

Economics 172:
Issues in African Economic Development

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Economics 172:
Issues in African Economic Development

Lecture 1 – January 17, 2017

Lecture 1: Introduction to Economics 172

- Lecturer: Prof. Ted Miguel

Email: emiguel@berkeley.edu

Office hours: Friday afternoon. Please email Corinne Cooper (ccooper@berkeley.edu) for an appointment.

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Christina Brown (christinabrown@berkeley.edu)
Isabelle Cohen (isabellemcohen@berkeley.edu)
- Enrollment issues: Economics Department Head GSI
Katarina Jensen (headgsi@econ.berkeley.edu)

- Description: This course will examine leading issues in development economics, with a focus on Sub-Saharan Africa. This course will also explore the empirical methods used to rigorously measure the impact of development and anti-poverty programs. (4 units)
- Prerequisites: At least one term of intermediate economics, and some prior coursework in statistics or econometrics.

- Grading: Graded on a curve (median = B+)
- Three problem sets – 30%
-- R statistical software (see syllabus for details)
- Midterm exam (Tuesday March 14th) – 25%
- Final exam (during exam week) – 35%
- Class participation and attendance – 10%

- Class participation (10%) has two components:
- Student remarks, comments and questions in both lecture and section – 5%
- Lecture attendance and participation will also be evaluated using “clickers” – 5%
- Clickers required starting next Tuesday, January 24th (see syllabus for details).

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- Lectures will be “screencast” online (i.e., slides plus audio) with a one week delay on the CalCentral class page for Econ 172.

- bCourses page – Contains most course readings
- Reading packets at Bancroft Copy Central (soon)

- Required books:
 - Angrist & Pischke (2015) *Mastering 'Metrics*
 - Fisman & Miguel (2008) *Economic Gangsters*
 - Miguel (2009) *Africa's Turn?*

- Optional book (free online):
 - Grosz-Ngate, Hanson & O'Meara (2014) *Africa, 4th Edition*

- Syllabus outline:

Lectures 1-2: Patterns of global & African economic development

Lectures 3-4: Theories of economic growth

Lectures 5-9: Geography, health and development

Lectures 10-12: The economics of HIV/AIDS

Lectures 13-15: Investing in human capital

[MIDTERM EXAM]

Lectures 16-19: Climate and economic shocks in rural households

Lectures 20-22: Public goods, corruption, and ethnic divisions

Lectures 23-24: Historical legacies of slavery and colonialism

Lectures 25-27: Current successes and future challenges

[FINAL EXAM]

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[FINAL EXAM]

- Econometric methods used in this course:
Ordinary least squares (OLS) regression
Randomized controlled trials (RCT)
Difference-in-differences (DD) analysis
Regression discontinuity (RD)
Instrumental variables (IV)
Pre-analysis plans (PAP)

- Theoretical and conceptual approaches:
Economic growth theory
Externalities
Expected utility maximization
- Data types / approaches used in this course:
Field data collection
Spatial data
Data visualization
Forensic data techniques
Assembling historical data

Questions?

Patterns of Global Economic Development

- The world's four major less developed regions are East Asia, Latin America, South Asia, Sub-Saharan Africa
- Of the four, **Sub-Saharan Africa** has had the worst economic performance since 1975, and will be our focus.
- The goal of this course is three-fold:
 - (1) to understand why Africa is so poor, and
 - (2) what economic policy / public policy can do about it;
 - (3) to learn tools useful in development policy analysis and program impact evaluation.

Patterns of Global Economic Development

- Why study Africa?
- Sub-Saharan Africa is the world's **poorest** and least developed continent along several dimensions (e.g., education, health).
- Perhaps less well-known: it is also poised to become the world's **most populous** region in the coming decades.



The True Size of Africa

A small contribution in the fight against rampant *immappancy*, by Kai Krause

Graphic layout for visualization only (some countries are out and rotated)
But the conclusions are very accurate: refer to table below for exact data

COUNTRY	AREA x 1000 km ²
China	9.597
USA	9.029
India	3.287
Mexico	1.964
Peru	1.285
France	633
Spain	506
Papua New Guinea	462
Sweden	441
Japan	378
Germany	357
Norway	324
Italy	301
New Zealand	270
United Kingdom	243
Nepal	147
Bangladesh	144
Greece	132
TOTAL	30.102
AFRICA	30.221

In addition to the well known social issues of *illiteracy* and *innumeracy*, there also should be such a concept as *"immappancy"*, meaning *insufficient geographical knowledge*.

