

The Showdown: USA vs. China

What Brought us here & How can it end?



Naeem Zafar

Twitter: @naeem

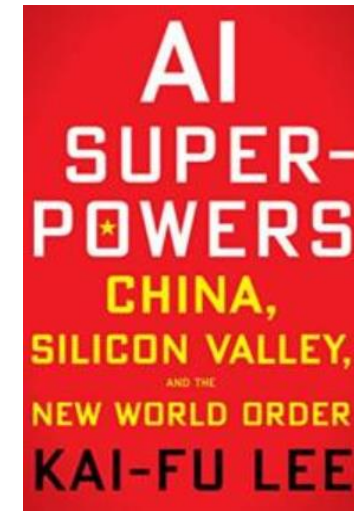
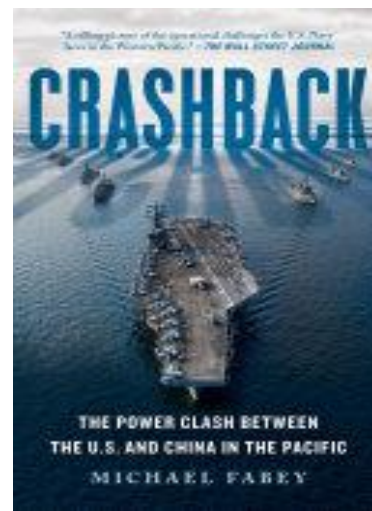
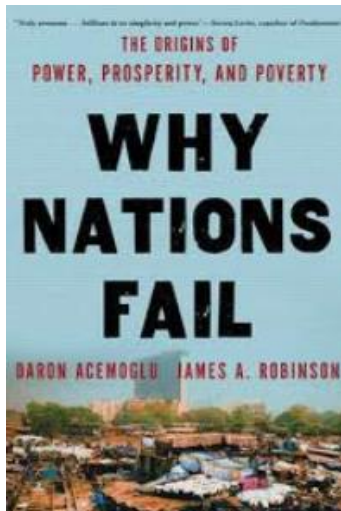
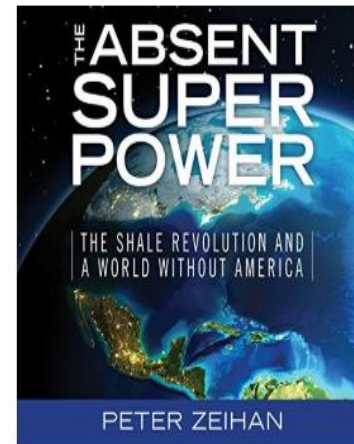
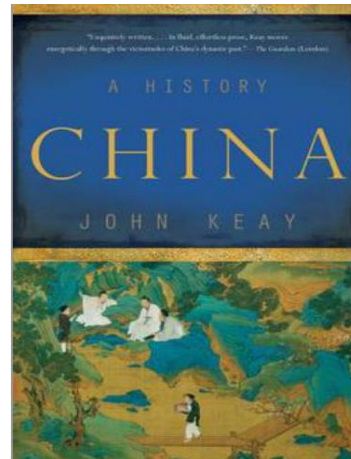
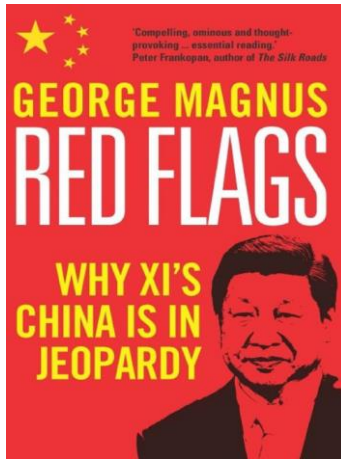
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Rise of China

- Why did China suddenly became powerful after thousands of years?
- What does China want?
- Are we on a collision course?



Based Largely on Knowledge Extracted from These Books



How did we get here & where can we go from here?



What is Chinese Currency Called?

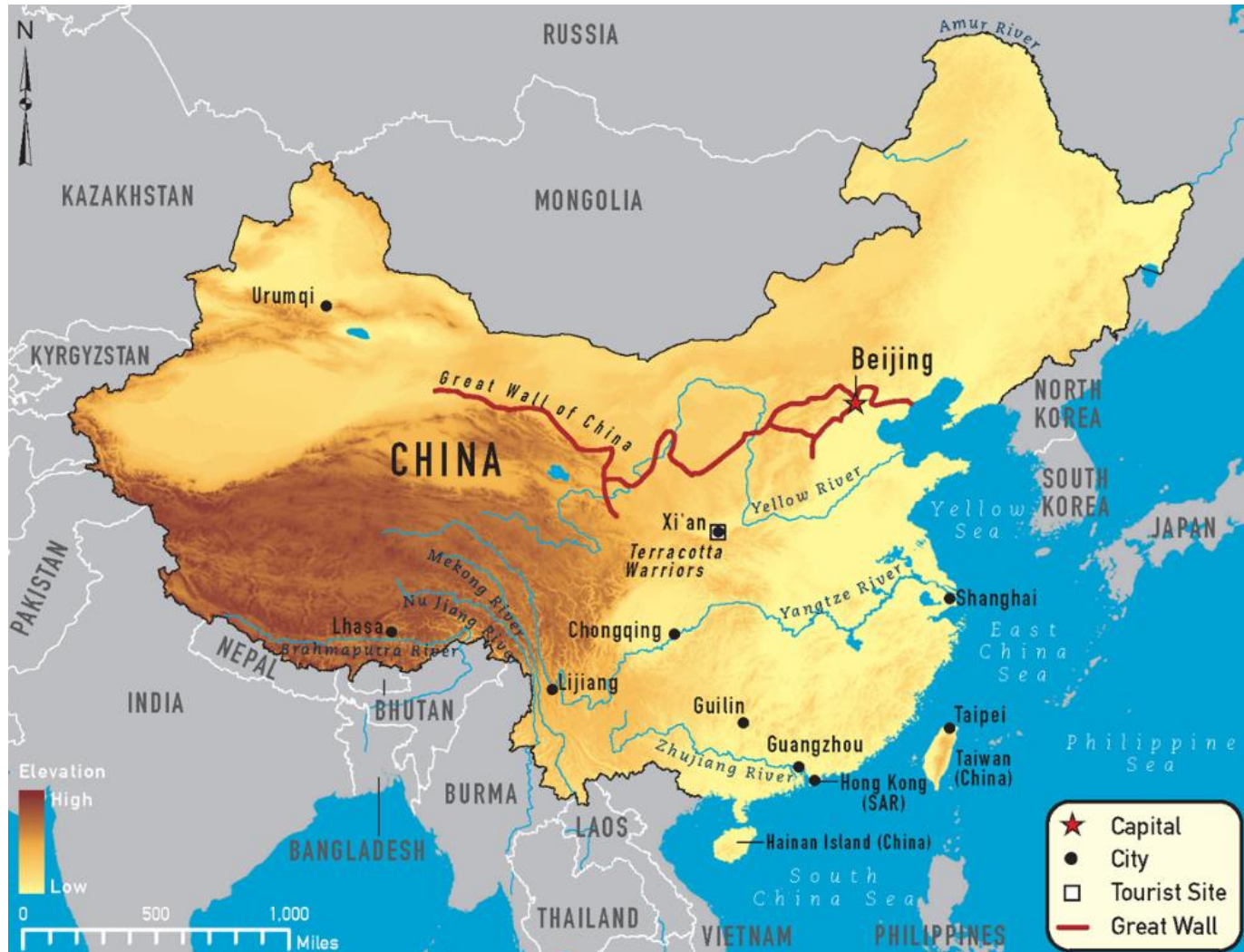
- RMB (Renminbi) is “people’s money”
- Just like in UK the currency is called Sterling
- But you don’t spend “Sterling” in a shop
- Chinese spend **Yuan**



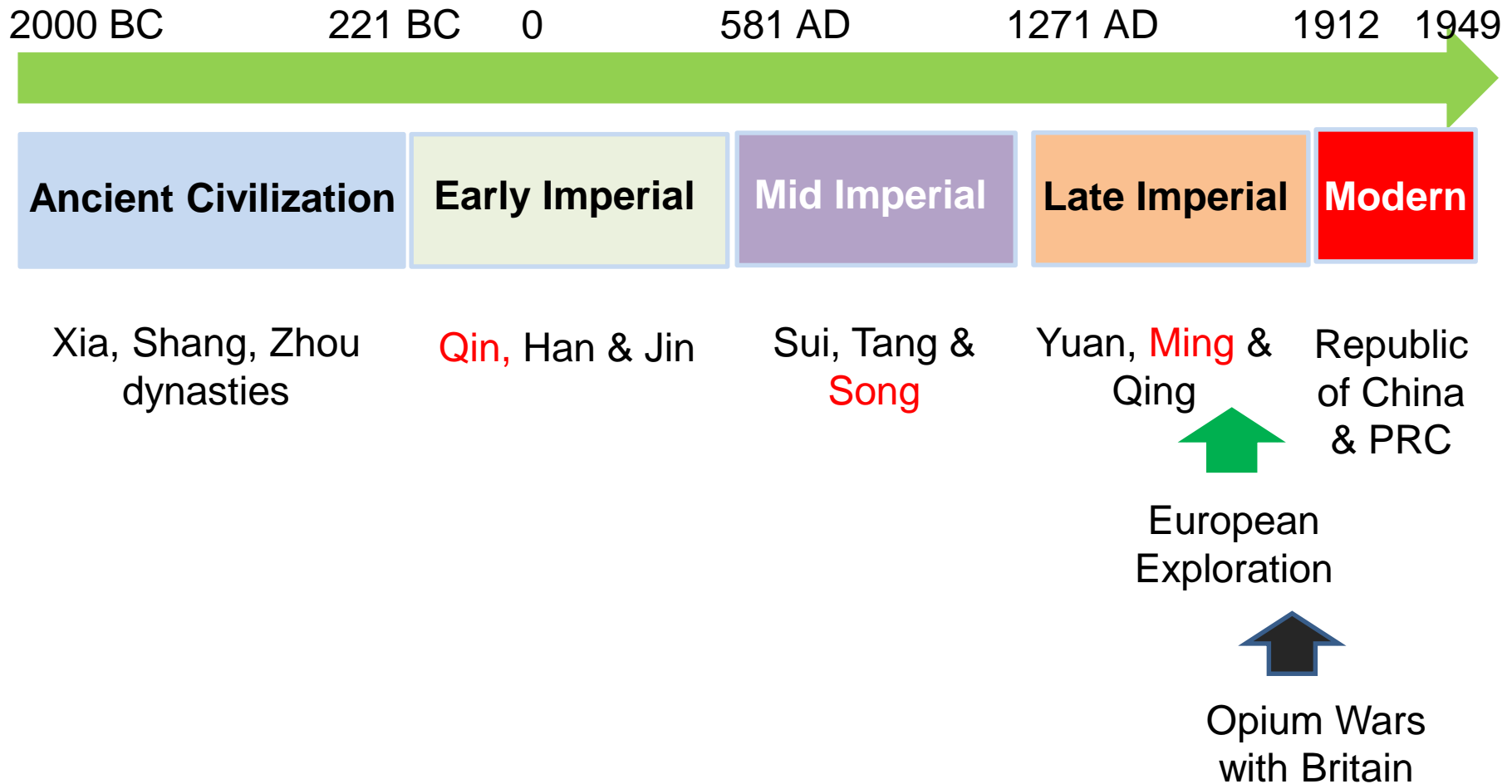
Topics

1. Brief history of China
2. The belated rise of China in 20th century
3. Tensions in US-China relationship
4. US options
5. Chinese options
6. The future

Civilization Around Two Rivers



History of China





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Taiping Rebellion 1850–1864

PROVINCE/AREA
(YEAR ASSIMILATED)

Maximum extent
of Qing Empire

China Contributed 34% of World's GDP During Qing Dynasty

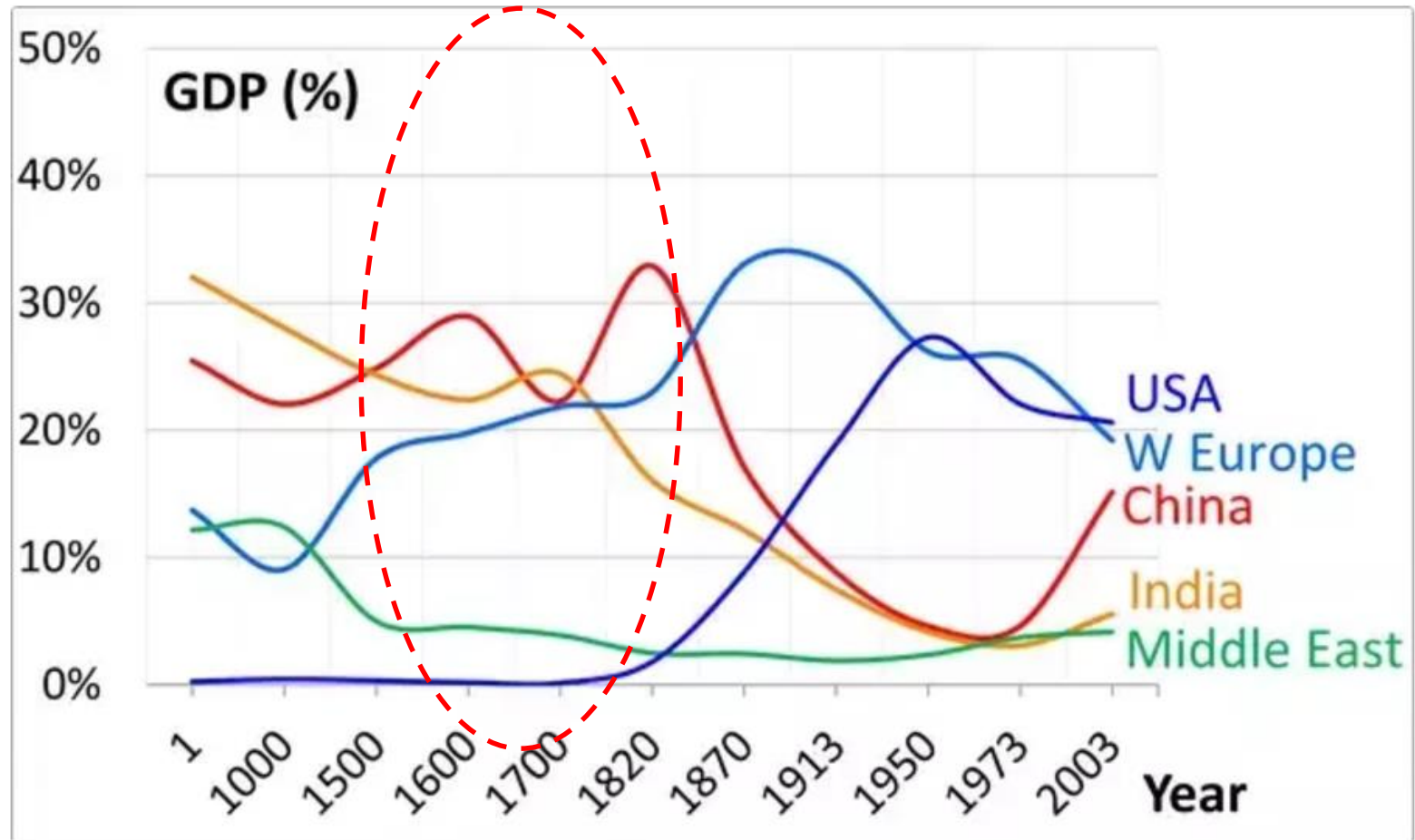


Image Link: [Angus Maddison](#)

British Complaint 1830s?

Trade imbalance is
not good!

The Opium Wars

- Two wars in the mid-19th century involving China & British Empire over British trade of opium & China's sovereignty
 - First Opium War (1839–1842) → created 5 ports & gave Hong Kong Island to Britain
 - Second Opium War (1856–1860) → 80 ports were opened

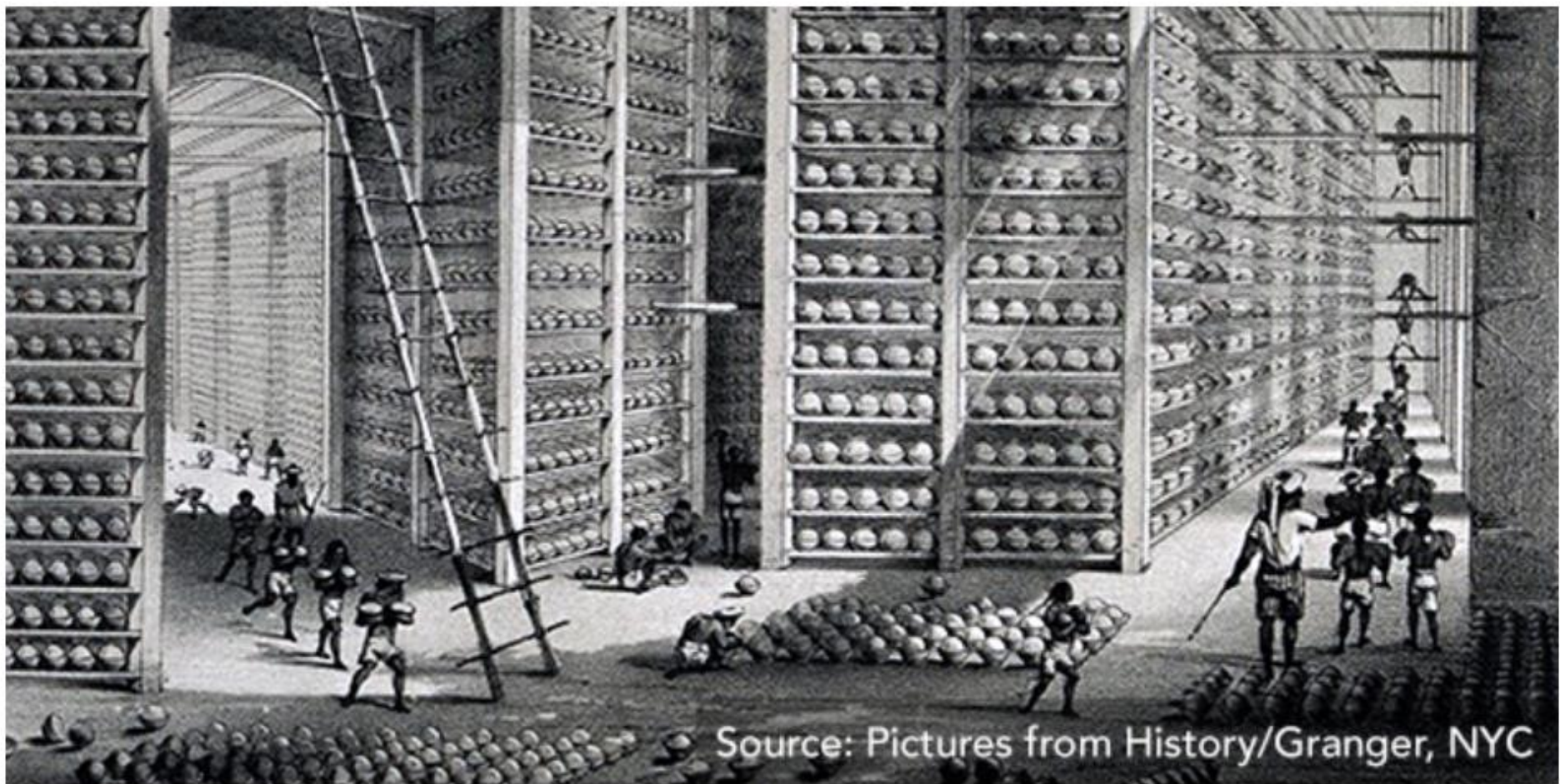
MAP 3: CHINA'S TREATY PORTS, 1860



Location of treaty port cities are approximations only. Present-day city names are used, with some commonly referenced alternative spellings/names listed in parentheses.

The Opium Wars

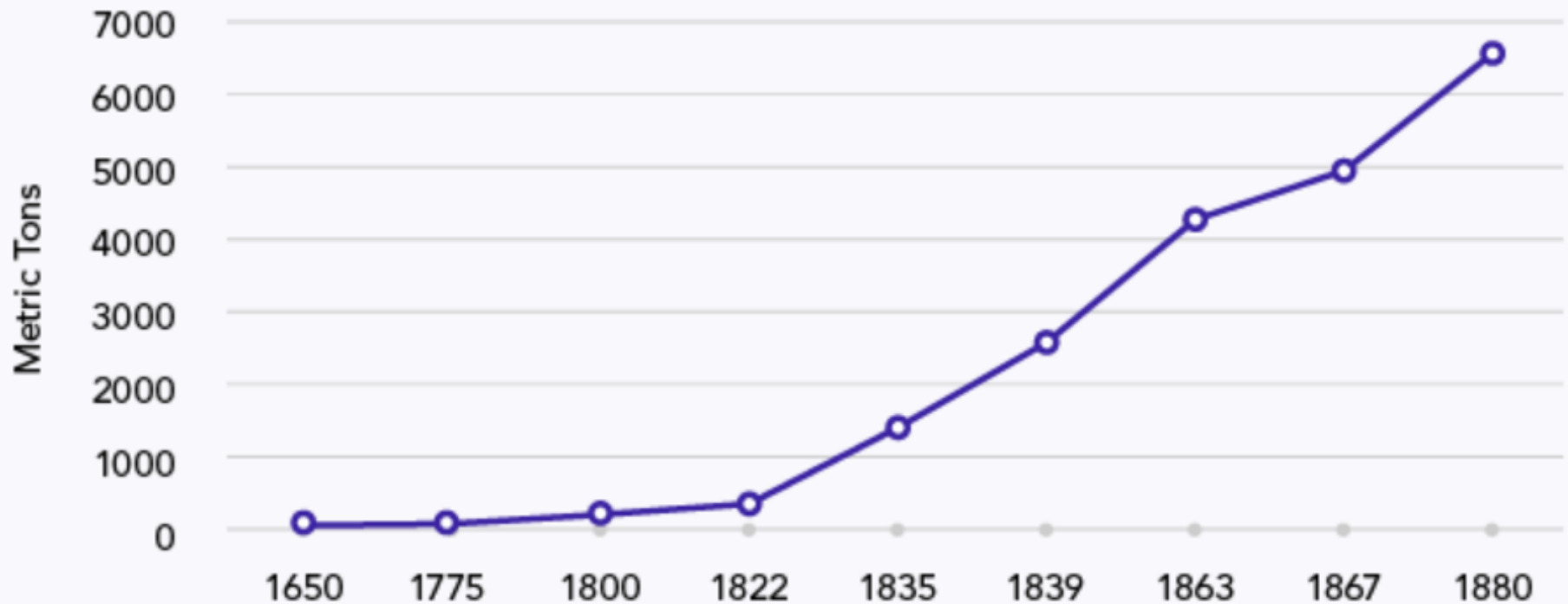
- The wars weakened Qing dynasty & forced China to trade with the others
 - 30,000 box of opium was being sold into China annually (170-lbs per box)
 - ~15 million Chinese became addicts
 - Chinese economy went from biggest in the world to half its size



Source: Pictures from History/Granger, NYC

Figure 1: A "stacking room" in an opium factory in Patna, India. On the shelves are balls of opium that were part of Britain's trade with China.

OPIUM IMPORTS INTO CHINA, 1650–1880



Source: UN Office on Drugs and Crime

**Political
Cartoon with
Britain,
Germany,
Russia, France
& Japan
Dividing China**



September 21, 1949

- In October 1949 after the defeat of the Kuomintang (Chinese Nationalist Party), Chinese Communist Party established **People's Republic of China**
- Farmers had their land holdings forcibly redistributed to poorer peasants
- Crops deemed by the Party to be "full of evil" (e.g. opium) destroyed & replaced with rice





Chairman Mao Zedong proclaiming establishment of People's Republic of China 1949.

Life in China 1950-1975

- The **Great Leap Forward** by Mao was to rapidly transform an agrarian economy into a socialist society through rapid industrialization
- Large resources diverted to expensive new industrial operations, failed to produce much, & deprived agricultural sector of urgently needed resources
- Drastic decline in food output caused tens of millions of deaths in the Great Chinese Famine.



Cultural Revolution: 1966-1976

Sociopolitical movement by
Mao Zedong (power grab)

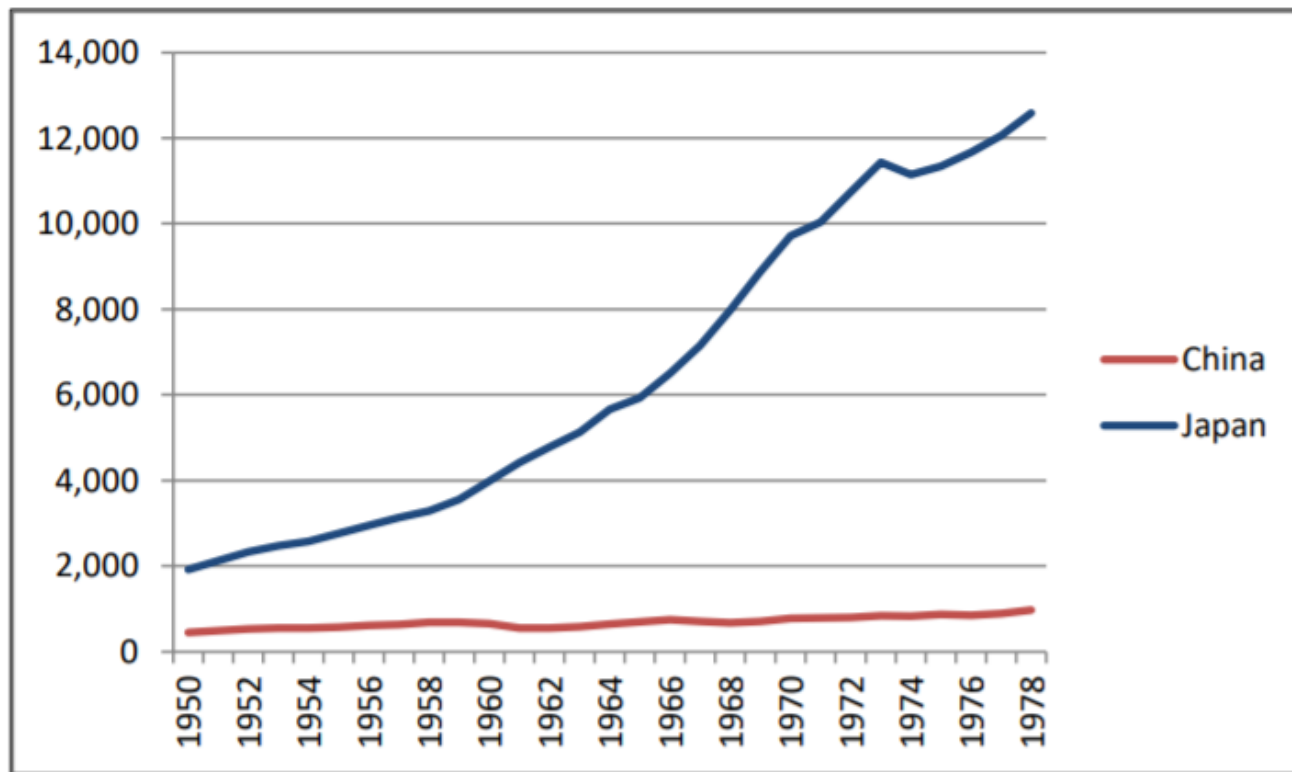


In 1966, Mao broke with Liu Shaoqi (right).

