



Urbanization, economic development and the quality of life in Korea

October 8, 2020

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Outline

- Urbanization and economic development
 - Cities: Characteristics, contribution and challenges
 - Space, location and densities
 - Agglomeration economies and economic growth
- The rise of the Korean economy
 - The past and the present
 - Sources of growth/Contribution of policies
- The quality of life
 - Infrastructure, housing, air quality, traffic safety: Achievements and gaps
 - Life satisfaction and happiness: Objective and perceived measures
- Challenges ahead
 - Demographic shifts, slowdown of growth potential, inequality
 - The way forward

Cities: Contributions and challenges

■ Defining characteristics of the city

- Spatial concentration of population and economic activities; density
- The world is spiky. It is NOT flat.

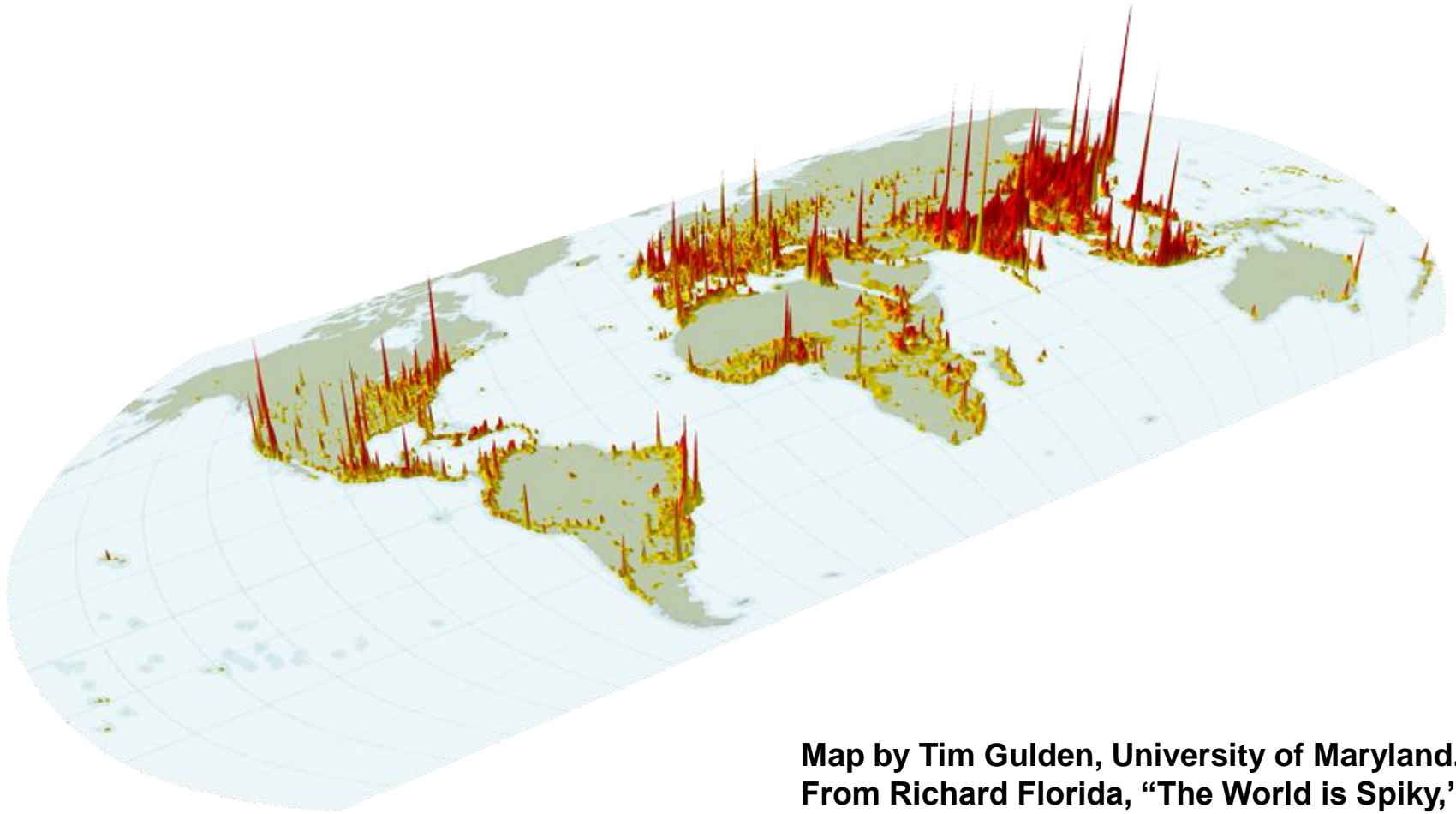
■ Engines of economic growth

- Cities account for 80% of global GDP.
- Some megacities are as big as major national economies.
- Mega-regions span the world's economy.
- Urbanization, human capital and development

■ Sustainability and inequality

- Cities account for about 2/3 of global energy consumption.
- Cities produce 60-70% of green house gas emissions.
- Inequality rises with city size.

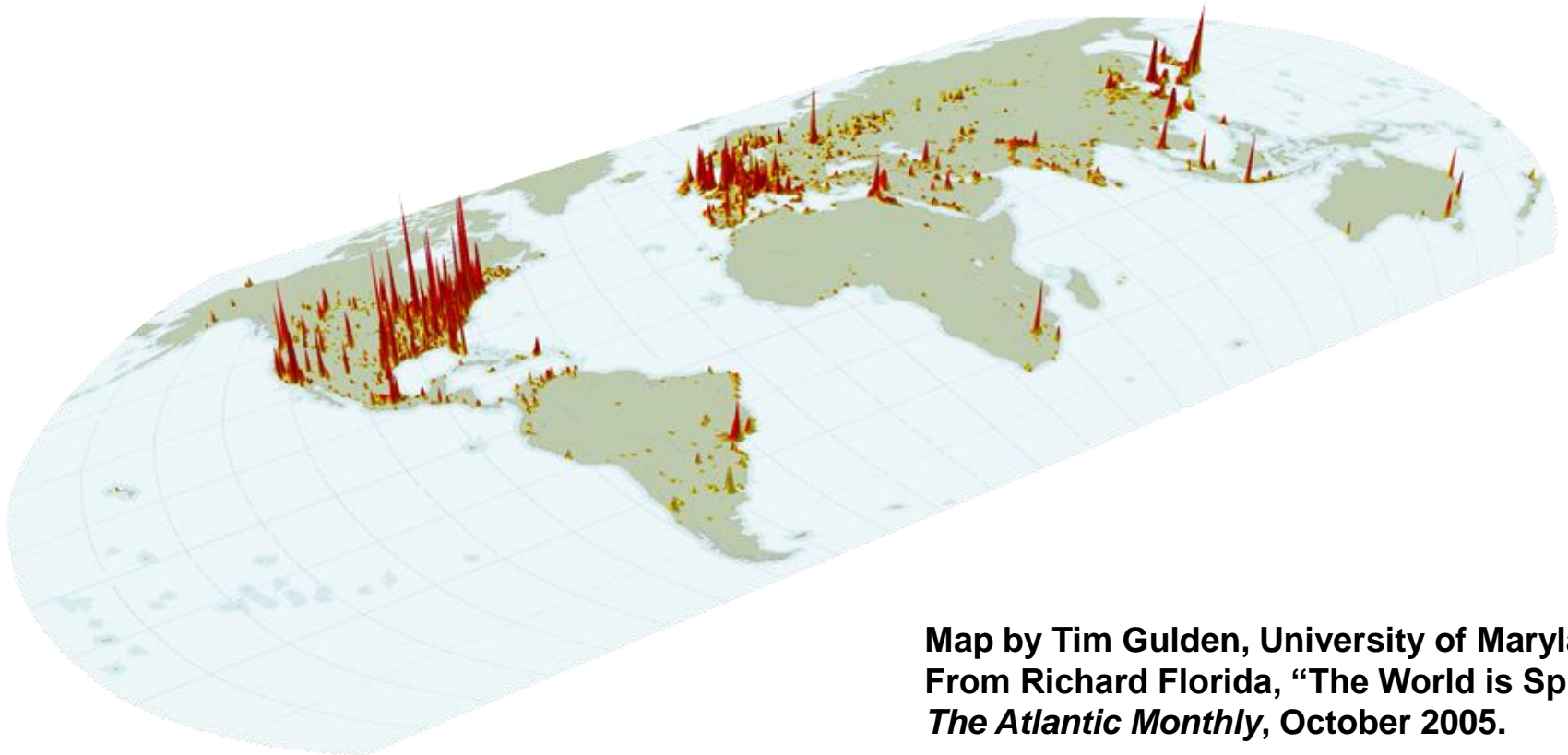
The World is Spiky: Population



**Map by Tim Gulden, University of Maryland.
From Richard Florida, "The World is Spiky,"
The Atlantic Monthly, October 2005**

The World is Spiky: Light Emissions

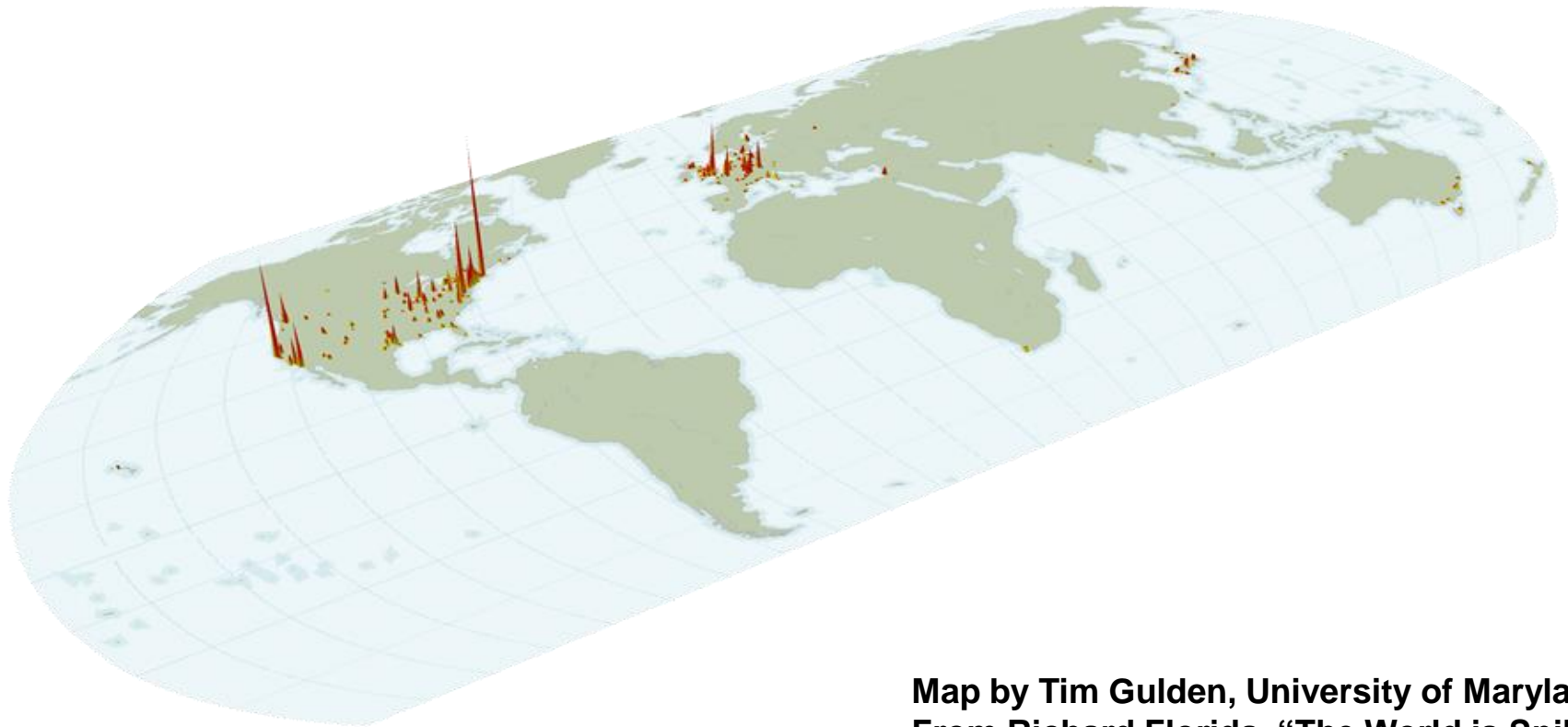
Light emissions from space are a rough proxy for energy use and economic activity.



Map by Tim Gulden, University of Maryland.
From Richard Florida, "The World is Spiky,"
The Atlantic Monthly, October 2005.