A survey with random American schoolkids let them guess the population and land area of their country. Not entirely unexpected, but still rather unsettling, the majority chose *"1-2 billion"* and *"largest in the world"*, respectively.

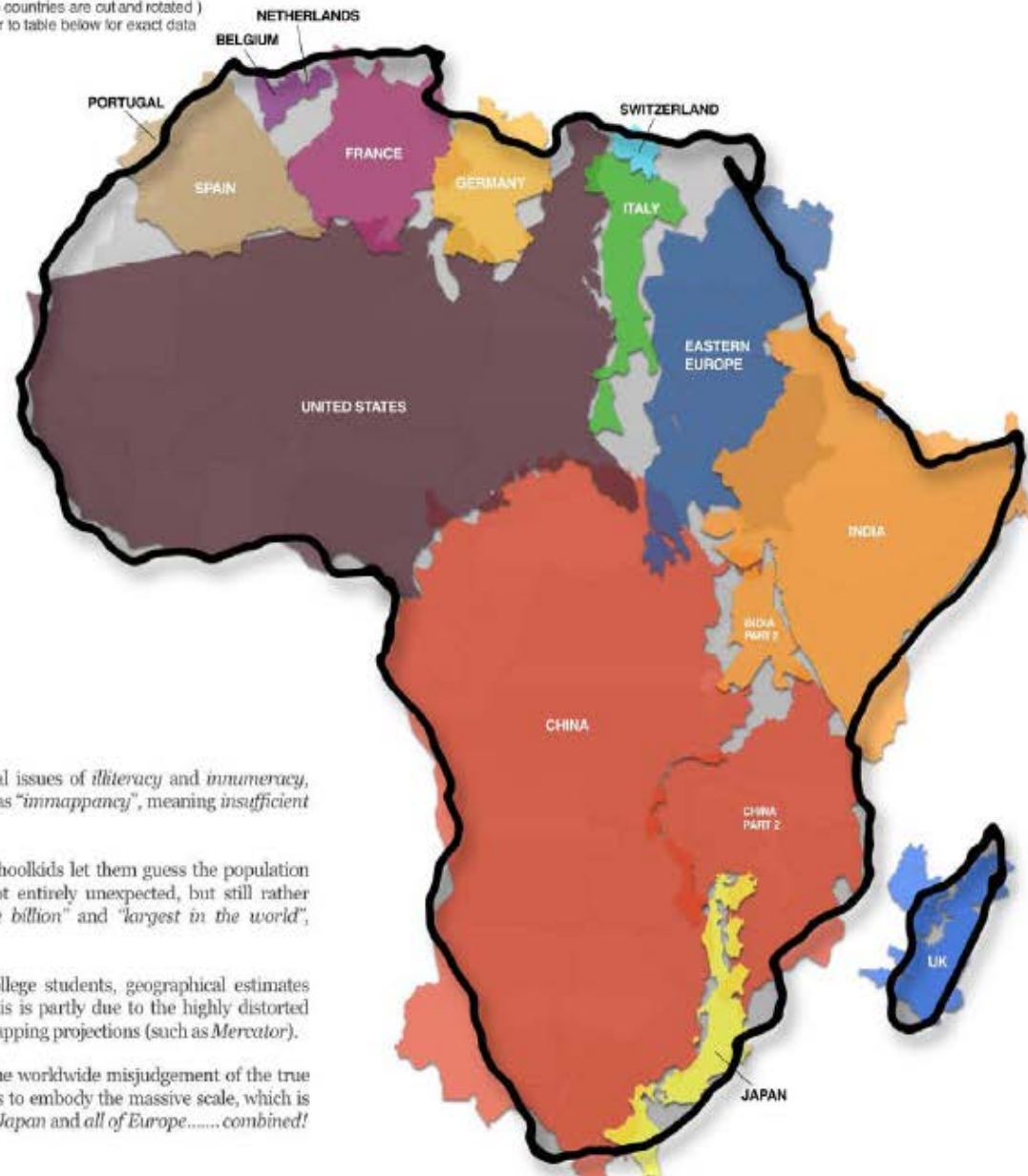
Even with Asian and European college students, geographical estimates were often off by factors of 2-3. This is partly due to the highly distorted nature of the predominantly used mapping projections (such as *Mercator*).

