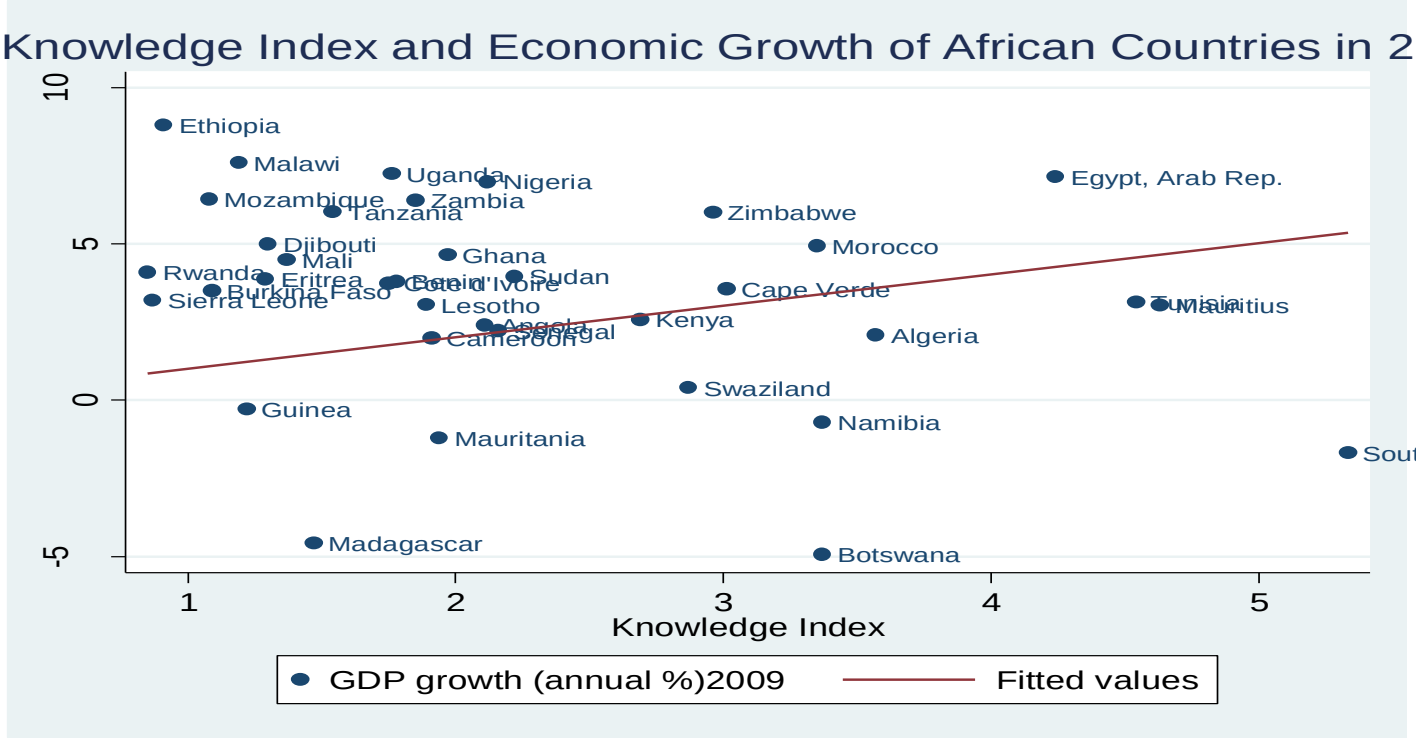
THE STATE OF KNOWLEDGE IN AFRICA

Close correlation between the Knowledge Index and GDP per Capita in Africa



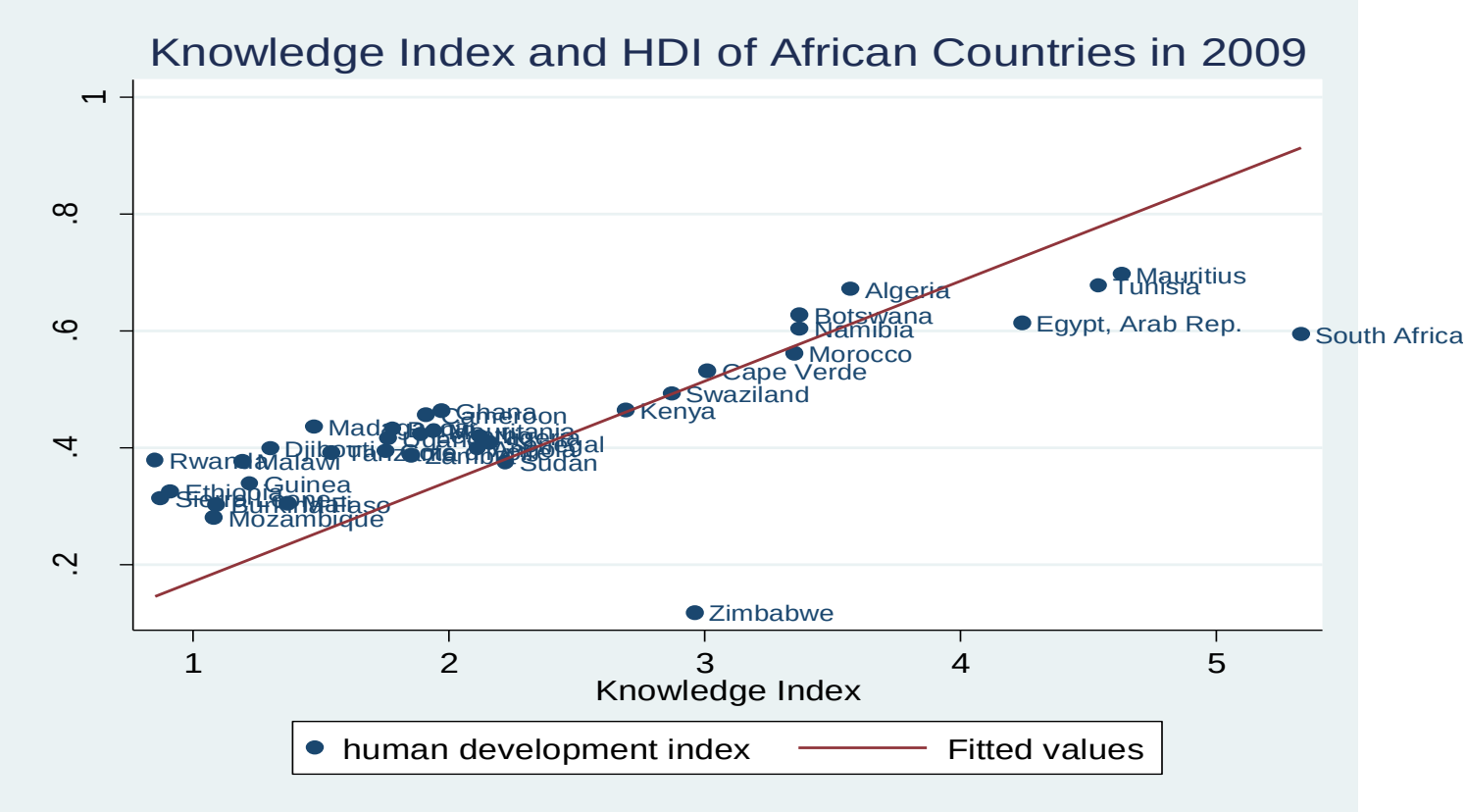
THE STATE OF KNOWLEDGE IN AFRICA