- Goal: to preserve Chinese Communism by purging remnants of capitalist & traditional elements from Chinese society, & reimpose Maoism as the ideology
 - Paralyzed China politically & negatively affected economy & society to a significant degree
 - Red Guard created – millions died, killed, persecuted

Chinese Economy

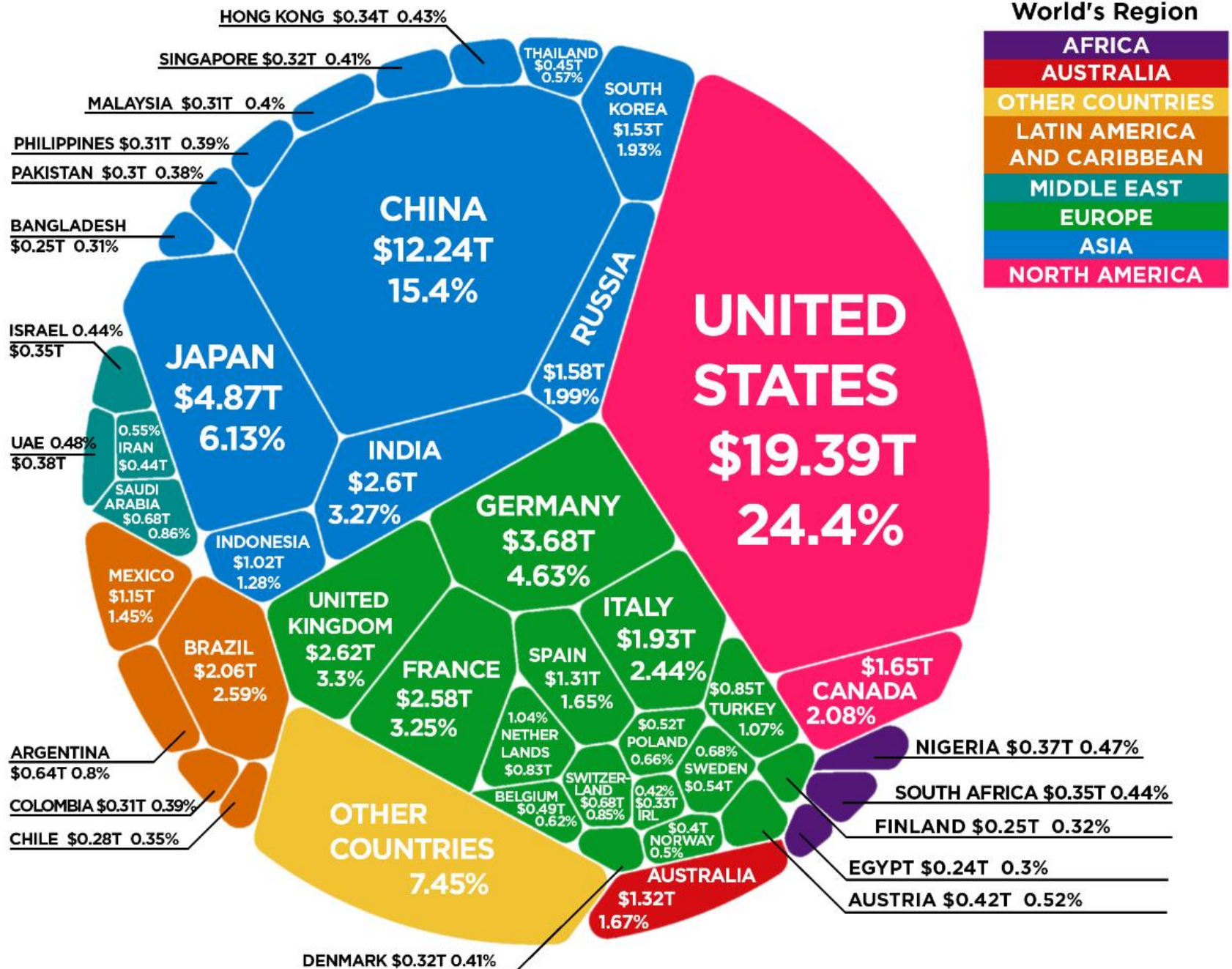
Figure 2. Comparison of Chinese and Japanese Per Capita GDP: 1950-1978
(\$ billions, PPP basis)



Source: Angus Maddison, Historical, Statistics of the World Economy: I-2008 AD.

The Rise of China

- How did a sleepy, economically-challenged country rise to become the 2nd largest economy in the world?



Nixon in China (1972)?

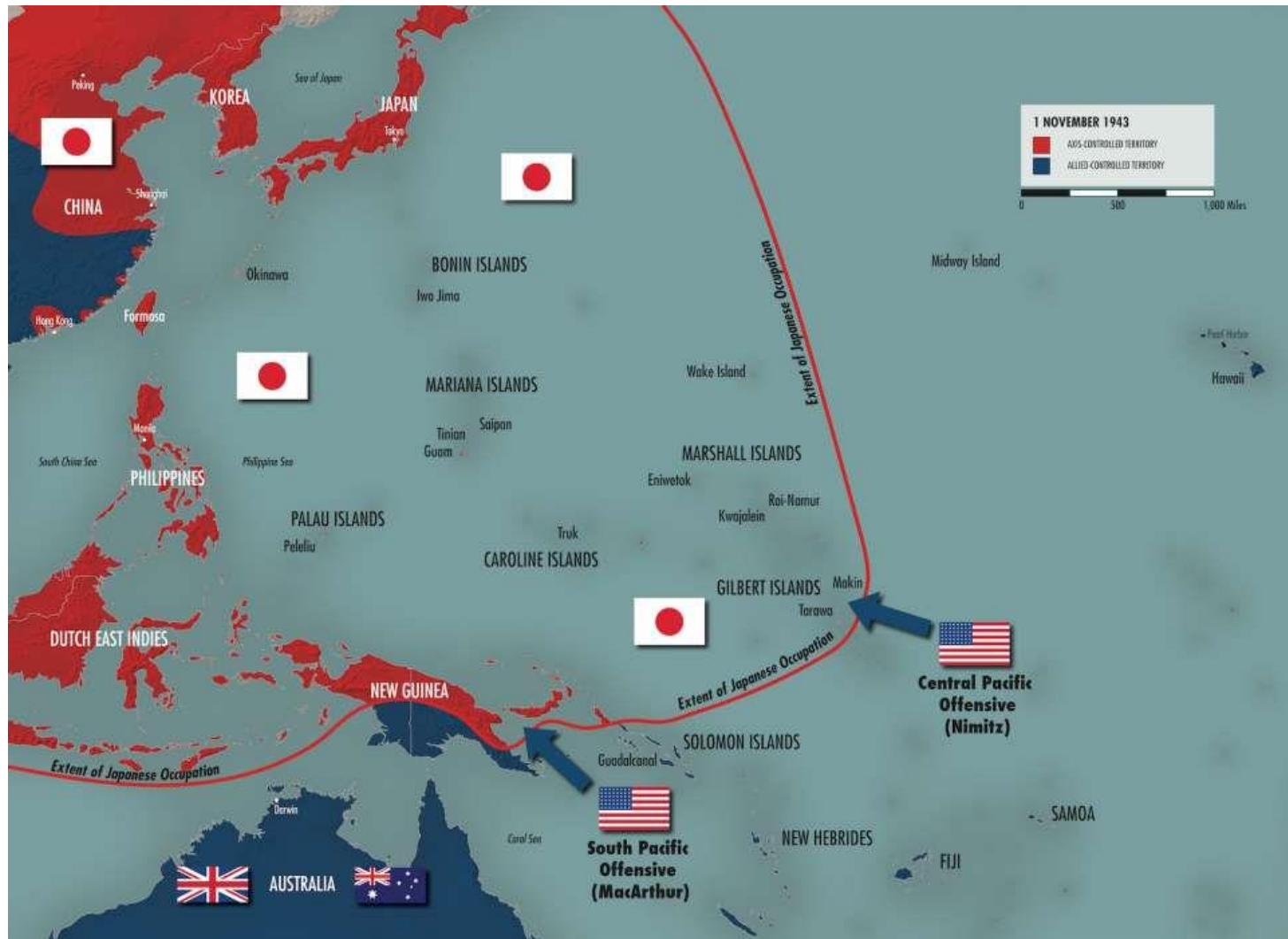


Mao Zedong (Party Chairman)



Chu Enlai (Prime Minister)

Historically China's Biggest Problem was Japan



Bretton Woods Conference

July 1 – July 22, 1944



Deciding the Post WWII World



- 730 delegates from 44 allied countries gathered
- Will US outline a *Pax Americana*?
- Delegates expected US to impose tariff & duties on all trade, post administrators to all European allies & their colonies & empires

Bretton Woods Conference

- Established the International Bank for Reconstruction and Development (IBRD) and the International Monetary Fund (IMF) & the World Bank
- But there was more ...



Can the World Recover Without Global Trade?

- Can trade be done without a strong Navy?
- Most navies were destroyed by Nazis in war
 - US, Britain & maybe Japan remained
- Without a Navy, trade routes cannot be protected & without trade there was little hope of recovery

Navy!



First country to dominate all seven oceans in the history of the world

Nothing moves without American's explicit permission



American Proposal Stunned the Audience

1. No Pax, no tariffs on trade, property or income, no quotas, no tax, no customs restriction, **instead America will open its markets for all** and hope to see others open their markets to USA
2. Americans will use their naval power to **guarantee the security of all maritime trade** regardless of who was trading with whom

American Grand Plan

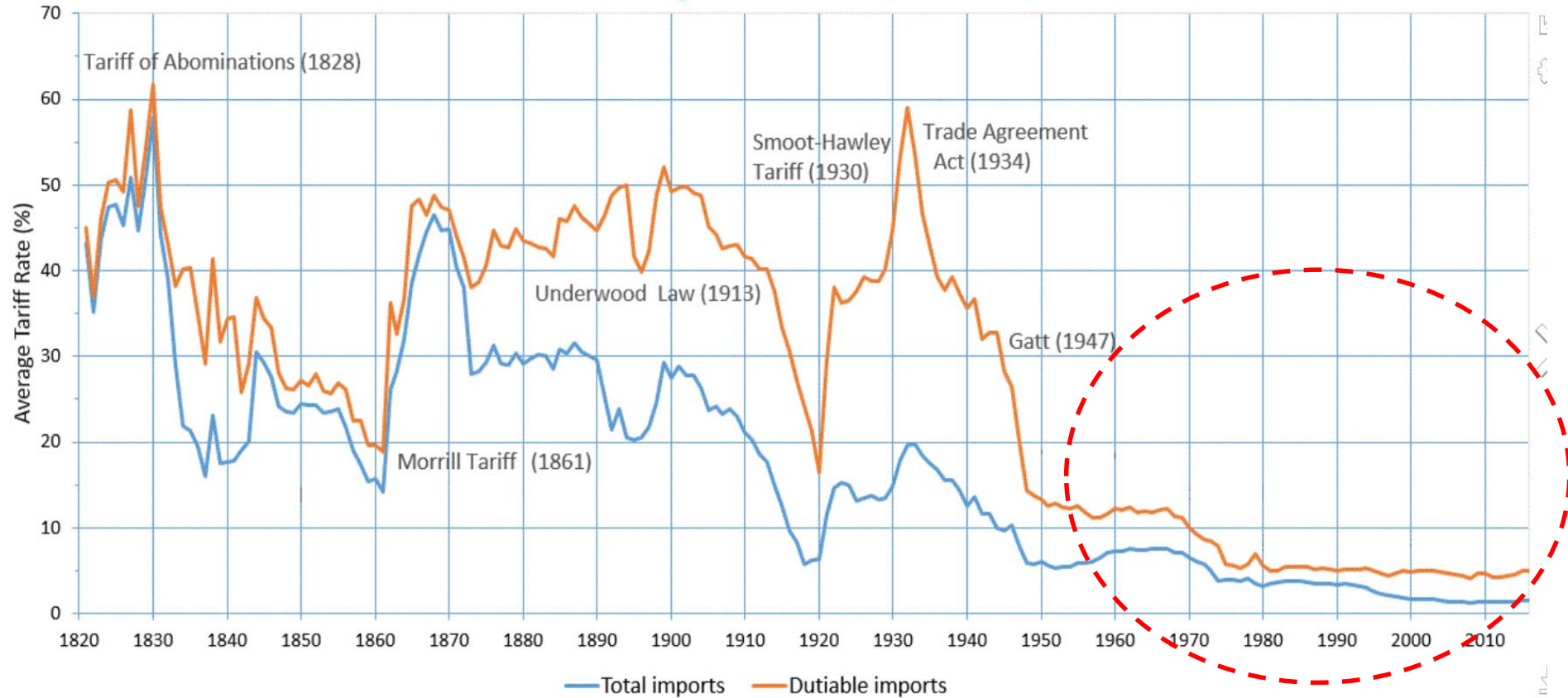
1. Free trade
2. Protection of all maritime trade to ensure economic growth & stability
 - Also prevents other nations to invest in building a Navy
3. Marshall Plan
 - To enable others to become prosperous enough to buy American goods & services

The Bretton Woods World



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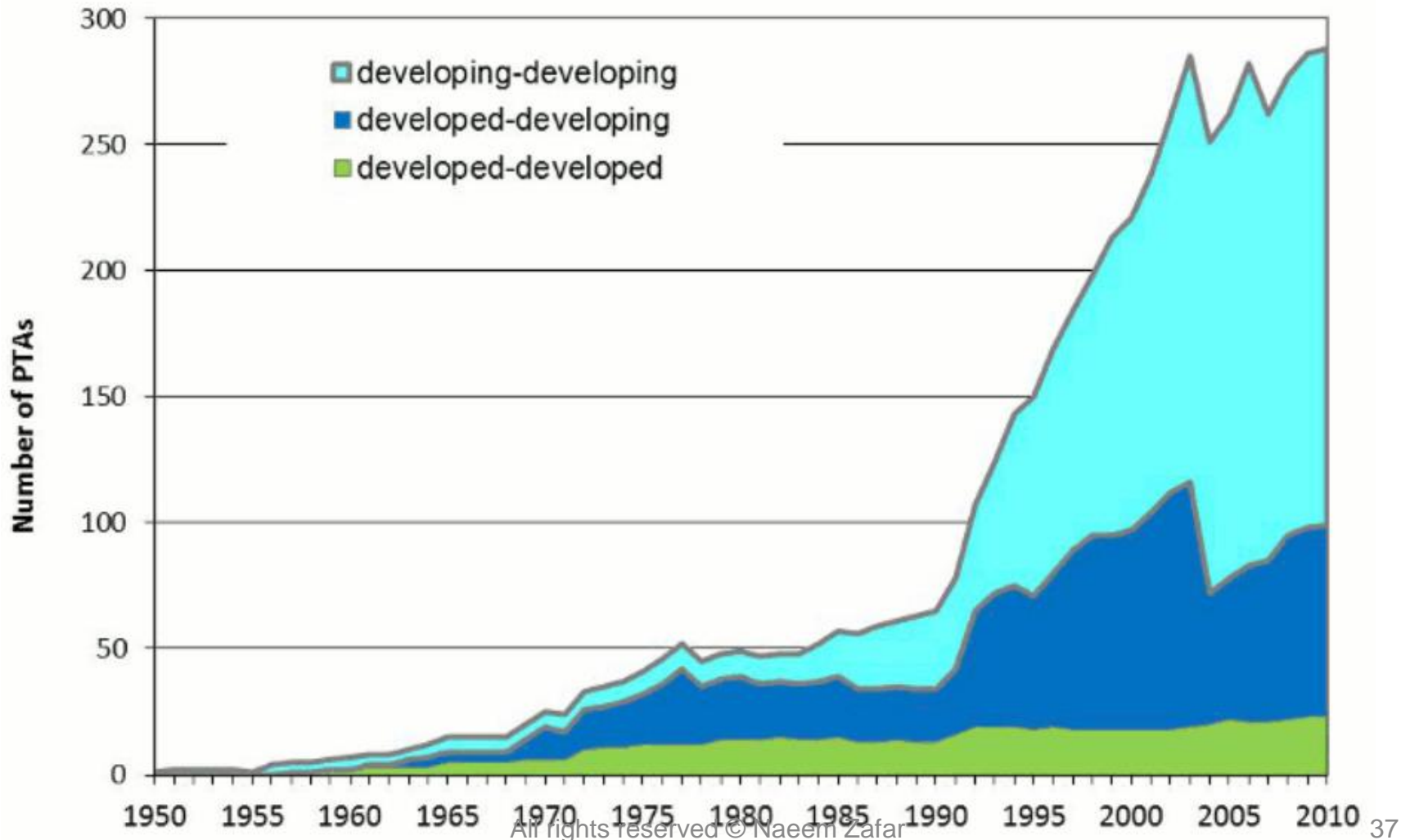
U.S. Average Tariff Rates (1821-2016)



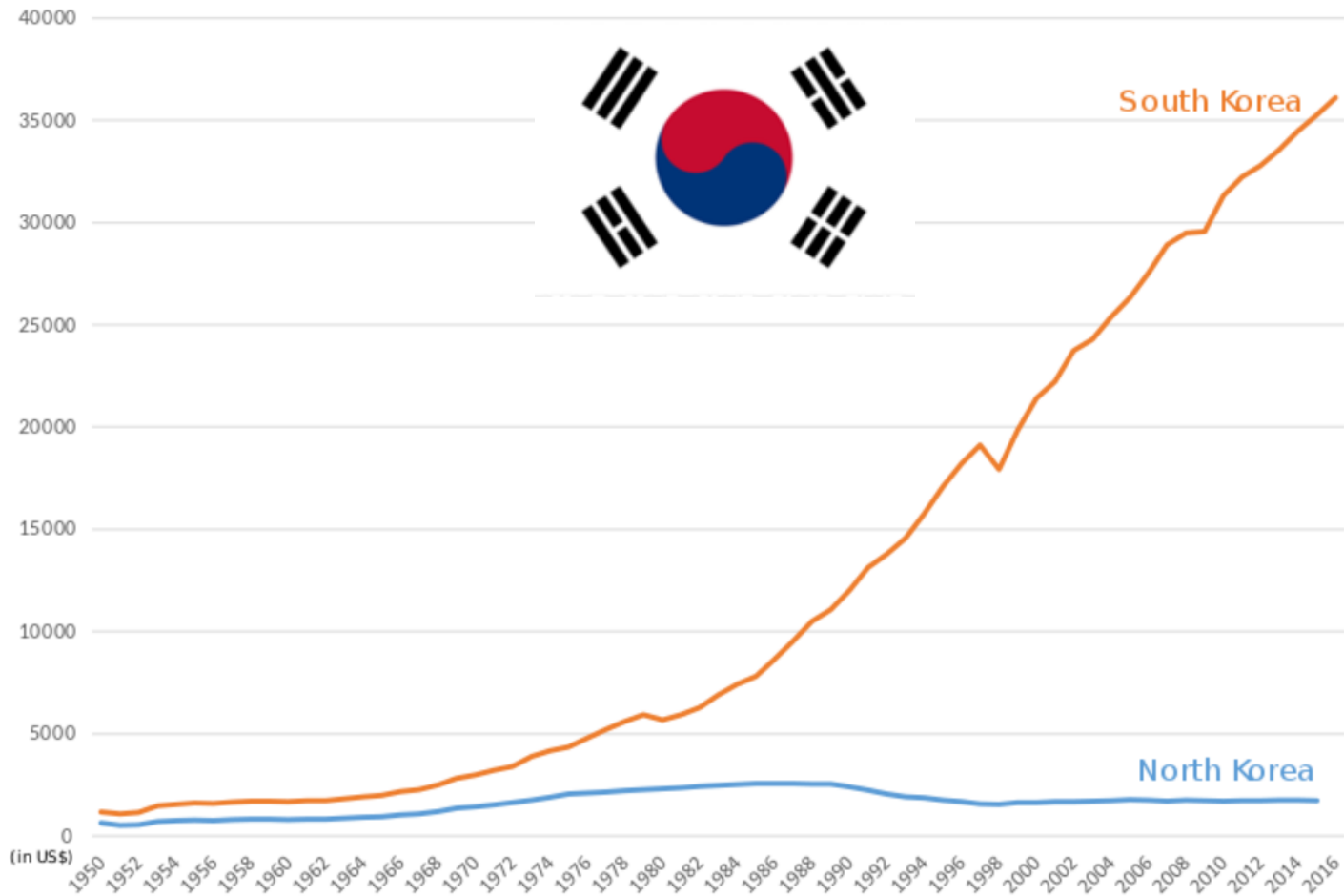
Source: US Department of Commerce, Bureau of the Census, Historical Statistics of the United States 1789-1945, U.S. International Trade Commission, dataweb.usitc.gov

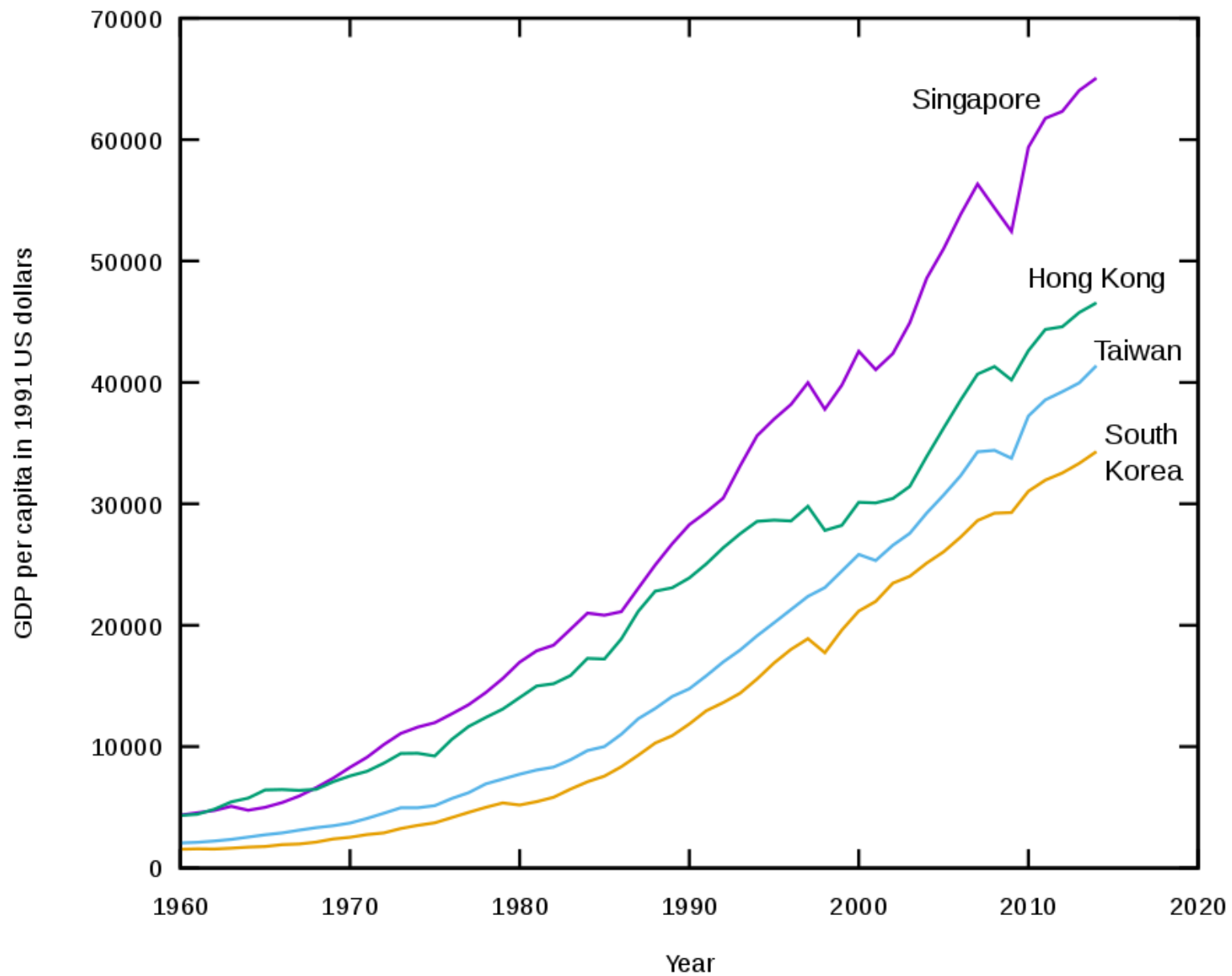


Number of Preferred Trade Agreements Skyrocketed



South Korean Miracle



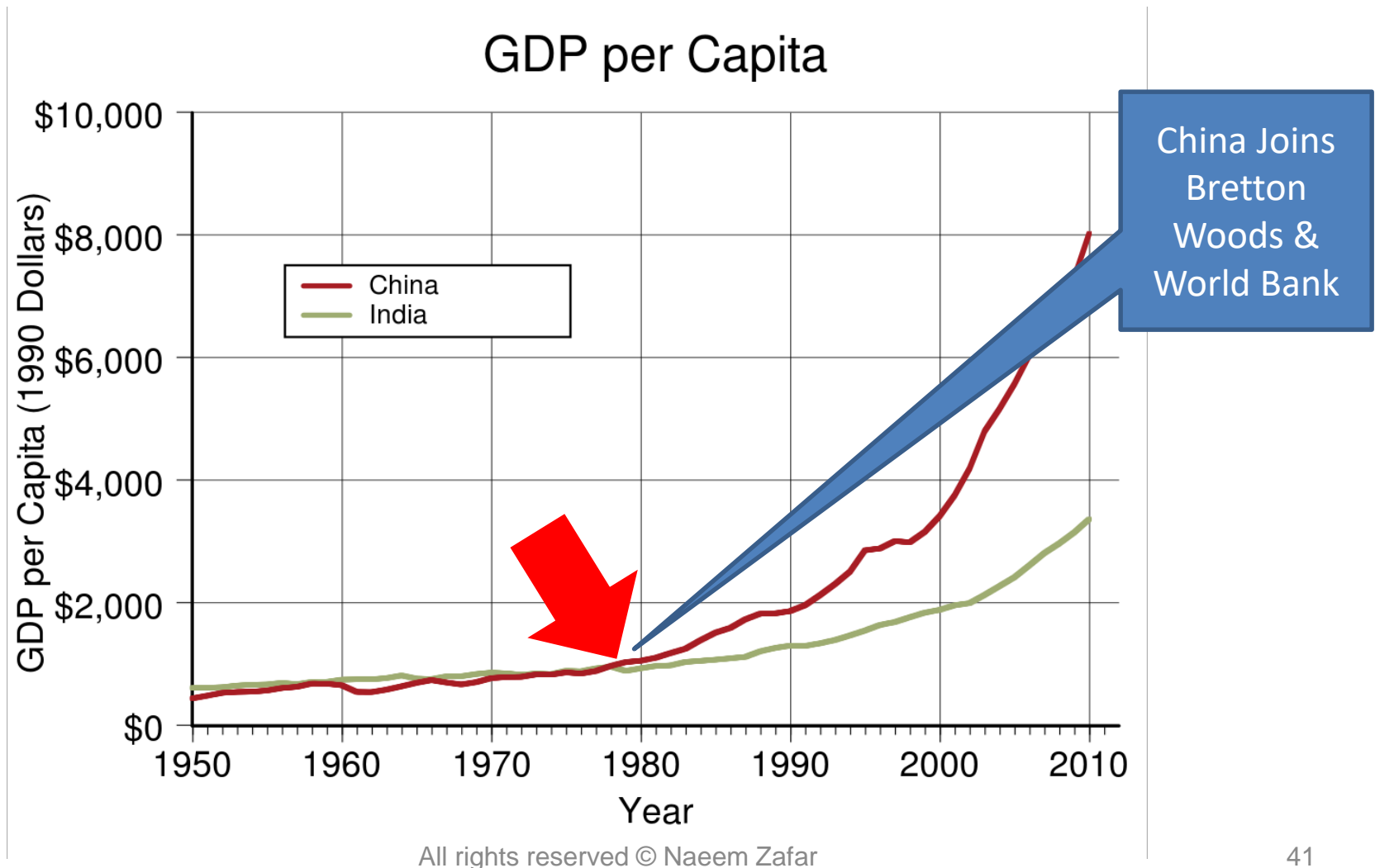


But China Suffered Under Mao

- Great Leap Forward 1958-1962 was a failed attempt to modernize & industrialize
- The Cultural Revolution 1966-76 followed to curb dissent (Maoism)