A particularly extreme example is the worldwide misjudgement of the true size of *Africa*. This single image tries to embody the massive scale, which is larger than the *USA, China, India, Japan* and *all of Europe.....combined!*

Top 100 Countries

Area in square kilometers, Percentage of World Total
Sources: Britannica, Wikipedia, Almanac 2010

	AREA km ²	%	
1	Russia	17.094.342	11.80
2	Canada	9.944.070	6.70
3	China	9.596.961	6.40
4	United States	9.679.001	6.40
5	Brazil	8.514.877	5.70
6	Australia	7.692.004	5.20
7	India	3.287.265	2.80
8	Argentina	2.730.450	2.00
9	Kazakhstan	2.724.000	1.90
10	Sudan	2.500.818	1.70
11	Algeria	2.381.741	1.60
12	Congo	3.344.888	1.60
13	Greece	2.160.066	1.50
14	Saudi Arabia	2.149.650	1.40
15	Mexico	1.964.375	1.30
16	Indonesia	1.860.260	1.30
17	Libya	1.759.540	1.20
18	Iran	1.628.750	1.10
19	Nepal	1.464.100	1.10
20	Peru	1.285.216	0.80
21	Chad	1.284.000	0.80
22	Niger	1.247.000	0.80
23	Angola	1.246.700	0.80
24	Mali	1.240.190	0.80
25	South Africa	1.221.037	0.80
26	Colombia	1.141.746	0.70
27	Ethiopia	1.104.300	0.74
28	Bolivia	1.099.041	0.74
29	Mauritius	1.025.500	0.69
30	Egypt	1.002.000	0.67
31	Tanzania	945.087	0.63
32	Nigeria	923.768	0.62
33	Venezuela	912.000	0.61
34	Namibia	824.195	0.55
35	Madagascar	595.000	0.54
36	Pakistan	7.96.000	0.53
37	Turkey	783.500	0.53
38	Chile	758.100	0.51
39	Zambia	753.612	0.51
40	Myanmar	676.378	0.45
41	Afghanistan	652.099	0.44
42	Senegal	637.007	0.43
43	France	630.000	0.43
44	C. African Rep.	629.984	0.42
45	Ukraine	603.500	0.41
46	Madagascar	597.041	0.39
47	Botswana	582.000	0.39
48	Kenya	580.367	0.39
49	Yemen	527.000	0.35
50	Thailand	513.120	0.34
51	Spain	505.000	0.34
52	Turkmenistan	498.100	0.33
53	Cambodia	475.442	0.32
54	Papua New Guinea	462.040	0.31
55	Uzbekistan	447.400	0.30
56	Morocco	446.000	0.30
57	Sweden	442.370	0.30
58	Iraq	438.317	0.29
59	Paraguay	408.752	0.27
60	Zimbabwe	390.757	0.26
61	Japan	377.930	0.26
62	Germany	357.114	0.24
63	Rep. of Congo	342.000	0.23
64	Finland	338.419	0.23
65	Vietnam	335.212	0.22
66	Malaysia	330.600	0.22
67	Norway	328.000	0.22
68	Ohio (State)	322.400	0.22
69	Poland	313.696	0.21
70	Oman	308.000	0.21
71	Bhutan	382.398	0.20
72	Philippines	300.000	0.20
73	Burkina Faso	274.000	0.18
74	New Zealand	273.467	0.18
75	Gabon	267.668	0.18
76	Western Sahara	268.000	0.18
77	Bouvier	256.000	0.20
78	Cuba	105.000	0.17
79	United Kingdom	242.000	0.16
80	Uganda	241.000	0.16
81	Ghana	238.000	0.16
82	Romania	238.000	0.16
83	Lebanon	105.000	0.16
84	Egypt	1.000.000	0.14
85	Burkina Faso	207.000	0.14
86	Kyrgyzstan	198.000	0.13
87	Senegal	194.720	0.13
88	Syria	189.100	0.12
89	Cambodia	181.000	0.12
90	Uruguay	176.210	0.12
91	Burkina Faso	163.000	0.11
92	Tanzania	163.000	0.11
93	Nepal	147.181	0.10
94	Bangladesh	143.898	0.10
95	Tajikistan	143.100	0.10
96	Greece	131.000	0.08
97	Nicaragua	130.370	0.08
98	North Korea	120.000	0.08
99	Malawi	118.484	0.08
100	Eritrea	117.000	0.08
TOP 100 TOTAL		132.632.024	89.24







From dawn to dusk, the daily struggle of Africa's women

1

By Paul Vallely, Thursday 21 September 2006

[<http://www.independent.co.uk/news/world/africa/from-dawn-to-dusk-the-daily-struggle-of-africas-women-416877.html>]

It was still dark, not yet 4am. But outside Letenk'iel was moving already, rekindling the fire from the overnight embers. Inside the mud-walled hut, her husband Gebremariam coughed. Then as the first birds were heard, he swung his legs over the side of a bed made from rough rope strung across a wooden frame. He stood in the doorway and stretched. His wife was already at her morning chores.