Close correlation between the Knowledge Index and Economic Growth in Africa



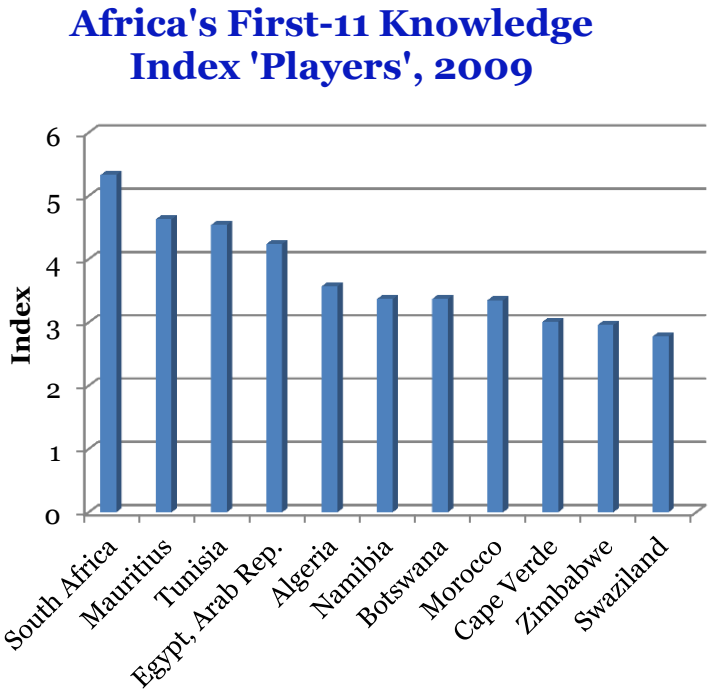
THE STATE OF KNOWLEDGE IN AFRICA

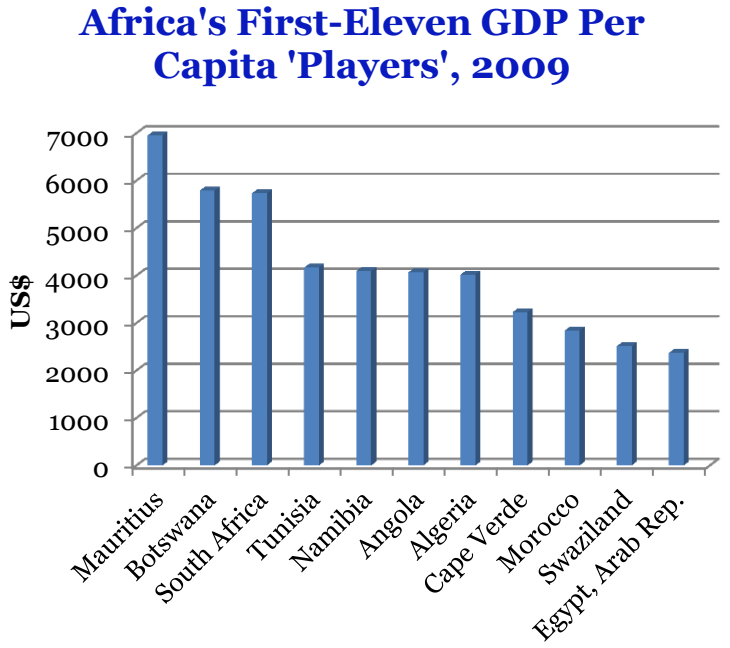
Close correlation between the Knowledge Index and Human Development in Africa