1949-1979: China maintained policies that kept the economy very poor, stagnant, centrally controlled, vastly inefficient, and relatively isolated from the global economy





Enter the Era of Economic Growth

Deng Xiaoping 1904:1997

- Chinese politician who was the paramount leader of the People's Republic of China from 1978 until his retirement in 1989
- After Chairman Mao Zedong's death in 1976, Deng led China through far-reaching market-economy reforms
- One-child policy initiated

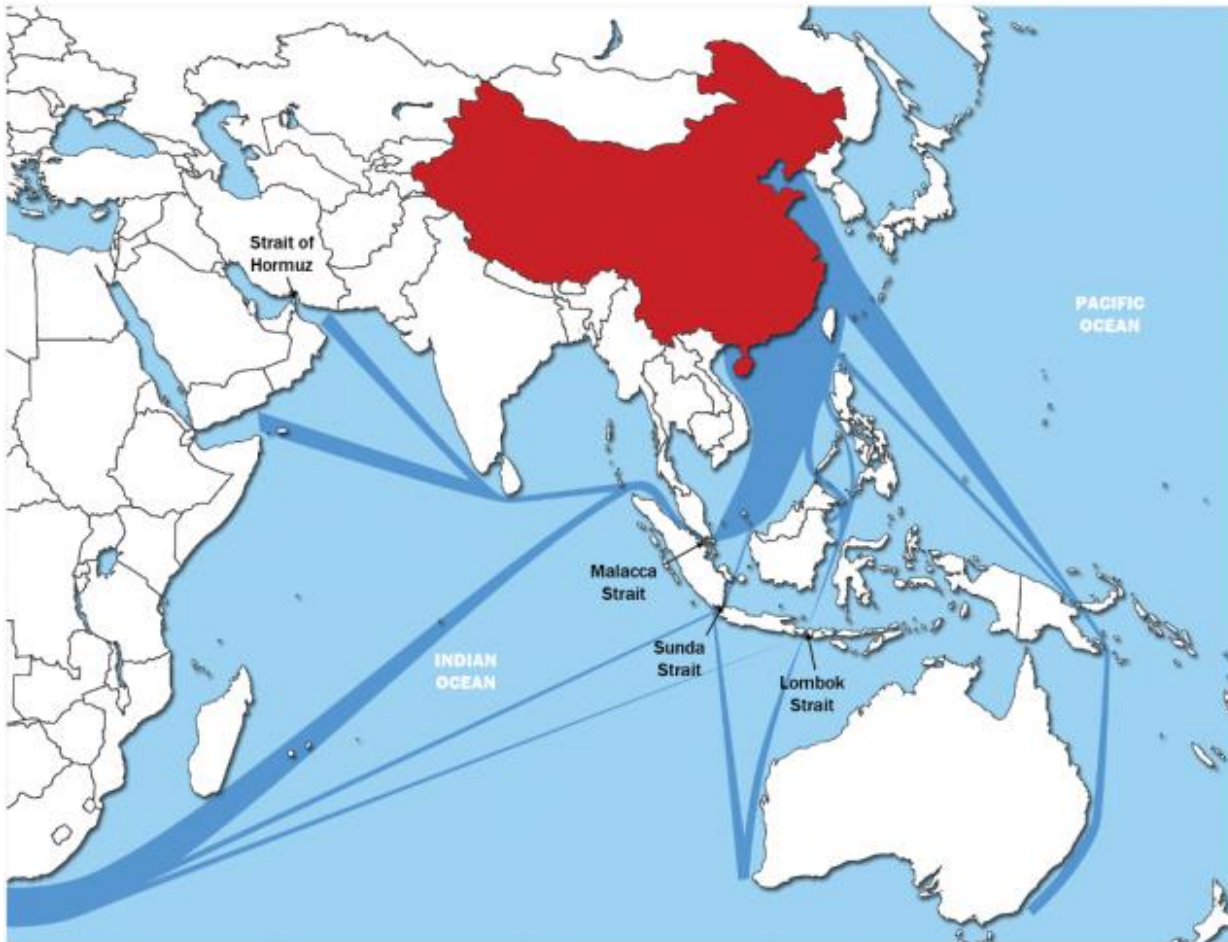
Why Deng Xiaoping Matters

- Deng took the reins of power and began to emphasize the goals of "four modernizations"
 - economy, agriculture, scientific & technological development & national defense
- Announced ambitious plan of opening & liberalizing the economy
 - In just a few years they worked wonders as the world watched in amazement
 - Focus on exports

China Could Not Trade without Bretton Wood's Protection

- Japanese naval power brought under US influence
- Pacific trading routes opened & protection guaranteed by US Navy
- Europeans pushed back to the Atlantic

China Could Not Export Without Protection



Cold War: China Mattered

- Keeping markets open for American good & services was paramount
- If China is open for business we wanted to engage & make them less “red”
- Under Deng, local municipalities & provinces were allowed to invest in industries that they considered most profitable, which encouraged investment in light manufacturing
 - shifted strategy to light industry & export-led growth good for a developing country coming from a low capital base

China Rises!



Political Changes



1949-1976

1988

1993

2003

2013

What Does China Want?

- Become regional super power & beyond
- Not be dependent on the western technology
- Open trade routes that she controls
- Full employment to control unrest
- Control of information, economy & people

What Does USA Want?

- Soft-power - globally
- Control of all sea-lanes to ensure free trade
- Ability to move force when & where it sees fit
- Keep troubles away from its shores

China Has a Few Problems!

1. Secure access to fuel, food & raw material
2. Expansive borders to defend
3. The debt crisis
4. Demography issues
5. Governance issues

Geography & Borders

China's Defense Needs are Huge

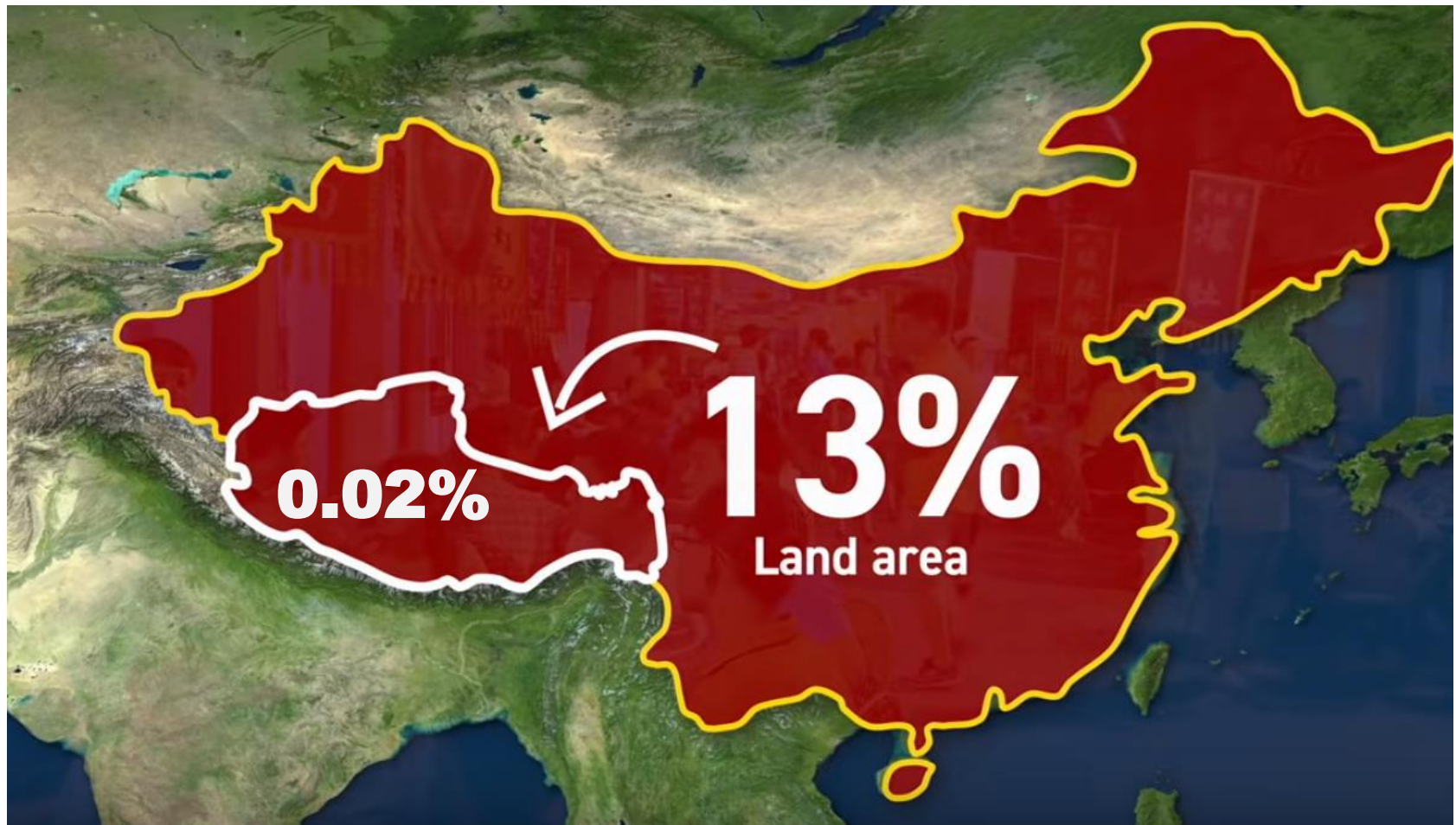
13,700 miles of borders



Tibet



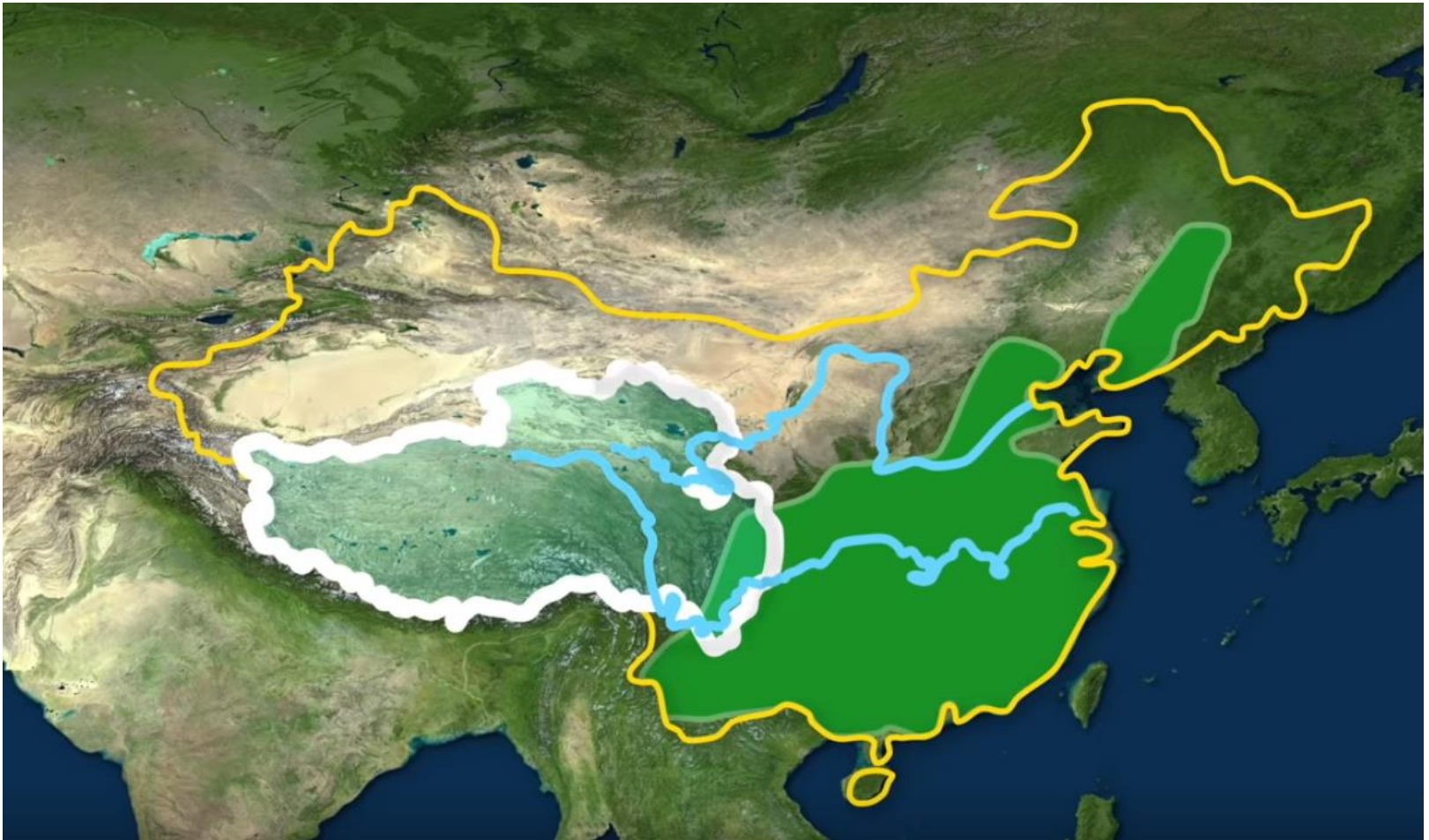
Tibet is Lightly Populated



Tibet is Ethnically Different



But Tibet is Strategically Very Important



Chinese Border with Southern Neighbors is Very Penetrable



China 2m Army VN, Laos + Myanmar 1m



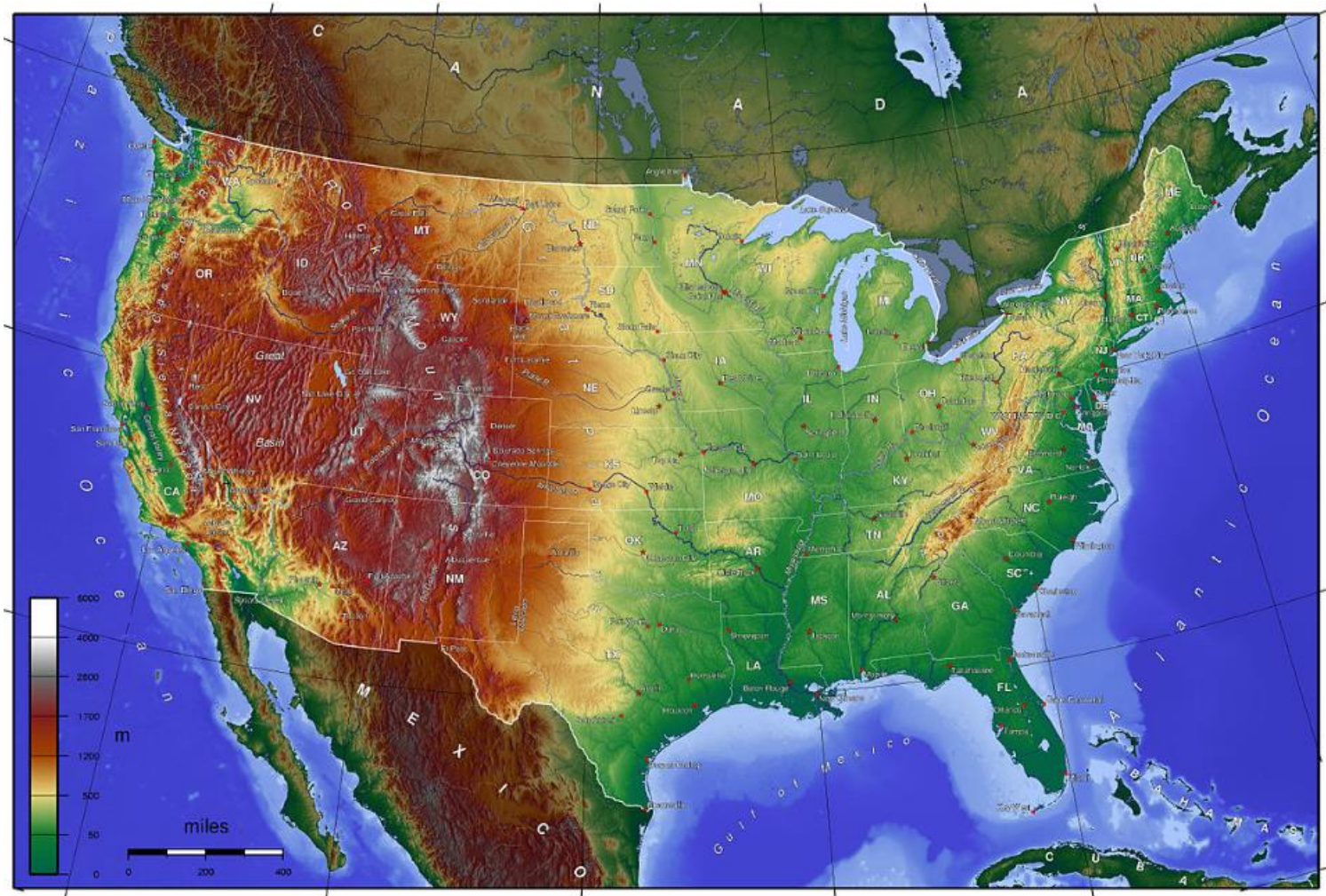
US & Allies Are Too Close for Chinese Comfort



80% of Mideast Oil to China Flows Through Straits of Malacca



US Borders are Secure – Naturally



US Expanded **Atlantic** Border by Treaty or Physical Access



PACIFIC SEA APPROACHES TO NORTH AMERICA

US Expanded **Pacific** Border by Treaty or Physical Access



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YEAR THE UNITED STATES
GAINED PHYSICAL OR TREATY
ACCESS TO THE TERRITORY

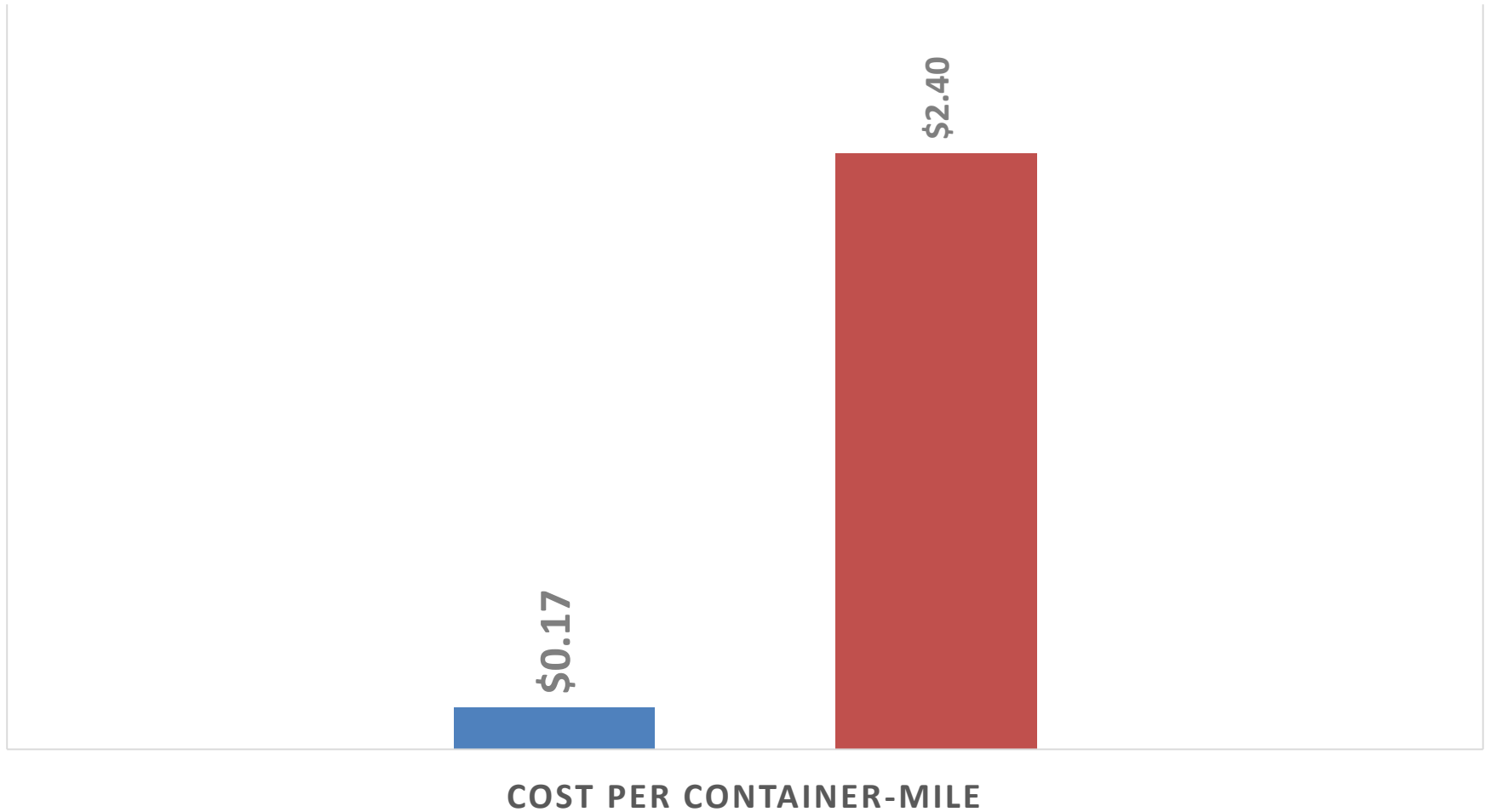
Defining: “Navigable River”