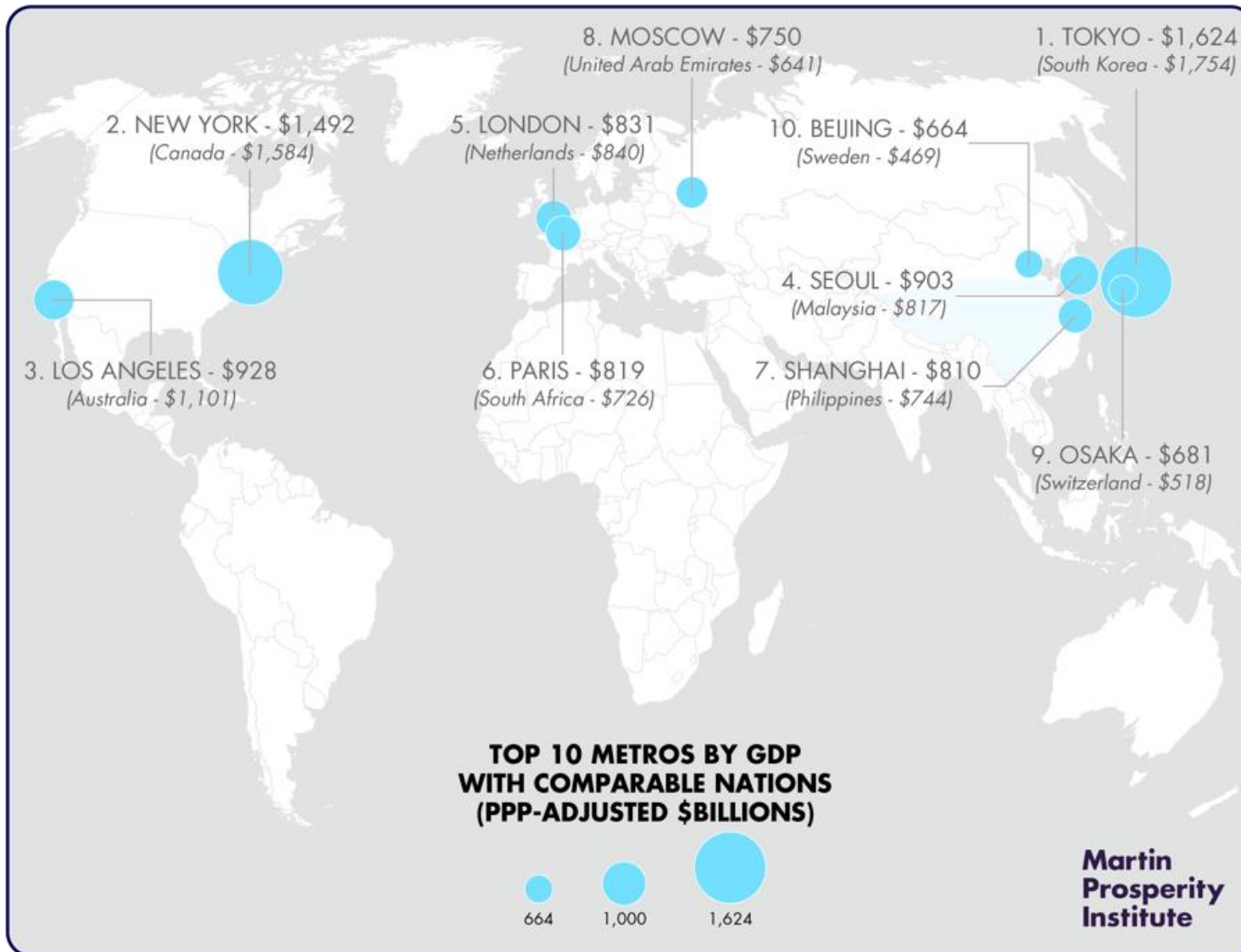
The World is Spiky: Scientific Citations

Residence of 1,200 leading scientists by scientific citation is highly concentrated in U.S. and Europe. The east is on the rise.



Map by Tim Gulden, University of Maryland.
From Richard Florida, "The World is Spiky,"
The Atlantic Monthly, October 2005

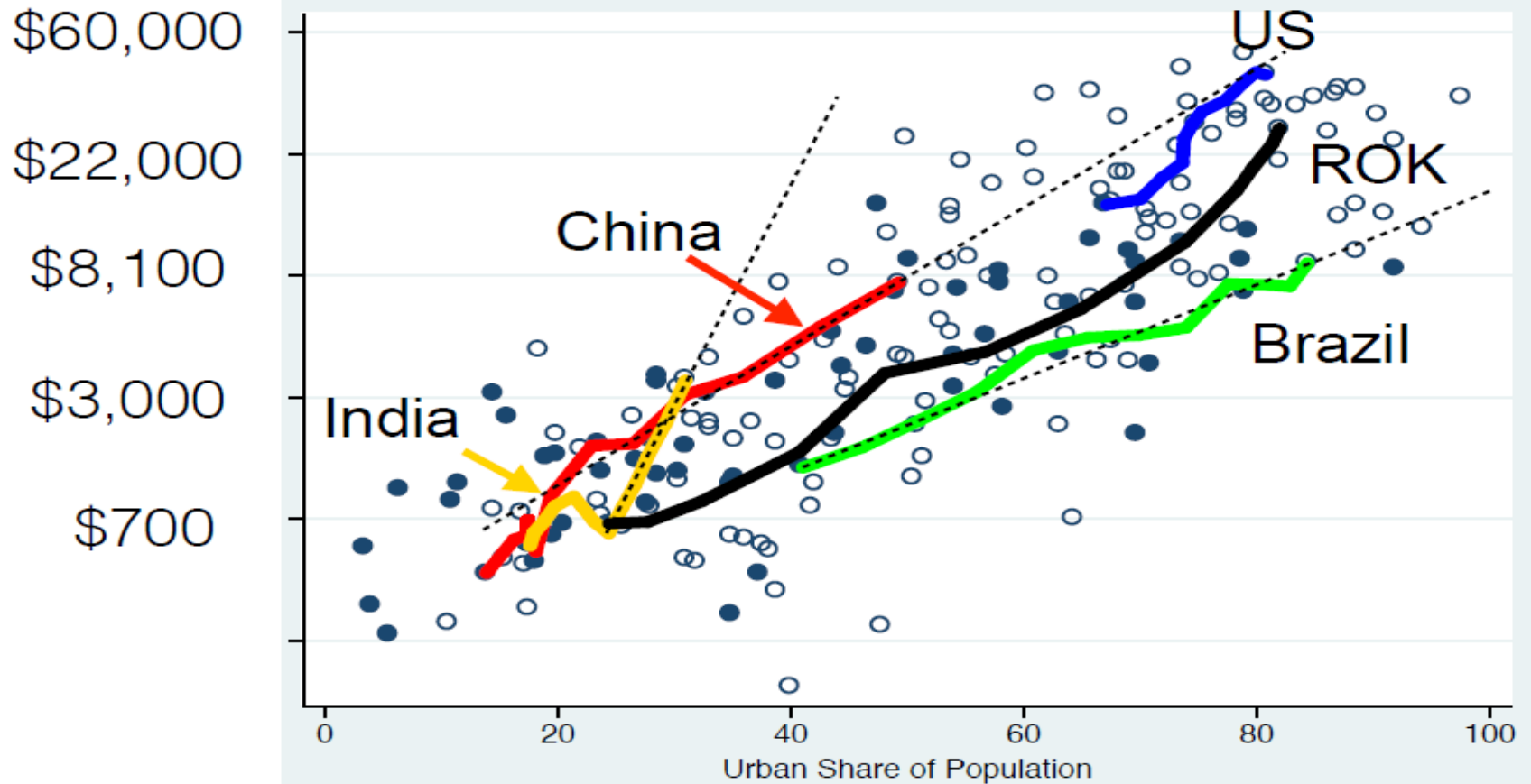
Economic power of cities compared to nations



Urbanization rate and per capita income

GDP
per capita

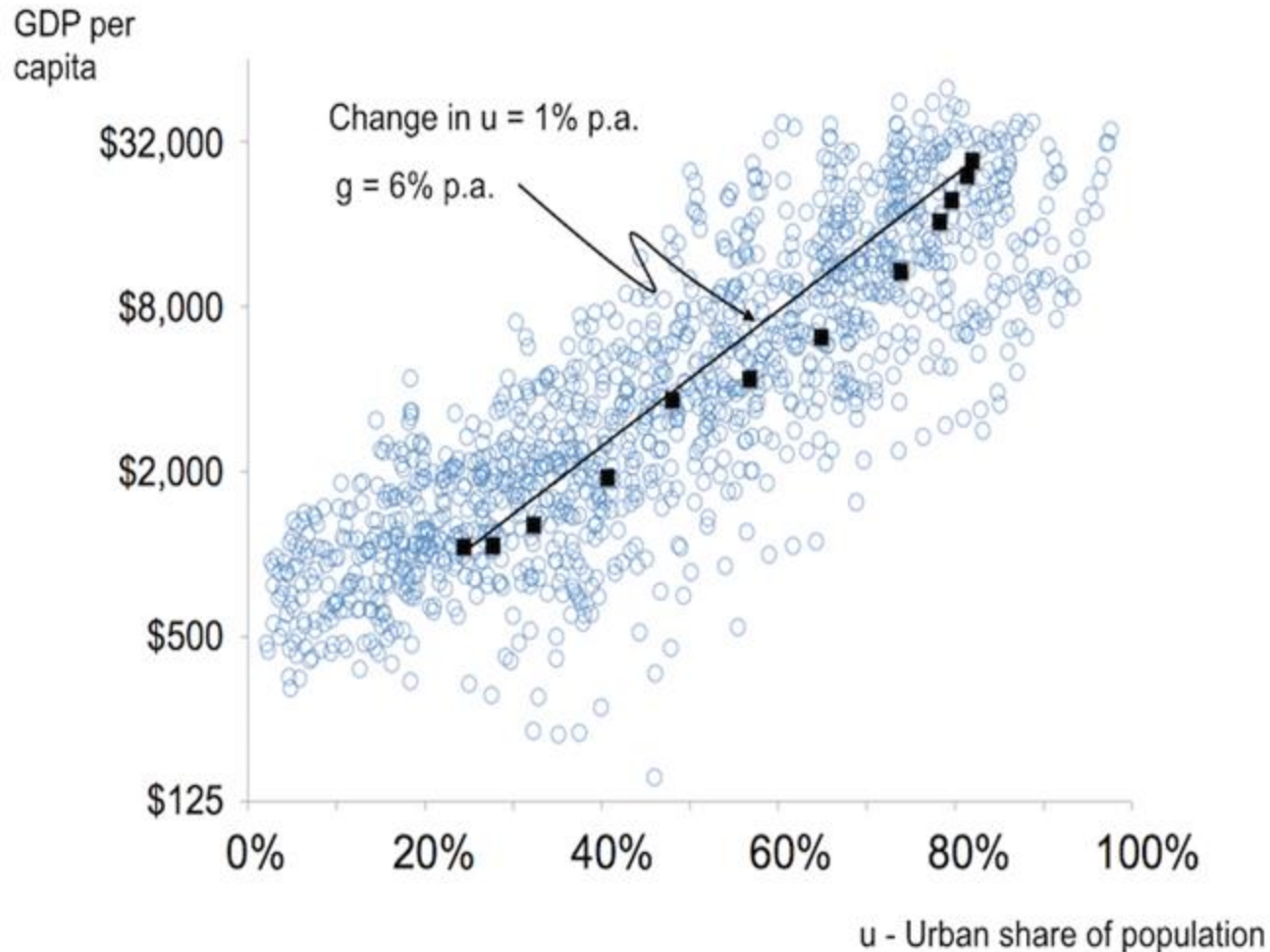
Urbanization and economic growth goes hand in hand.



Source: Paul Romer, "Urbanization and economic development", 2016

Urbanization and economic development in Korea, 1955-2010

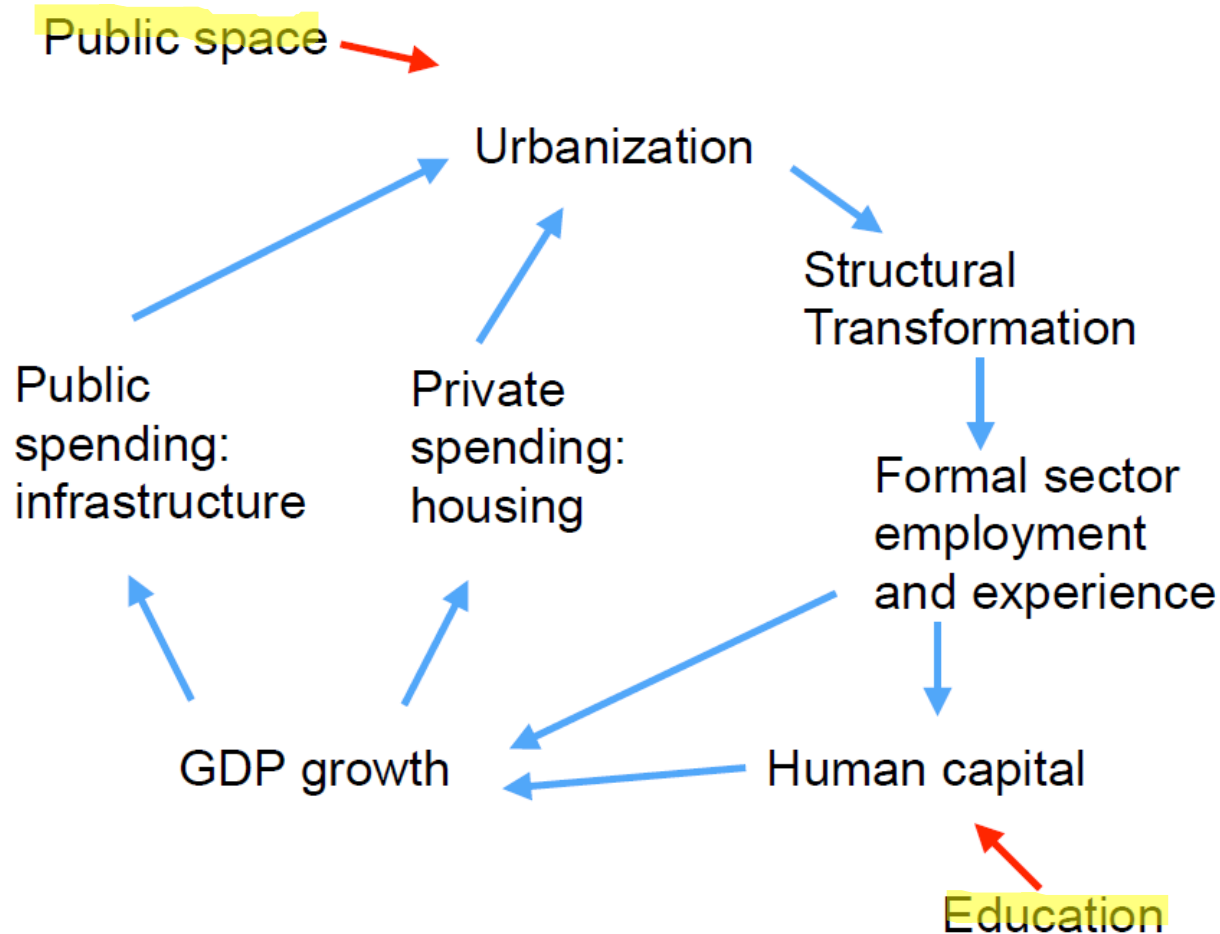
Quantifying the impact of urbanization on income growth.