As the cold dawn light suffused the sky she sprinkled water from a squat earthenware jar across the mud floor and began to sweep the dampened earth with a brush of long grasses bound tightly together. The day had begun.

Letenk'iel, from the village of Meshal in southern Eritrea, poked about in the straw where the hens had spent the night in the hope that there might be eggs to take to market to exchange for salt and oil. But there were none.

The baby began to cry. Letenk'iel fastened the child to her back with a long, dirty cloth to keep him comforted until she had the time to breastfeed. The child coughed. She fed the tiny fire, in what looked like an old biscuit-tin, with slow-burning wood on which to roast the few kernels of wheat which would be breakfast for her family of six. They would get a handful each. She would "not bother" to eat.

The first big task of the day was to fetch water. First, she set her children about their chores. Gebremariam and the eldest boy, Daniel, were to shift stones from their field in readiness for ploughing. Kudos, the second son, would take the ox on the long trek for water. Her daughters, Mabraheet and Azmera, would spend hour hours fetching firewood from the far mountainside. After two hours of farm work, Daniel would set off on the hour's walk to school. He was the only one they could afford to send.

For Letenk'iel, it was a 25-minute walk down the hill to the pump but it would take 40 minutes to walk back up with five gallons of water wedged into the small of her back and tied on with a rope of old rag.

Once there were three wells. The eight-metre one has dried up. The nine-metre well has a little brackish water at the bottom which even the donkeys refused to drink. The flow from the pump of the 25-metre well had slowed to a painful trickle. There was just barely enough for everyone to drink.

Letenk'iel hoisted the water container and swivelled it round to lodge in the small of her back. A friend fastened it in place. When she reached home, Gebremariam was back and, without pause, she began the preparation for lunch. As the others ate, Letenk'iel breastfed the baby. Often this took a long time. Letenk'iel's milk did not flow freely, largely because there was not much food to go around. She coughed - loose and rattling - as she prepared little tasks which could be done as the four-month-old suckled. It was an hour before the child had taken his fill. When his eyes closed, she passed him to Mabraheet who lay him among the blankets.

On a normal afternoon, Letenk'iel would have left the house to join her husband in the field, shifting stones. After the ploughing was done, and the seed sown, it would be her daily job to keep the weeds from the rows of sorghum, because they could not afford that any of the soil's goodness should be wasted nurturing weeds. If the rains came.

But today was the day for the mother-and-child clinic at the nearest health post. It was a two-hour walk each way. The baby had the rattling cough that he had caught from her. They were offering contraceptives and advice on HIV today too.

For Letenk'iel, back from the clinic, there was more water to be fetched. Then a meagre evening meal of flat bread, cooked on a large tray over the biscuit-tin stove. After dinner, as Letenk'iel was sitting in the stable, picking the lice from the baby's jumper, and helping Daniel with his homework, she saw a new rip in Azmera's thin and grimy little dress. "How did that happen?"

"It wasn't me," said the pert little six-year-old. "It got old."

Her mother wrapped the child in a blanket and, with the light fading, she sewed the threadbare material, using a strand pulled from the sack of a food-aid bag.

Darkness fell. She ushered the children to their beds, and began the last tidying chores before damping down the fire. She would be up in six hours.

Links back to topics on the syllabus:



HDI rank	Human Development Index (HDI)	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Gross national income (GNI) per capita
	Value	(years)	(years)	(years)	(2011 PPP \$)
	2014	2014	2014 ^a	2014 ^a	2014
Regions					
Arab States	0.686	70.6	12.0	6.4	15,722
East Asia and the Pacific	0.710	74.0	12.7	7.5	11,449
Europe and Central Asia	0.748	72.3	13.6	10.0	12,791
Latin America and the Caribbean	0.748	75.0	14.0	8.2	14,242
South Asia	0.607	68.4	11.2	5.5	5,605
Sub-Saharan Africa	0.518	58.5	9.6	5.2	3,363

Sub-Saharan Africa per capita income (2014), US\$3,363 (PPP)