THE STATE OF KNOWLEDGE IN AFRICA

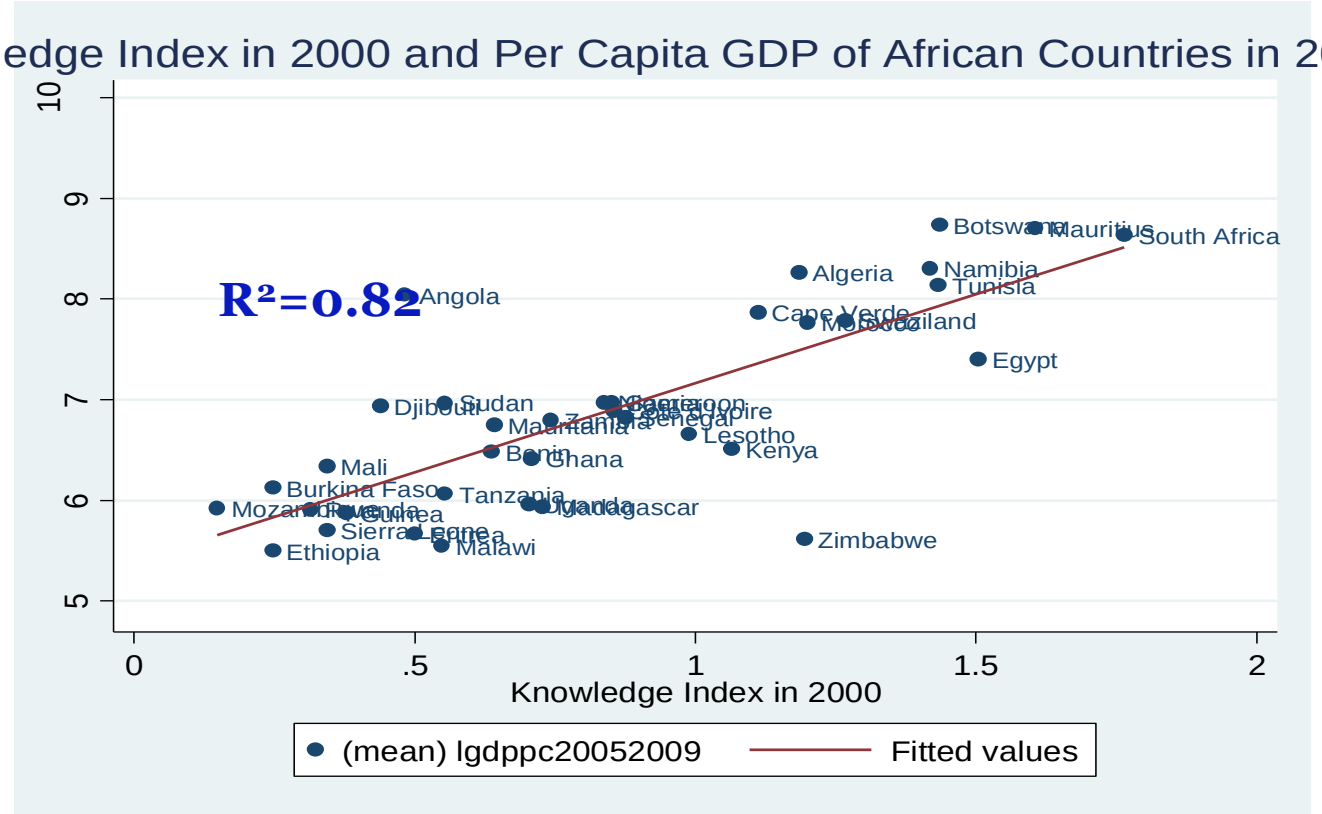
African countries that score higher on the Knowledge Index have higher levels of economic development





THE STATE OF KNOWLEDGE IN AFRICA

Knowledge accumulation is associated with higher rates of future per capita GDP in Africa



THE STATE OF KNOWLEDGE IN AFRICA

A one-unit improvement in the KI leads to an increase of 0.90 percentage point in per capita GDP

Simple Regression of the Effect of Knowledge on Future per Capita GDP, Dependent Variable is per Capita GDFP in 2005-2009

Variable	Coefficient
KI2000	0.899
	(2.76**)
Investment rate	0.872
	(1.87*)
Trade openness	0.366
	(1.33)
Share of urban population	0.516