Source: Romer, "Urbanization Passes the Pritchett Test", 2015

Urbanization, human capital, and development

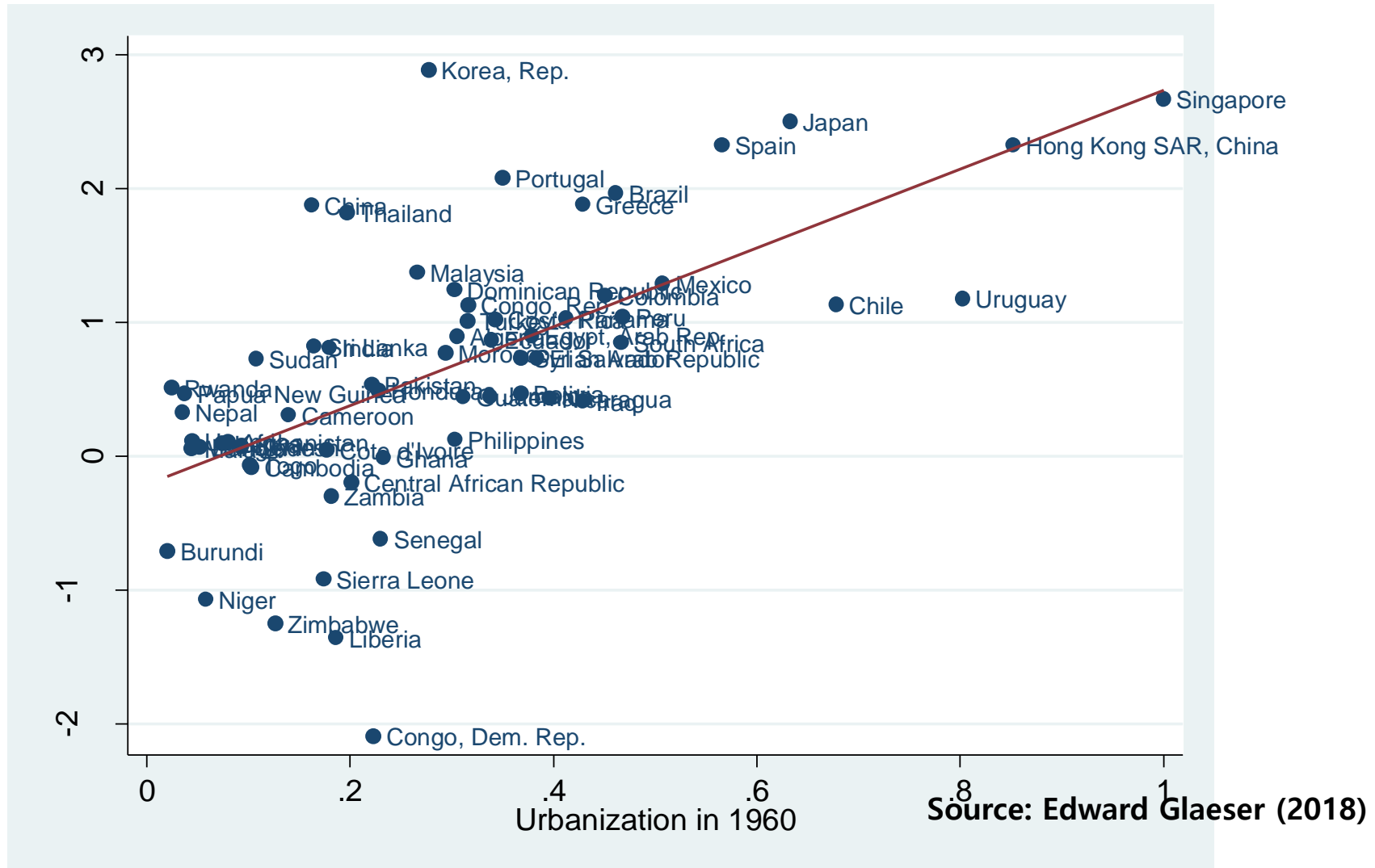
The role of government?



Source: Paul Romer, "Urbanization and economic development", 2016

Urbanization and GDP growth

The more urbanized a country is, the higher the GDP growth rate of the country.



City size and productivity

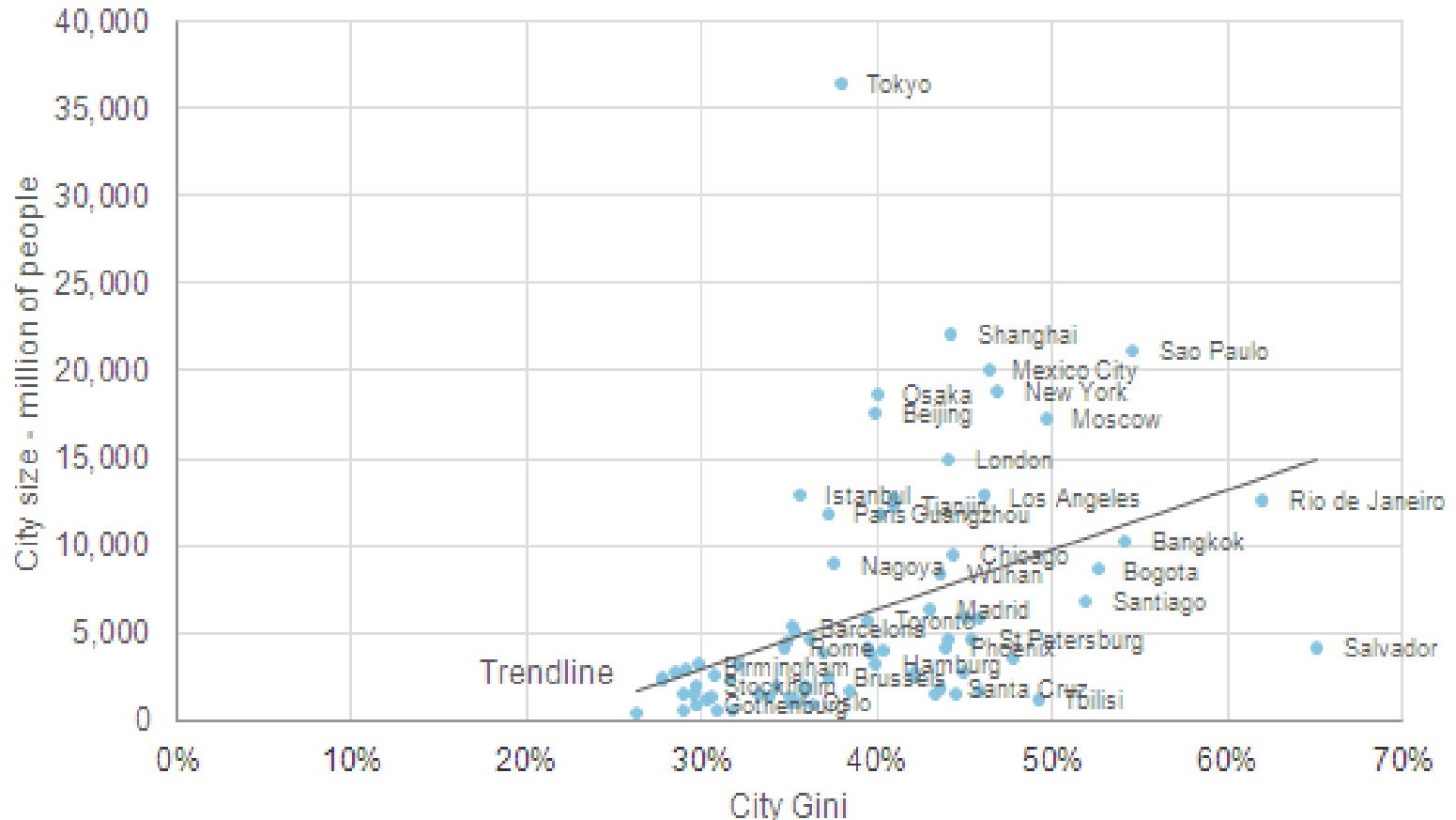
Productivity of labor increases with city size due to agglomeration economies.



Source: Glaeser 2009

City size and inequality

Gini coefficient is a measure of inequality in income distribution. The Gini coefficient is positively correlated with city size.



Source: Euromoney, "The World's Largest Cities Are the Most Unequal", March 5 2013

The Korean Economy in 2019: A Snapshot

- Nominal GDP: \$1,642 billion, 12th in the world (1.89%)
- Per capita nominal GDP: \$31,762, 32nd in the world
- Exports: \$542 billion (2.9% of the world), 7th in the world
- Imports: \$503 billion (2.6% of the world), 9th in the world
- Population: 51.5 million
- WEF World Competitiveness Ranking: 13/141
- IMD Competitiveness Ranking: 28/63
- World Bank Doing Business Report: 5/190
- Heritage Economic Freedom Index: Mostly free, 29/180
- UNDP Human Development Index: 22/189
- World Happiness Ranking: 54/156
- Gini coefficient (World Bank data) (latest): 134/159 (descending order)

Korea, then and now

Indicators	Unit	Past	Present
Nominal GDP	\$ billion	4(1960)	1,642(2019)
Per capita GDP	\$	158(1960)	31,762(2019)
Population	Million	25.0(1960)	52.0(2019)
Urbanization rate	%	39.1(1960)	91.8(2018)
Economic Participation Rate	%	57.0(1960)	63.1(2018)
Hours of work per week	hours	53.4(1965)	41.5(2018)
Exports/GDP	%	5.2 (1961)	41.9 (2018)
Investment/GDP	%	5.8(1960)	28.9(2019)
Average years in school	Years	5.0(1966)	12.2(2018)
Share of high-school graduates going to college	%	26.9(1970)	67.6(2018)
R & D expenditure/GDP	%	0.4(1970)	4.52(2018)
Average life expectancy			
Male	Years	51.1(1960)	79.7(2018)
Female	Years	53.7(1960)	85.7(2018)
Height of 14 year-old boy	cm	149.9(1965)	169.8(2018)
Autos/1000 persons		1.7(1966)	455(2019)
Telephones/1000 persons		9(1966)	1,586(2019)

Land use transition, 1960-2018

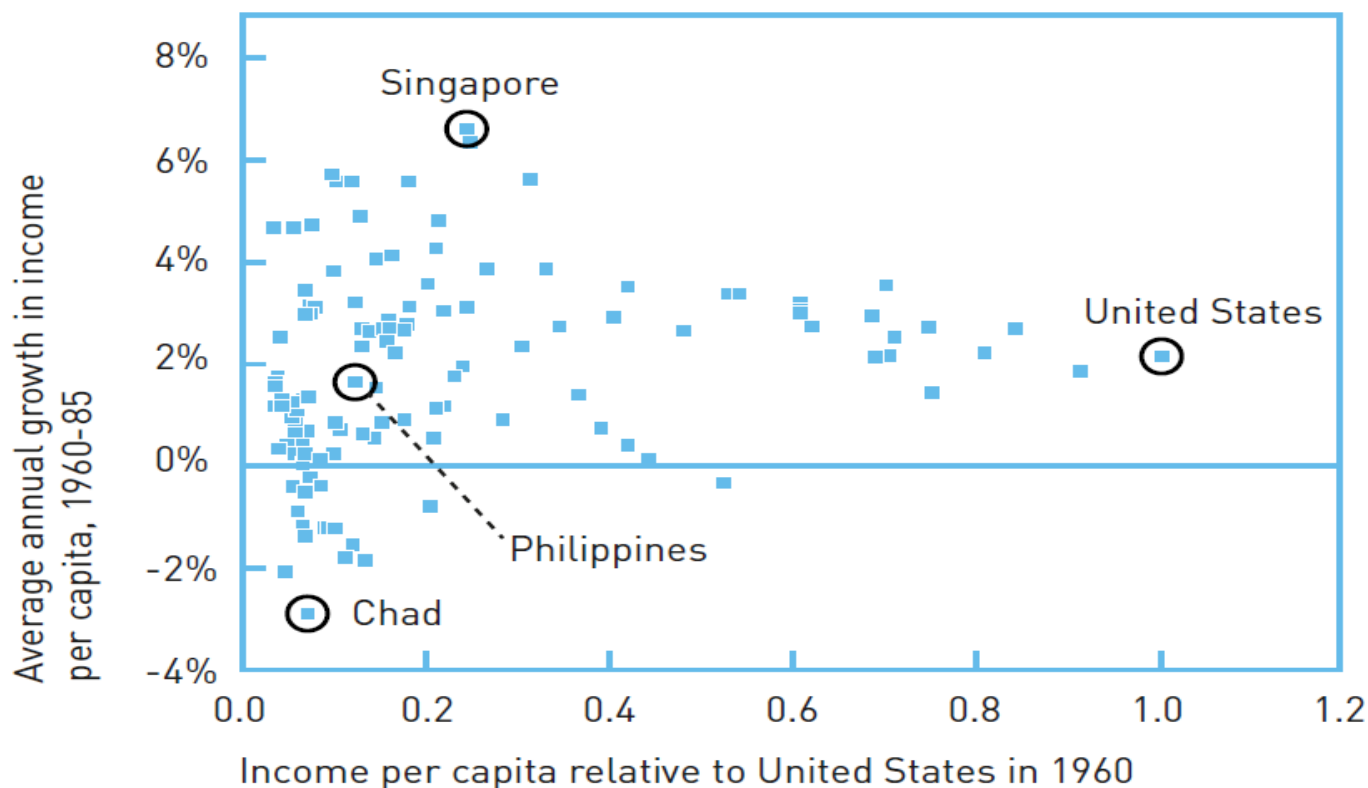
Land use conversion to support urbanization: Enough?