- At least 9 ft. of draft, nine months in a year



COST OF MOVING GOODS

■ Waterway ■ Road with Trucks/Trailers

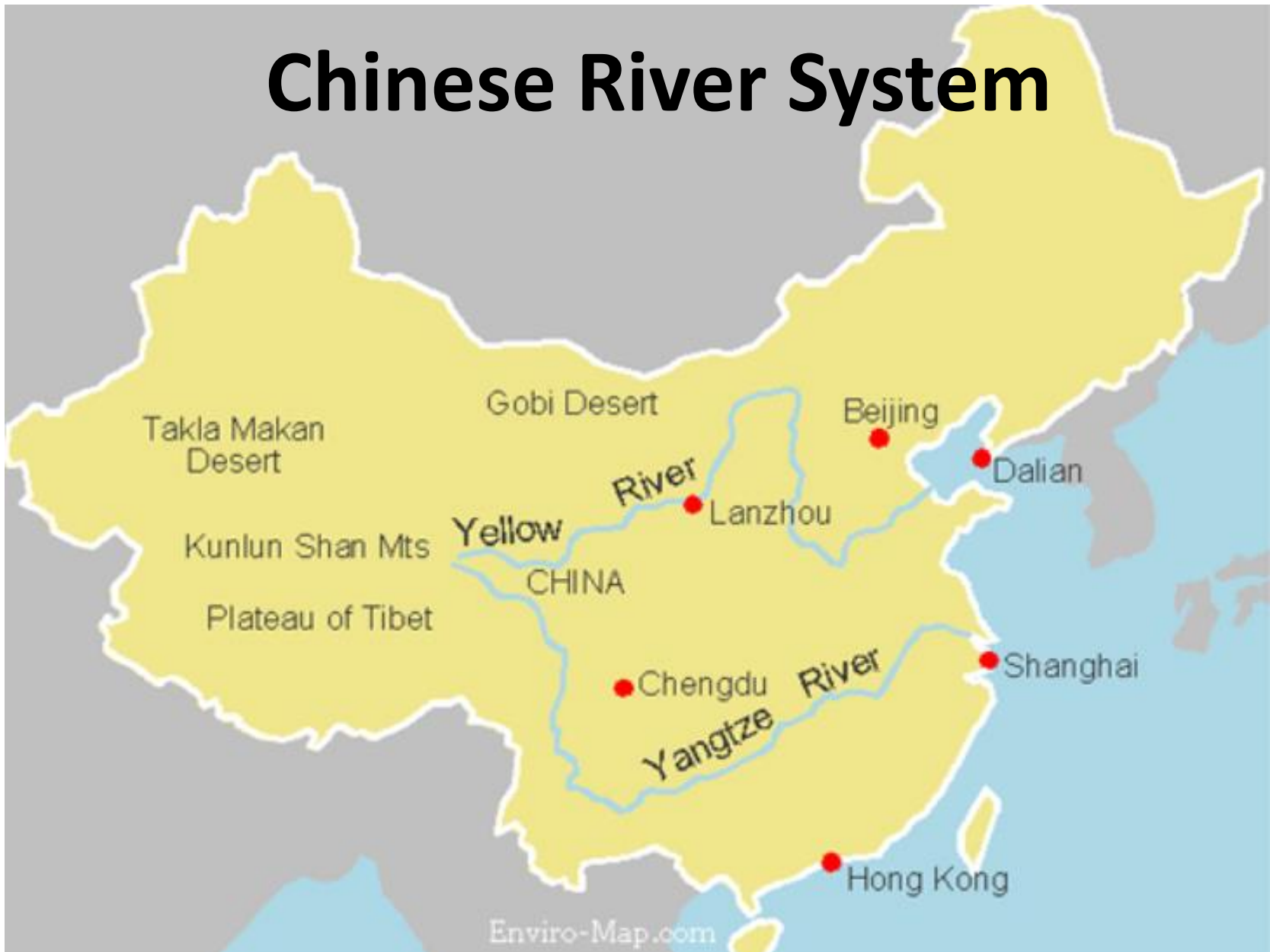


US River System



Lizardpoint.com

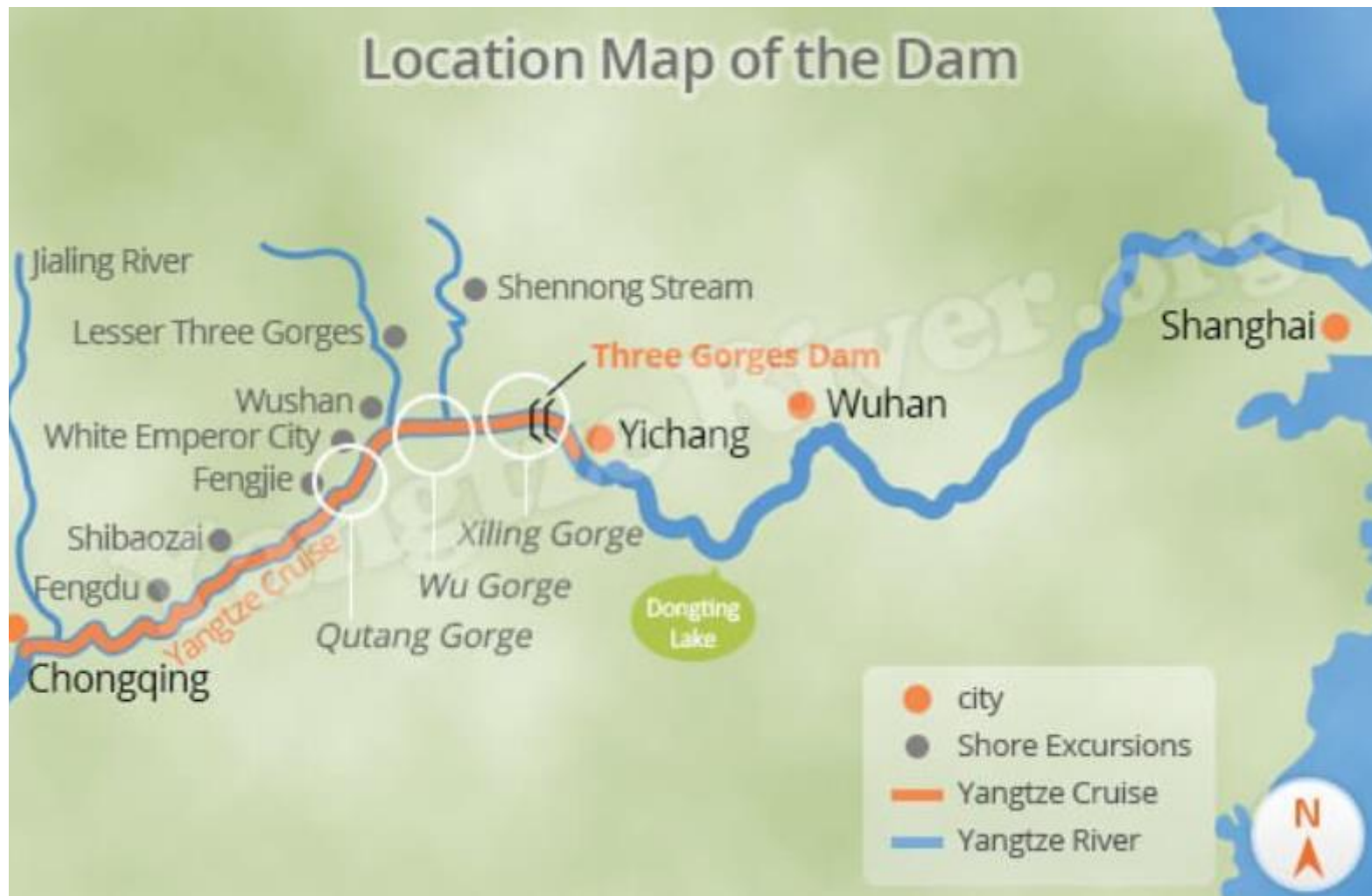
Chinese River System



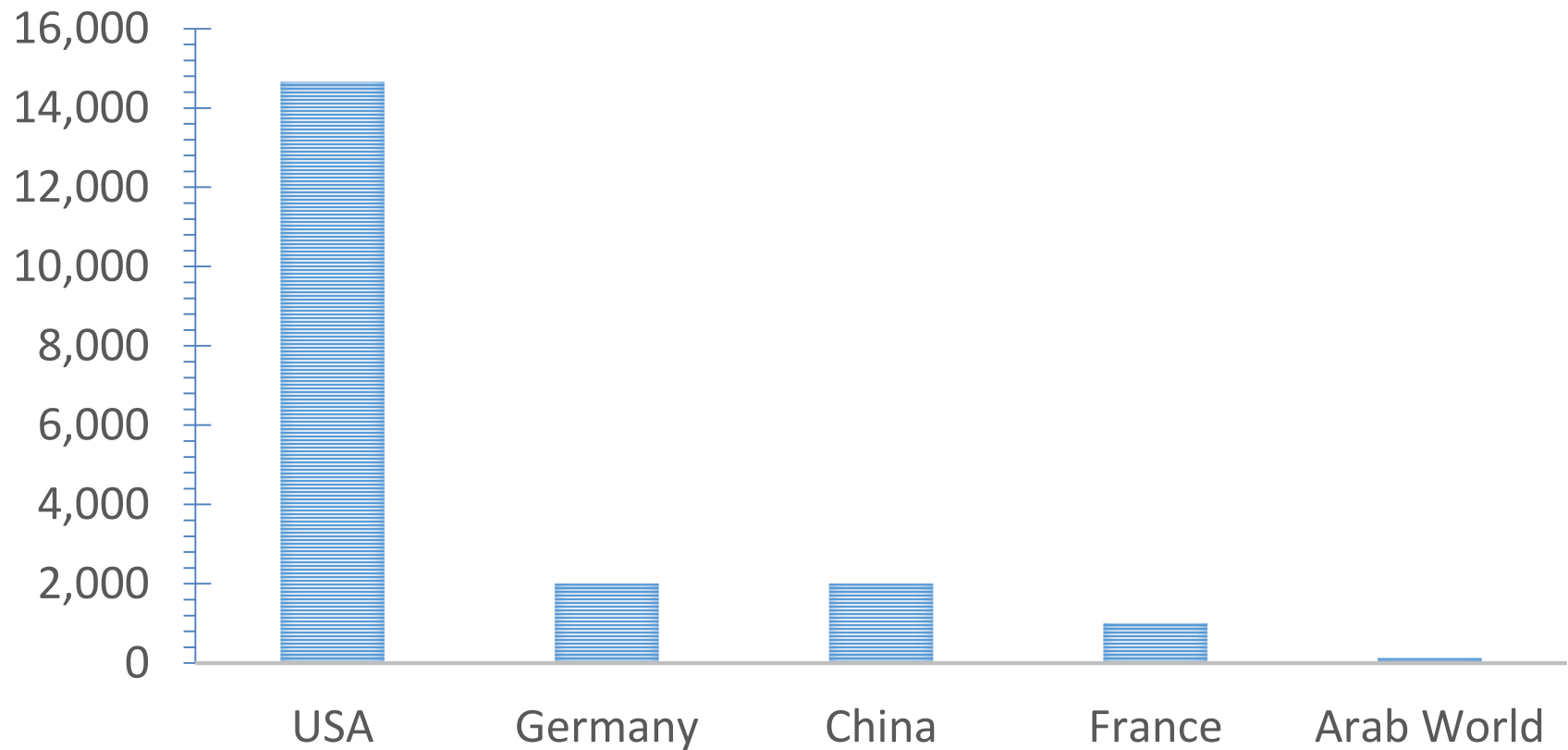


The Ferocious Yellow River (Huang He) 3,395 miles long
Since 602 B.C., the river has changed course 26
times & produced 1,500 floods killed millions

Three Gorges Dam: World's Largest: 22.5 Gigawatt [Hoover Dam is 2GW)



MILES OF NAVIGABLE RIVERS



Agriculture & Industrialization

China: Geographic View



The Chinese Geography

- China lacks the great fertile plains with river systems that US is blessed with
- Yellow River is extremely flood-prone
 - Several times a year, large scale flooding
 - Unlike the Nile that flows in a valley, Yellow does not
 - Broad & flat flood plains causes huge population displacement
 - 1 million died in 1933 & also in 1997
 - Huge maintenance projects since 1997
- This impacts development of political system

World's Largest Construction Project (In Han Dynasty)?

- Construction of river levees around the Yellow
 - To protect the population & agriculture
- The silt problem
 - All rivers carry silt, Yellow's unusually heavy
 - Unable to dump this silt to floodplain, Yellow is essentially a “managed canal”
 - Steady accumulation of sediment raised the river-bottom
→ needed higher & higher levees
- It now an “aqueduct” where bottom is above the ground → broken levee → huge flood



Impact on Agriculture

- Northern Chinese Planes (NCP) are fertile & large (158,000 Sq. Miles)
 - Equal to Nebraska, Iowa & Illinois combined
- All Yellow lower watershed is in NCP making it hard to maintain & control for consistent irrigation → requiring armies of people
- Flat plains means no individual barriers or political centers → warring factions

The Fragmented Plains

- Yellow is not navigable (due to heavy engineering)
- Capital-poor nature of North-Western China makes it hard to invest in infrastructure
- Eastern-West is also a problem
 - Holding the river in place saps all manpower

Lack of Local Political Centers

- Most of manpower applied to feeding people
 - Taking away from building armies to protect
- Successful Chinese government must be tightly manage
 - So that masses can be hurled, if needed, to engineering problems
 - Millions have died over the centuries
 - (7-million in Mao's war of independence alone)



Wheat vs. Rice Cultivation

- Wheat requires sowing, harvesting & thrashing
- Rice paddy requires:
 - Prep before planting
 - Plant stalk by stalk in specially prepared clay beds
 - Clay beds must hold water, can be fertilized, flooded, emptied, flooded again & dried
 - Harvested stalk-by-stalk, threshed, threshed again
 - Re-flooding & re-fertilization of the clay beds
- All this busy work leaves little time for political powers, industrialization or capital accumulation

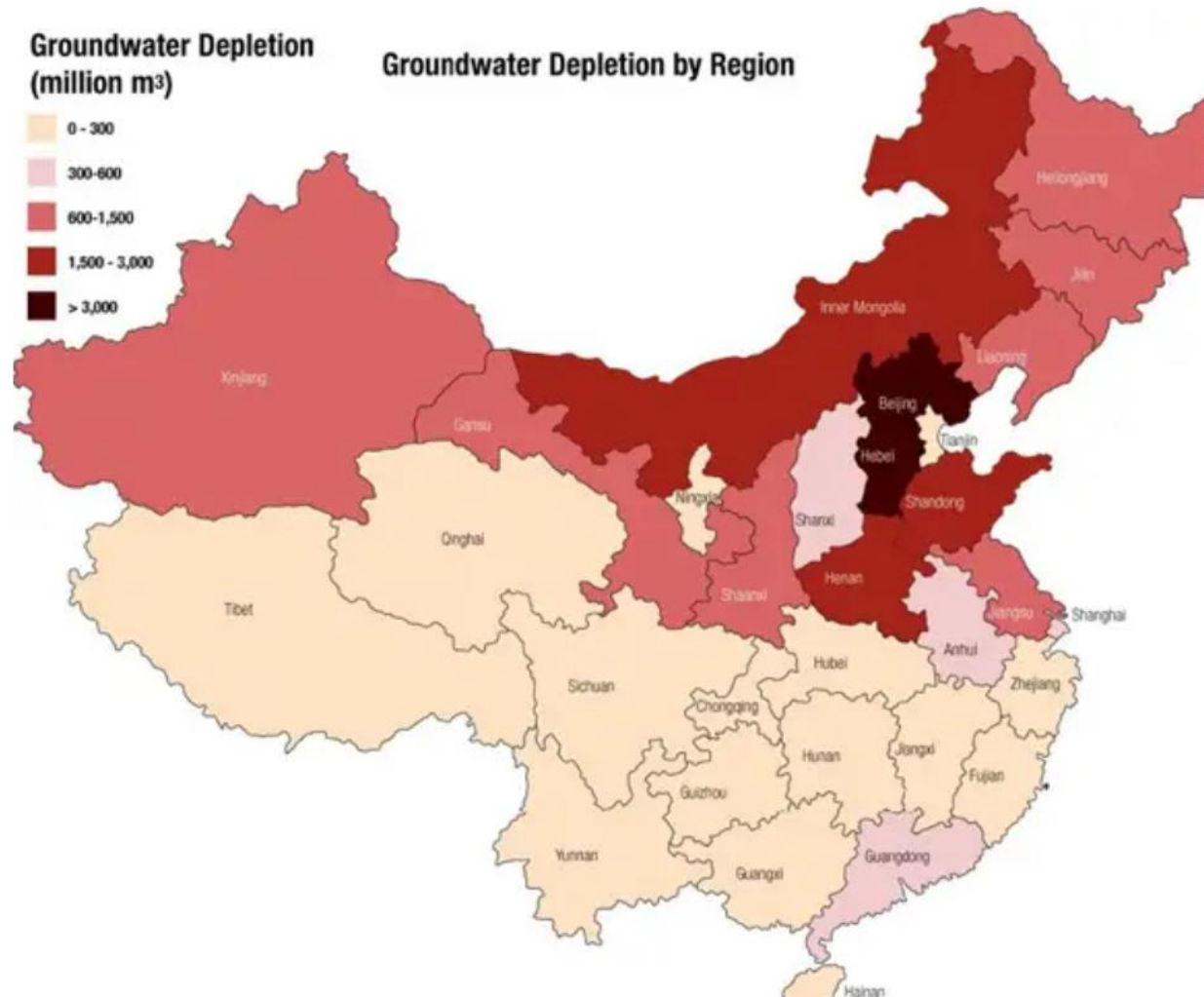
Rice Farming Leaves no Manpower for other Industrialization



They Had to Feed the Growing Population



Beijing, Tianjin & Hebei region (120m people) have less water per head than Saudi Arabia!



Central China is Capital Rich but not Integrated with Politically Strong North

- Yangtze river is sole navigable river (1,700 miles out a total 9,000 miles in system)
- But it cuts through mountains & creates fractured parcels of land



Central China More Aligned with its Trading partners

- Trading from Shanghai to Tokyo, London, San Francisco
- Northern China aligns with the wealth of central China
 - Power alternates between North & Central every 10-years

Southern (Coastal) China

- Tropical south is socially & politically disconnected with the North
- Have deep water & functioning ports (very rugged mountainous coast)
 - North's coast is sandy & not conducive to shipping
 - China has not been a naval power
- Coast attracts sea-faring foreigners
 - But hard for northern & interior regions to access

Uncommon prosperity

China's GDP per person, 2015



Extreme Poverty in Western China





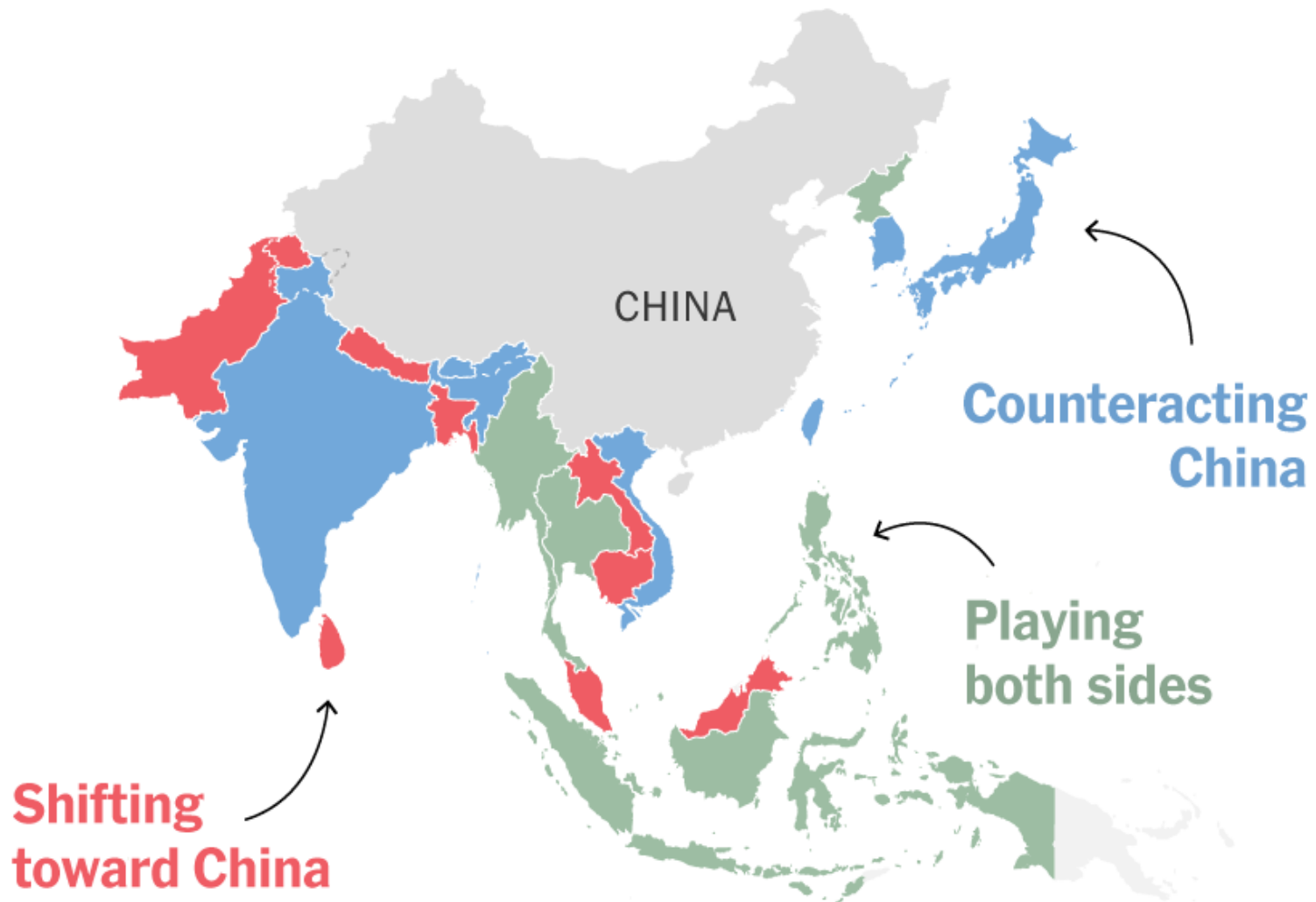
Shanghai

Holding it an a “Unified Country” is a Fulltime Job

- Local power centers emerged: 56 ethnic groups
- Remoteness forces a need to align local warlords
- Full time effort needed by the leaders to squash decenters & hold power



Geopolitical Forces: China's Allies?

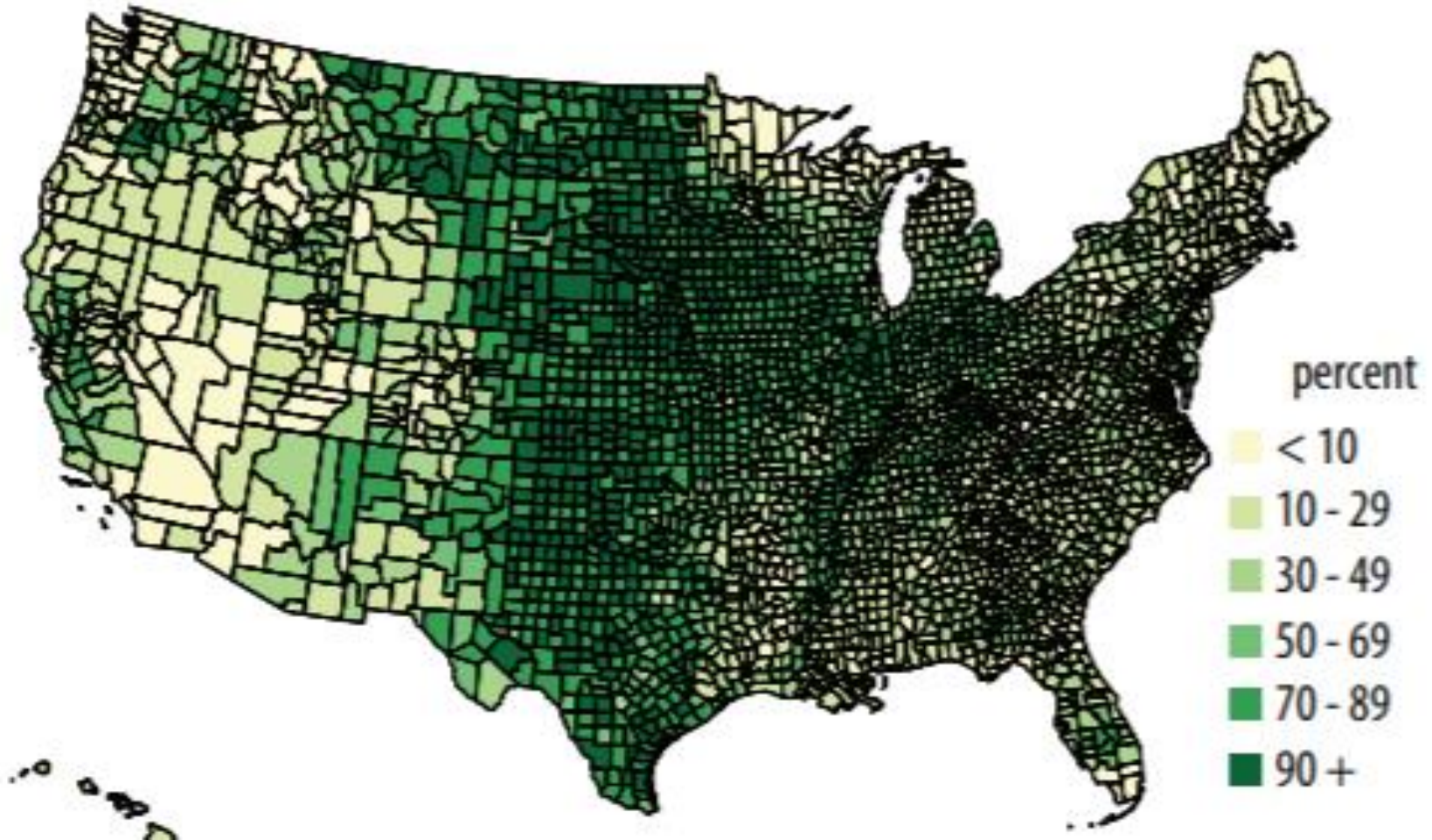


USA: Land Rich with Capital

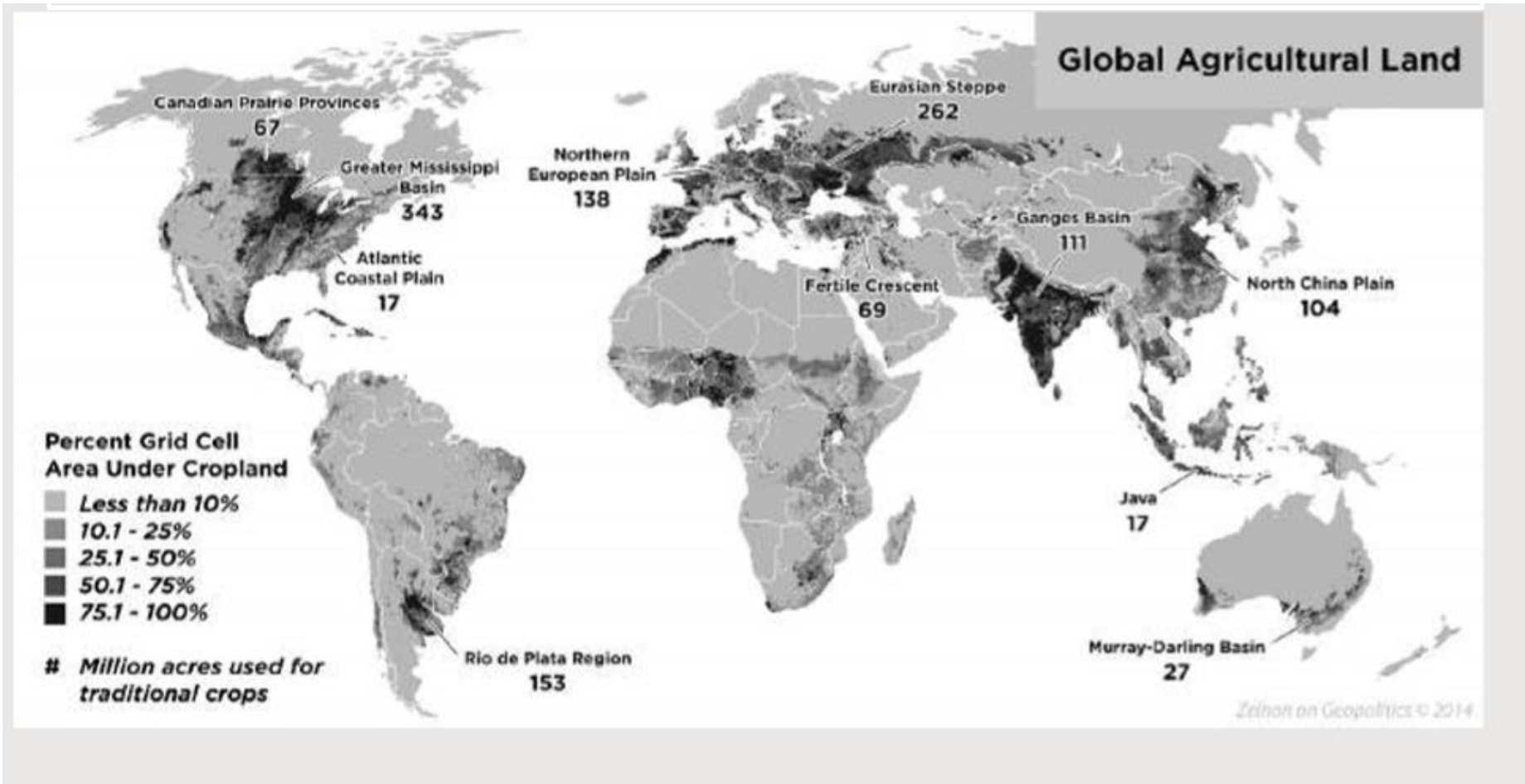
- Interconnected waterways means ease of transporting goods anywhere
- No need to spend capital on artificial infrastructure → more available capital for industrialization
- Vastness of land = less government

In US 40% of Land is Farmland

915 Million acres & 2.1 million farms/ranches



US has the largest continuous agriculture landmass in the world: 139m hectares (350 Million Acres)



Top 10 States Ag Land: 662,000 Sq. Miles

States Ranked by Value of Agricultural Sales Per Square Mile				
Rank	State	Total Crop and Animal Sales (NASS 2012)	Land Area	Sales \$'s/ Square Mile
			(square miles) (US Census)	
1	IOWA	\$30,821,532,000	56,273	\$547,714
2	DELAWARE	\$1,274,014,000	2,489	\$511,858
3	INDIANA	\$11,210,818,000	36,420	\$307,820
4	NEBRASKA	\$23,068,756,000	77,348	\$298,246
5	ILLINOIS	\$17,187,052,000	57,914	\$296,769
6	CALIFORNIA	\$42,627,472,000	163,695	\$260,408
7	MINNESOTA	\$21,280,185,000	86,936	\$244,780
8	NORTH CAROLINA	\$12,588,142,000	53,819	\$233,898
9	OHIO	\$10,064,085,000	44,826	\$224,514
10	KANSAS	\$18,460,564,000	82,278	\$224,368