U.S. per capita income (2014), US\$52,947

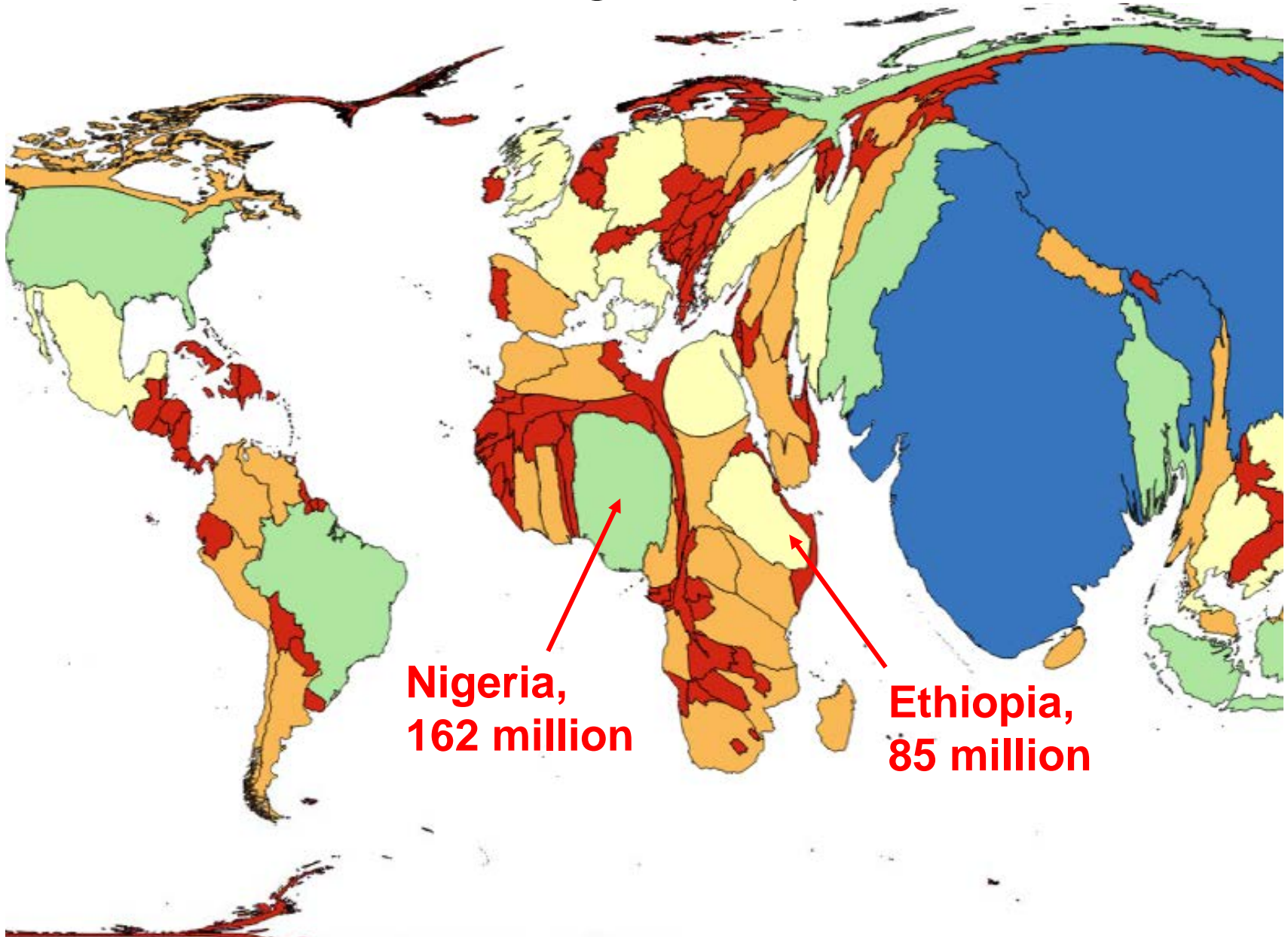
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	Value	(years)	(years)	(years)	(2011 PPP \$)	
	2014	2014	2014 ^a	2014 ^a	2014	
VERY HIGH HUMAN DEVELOPMENT						
1	Norway	0.944	81.6	17.5	12.6 ^b	64,992
2	Australia	0.935	82.4	20.2 ^c	13.0	42,261 ★
3	Switzerland	0.930	83.0	15.8	12.8	56,431
4	Denmark	0.923	80.2	18.7 ^c	12.7	44,025
5	Netherlands	0.922	81.6	17.9	11.9	45,435
6	Germany	0.916	80.9	16.5	13.1 ^d	43,919
6	Ireland	0.916	80.9	18.6 ^c	12.2 ^a	39,568
8	United States	0.915	79.1	16.5	12.9	52,947
9	Canada	0.913	82.0	15.9	13.0	42,155
9	New Zealand	0.913	81.8	19.2 ^c	12.5 ^b	32,689
11	Singapore	0.912	83.0	15.4 ^f	10.6 ^a	76,628 ^g
12	Hong Kong, China (SAR)	0.910	84.0	15.6	11.2	53,959
13	Liechtenstein	0.908	80.0 ^h	15.0	11.8 ⁱ	79,851 ^{g,i}
14	Sweden	0.907	82.2	15.8	12.1	45,636
14	United Kingdom	0.907	80.7	16.2	13.1 ^d	39,267
16	Iceland	0.899	82.6	19.0 ^c	10.6 ^a	35,182
17	Korea (Republic of)	0.898	81.9	16.9	11.9 ^a	33,890
18	Israel	0.894	82.4	16.0	12.5	30,676
19	Luxembourg	0.892	81.7	13.9	11.7	58,711
20	Japan	0.891	83.5	15.3	11.5 ^a	36,927
21	Belgium	0.890	80.8	16.3	11.3 ^d	41,187
22	France	0.888	82.2	16.0	11.1	38,056
23	Austria	0.885	81.4	15.7	10.8 ^d	43,869
24	Finland	0.883	80.8	17.1	10.3 ^a	38,695
25	Slovenia	0.880	80.4	16.8	11.9	27,852