Year	Total	Agriculture		Forrest		Developed		Industrial		Schools		Others	
		Area	Share	Area	Share	Area	Share	Area	Share	Area	Share	Area	Share
1960	98,431	22,564	22.9	66,136	67.2	1,205	1.2	—	—	—	—	8,526	8.7
1970	98,477	22,975	23.3	66,115	67.1	1,344	1.4	—	—	—	—	8,043	8.2
1980	98,992	22,099	22.3	66,129	66.8	1,721	1.7	102	0.1	126	0.1	8,815	8.9
1990	99,274	21,484	21.6	65,571	66.1	1,937	2.0	246	0.2	190	0.2	9,846	9.9
2000	99,461	20,507	20.6	65,139	65.5	2,349	2.4	514	0.5	240	0.2	10,712	10.8
2010	100,033	20,197	20.2	64,504	64.5	2,744	2.7	749	0.7	288	0.3	10,873	10.9
2018	100,378	20,008	19.9	63,711	63.7	3,143	3.1	1013	1.0	308	0.3	12,195	12.1

Source: Ministry of Land Infrastructure and Transport

1960-85 per capita income growth among 100 countries: Catch-up or persistence?

No systematic relationship is found between initial income and subsequent growth. Differences in growth rates among countries persist for a long time.



©Johan Jarnestad/The Royal Swedish Academy of Sciences

Source: The prize in economics science 2018

Contributory factors to Korea's success

- There is no disagreement that the Korean economy has been phenomenally successful. Given its success, there is great interest in the reasons for success. There are three possibilities: 1) it was a market-led economy, and the market enabled the miracle; 2) the government intervened extensively, and it was government wisdom, that succeeded in “picking winners” and supporting them, that led to success; and 3) Korea was just plain lucky.
- Overall, it seems reasonable to conclude that luck was on balance not a major factor. The critical issues were policy choice, the ability to recognize mistakes, and the reliance on the international market as a discipline for policy makers and businesses alike.

Source: A.O. Krueger (2010), “What accounts for the Korean miracle?”

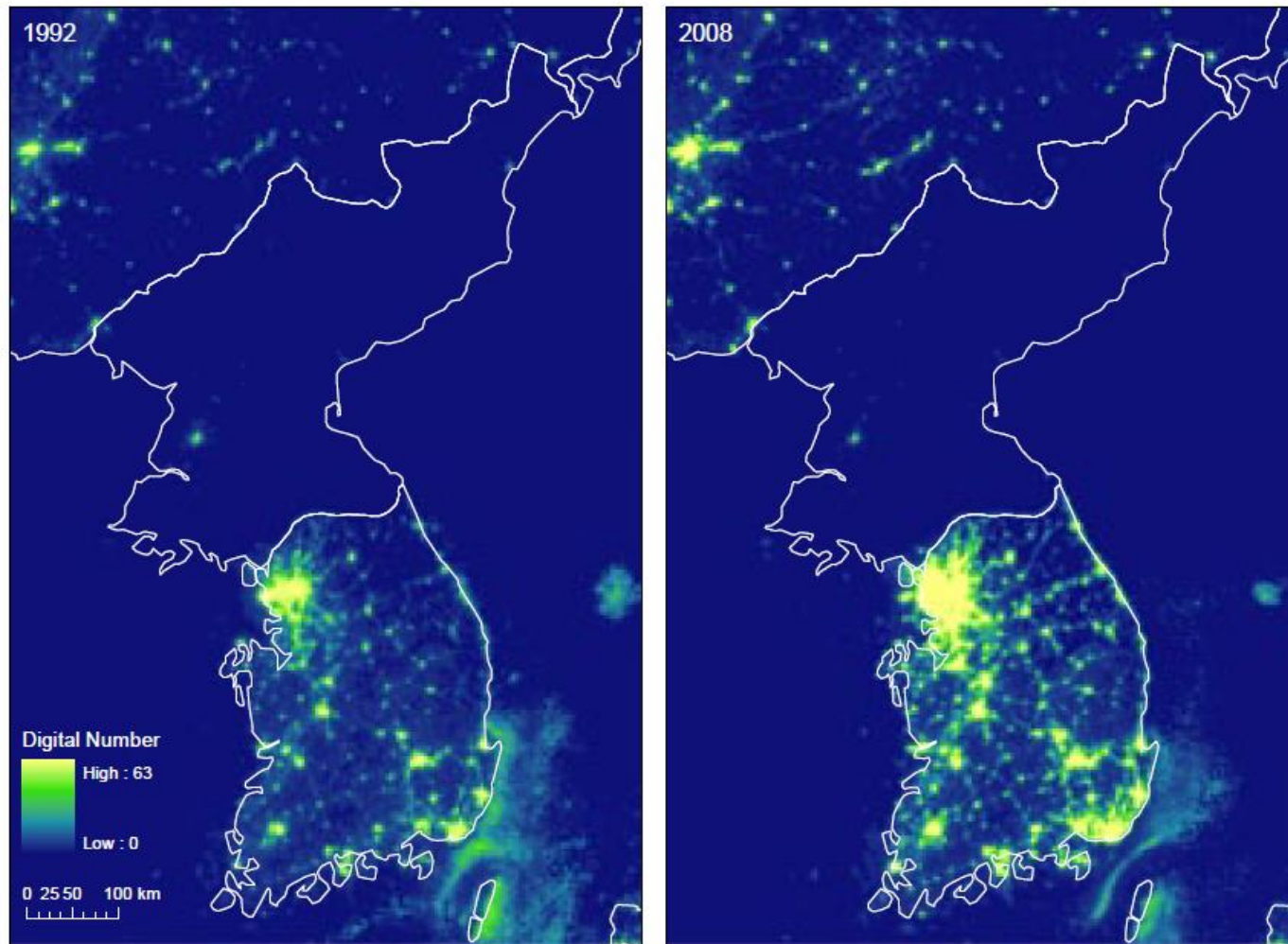
The importance of institutions

- We can therefore think of the splitting on the Koreas 50 years ago as a natural experiment that we can use to identify the causal influence of (a particular dimension of) institutions on prosperity. Korea was split with the two halves organized in radically different ways, and with geography and many other potential determinants of economic prosperity held fixed. Thus any differences in economic performance can be attributed to differences in institutions.
- Consistent with the institutions hypothesis, since separation, the two Koreas have experienced dramatically diverging paths of economic development. (pp. 6-7)

Source: Acemoglu, Johnson and Robinson (2003), “Understanding Prosperity and Poverty: Geography, Institutions and the Reversal of Fortune”

The Korean Peninsula at night, 1992 vs 2008

The contrast between the North and the South.



Universal Transverse Mercator projection

Source: J.V. Henderson et al, AEA, 2012

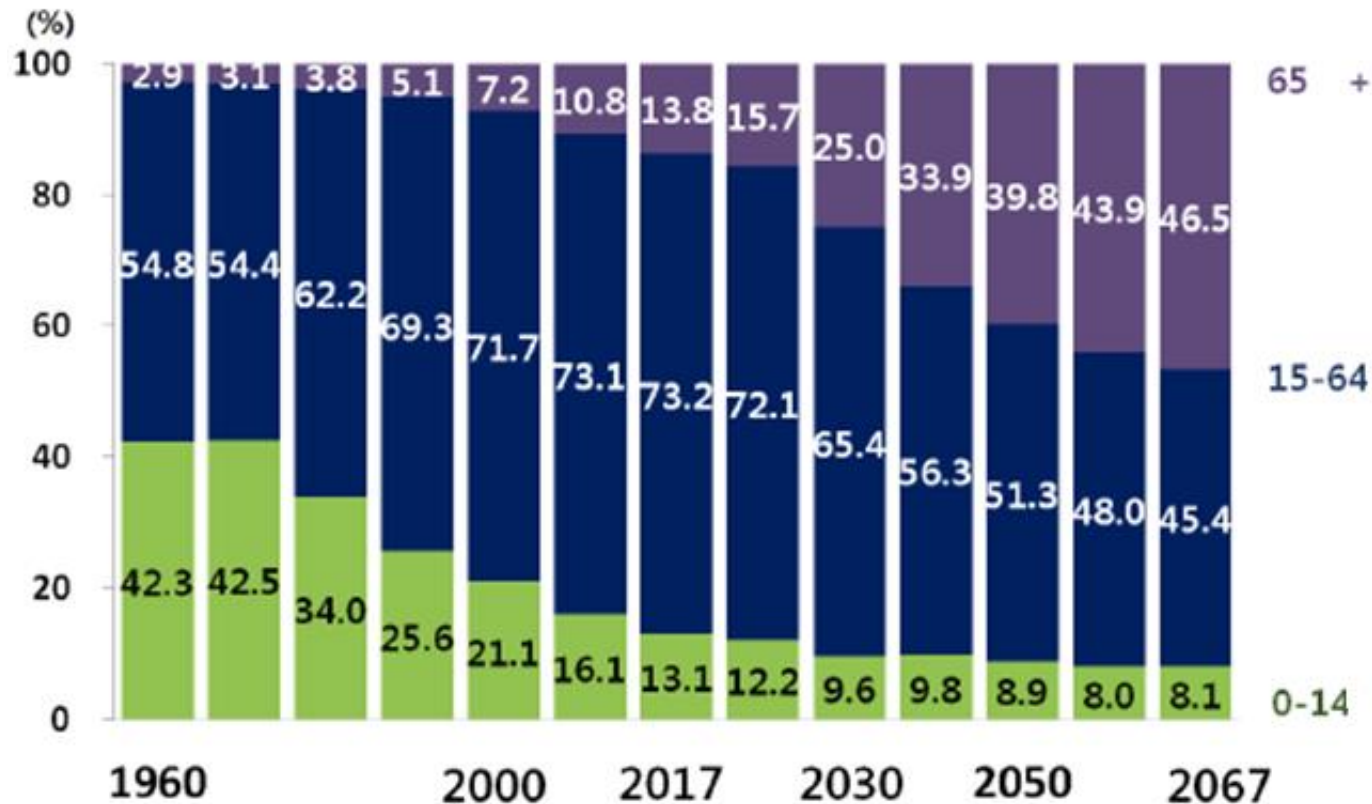
Looking back and looking forward

- Korea's transformation from one of the poorest countries in the world in the 1950s to a major industrial power and member of the OECD was exceptionally rapid, reflecting **good policies, notably sound fiscal and monetary policy, high levels of investment in human and physical capital and an outward orientation** that increased its share of world trade. Per capita income increased from 6% of the OECD average in 1970 to 89% in 2017. Rapid development has been export-led, with large business groups, known as chaebols, making Korea the world's sixth-largest exporter.
- However, the traditional growth model seems to be losing effectiveness, as income growth has slowed toward the OECD average. **Korea's low level of labour productivity, at 46% below the top half of OECD countries**, suggests scope for continued convergence. Low labour productivity is offset by very long working hours, at the expense of well-being and female employment. **The decline in the working-age population beginning in 2017** year will put downward pressure on per capita income growth.

Source: OECD Economic Survey of Korea, June 20, 2018

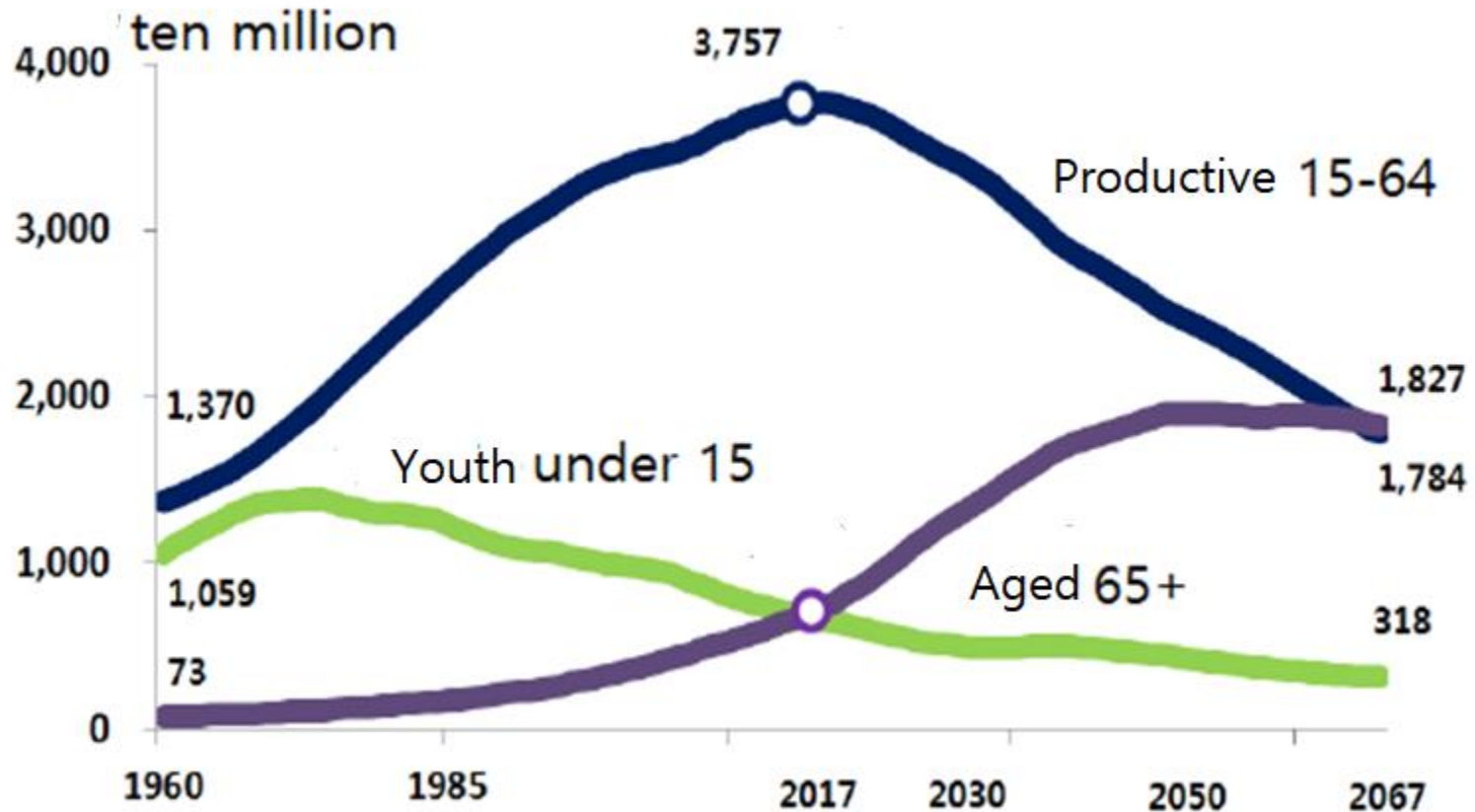
Age distribution of population, 1960-2067

Korea is one of the most rapidly aging countries.