**In a bad year USA produces 1b bushel of wheat,
9b bushel of corn, 2.5b bushel of soybean**

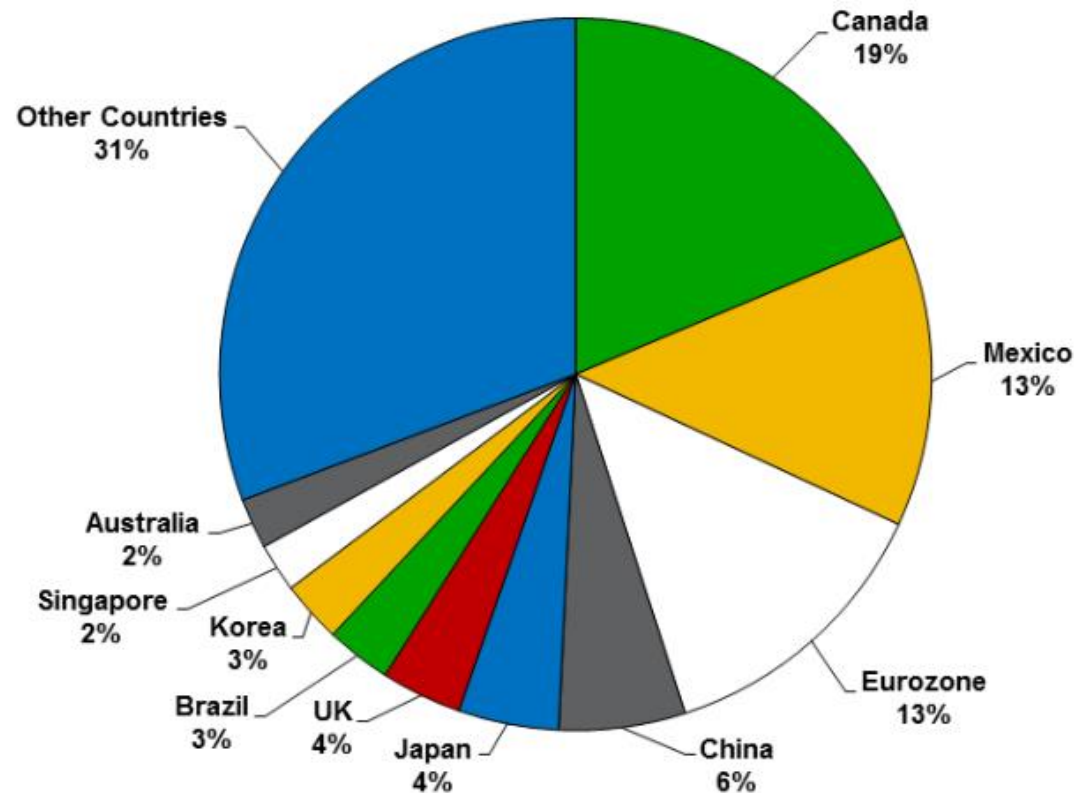


NORTH AMERICAN AGRICULTURAL REGIONS



American Dependence on International Trade: 15% of GDP

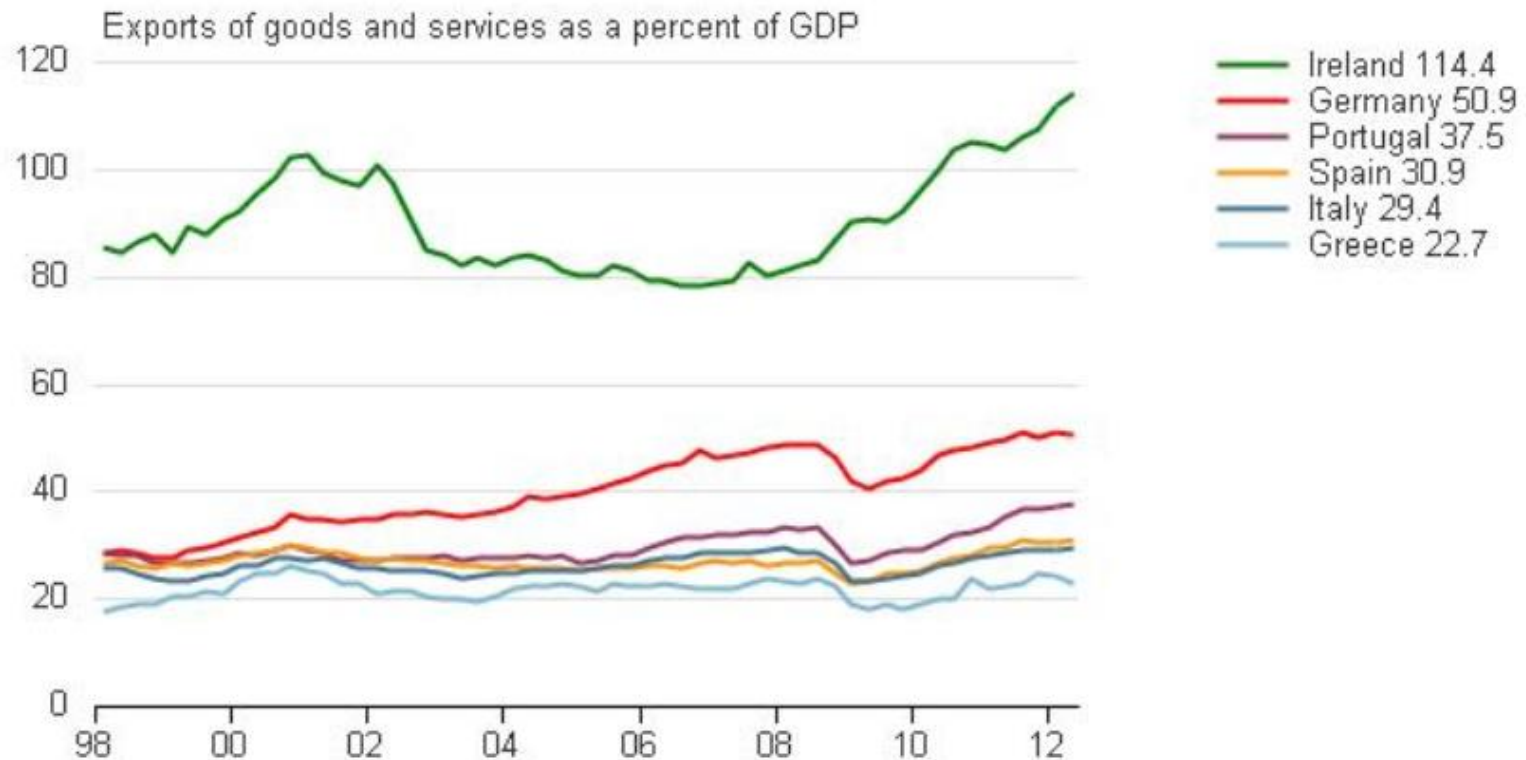
U.S. Manufacturing Exports to 238 Countries
Exports by Country/Region, 2012



Source(s): U.S. International Trade Commission and MAPI

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Exports as a % of GDP



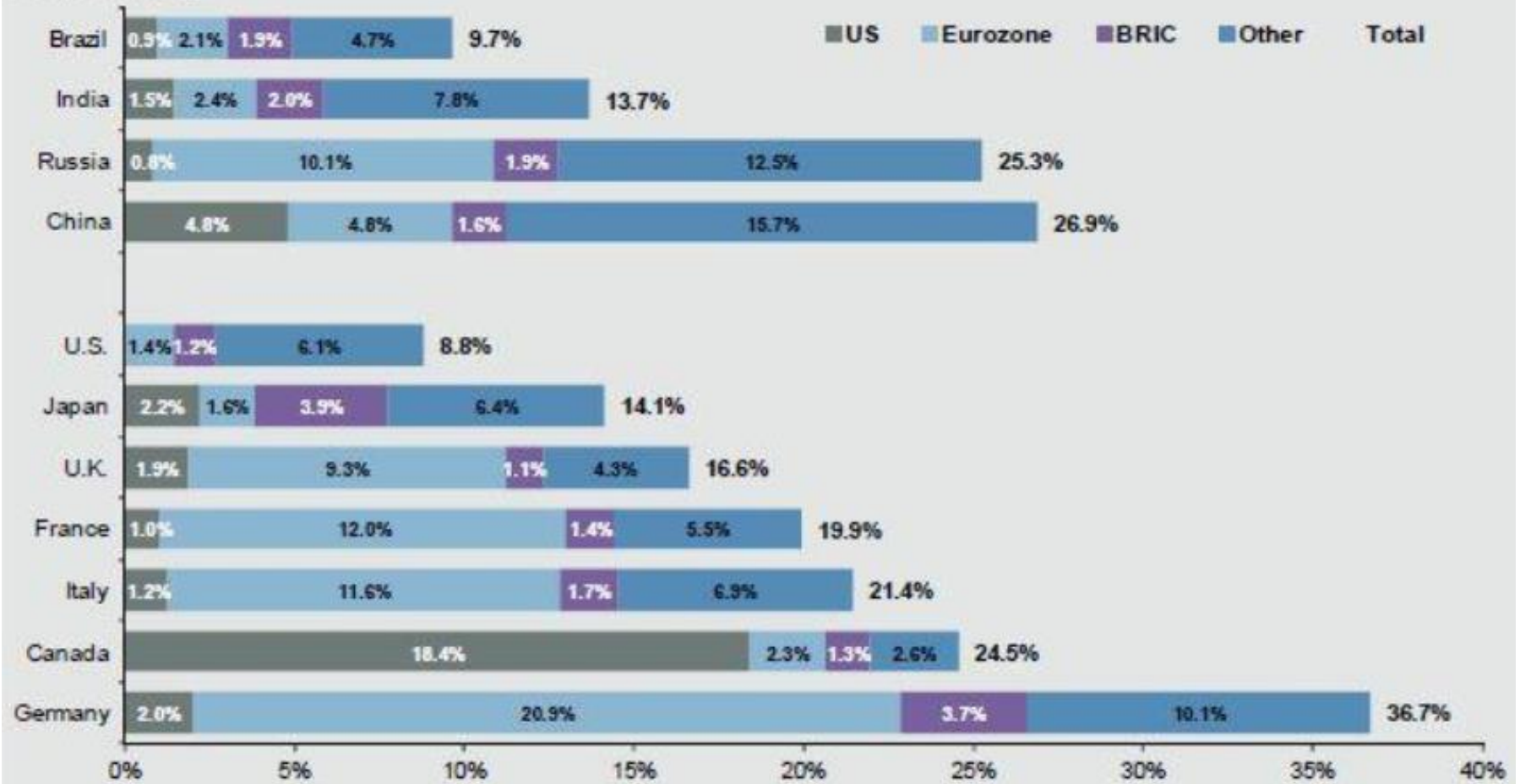
Source: Thomson Reuters Datastream, Oxford Economics Reuters graphic/Scott Barber 18/06/2012

Goods + Services

US is Self Sufficient

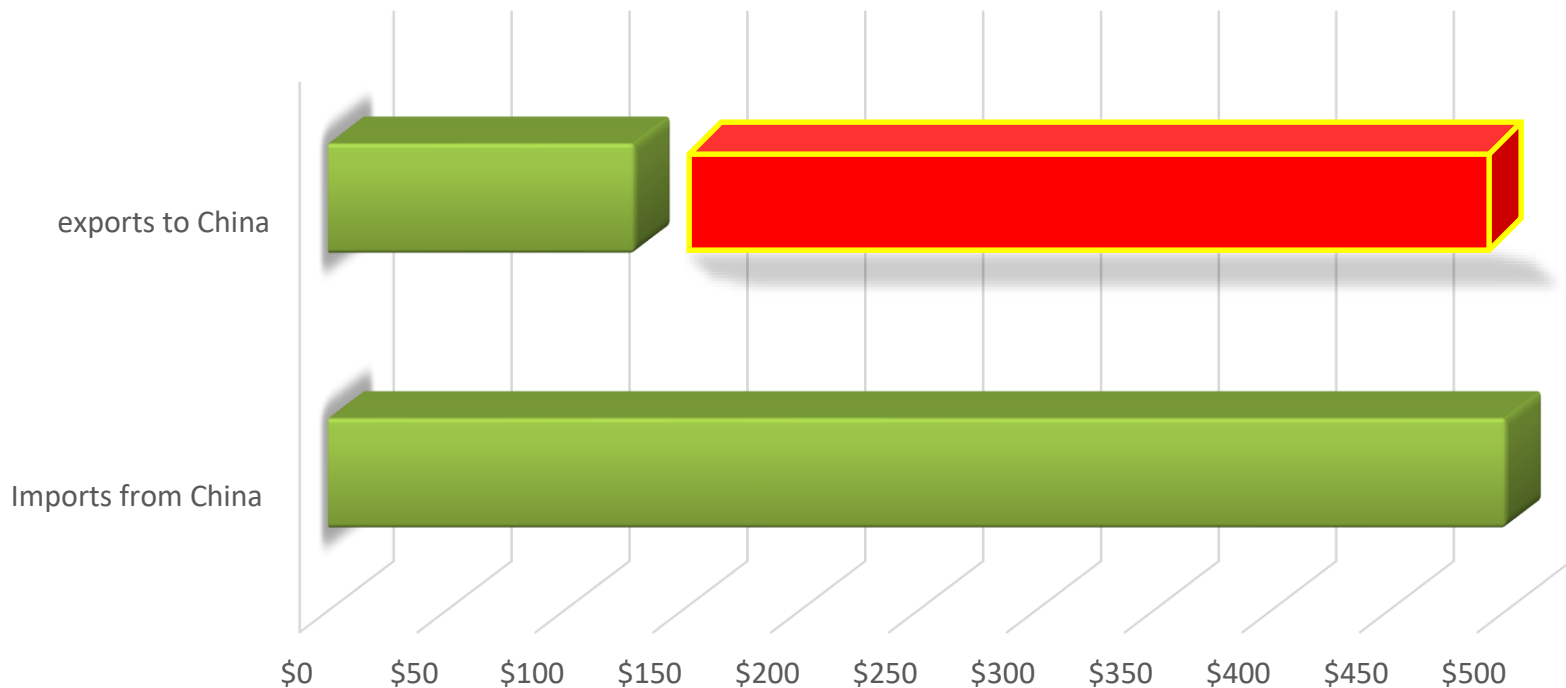
Exports as a % of GDP – 2010

Goods exports only



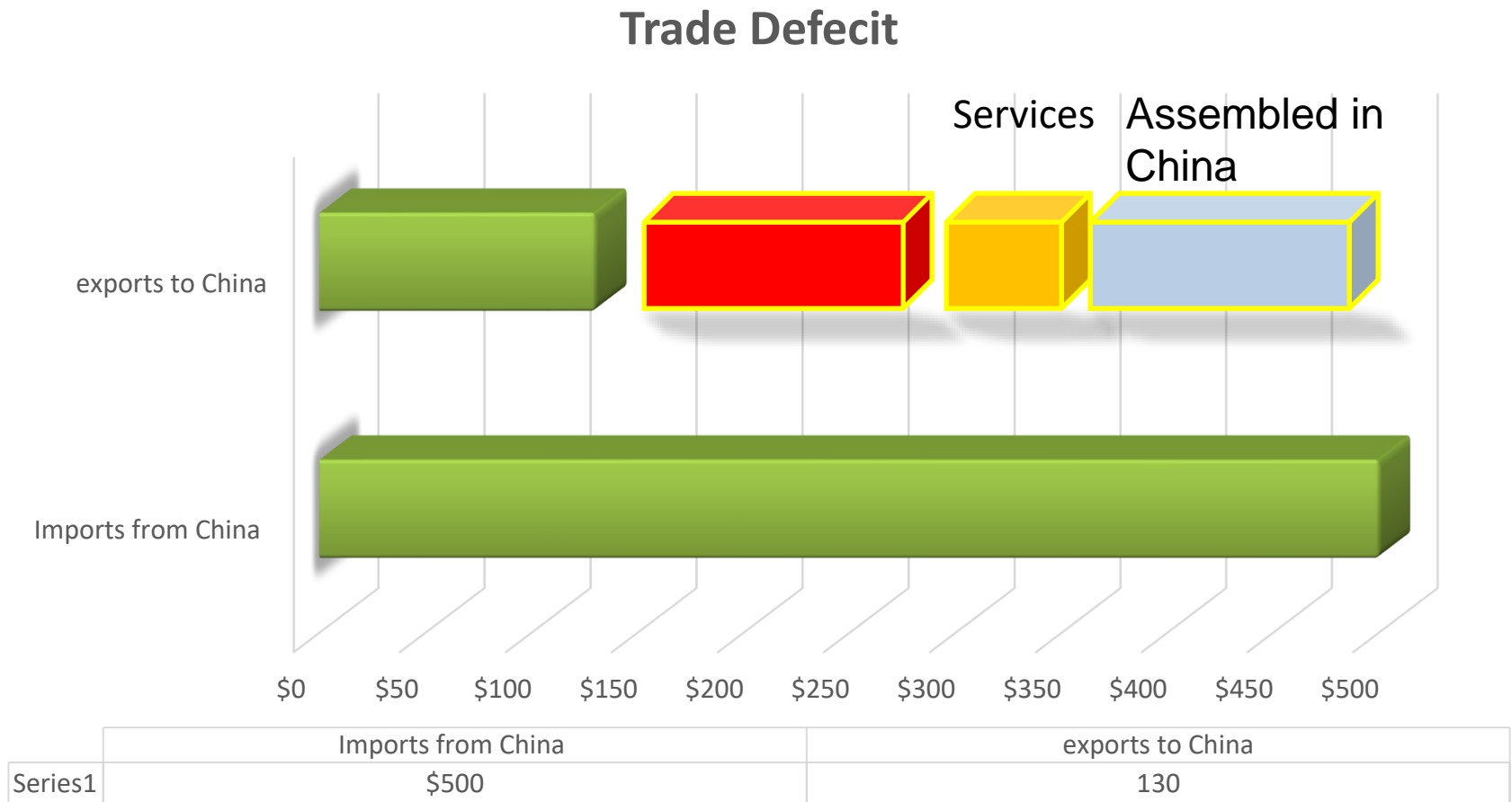
US China Trade Imbalance: \$270B?

Trade Defecit

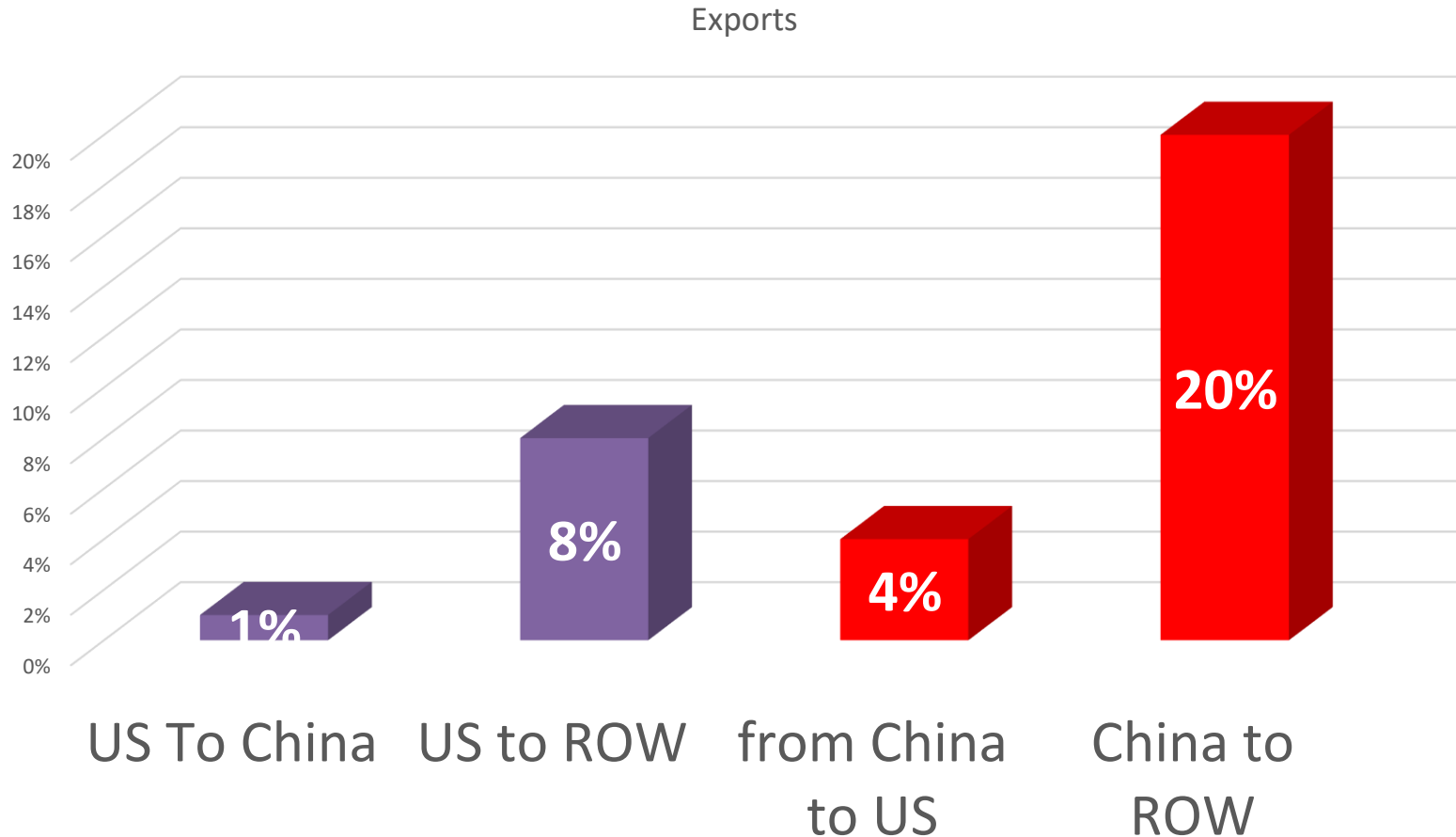


Series1	Imports from China	exports to China
	\$500	130

US China Trade Imbalance ~\$110B



US Economy's Dependence on Exports is Minimal

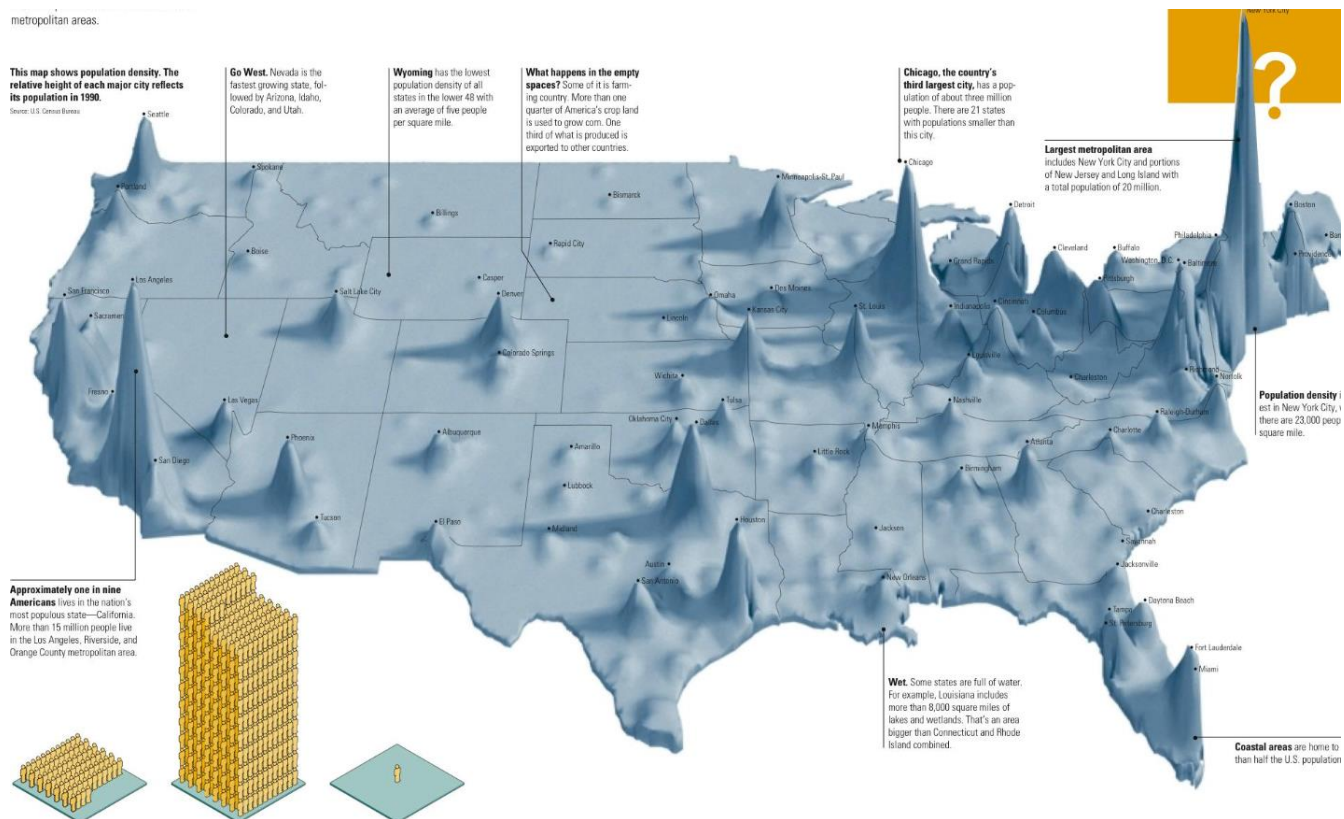


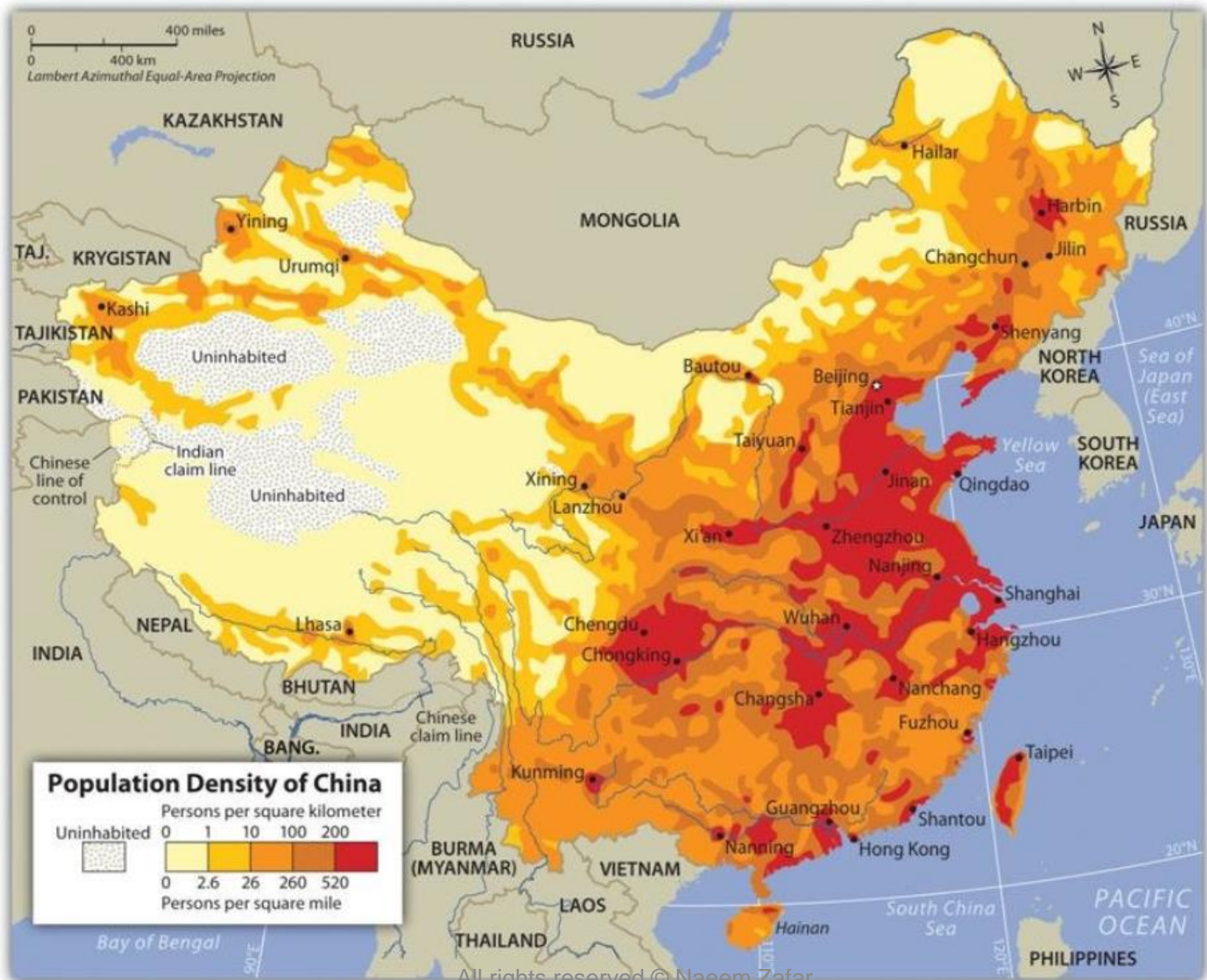
Deep-Water Ports Necessary

- Africa has more than 16,000 miles of coast *but less than 10 bays for suitable ports*
- Southern Brazil & Chinese coast have cliffs
- USA has more deep water ports than the **rest of the world – combined!**
- Texas alone has 13