Sierra Leone per capita income (2014), US\$1780

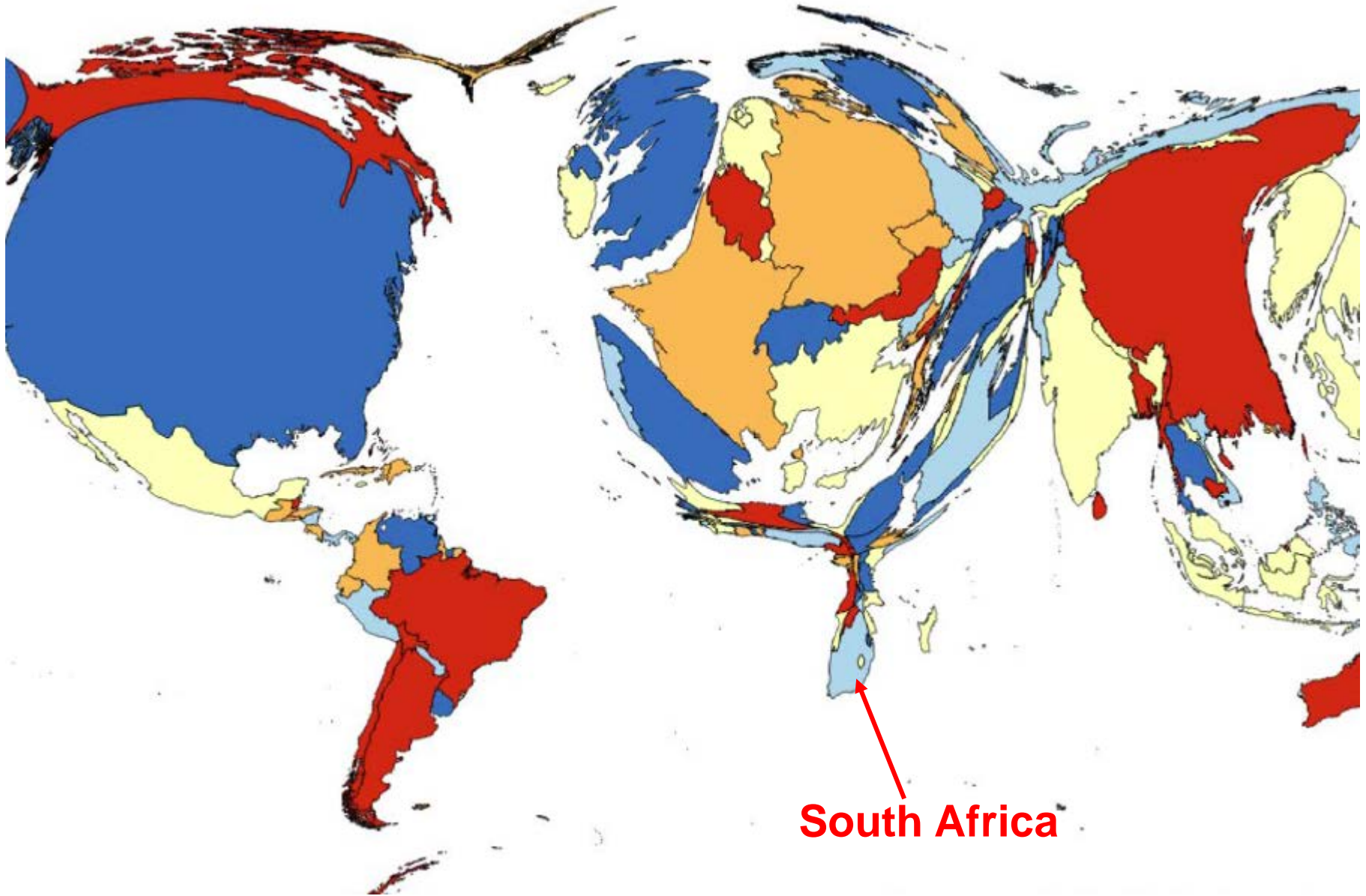
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	Value	(years)	(years)	(years)	(2011 PPP \$)
HDI rank	2014	2014	2014 ^a	2014 ^a	2014
163 Rwanda	0.483	64.2	10.3	3.7	1,458
163 Uganda	0.483	58.5	9.8	5.4 ^e	1,613
166 Benin	0.480	59.6	11.1	3.3 ^e	1,767
167 Sudan	0.479	63.5	7.0	3.1 ^b	3,809
168 Djibouti	0.470	62.0	6.4	3.8 ^q	3,276 ^k
169 South Sudan	0.467	55.7	7.6 ^r	5.4	2,332
170 Senegal	0.466	66.5	7.9	2.5	2,188
171 Afghanistan ★	0.465	60.4	9.3	3.2 ^e	1,885
172 Côte d'Ivoire	0.462	51.5	8.9	4.3 ^b	3,171
173 Malawi	0.445	62.8	10.8	4.3 ^e	747
174 Ethiopia	0.442	64.1	8.5	2.4	1,428
175 Gambia	0.441	60.2	8.8	2.8 ^e	1,507
176 Congo (Democratic Republic of the)	0.433	58.7	9.8	6.0	680
177 Liberia	0.430	60.9	9.5 ^l	4.1 ^e	805
178 Guinea-Bissau	0.420	55.2	9.0	2.8 ^r	1,362
179 Mali	0.419	58.0	8.4	2.0	1,583
180 Mozambique	0.416	55.1	9.3	3.2 ^y	1,123
181 Sierra Leone	0.413	50.9	8.6 ^l	3.1 ^e	1,780
182 Guinea	0.411	58.8	8.7	2.4 ^y	1,096
183 Burkina Faso	0.402	58.7	7.8	1.4 ^y	1,591
184 Burundi	0.400	56.7	10.1	2.7 ^e	758
185 Chad	0.392	51.6	7.4	1.9	2,085
186 Eritrea	0.391	63.7	4.1	3.9 ^r	1,130
187 Central African Republic	0.350	50.7	7.2	4.2 ^q	581 ★
188 Niger	0.348	61.4	5.4	1.5 ^e ★	908