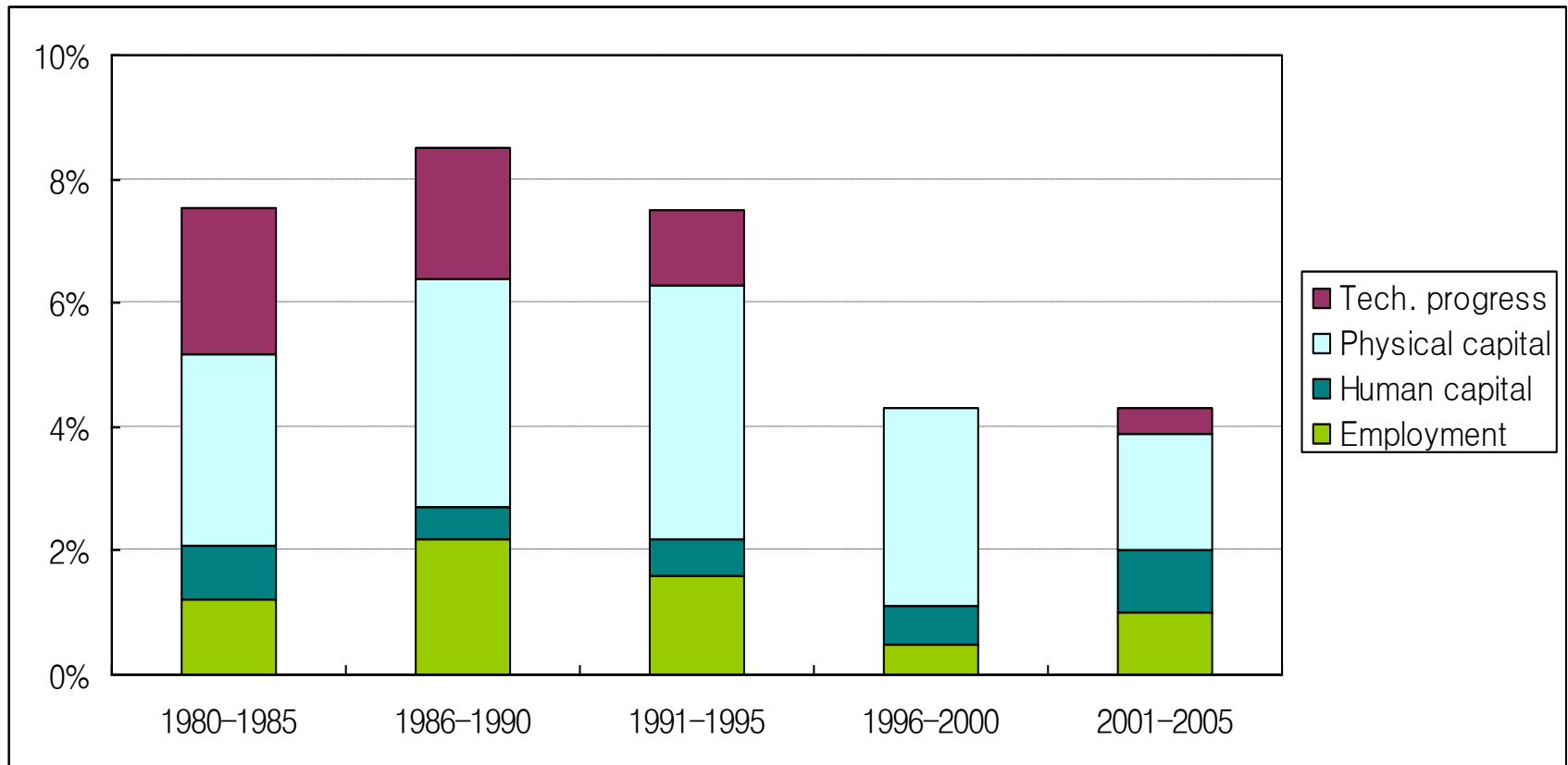
Source: Statistics Korea, "Special projection of population", March 2019

Working-age population peaked in 2017



Source: Statistics Korea, "Special projection of population", March 2019

Sources of economic growth of Korea



1970~2010

Growth rate= 6.9%: Labor = 2.2% (32%)

Physical capital= 1.4 % (20%), Tech. progress= 3.3% (48%)

(Source: KDI 2012)

The quality of life

- Some indicators of QOL: Achievements and gaps
 - Infrastructure
 - Housing
 - Air quality
 - Traffic safety
- Objective and perceived measures of life satisfaction and happiness
 - UNDP: Human Development Index
 - World Happiness Report (WHR)
 - OECD: Better Life Initiative

Improvement in infrastructure and services

Remarkable improvements in roads, water and sewage.

	1970	1980	1990	2000	2010	2018
Total length of roads (km)	40244	46951	56715	88775	105565	110714
Road length per 1000 persons	1.28	1.26	1.31	1.93	2.2	2.15
Share of population served with piped water (%)	33	55	79	87.1	94.1	97
Water supply per person per day (liters)	158	256	369	380	333	348
Share of population served with sewerage (%)	n.a.	8.3	39.3	70.5	90.1	93.9

Source: MOLIT and the Ministry of the Environment

Improvements in housing quality

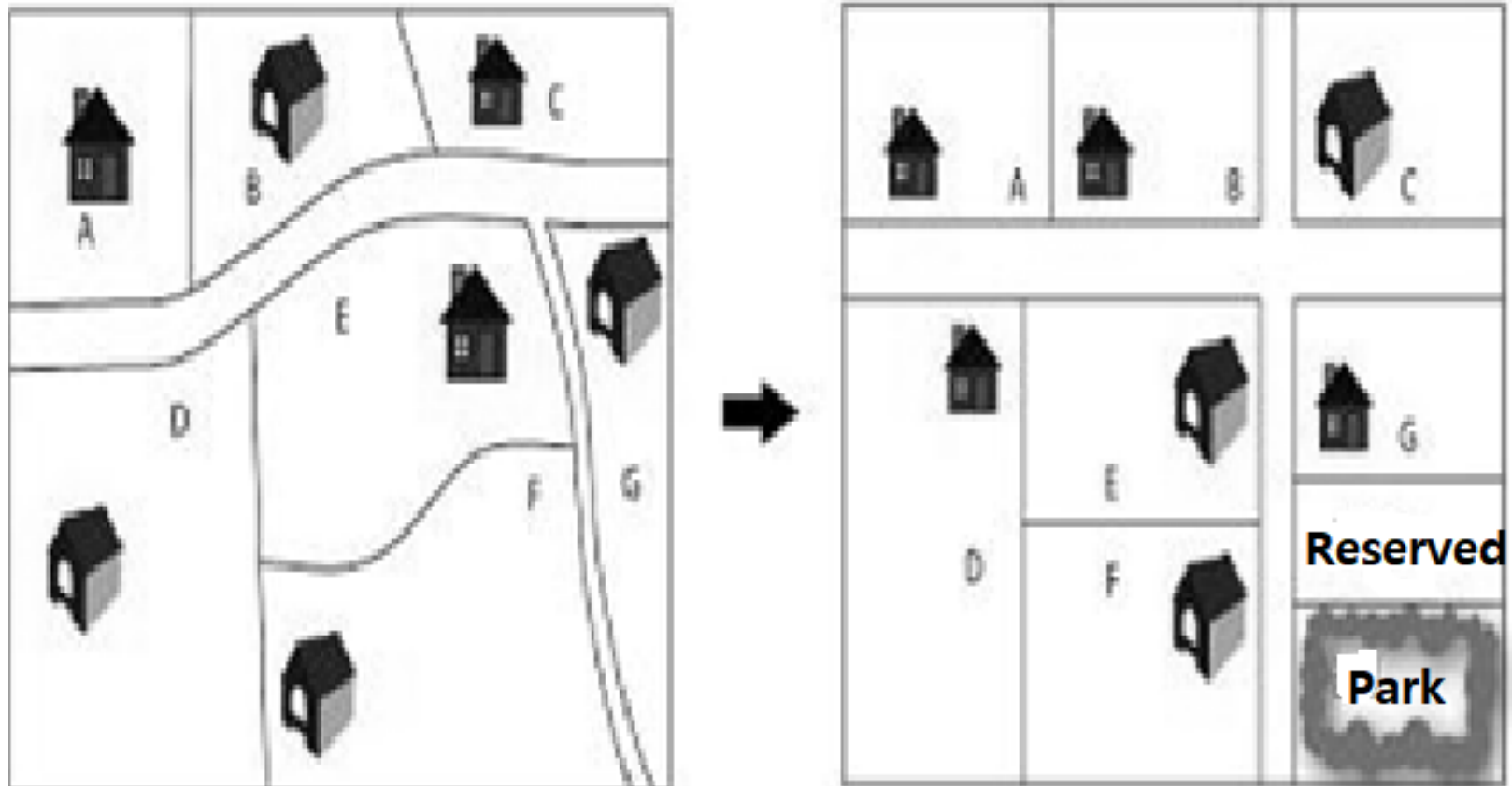
Overall housing standards have improved substantially.

	1980	1990	2000	2010	2015
Average number of rooms per household	2.2	2.5	3.4	3.7	3.6
Average number of persons per room	2.1	1.5	0.9	0.7	1.3
Average floor area per person (m ²)	10.1	14.3	20.2	25	26.9
Average floor area per household (m ²)	45.8	51	63.1	67.4	68.4
Percentage of houses with piped water (%)	56.1	74	85	97.9	98.8
Equipped with modern toilet (%)	18.4	51.3	86.9	97	97.3
Equipped with bathroom (%)	22.1	44.1	89.1	98.4	98.6
Equipped with hot bath (%)	9.9	34.1	87.4	96.9	99.8

Contributory factors to successful urban management

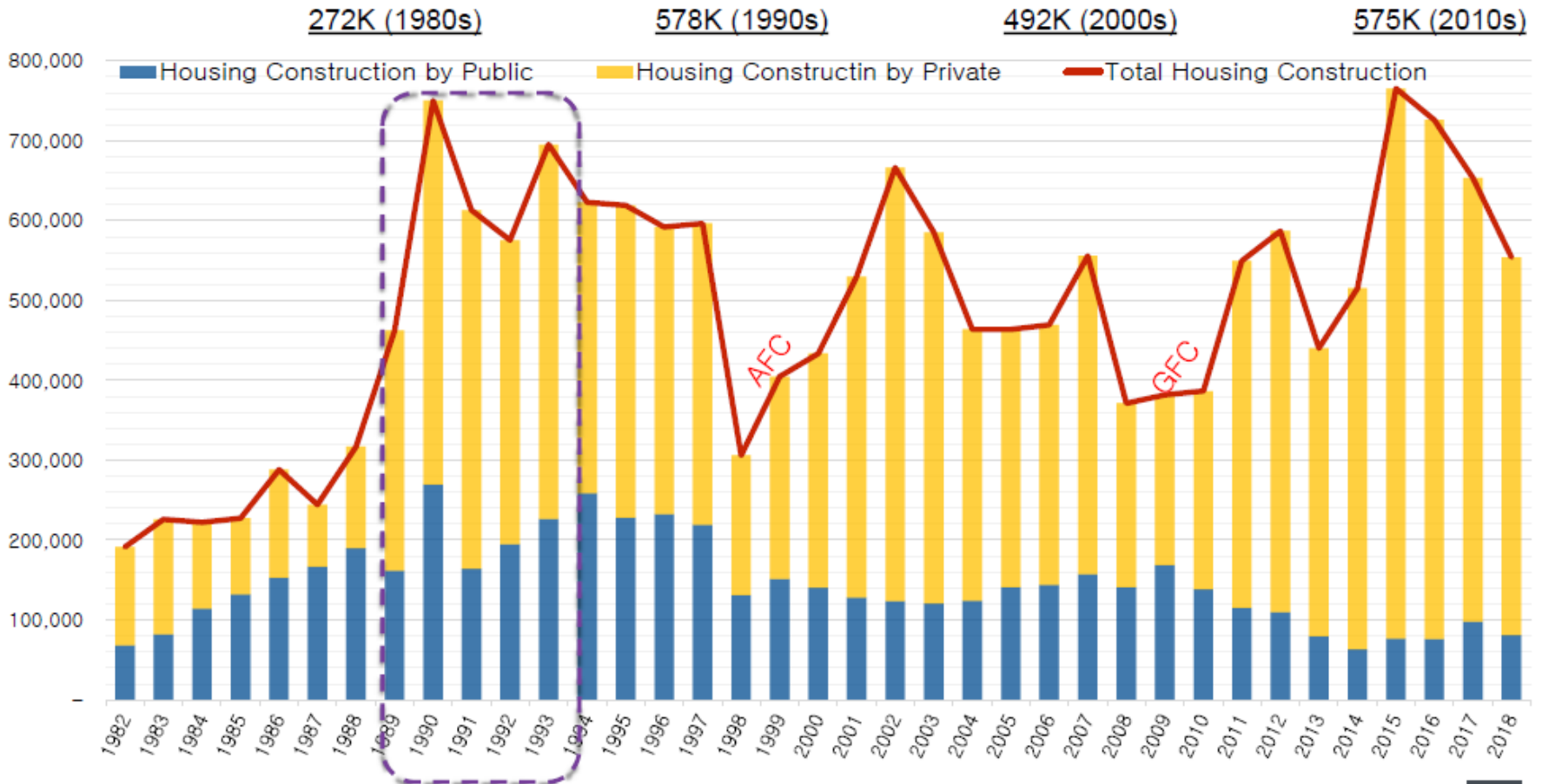
- Legal and regulatory frameworks and effective institutions
 - Key laws established governing urban planning and land development
 - Institutions: KNHC, KLDC, KHB, NHF...
- Financing urban development
 - Government focused on inter-city and trunk infrastructure
 - Private sector was mobilized for land, housing and on-site infrastructure
- Governance
 - Top down approach to planning major projects (e.g. two million housing drive)
 - Implementation at the local government level
- Sustained income growth
 - Created effective demand for housing and urban services
 - Tax revenue increased to finance urban infrastructure and services

Land readjustment scheme



Housing construction

New housing supply jumped around 1988 due to a five-year plan to build two million new units. It has been sustained except for AFC and GFC.