Population Distribution USA

- With 50M people on the west coast and 100M on the east coast USA has the flexibility to change dance partners without a hiccup





Natural Evolution of Educational & Financial System

- As farmers grew same crops, had need to same tools, used same local banks & built local schools → small towns popped up along the riverways
- Larger towns formed naturally where 2 rivers met & at the navigation heads
 - Chicago, Pittsburg, Minneapolis, Kansas city, Albany, Memphis, Louisville, Charleston, St. Louis

Natural Evolution of Educational & Financial System

- 50 urban centers existed in US when industrial technologies came from Europe with own educational & financial systems
- Infrastructure: 164M miles of track & roads by 1890 without much investments from feds
 - Just land concessions to Robber Barons did the trick



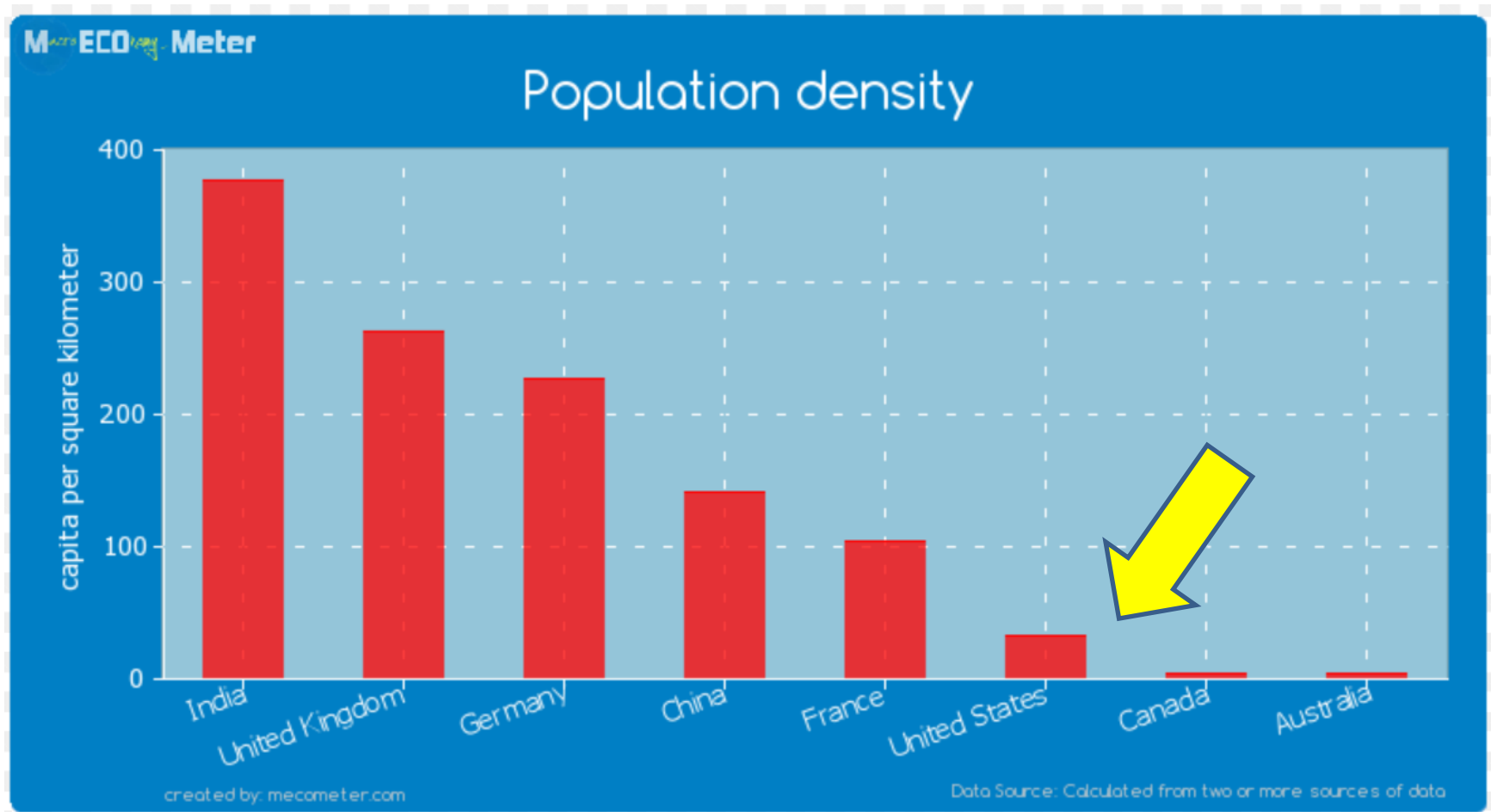
Industrialization in USA

- Integrated waterways + world most fertile land + complete lack of strategic threats = world's largest capital base (& least need for it)
 - Unlike Germany where every morsel of cash was needed to funneled through banks
 - No need to for government to regulate capital allocation
- → **Resulted in world's first truly integrated financial system**

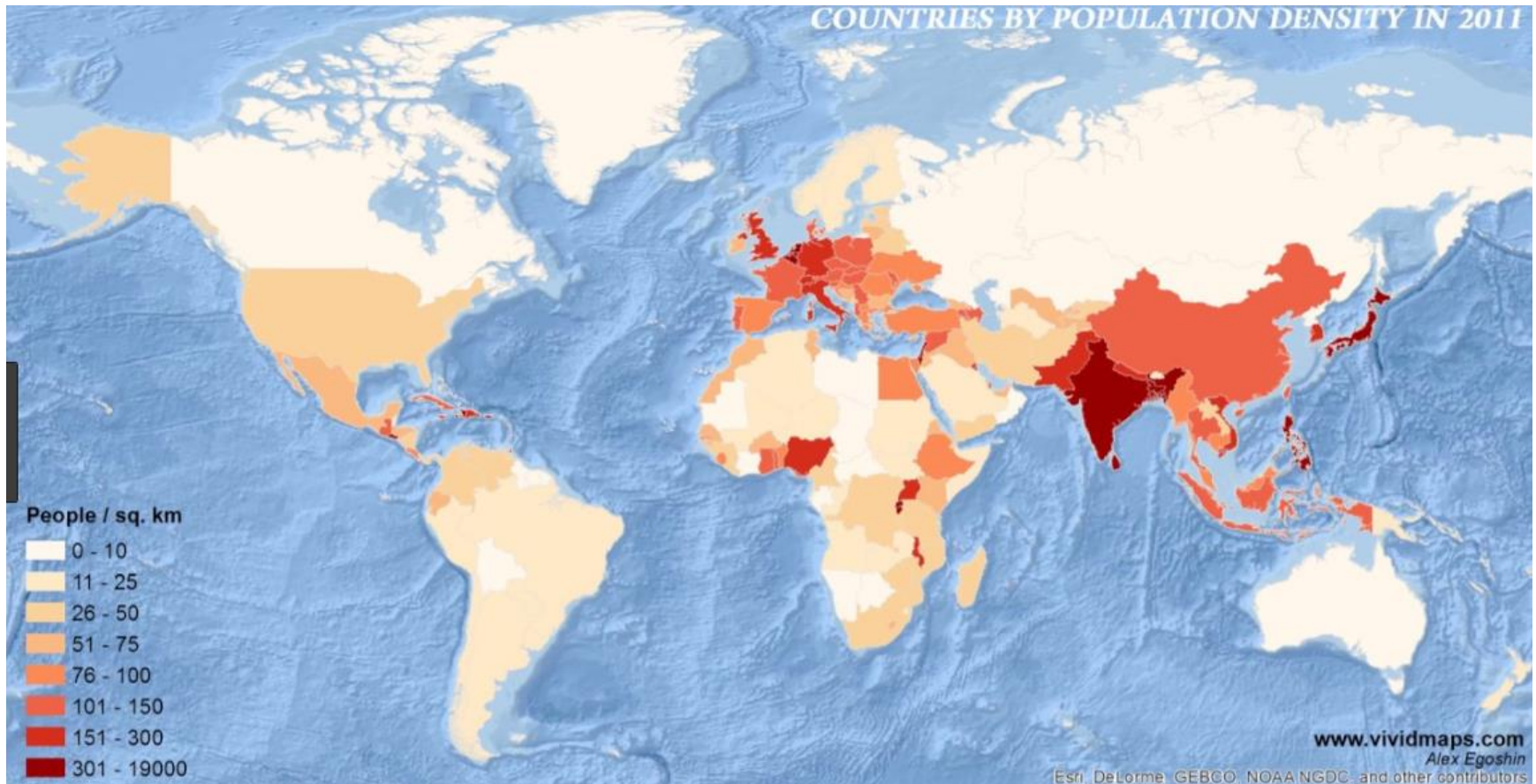
The Land of the Plenty

- World's largest agriculture, technological, financial and (depends on how to calculate) industrial power
 - And has been for 150 years!
- Availability of land, labor & capital in unprecedented in human history
- → USA does not have to at its *best* to be better than everyone else!

US Still Has a LOT of Room to Grow



US: 180 people/Sq. Mile



Economy & Demographics

The Big Bad Panda?

- Almost everyone is afraid of China
 - Largest population
 - Soon to be largest economy
 - Most powerful military?

But Why Now?

Why after 3500 years since Han Chinese first emerged as a nation is the Chinese dominance is obvious & inevitable?

Is this About the American Psyche?

Remember:

- Rise of USSR! In 1952, 1960s & 1970s
- The inevitable rise of Japan in 1980s

So why now?

Why Did China Unite & Became Economically Powerful: **WWII**

1. American eliminated their biggest rival & threat after WWII: Japan
2. American **Bretton Woods** agreement stopped European colonizers west of India
3. Bretton Woods opened global markets to China which it had not enjoyed ...ever!

But Can It Last?

China has three major problems

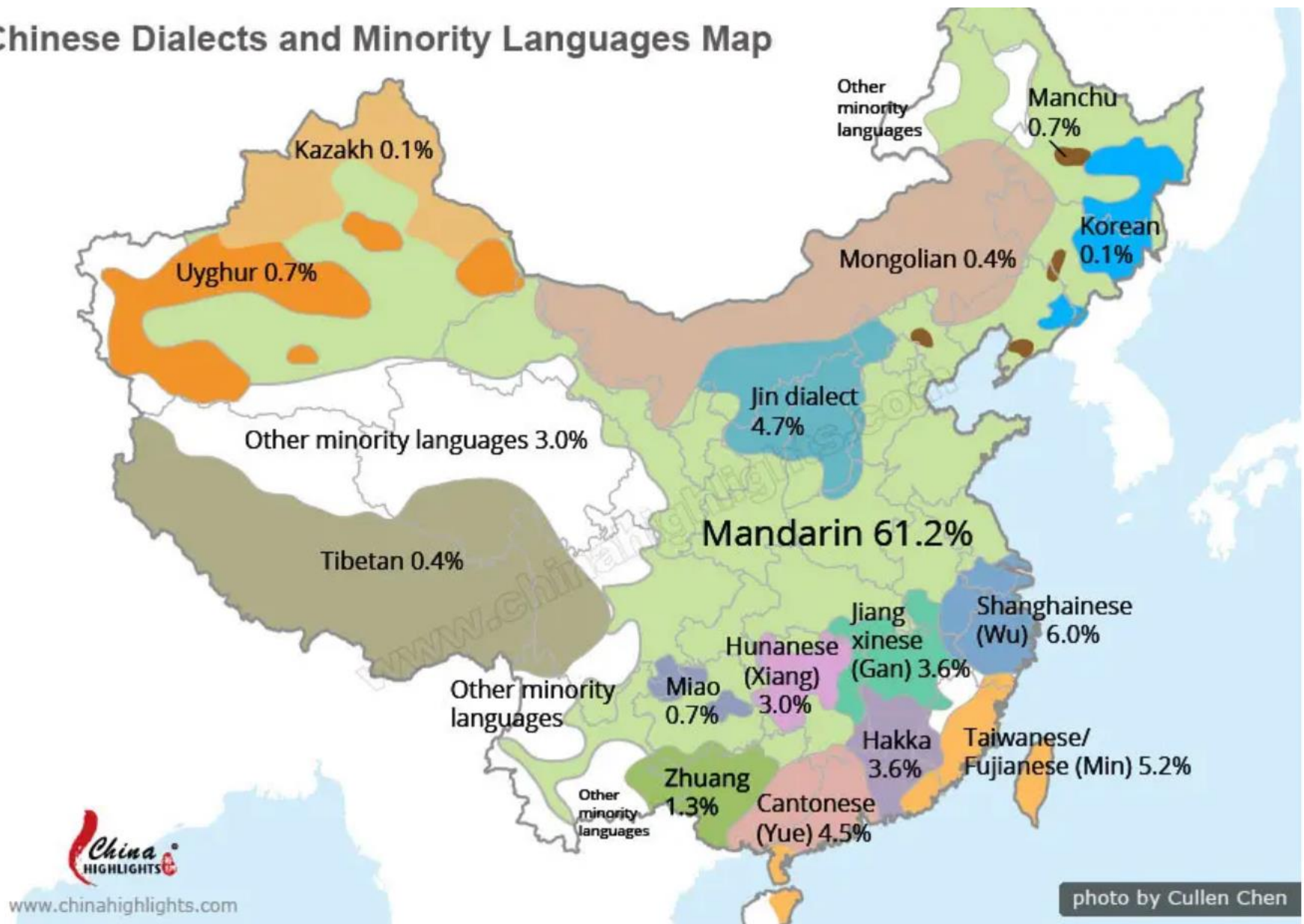
1. Economy: artificially propped
2. Demographics
3. American dependency

China's four regions do not coalesce naturally – they need a strong adhesive: Money!

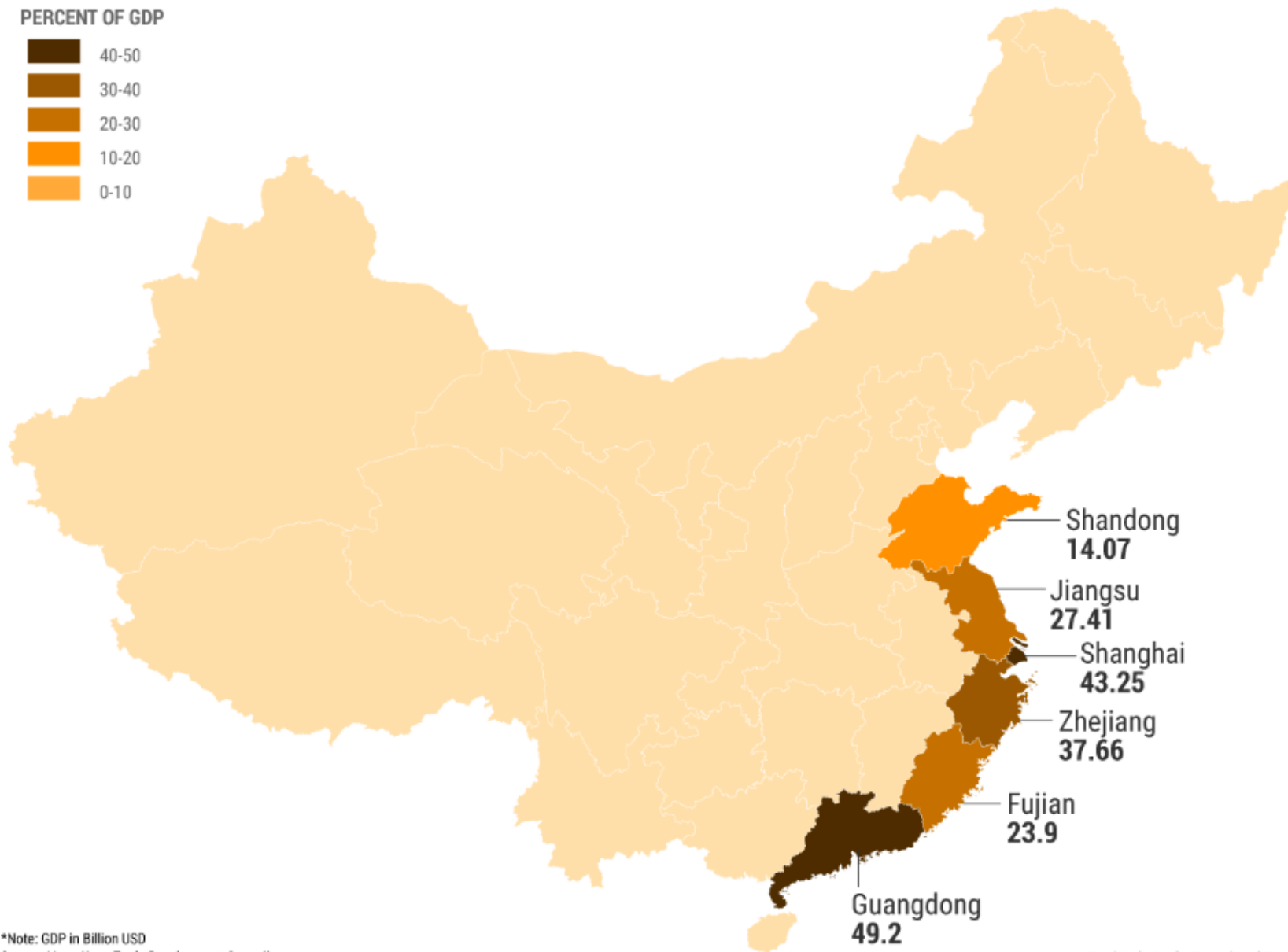




Chinese Dialects and Minority Languages Map



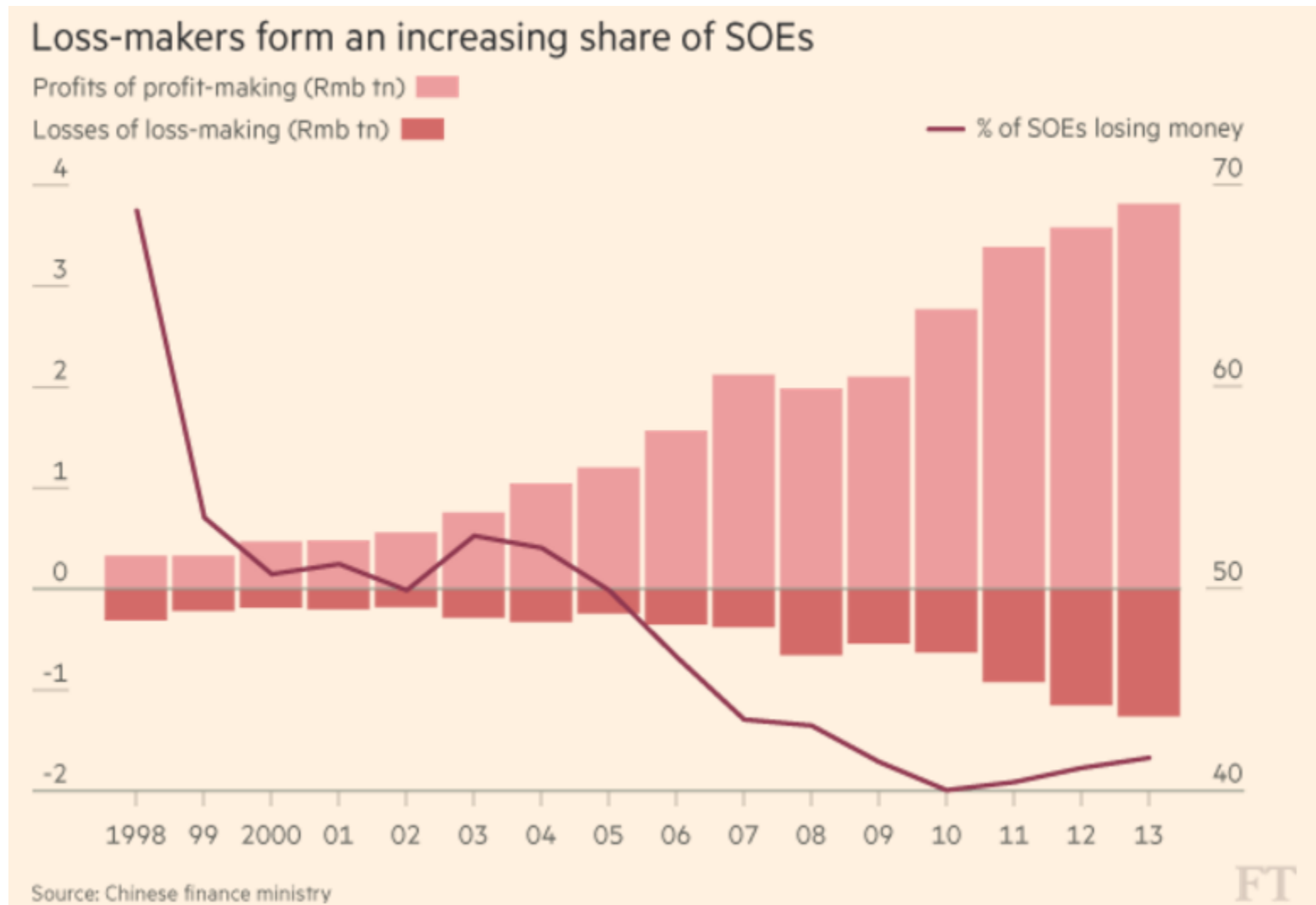
Select Chinese Provinces Export Value as Percent of GDP



*Note: GDP in Billion USD
Source: Hong Kong Trade Development Council

Graphic design by Geopolitical Futures

Chinese Economy is not About Profits – It is About Employment



This Persistent Subsidy Model Created Amazing Growth

- Loans essentially translate to subsidy
- ~9% growth for last 30-years created world's 2nd largest economy to date
 - *Thanks to Bretton Woods & WTO for creating a bottomless demand for subsidized goods worldwide*
 - *Especially if you do not need to care about quality, debt, output, reputation, or profits*

This creates extreme collusion between the Communist party leadership & bank management

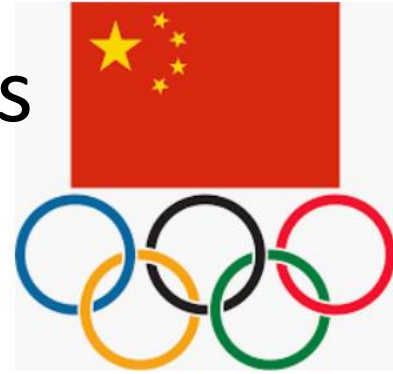
Transition from SOE Was Hard

- By 1999 40% of all bank loans were “bad loans”
 - *Heavy lending to State-Owned Enterprises (SOE)*
- Four “Bad Banks” were established to clean up bank balance sheets & acquired ~50% of bad loans (18% of GDP!!)
 - Now there are 35 bad banks

*No one knows the extent to this bad loan problem
but it is expected to get worse if the economy
slows down*

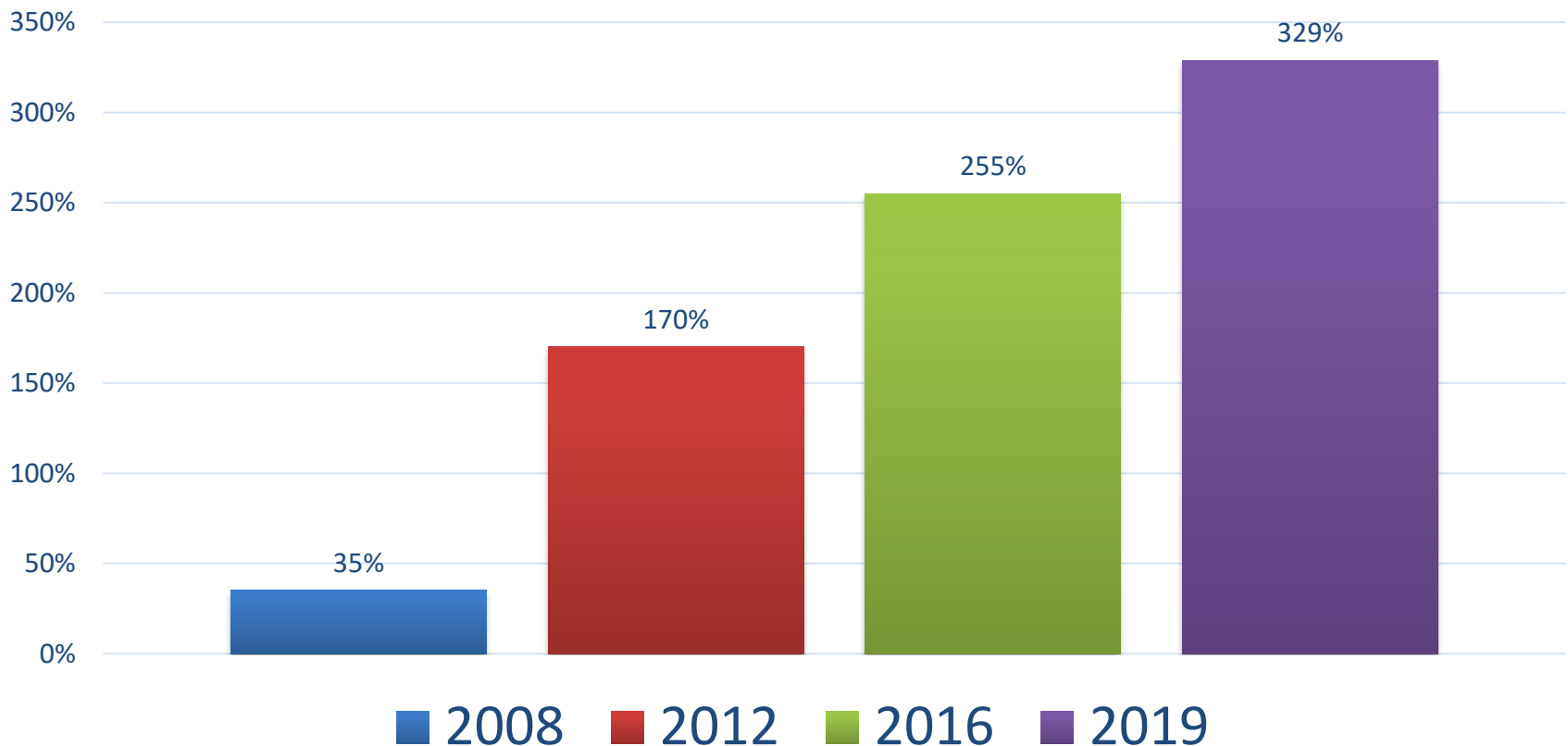
Problem Got Worse in 2008

- China as distracted with Olympics
 - 6m new grads had no jobs
 - Millions workers sent to countryside
 - To eliminate air pollution factories closed
- Sichuan earthquake claimed 90,000 lives
- Govt started a huge (\$586B stimulus package) to jump start economy in Nov 2008 – financed by bank lending