	(2.54**)
Inflation rate	0.032
	(0.26)
Constant	0.426
	(0.29)

** Significant at 5% significant level; * significant at 10% significant level

RECOMMENDATIONS AND NEXT STEPS

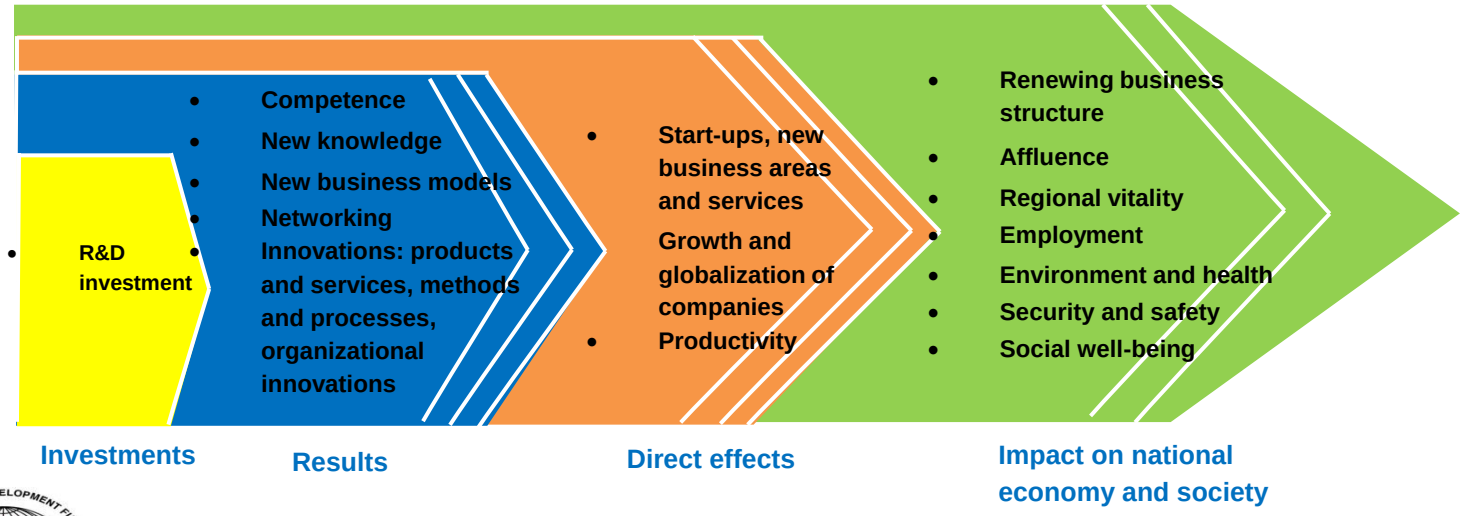
- **Developing Educated and Skilled Workers**
  - **Creating a culture of continuous learning and openness to new ideas is critical for creating a knowledge-based economy in Africa.**
  - **Setting up a computer-based functional literacy (CBFL) programme to arrest adult illiteracy.**
  - **Investing in hiring more qualified teachers and improved pupil-teacher ratios in schools.**
  - **A new system to focus on learning, rather than on schooling, and promote creativity.**