Source: MOLIT statistics system (<http://stat.molit.go.kr>)

Problems that need to be addressed

■ Housing

- High and rising prices: Inelastic supply or speculation?
- Housing inequity: Intergenerational and intragenerational

■ Mobility

- Long commuting
- Incidence of traffic accidents

■ The environment

- Air pollution
- Climate change

International comparison of housing conditions

	Korea	Japan	U.S.	U.K.	France
Dwellings per 1000 inhabitants	383 (15)	477 (13)	419 (15)	436 (14)	546 (15)
Floor space per person (m2)	33.2 (16)	39.4 (19)	65.0 (16)	40.9 (16)	39.9 (06)
Owner-occupancy rate (%)	56.8 (15)	61.8 (13)	65.1 (13)	64.6 (13)	64.3 (13)
Public rental housing as a share of total housing stock (%)	6.4 (15)	6.1 (08)	4.3 (15)	17.6 (15)	18.7 (15)
Housing stock (thousand units)	1,257 (15)	1,958 (13)	5,038 (15)	4,954 (15)	5,398 (15)
GDP per capita (\$)	23,838 (13)	39,321 (13)	52,839 (13)	39,049 (13)	42,991 (13)

Source: OECD affordable housing database; <http://index.go.kr>; <http://stats-japan.com>

Housing price to income ratio (PIR) in 2019

Cities with population of one million and up

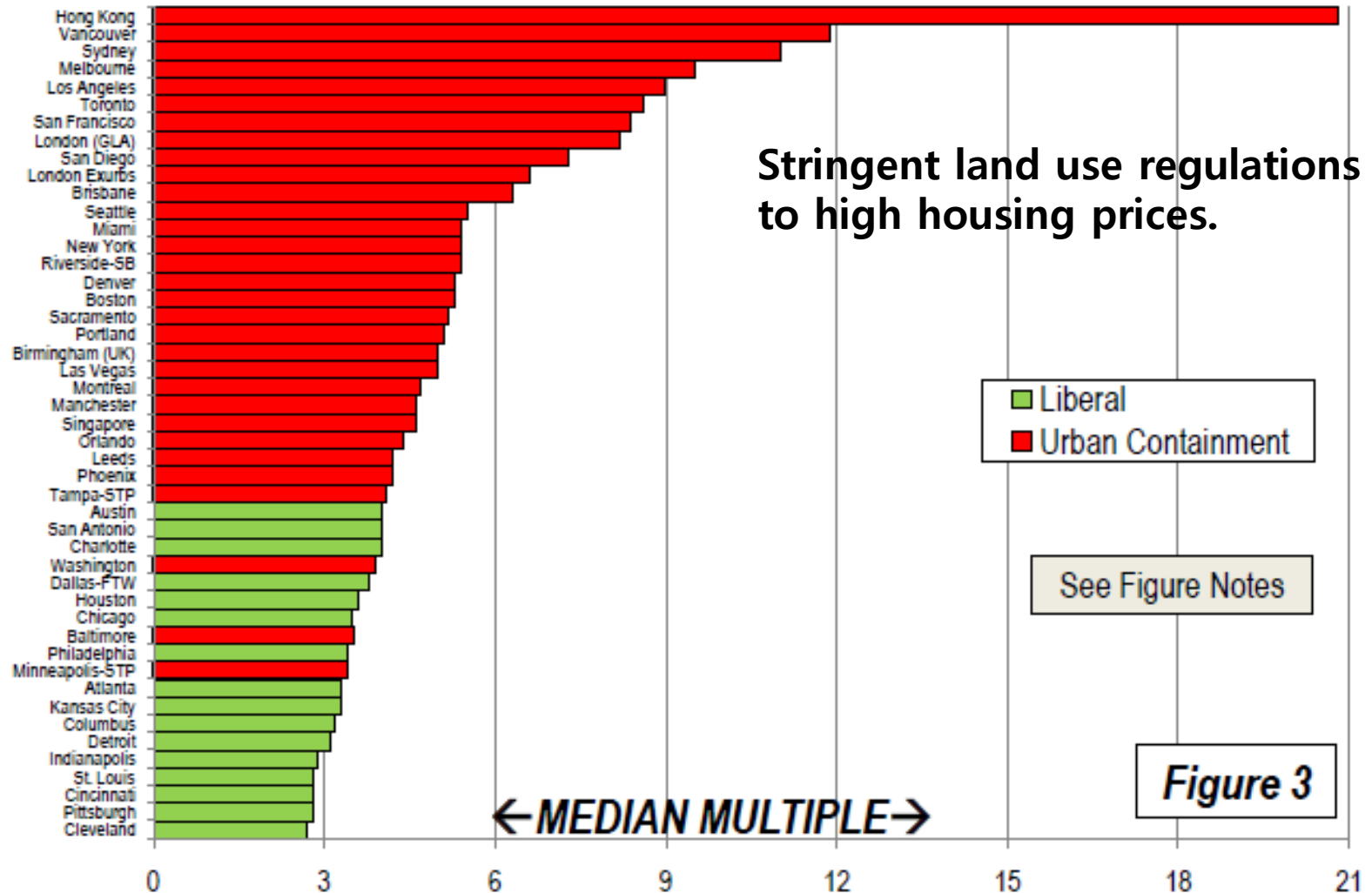
Nation	Affordable (3.0 & Under)	Moderately Unaffordable (3.1-4.0)	Seriously Unaffordable (4.1-5.0)	Severely Unaffordable (5.1 & Over)	Total	Median Market
Australia	0	0	0	5	5	6.9
Canada	0	2	2	2	6	4.4
China: Hong Kong	0	0	0	1	1	20.8
Ireland	0	0	1	0	1	4.7
New Zealand	0	0	0	1	1	8.6
Singapore	0	0	1	0	1	4.6
United Kingdom	0	3	10	8	21	4.6
United States	10	23	9	14	56	3.9
TOTAL	10	28	23	31	92	4.3

Korea: 4.0, Seoul 9.3: Housing is unaffordable in Seoul and some large cities.

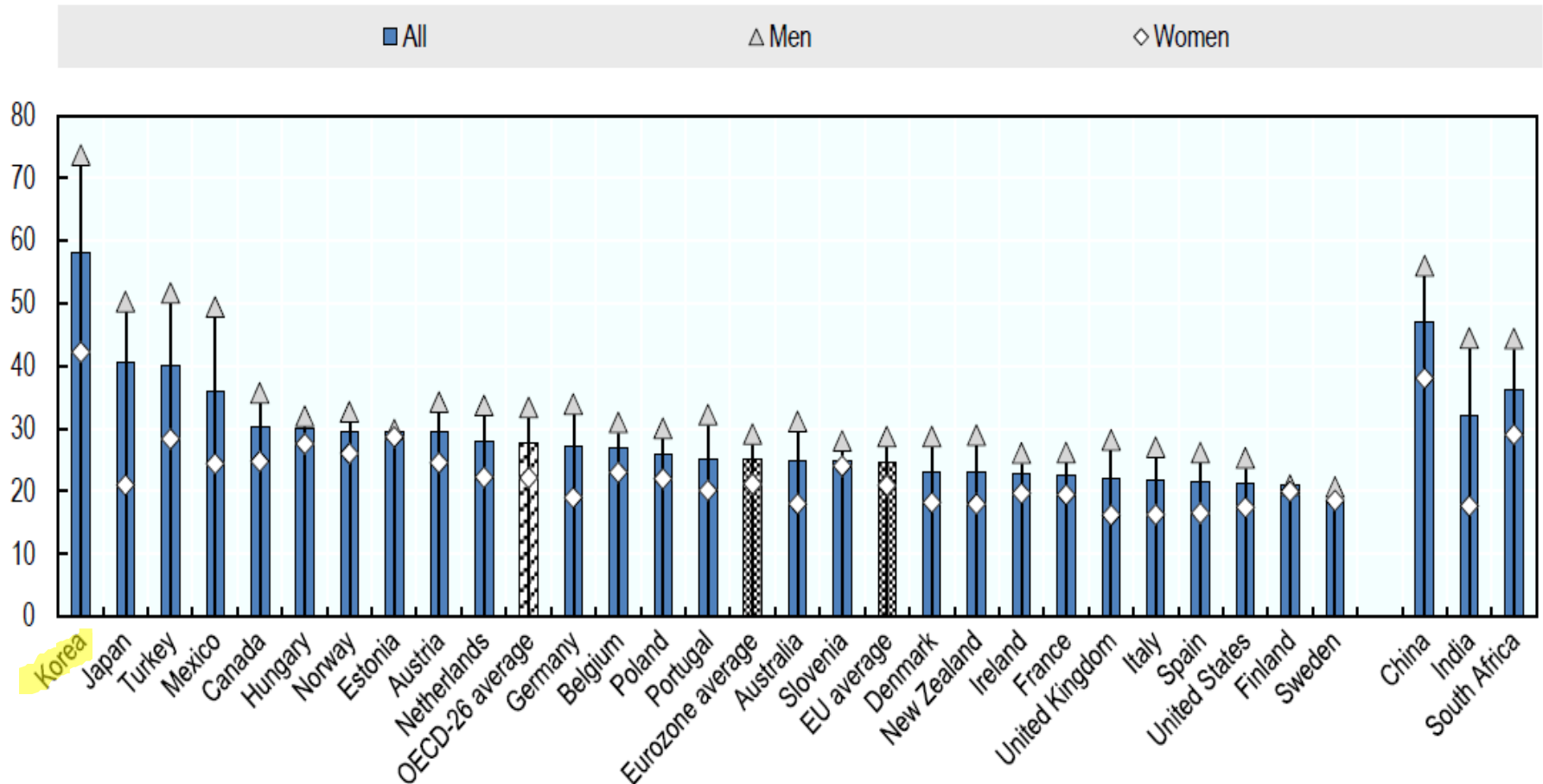
Source: Demographia 2020, MOLIT

Land use regulations and PIR, 2019

Cities with population of 2 million +



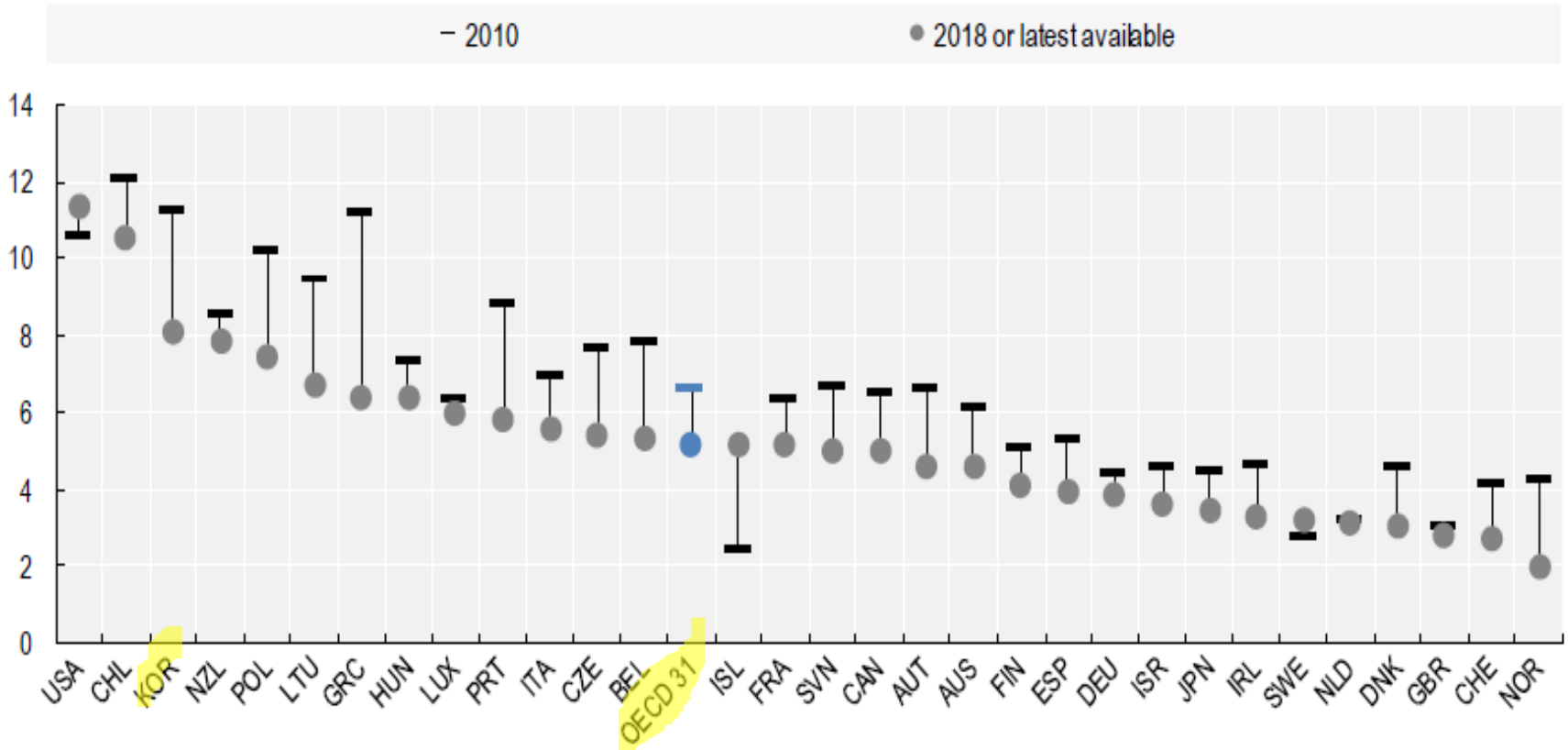
Average time spent travelling to and from work, 1999-2014