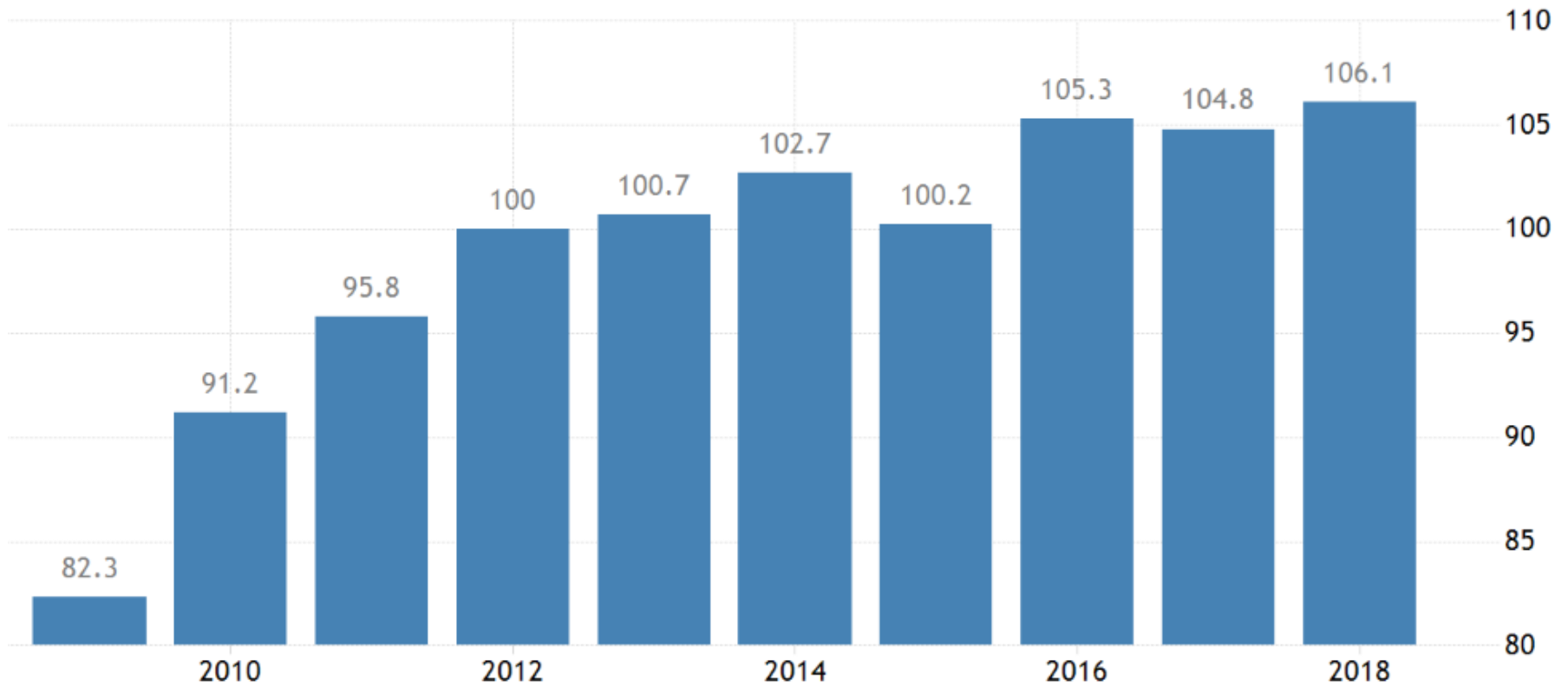


China's Debt Accounted for Bulk of Global Debt that rose from \$150T to \$329T between 2007 & 2017

China Rising Debt as a % of GDP



US Federal Debt as a % of GDP



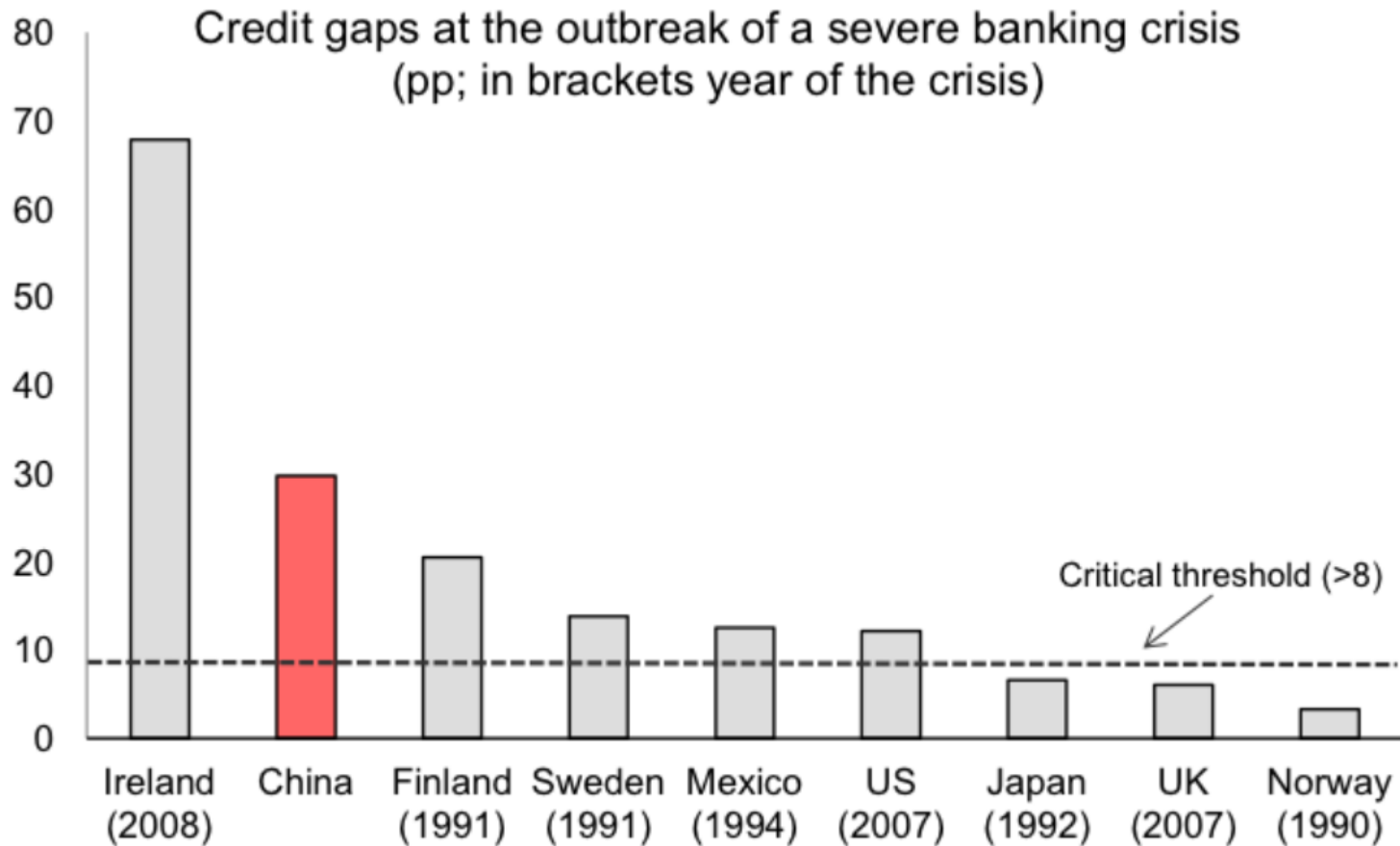
SOURCE: [TRADINGECONOMICS.COM](https://tradingeconomics.com) | U.S. BUREAU OF PUBLIC DEBT

Credit Gap is an Early Warning Sign of Financial Crisis

Credit-Gap is the difference between Credit-to-GDP ratio and its Long Term Trend



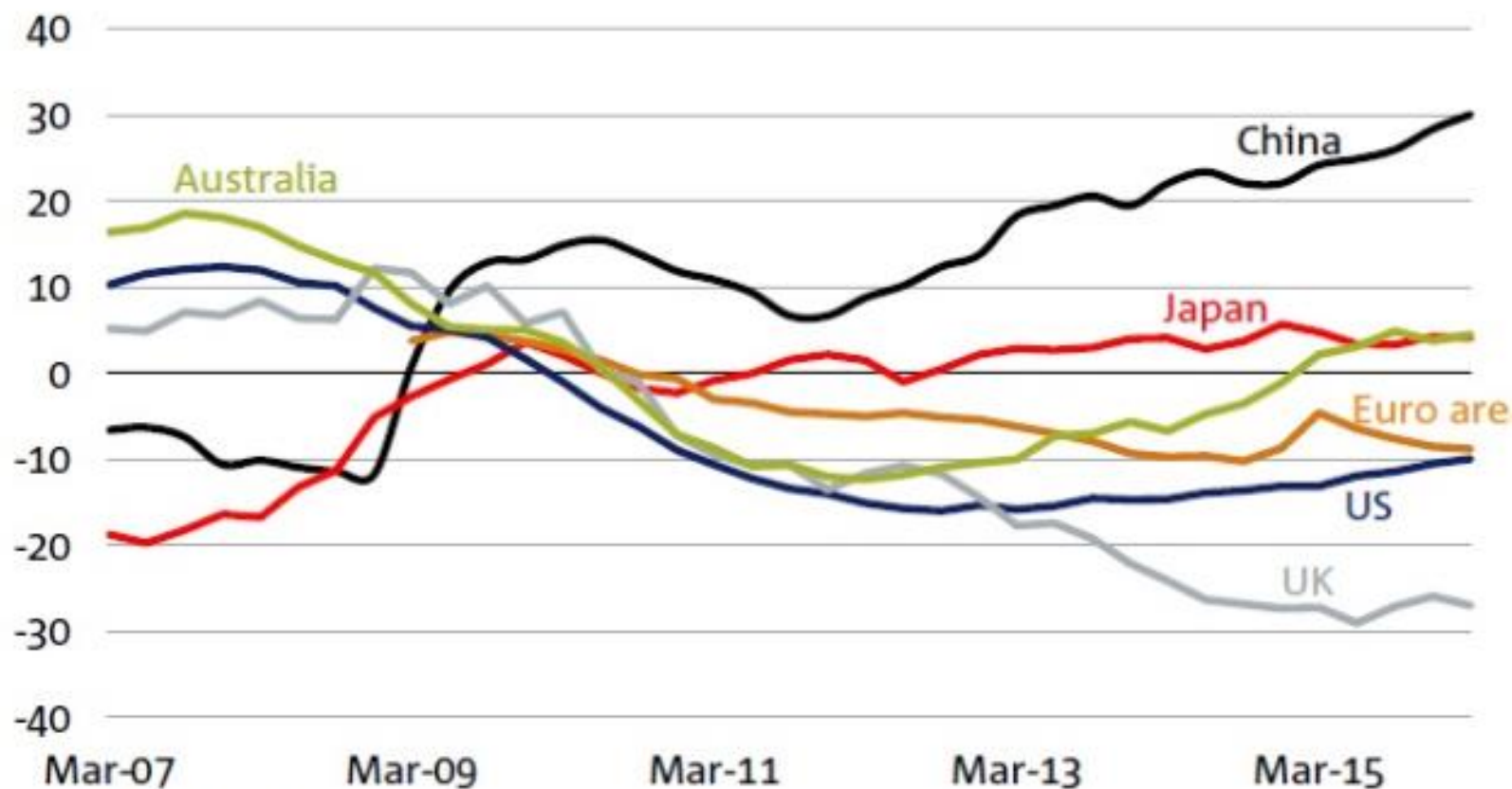
Credit Gap: Early Indicator



Source: BIS; UniCredit Research

Above 10% danger level since mid-2012

Difference between current credit-to-GDP ratio and long term trend (%)



Source: BIS, NAB Economics

In 1990s Top 10 Banks in the World were Japanese, in 2008 top 4 were American

TOP 10 WORLD BANKS				
Rank	Previous	Bank	Country	Tier 1 capital \$bn
1	1	ICBC	China	338
2	2	China Construction Bank	China	287
3	4	Agricultural Bank of China	China	243
4.	3	Bank of China	China	230
5	5	JP Morgan Chase	US	209
6	6	Bank of America	US	189
7	7	Wells Fargo	US	168
8	8	Citigroup	US	158
9	10	HSBC	UK	147
10	9	Mitsubishi UFJ	Japan	146

Source: www.thebankerdatabase.com

Chinese Banking System is Artificially Lubricated

- Lacks robust western-style banking system
 - Most of citizen's money flows into 4 state-owned banks
 1. The Bank of China [\$2.6 trillion]
 2. Agricultural Bank of China [\$2.82 T]
 3. Construction Bank of China [\$3.02 T]
 4. Industrial & Commercial Bank of China [\$3.47 T]
- All 140 Chinese banks combined assets \$33 Trillion

Bank's mandate is to lend money to anyone for anything just to keep employment going

Lending Problem is Huge

- Chinese lending in 2007 topped 3.6 Tr. RMB
 - That is \$600B
 - more than total lending in USA during height of subprime era) for an economy one third that of USA (in 2007)
 - Instead of seeing a drop in demand due to the financial crisis & shutting down factories – they supersized the loans
 - The borrowing tripled in the next two years!
 - The banks started to issue each other bonds to keep the credit flowing

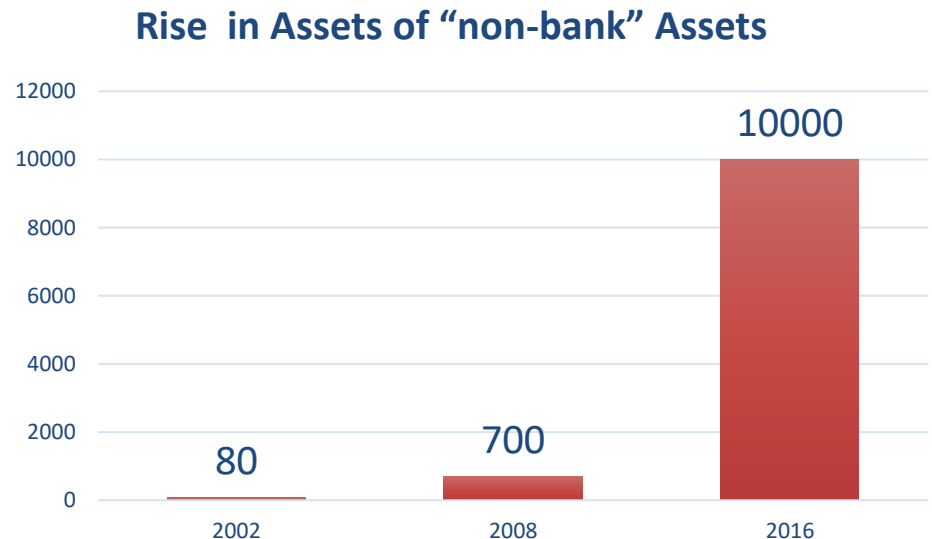
Monthly Quotas Imposed on Lending by Central Bank to Fix the Problem

- In many cases monthly quotas were reached quickly & government had to pump emergency funds
- And the banks, retail investors & firms created parallel system (with much less due diligence & quality controls) as shadow lending to lubricate the system
- By 2013 this exceeded all other forms of lending combined!
 - *Total financing reached \$5 trillion is 7X more than US lending (for an economy that was ~\$8 trillion)*

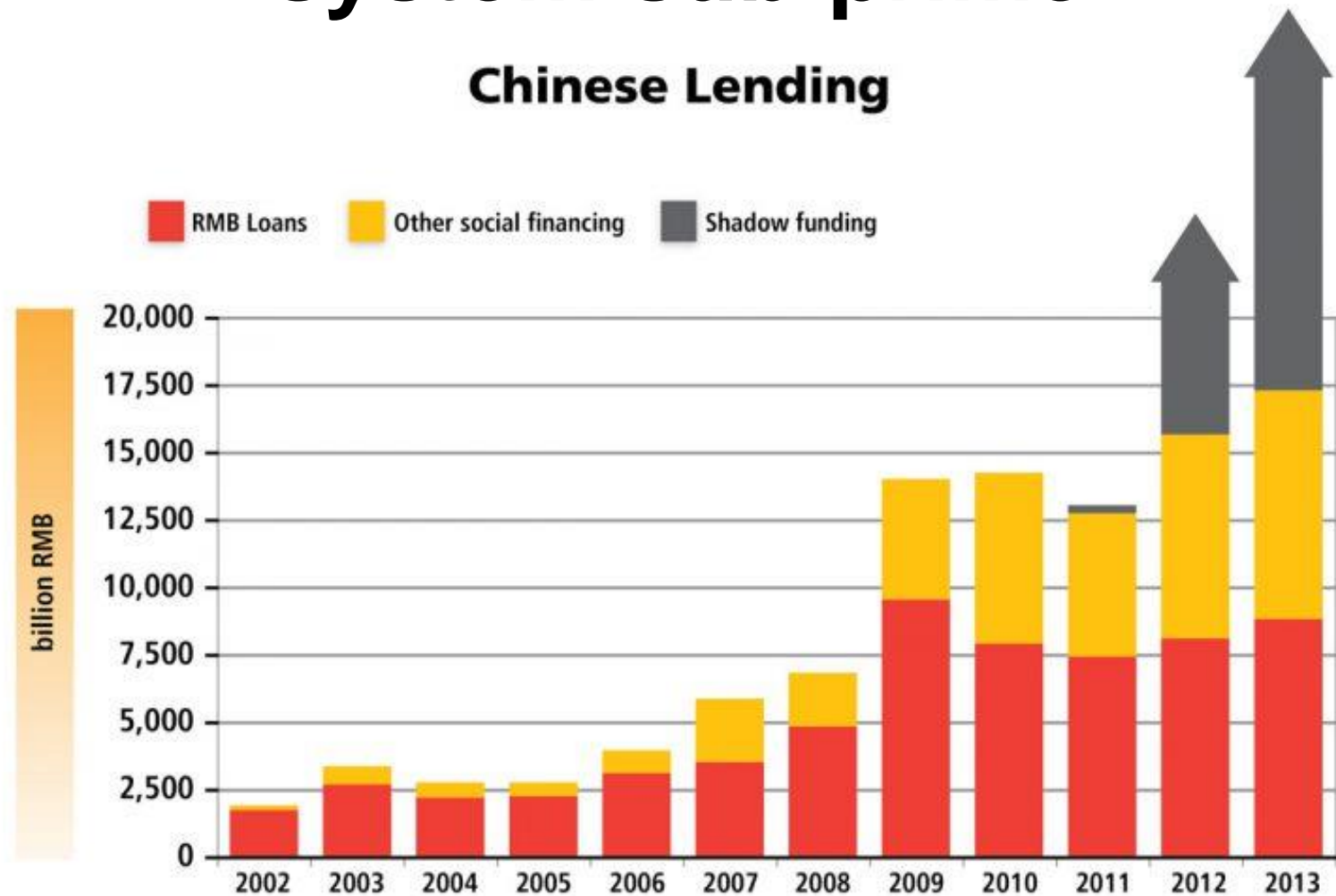
This is equivalent to Obama stimulus package (\$800B over 2-years) every 29-days!

Shadow Banking Emerged

- Non-bank financial institutions emerged
 - Wealth Management Products (WMP)
 - Financial arms of large companies, leasing , credit funds
 - Outside the eyes of banking regulators
 - Got a boost after 2008 credit boom
- **\$10 trillion in 2016!**
 - 87% of GDP
 - 29% of Banking



This makes the **whole** Chinese system sub-prime



© 2014 Zeihan on Geopolitics

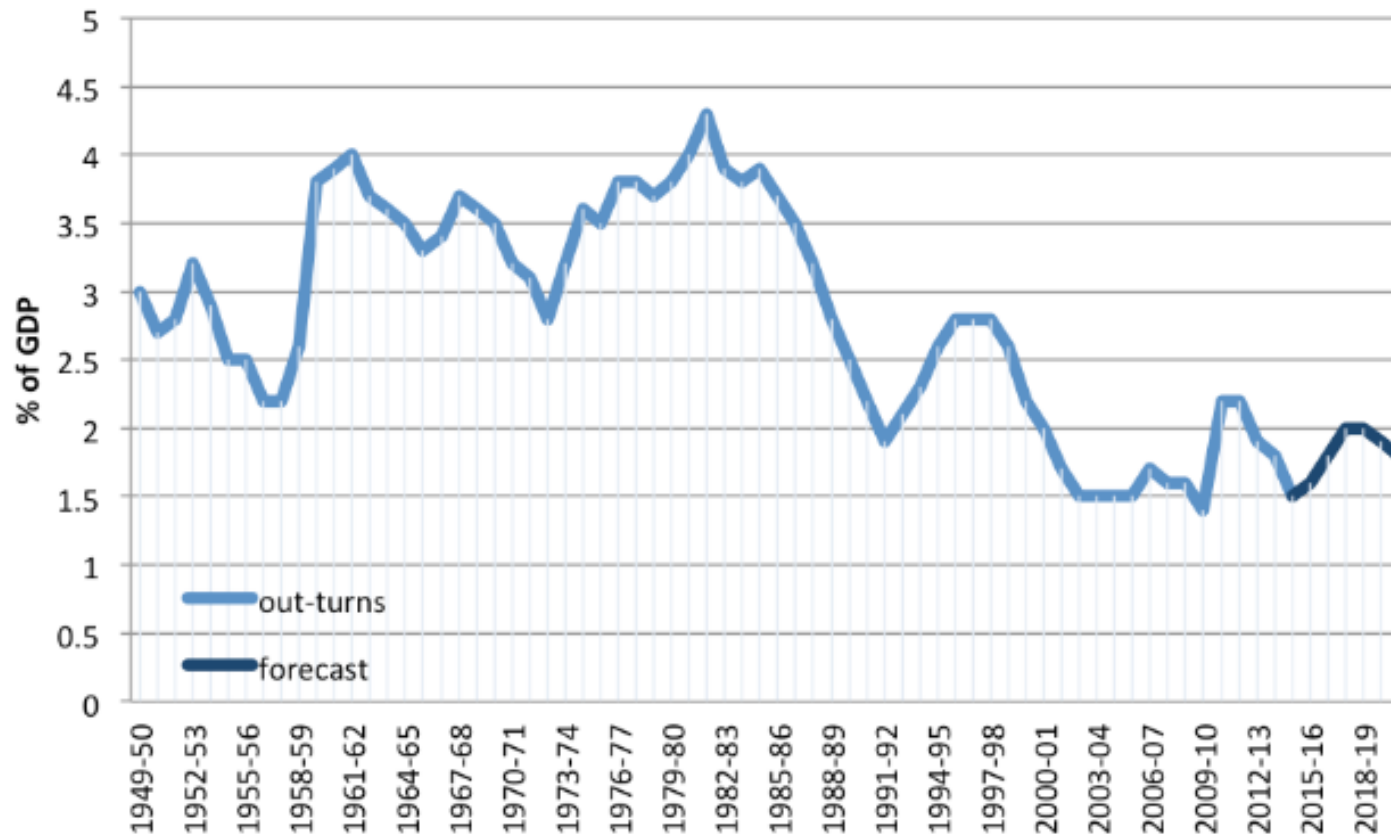
China's GDP Growth Has Been Stalling



Japan 1950-1980s & USA

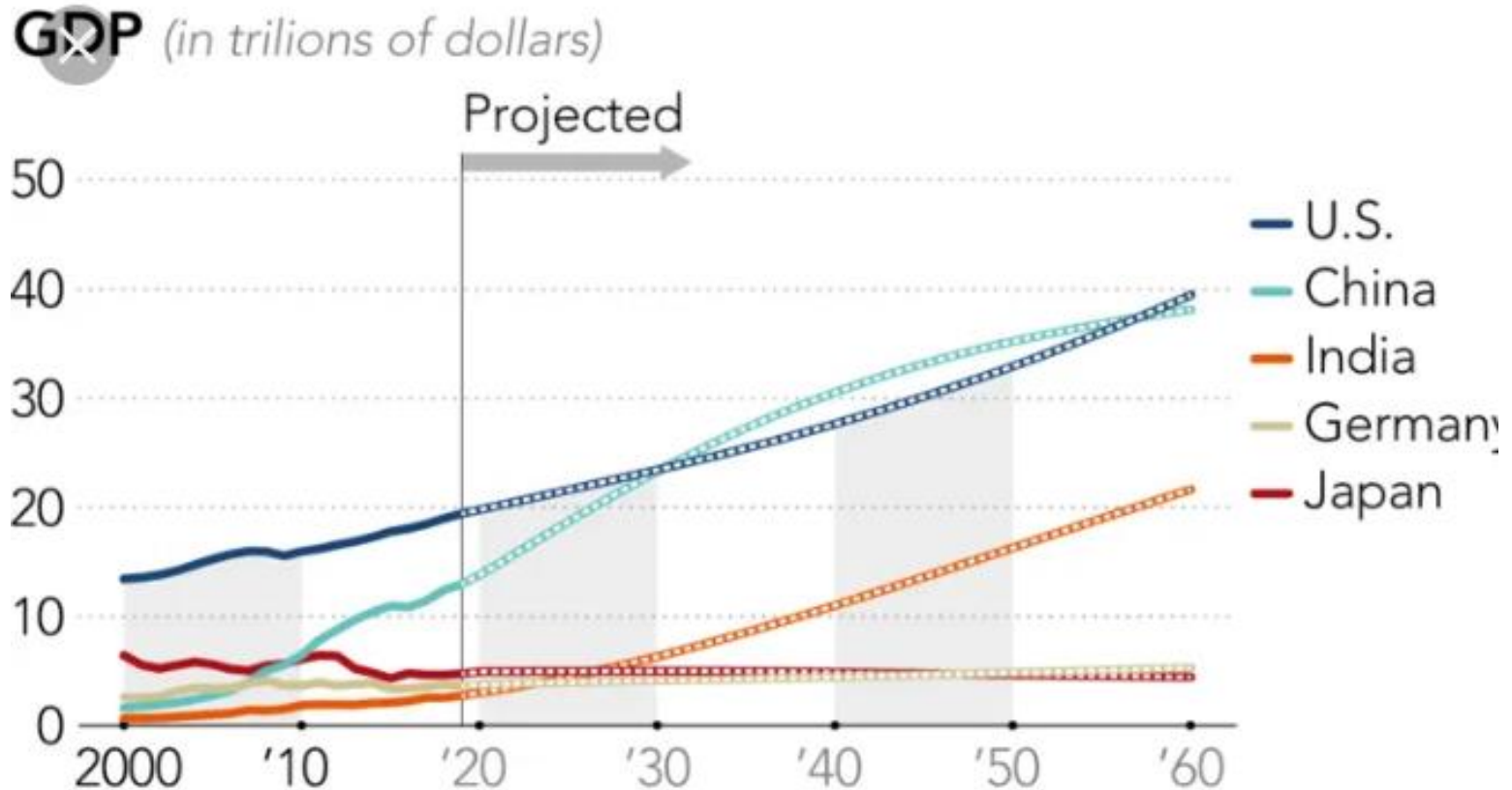
- US tried this (throughput & growth, not profit) and resulted in sub-prime crisis of 2008!
- Japan tried this model & eventually it collapsed in 90s
- Japanese banking system has yet to recover since 25-years → stagnation!
- Japan is ethnically unified (98% are Japanese) & 80% of the population lives in Honshu island
 - *Chinese are anything but ethically, spatially & regionally unified*