RECOMMENDATIONS AND NEXT STEPS

- **Developing Educated and Skilled Workers**
  - **Drastically upgrading higher education - improved training programmes and closer links between tertiary and vocational educational institutions o as well as private sector.**
  - **Emphasize the enrolment and teaching of sciences, math, and engineering technology**
  - **Stronger university-industry linkages**
  - **Increased involvement of the private sector, Missions and NGOs – including PPPs in education provision**

RECOMMENDATIONS AND NEXT STEPS

- **Creating an Efficient Innovation System**
  - ➢ Increasing R&D investment; strengthening African countries' R&D infrastructure, developing technological innovations and altering the mind-set of its people toward better creation, acquisition, and use of technology



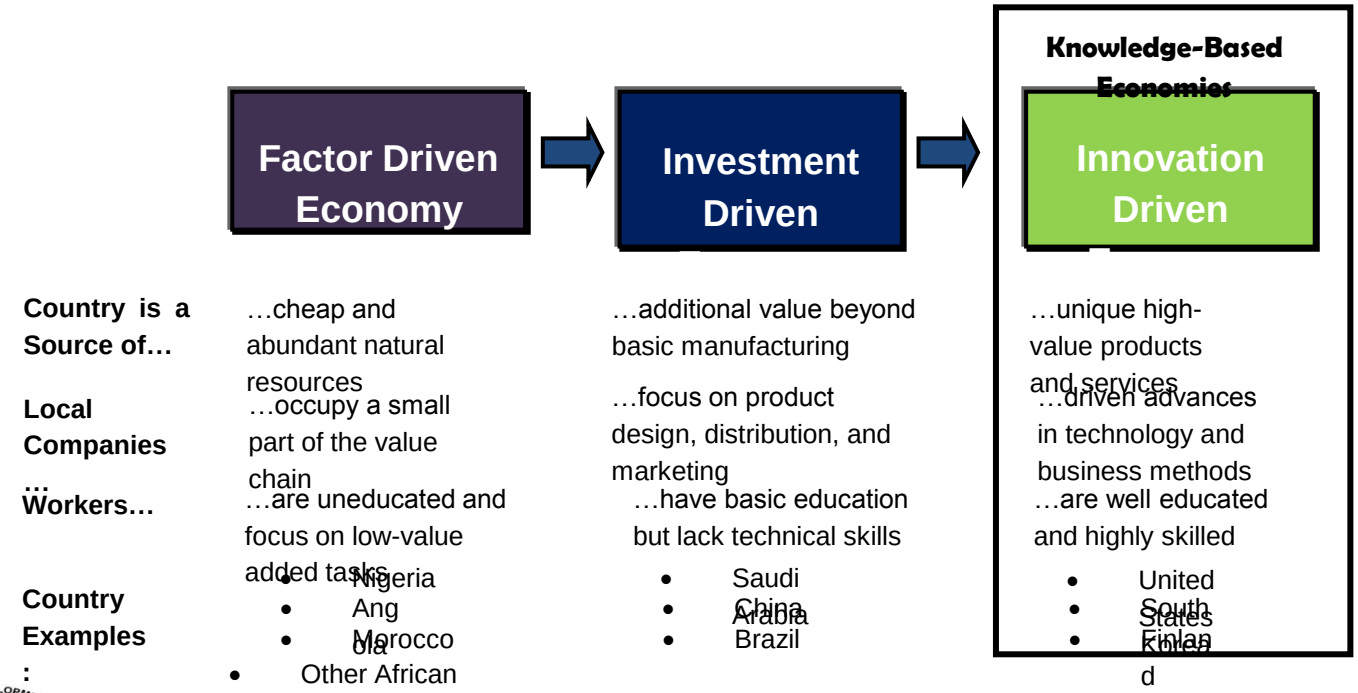
RECOMMENDATIONS AND NEXT STEPS

- **Creating an Efficient Innovation System**
  - Innovation policies and increased R&D investments are needed in each country in addition to regional strategies
  - Science and Technology Councils are necessary at the Presidency or Prime Minister levels
  - Collaboration and linkages among local firms, universities, and research institutes and the worldwide R&D network of multinationals
  - Leveraging abundant Diaspora knowledge

RECOMMENDATIONS AND NEXT STEPS