Source: <http://www.oecd.org/els/family/database.htm>

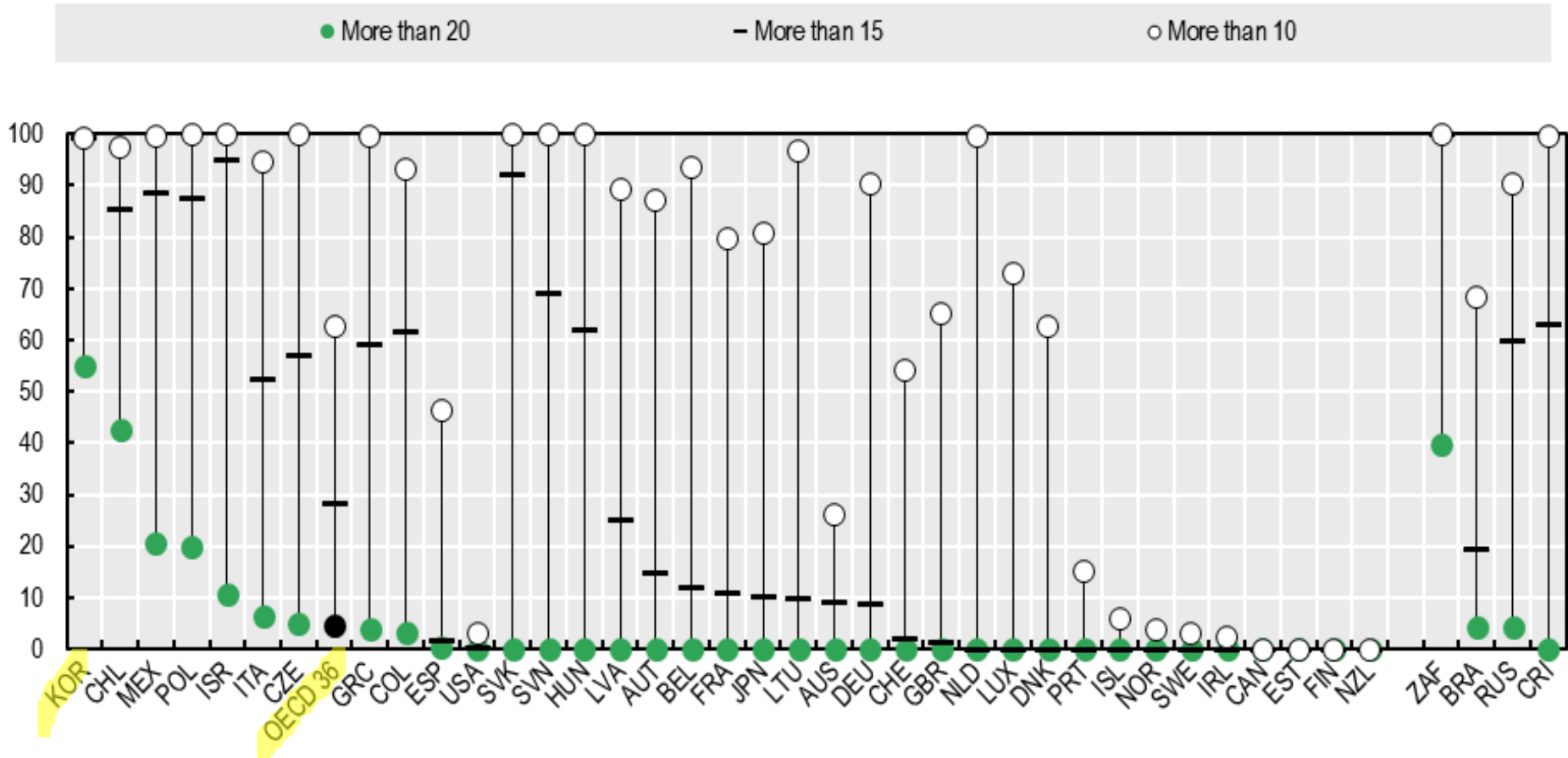
Road fatalities per 1000 persons

Road fatalities have decreased continuously since 1990s but still among the worst.



Source: OECD, How is your life 2020

Share of the population exposed to PM2.5 above 10, 15 and 20 micrograms/m³, percentage, 2017



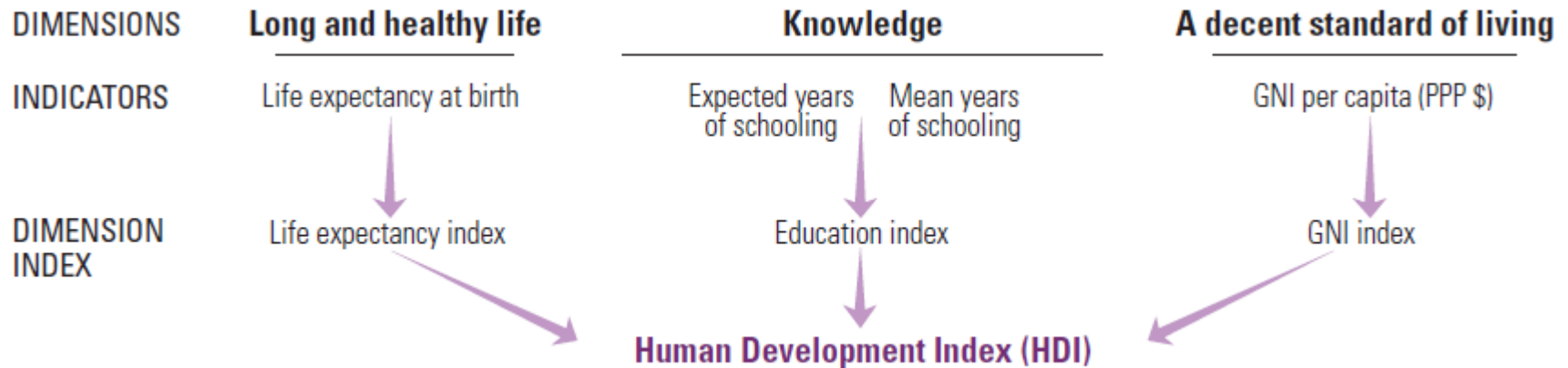
Source: OECD, How is your life 2020

Objective and perceived measures of QOL

- Human Development Index (UNDP 2019)
 - 22/189
 - Stands above the place predicted by per capita income
- Happiness (World Happiness Report 2017-19)
 - Korea 62/153 (fell from the 2008-12 level)
 - Seoul 83/186 (fell in subjective well-being)
 - Large gap between urban and rural areas
 - Stands below the place predicted by per capita income
- Life satisfaction (OECD 2018)
 - 32/33 with 6.1 (on a 0~10 scale), lower than OECD average, 7.4
 - Stands below the place predicted by per capita income

Composition of the Human Development Index

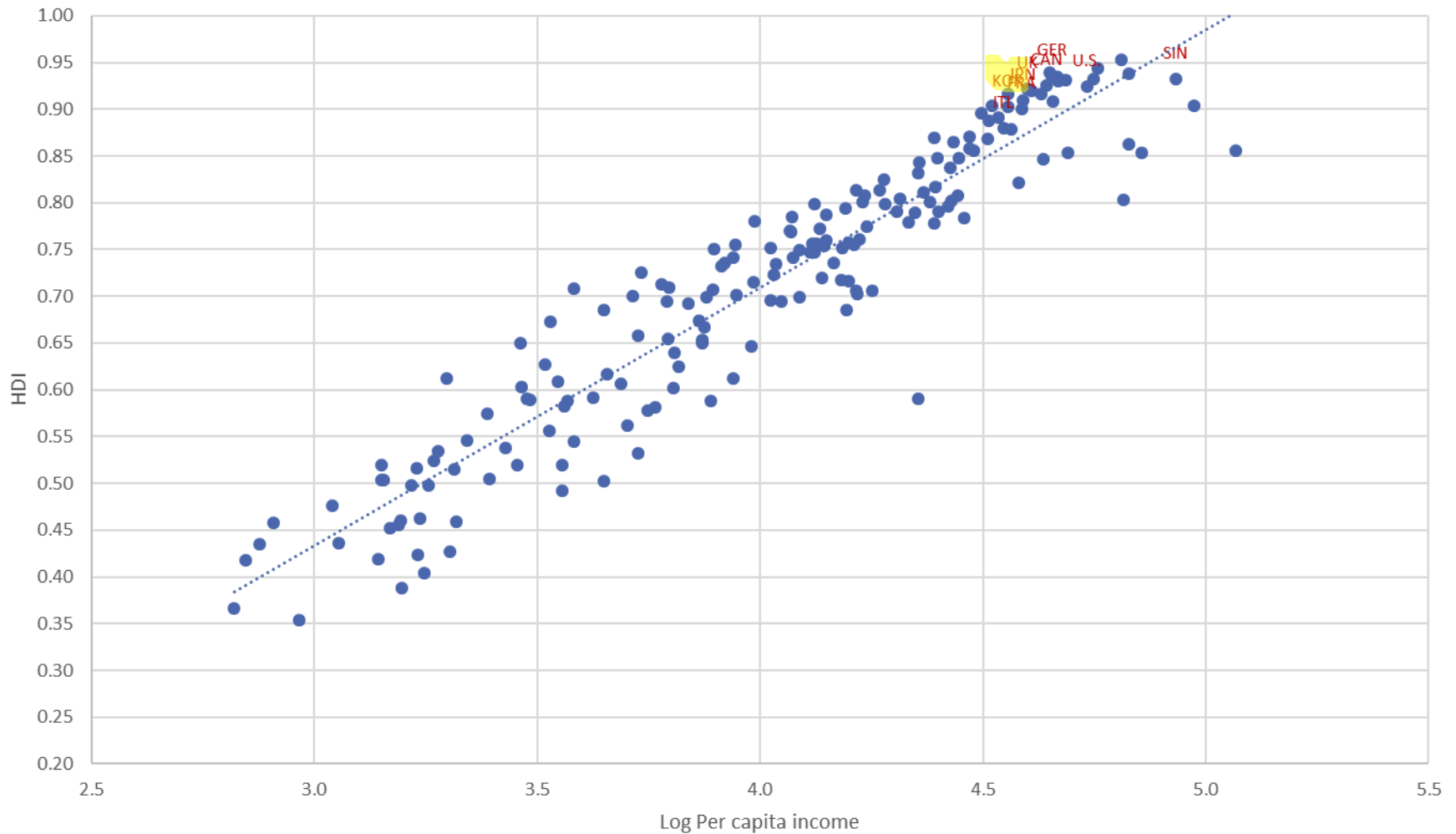
Per capita income (input) => capabilities achieved through longer life and education (outcomes)
HDI ranges from 0 to 1.