World map, area weighted by 2011 population



World map, area weighted by 2011 GDP



- Other dimensions of human development:
Infrastructure (e.g., roads, electricity)
Inequality (including by gender)
Violence / armed conflict
Democracy
Others?
- Economic growth rates have been lower in sub-Saharan Africa than in other developing regions since 1960, but they have rebounded since around 2000.

HDI rank	GDP		GDP per capita		Annual growth rate	
	US\$ billions	PPP US\$ billions	US\$	PPP US\$	(%)	
	2003	2003	2003	2003	1975–2003	1990–2003
Developing countries	6,981.9 T	21,525.4 T	1,414	4,359	2.3	2.9
Least developed countries	221.4 T	895.1 T	329	1,328	0.7	2.0
Arab States	773.4 T	1,683.6 T	2,611	5,685	0.2	1.0
East Asia and the Pacific	2,893.6 T	9,762.2 T	1,512	5,100	6.0	5.6
Latin America and the Caribbean	1,745.9 T	3,947.0 T	3,275	7,404	0.6	1.1
South Asia	902.2 T	4,235.9 T	617	2,897	2.6	3.5
Sub-Saharan Africa	418.5 T	1,227.4 T	633	1,856	-0.7	0.1
Central and Eastern Europe and the CIS	1,189.9 T	3,203.5 T	2,949	7,939	..	0.3
OECD	29,650.5 T	29,840.6 T	25,750	25,915	2.0	1.8
High-income OECD	28,369.5 T	27,601.9 T	31,020	30,181	2.2	1.9