- **Creating an Efficient Innovation System**
  - ➢ Leapfrogging to innovation-driven economy

Path to Knowledge-Based Economy: African Countries Need to Leap-Frog to Reach the Knowledge- Based Economy Stage Soon



RECOMMENDATIONS AND NEXT STEPS

- **Creating an Efficient Innovation System**
  - ➢ **Establishment of science and technology parks**
  - ➢ **Encouraging venture capital development and angel funds**
  - ➢ **Develop communication and other infrastructure for R&,**
  - ➢ **Creating an attractive environment to motivate R&D investments, including favourable tax, and other incentives.**

RECOMMENDATIONS AND NEXT STEPS

- **Creating an Efficient Innovation System**
  - Attracting more foreign direct investment (FDI)
  - Changing the way students are trained—-a process that will require changes in the education system, labour markets, and government policies
  - Establishing incubators

RECOMMENDATIONS AND NEXT STEPS

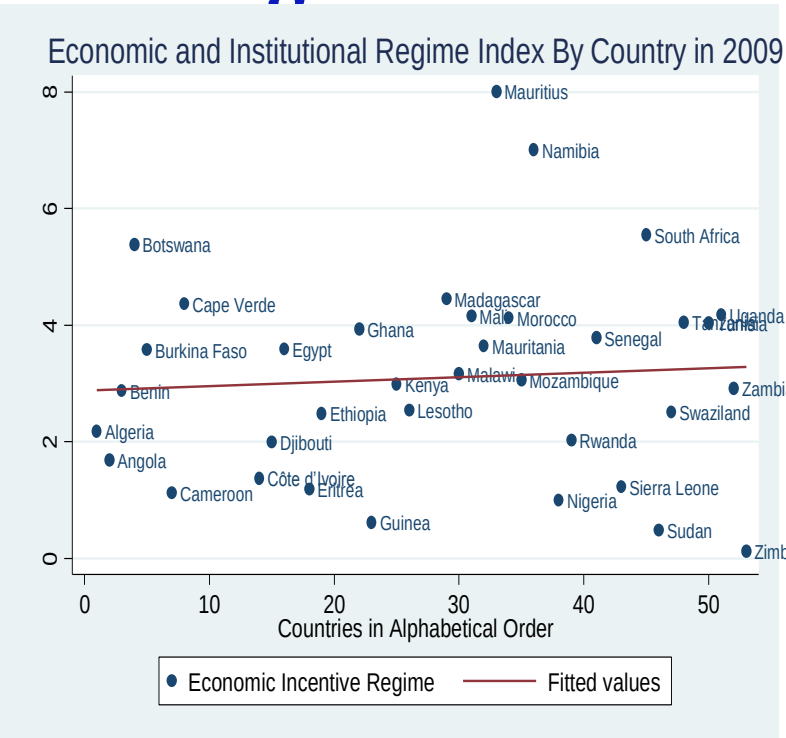
- **Building a dynamic information infrastructure**
  - **Having national and regional ICT Plans (including broadband plans) with a Digital Agenda**
  - **Improving the overall environment for innovation and ICT**
  - **Establishing an innovation-friendly environment and setting the ICT vision for the future**
  - **Providing firms and consumers with incentives to extract value from the use of broadband**