Source:<http://hdr.undp.org/en/content/human-development-index-hdi>

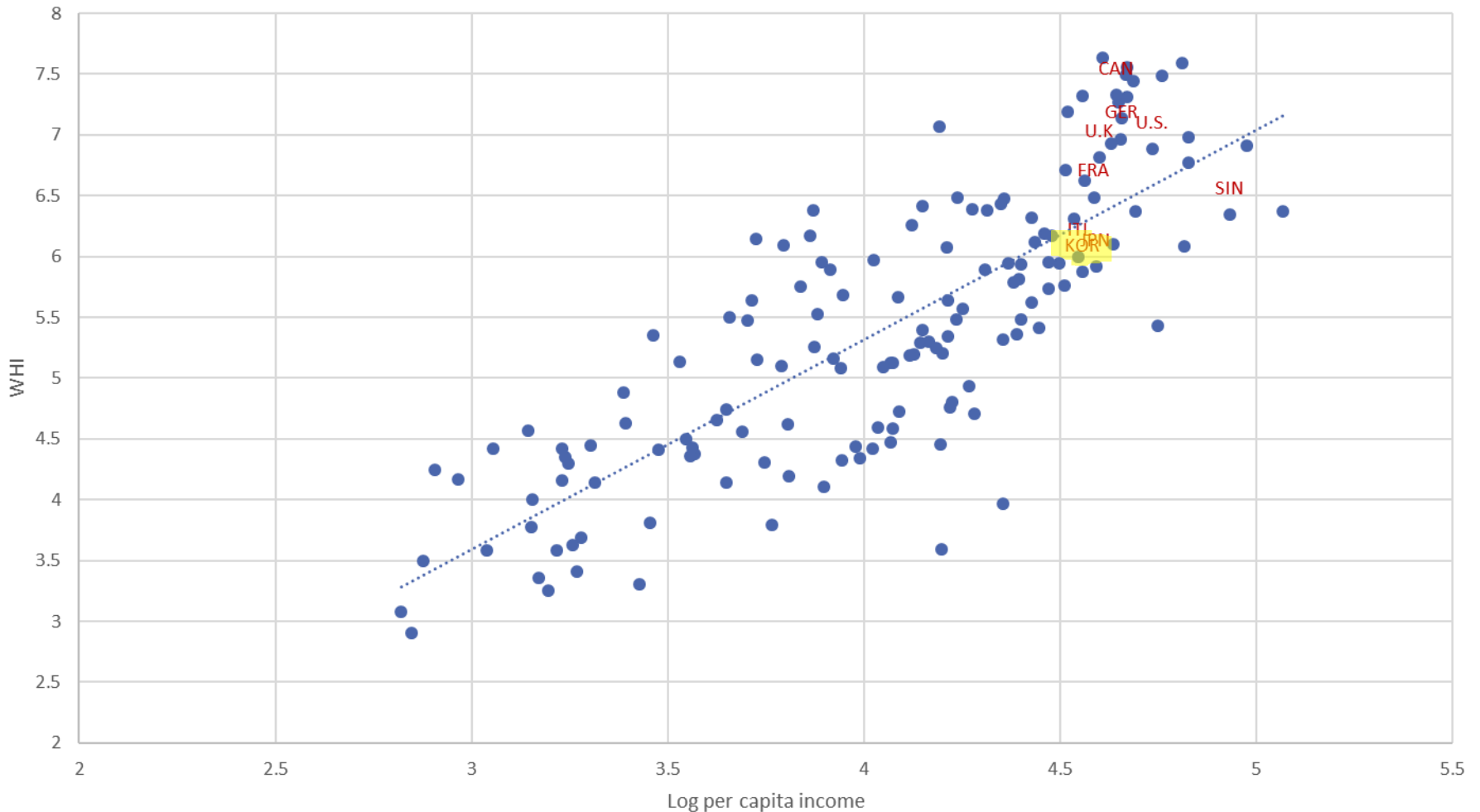
Income vs Human Development Index

A strong positive correlation exists between per capita income and HDI.

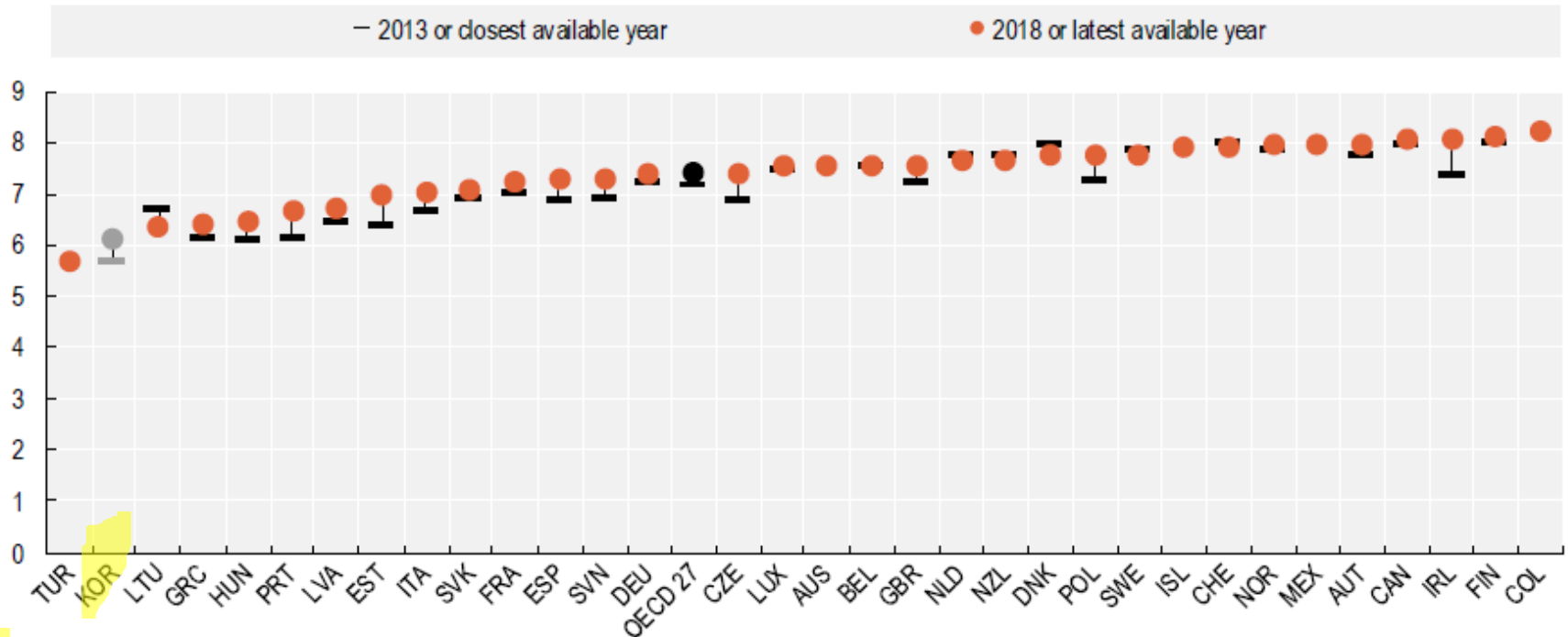


Income vs World Happiness Index

A strong positive correlation exists between per capita income and perceived happiness.



OECD life satisfaction index

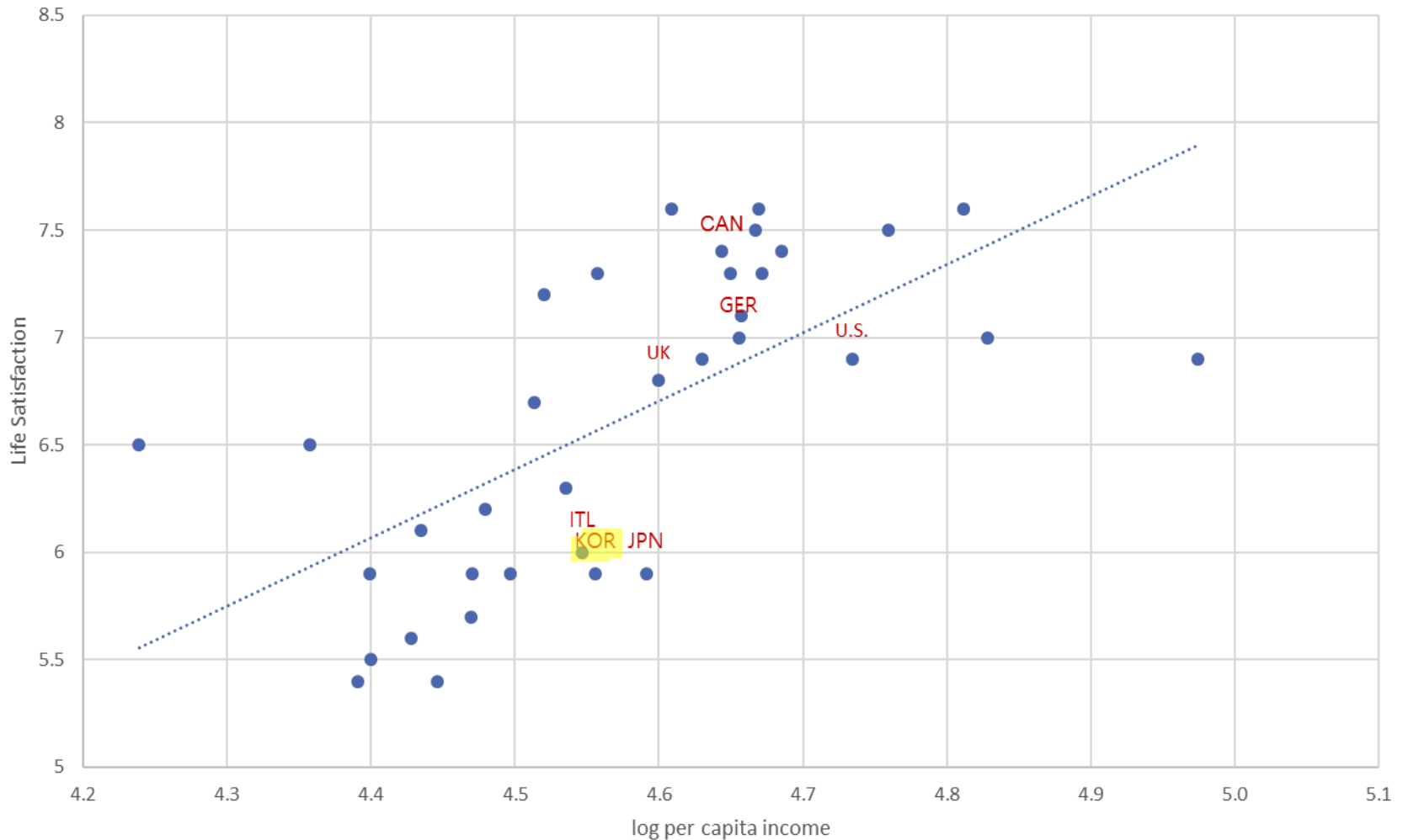


Data for Korea (shown in grey) have limited comparability due to the age range considered and the response format used

Source: OECD, How is your life 2020

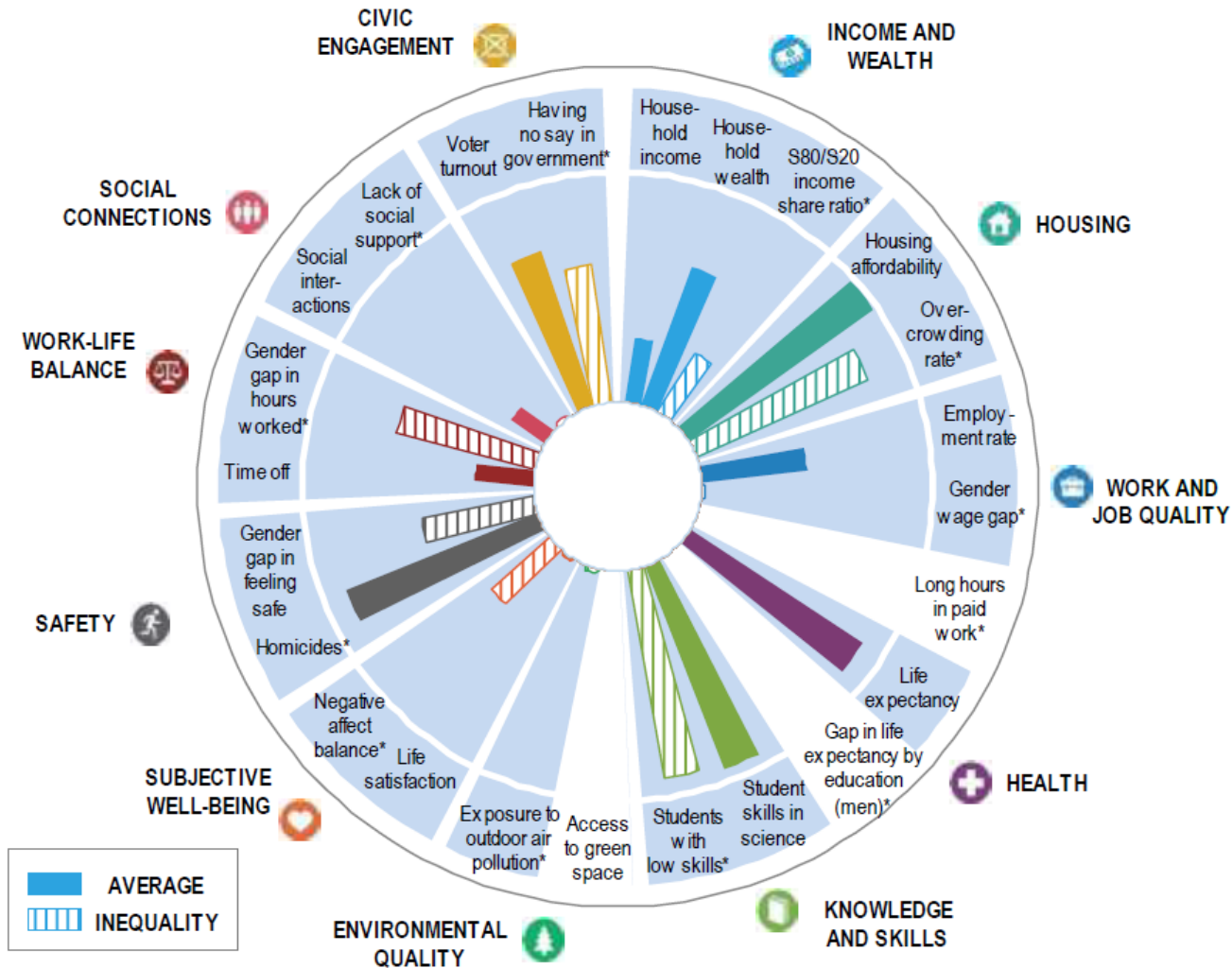
Income vs life satisfaction

Korea is below the trend line showing a positive correlation between per capita income and life satisfaction.



Korea's average level of current well-being

Longer bars indicate better outcomes (higher wellbeing).



Source: OECD, "How is life in Korea?", October 2018

Enhancing the quality of urban life

- UN Sustainable Development Goal 11
 - ◆ Make cities and human settlements inclusive, safe, resilient and sustainable
- Competitive cities: smart, inclusive, agile cities
 - ◆ How to adapt the physical, digital and environmental elements of cities to better respond to the citizens' dynamic and constantly evolving needs.
 - ◆ New development vs redevelopment/urban regeneration
 - ◆ Housing welfare, social inclusion, job creation, good governance
 - ◆ Talent, technology, tolerance (Richard Florida's 3Ts)
 - ◆ Access to technologies makes a difference

Digital divide (and red tapes)

A 2016 British film directed by Ken Loach, which won the Palme d'Or at Cannes Film Festival.