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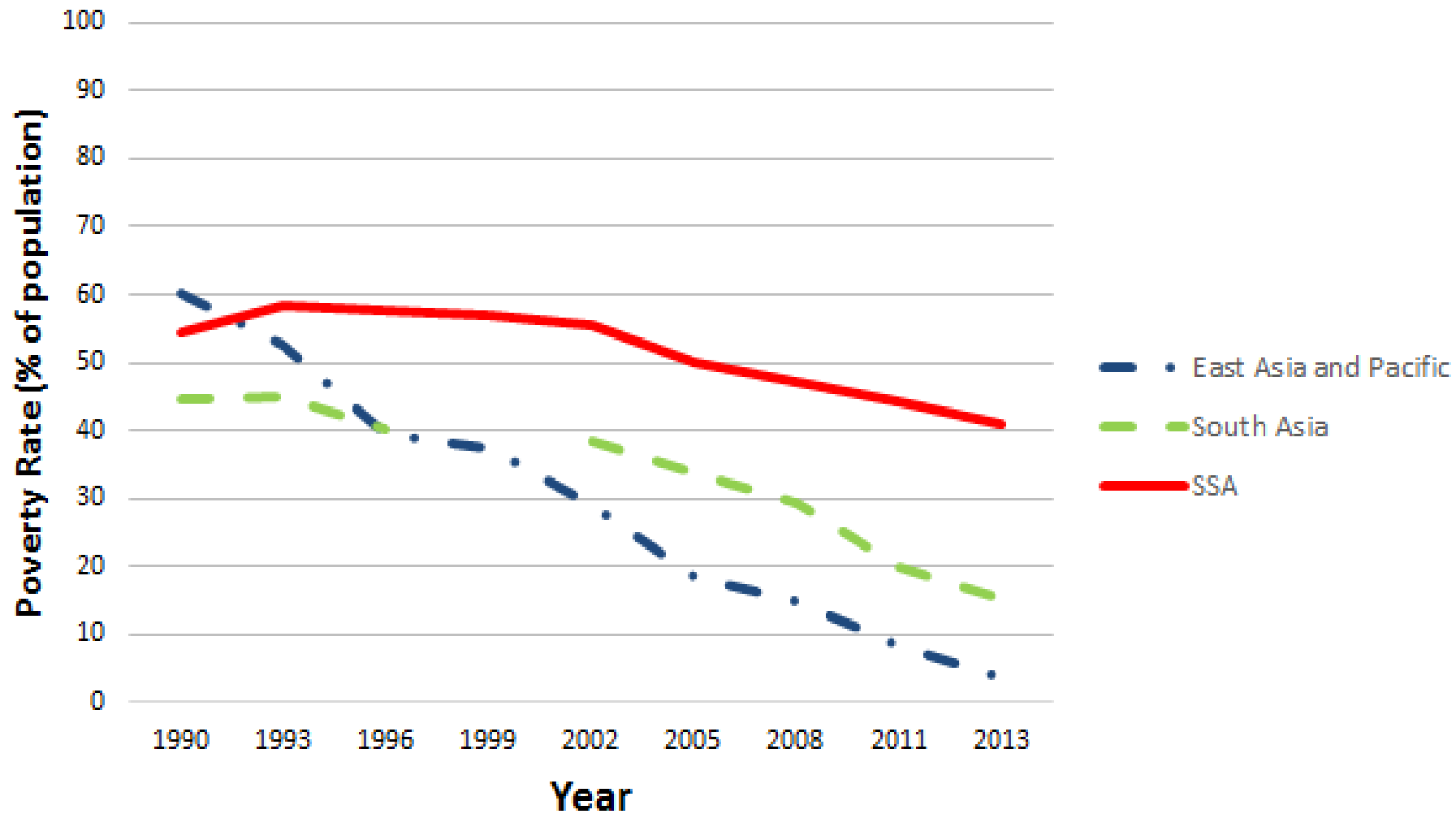
East Asia: 6% compounded over 28 years = Total growth of 511%

SSA: -0.7% compounded = Total growth of -18%

	Gross domestic product		Agriculture		Industry	
	average annual % growth		average annual % growth		average annual % growth	
	1990-2000	2000-2015	1990-2000	2000-2015	1990-2000	2000-2015
East Asia & Pacific	3.6	4.7	2.9	3.3	3.5	5.7
Europe & Central Asia	1.6	1.6	-0.6	1.1	0.4	0.9
Latin America & Caribbean	3.2	3.4	2.2	2.6	2.7	2.3
Middle East & North Africa	3.8	4.5	2.8	2.8	..	4.2
North America	3.6	1.7	..	1.8	..	0.7
South Asia	5.6	7.0	3.3	3.2	6.1	7.2
Sub-Saharan Africa	2.3	5.4	3.4	4.7	1.1	3.3

SSA: Growth accelerated to >5% per year since 2000

Percent of Population living on < \$1.90 USD per day (1990-2013)



Whiteboard #1