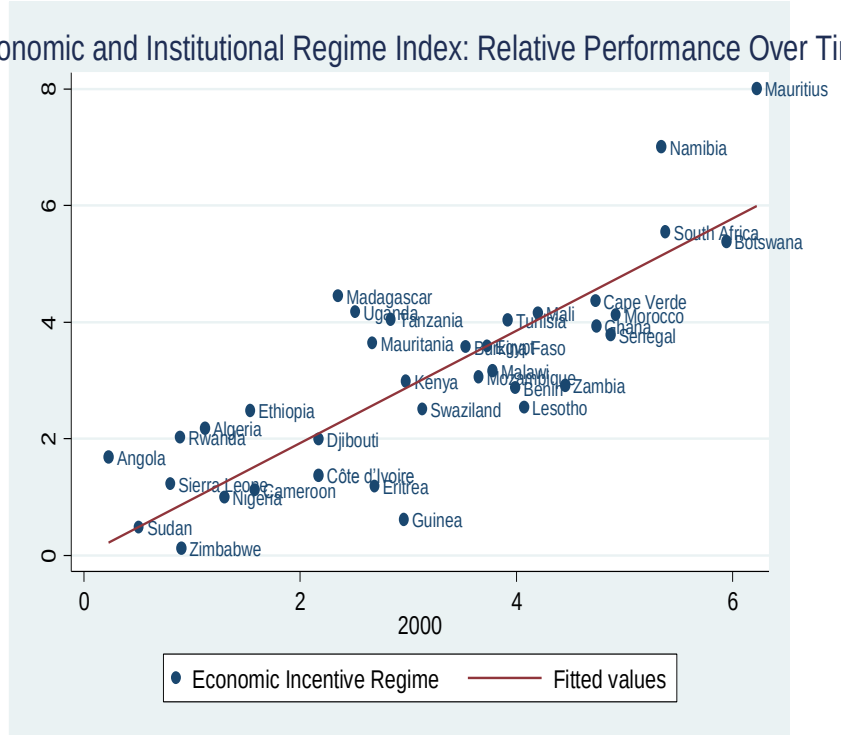
RECOMMENDATIONS AND NEXT STEPS

- **Building a dynamic information infrastructure**
  - **Efficiently allocating assets that the public sector controls or influences**
  - **Encouraging the deployment, adoption, and use of broadband in areas where the market alone is not enough**
  - **Ensuring robust competition in telecommunications, including digital democracy**
  - **Ensuring robust competition (including privatization) in the power sector**

RECOMMENDATIONS AND NEXT STEPS

- **Strengthening the Economic and Institutional Regime – a number of African countries have made giant strides in reforms**





RECOMMENDATIONS AND NEXT STEPS

- **Strengthening the Economic and Institutional Regime**
  - **Consolidating macroeconomic stability;**
  - **Strengthening banking systems to enhance domestic resource mobilization;**
  - **Developing capital markets by improving the regulatory framework, reforming labor market practices;**
  - **Accelerating the pace of privatization and broadening the domestic investor base.**
  - **measures to attract larger volumes of foreign private capital inflows.**

RECOMMENDATIONS AND NEXT STEPS

- **Strengthening the Economic and Institutional Regime**
  - **Reforming and strengthening judicial and legal systems and putting in place effective and transparent regulatory frameworks**
  - **Physical infrastructure (including ICT infrastructure) development**
  - **Strengthening governance through the development of participatory decision-making processes**
  - **Improving public service delivery, strengthening capacities, and ensuring greater accountability and transparency in public administration.**

CONCLUSION

- More than money, needed: political, commitment, transparency & accountability, collaborative spirit to formulate the requisite policies, strategies, plans and collective action as well as the institutional changes needed for leapfrogging to a knowledge-based and innovation-driven economy for economic advancement of Africa.
- African countries to redouble their efforts to mobilize domestic revenues
- Leveraging resources from emerging partners like the BRICs
- Conference to provide answers to key digitization questions
- Africa is reborn with a new optimistic face & at a turning point, in spite of challenges.

Thank you for Your Kind Attention