US Debt Payments as a % of GDP



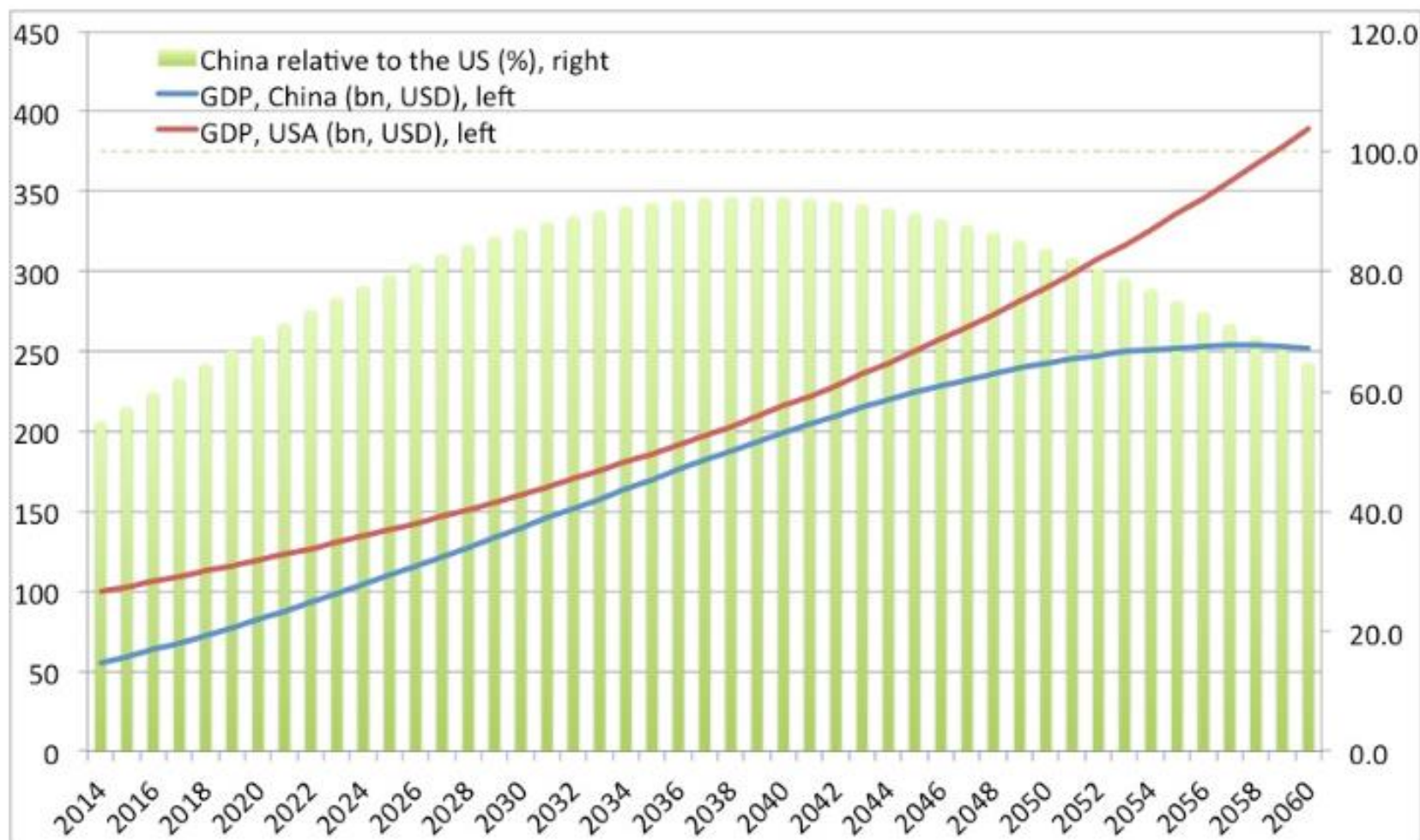
www.economicshelp.org | Source: IFS - ONS series JW2L and JW2P (July 2015)

US Economy



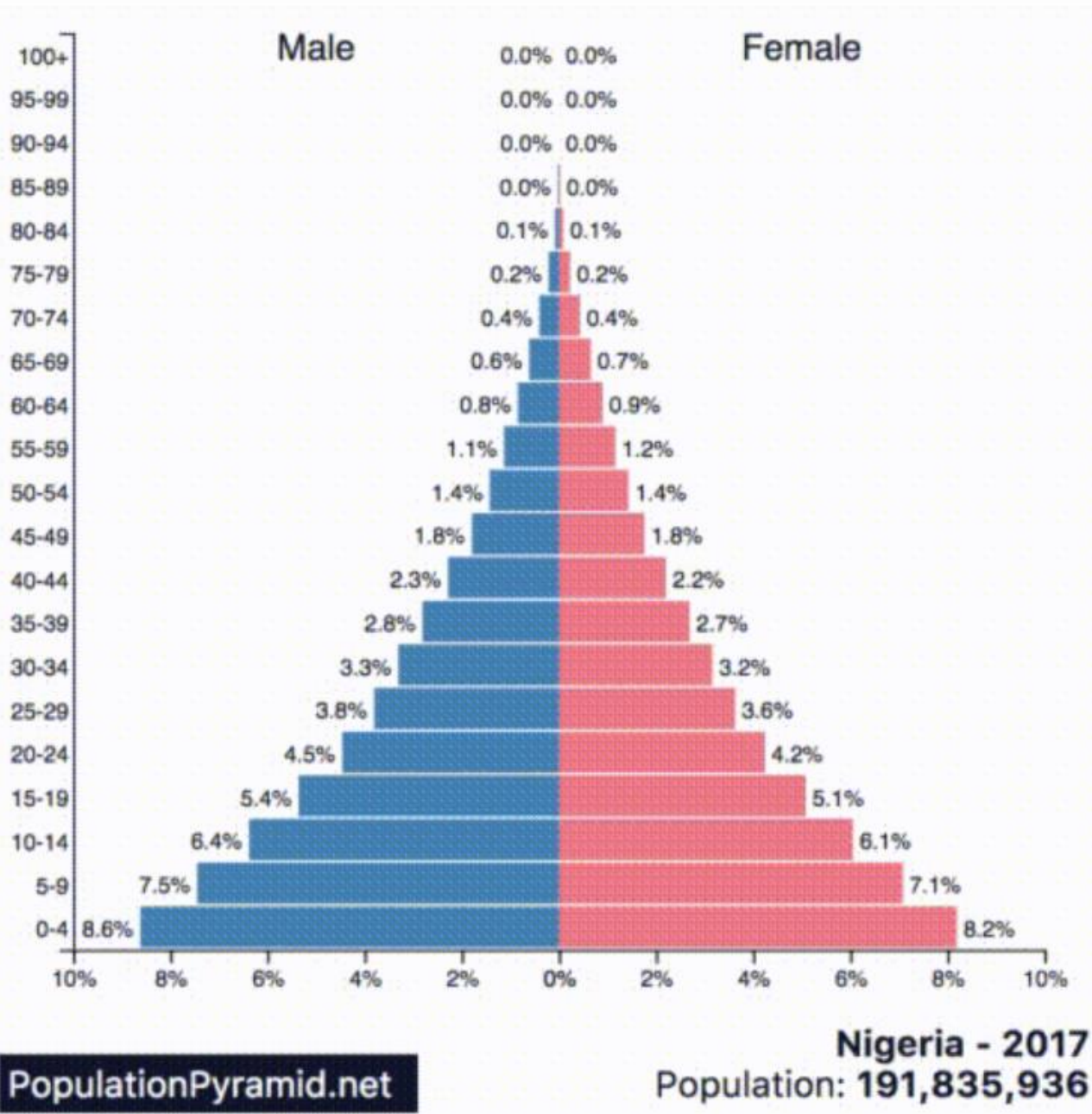
Source: Governments, Japan Center for Economic Research (projections)

The Party is Already Over!



<https://marketmonetarist.com/2014/08/27/china-might-never-become-the-biggest-economy-in-the-world/>

Demographics



HOW IT WORKS TODAY

MONEY FLOWS IN

Up to \$132,900 of a person's wages (in 2019) will be subject to a 12.4 percent payroll tax. Self-employed workers pay the entire amount, while employers and employees equally pay 6.2 percent into the Social Security system.

174 MILLION CONTRIBUTORS



TOTAL INCOME GOING INTO SYSTEM IN 2017

\$996.6 BILLION

88%

Tax money contributed by workers and employers

8%

Interest on the Social Security Trust Funds

4%

Taxes on Social Security benefits



For years, more money has flowed into the two trust funds (one for retirement benefits, one for disability) than has gone out, creating a reserve to help pay benefits in future years. At the end of 2017, the funds totaled \$2.89 trillion; all of it is invested in Treasury securities.

MONEY FLOWS OUT

Workers are eligible to begin receiving Social Security retiree benefits as early as 62, but claiming at this age results in the smallest benefit. Workers who wait to claim until age 70 can obtain the largest benefit available to them.

63 MILLION RECIPIENTS



TOTAL EXPENDITURES PAID FROM SYSTEM IN 2017

\$952.5 BILLION

84%

Benefits to retirees or their survivors

15%

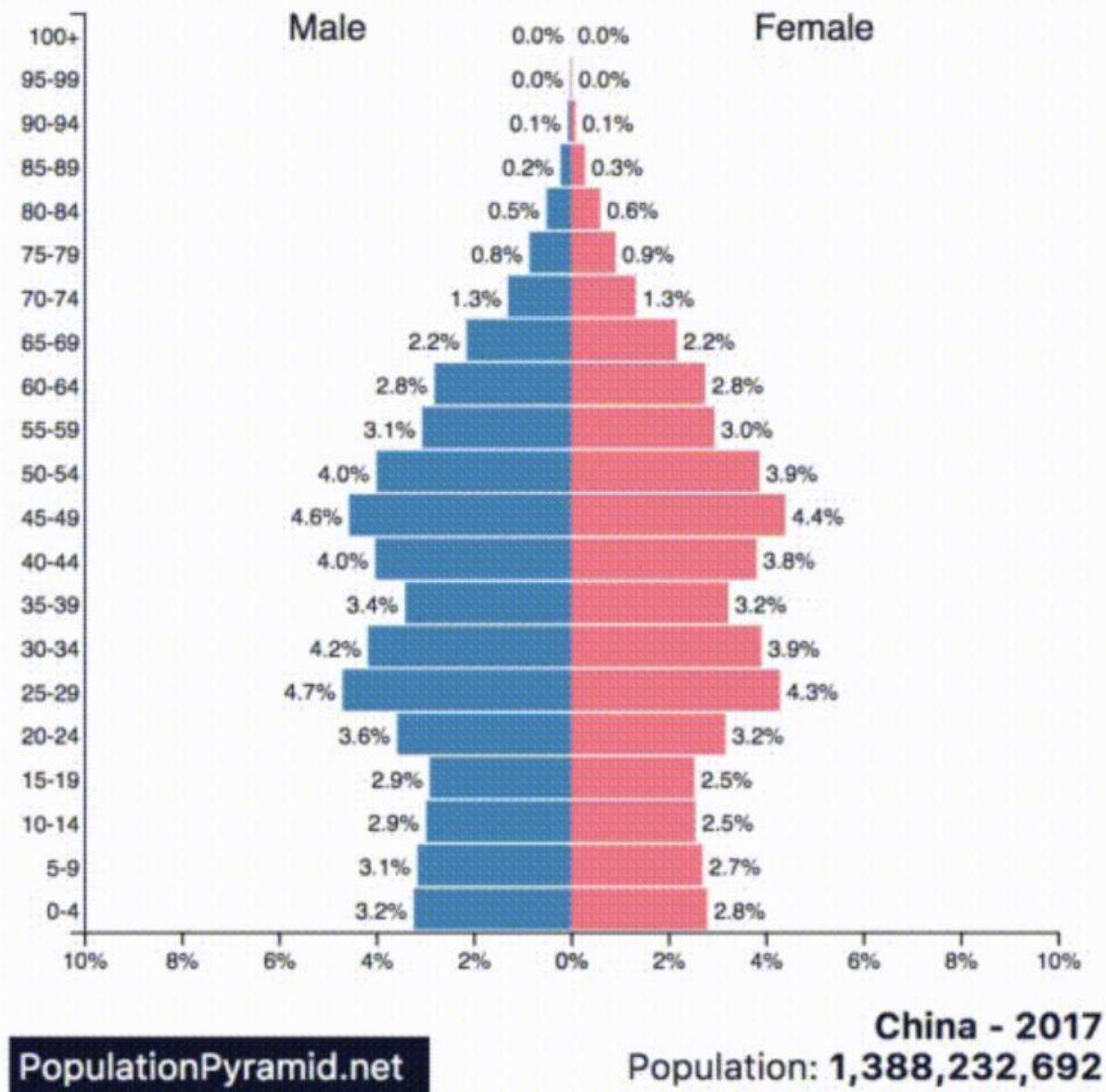
Benefits to disabled workers

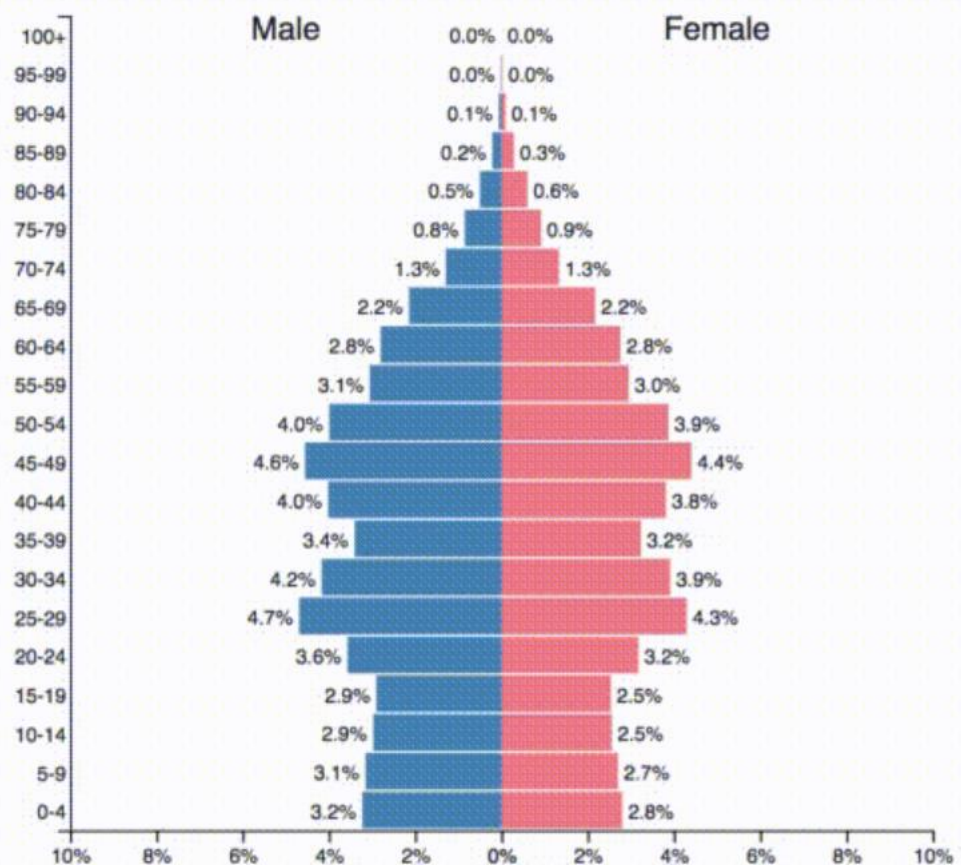
0.7%

Financial or administrative costs

0.4%

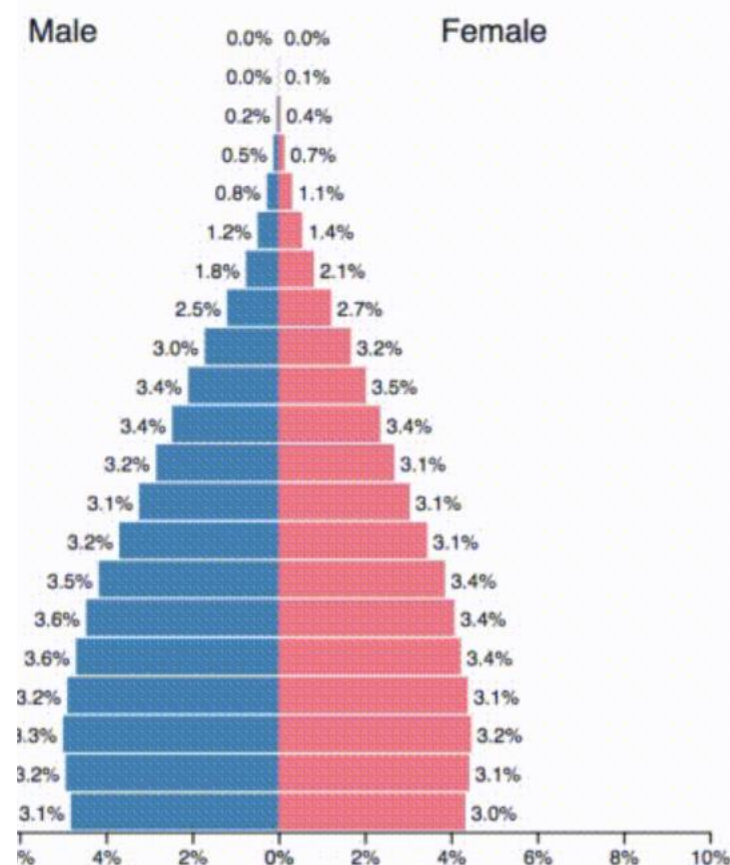
Railroad retirement funds





China - 2017
Population: 1,388,232,692

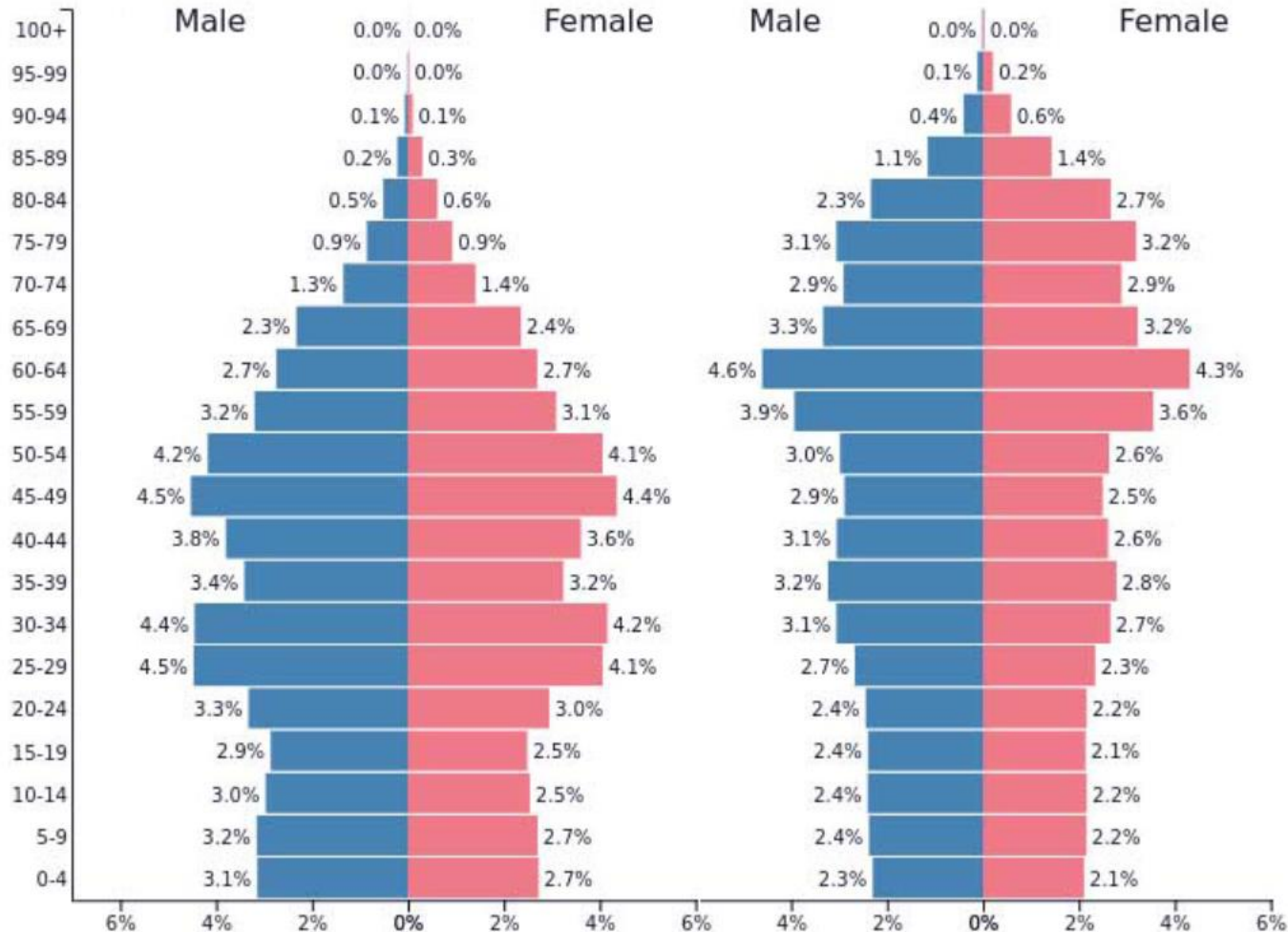
PopulationPyramid.net



United States of America - 2017
Population: 326,474,013

mid.net

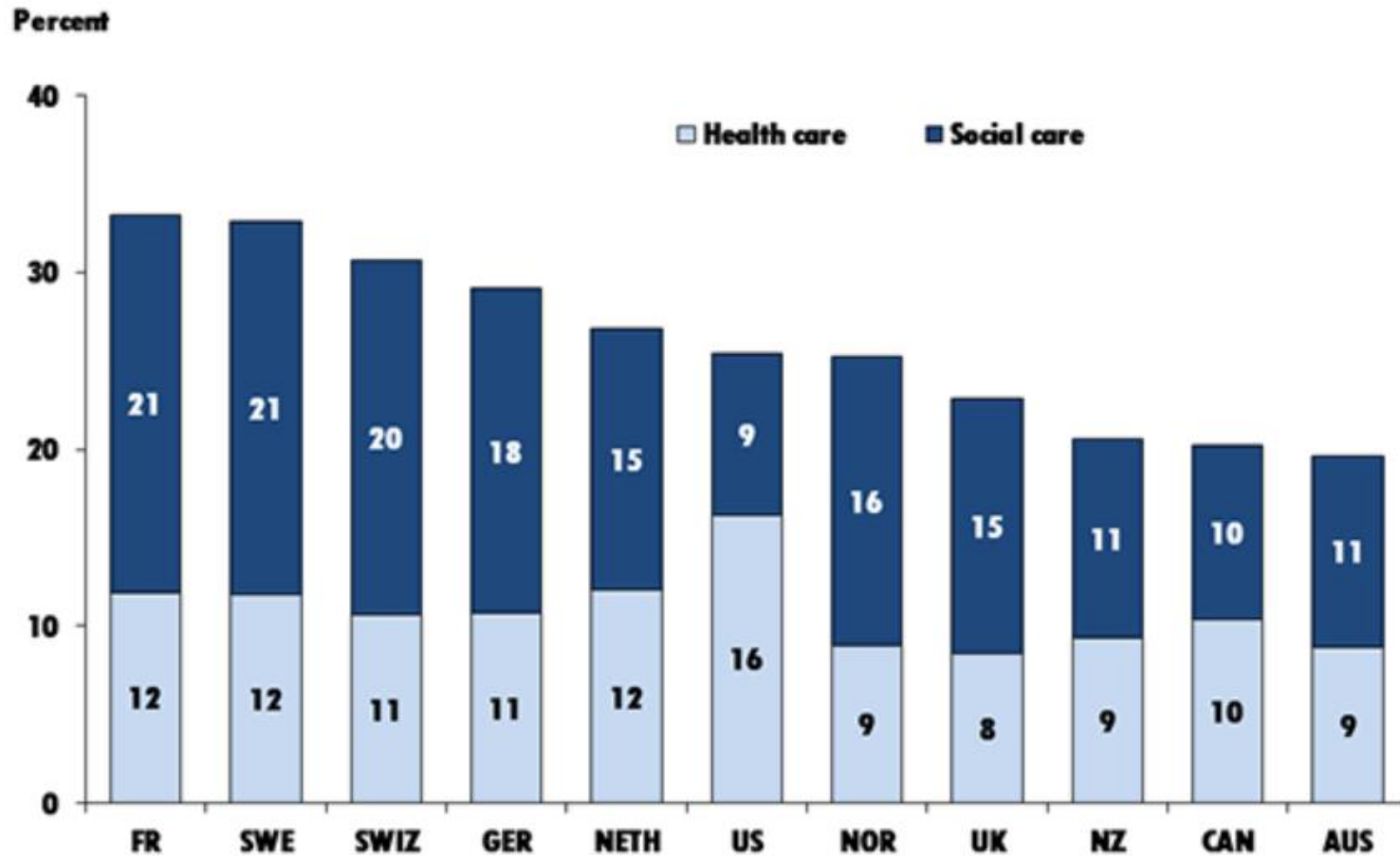
China population pyramid



China - 2018
Population: 1,393,686,493

China - 2050
Population: 1,348,056,330

Health and Social Care Spending as a Percentage of GDP



Notes: GDP refers to gross domestic product.

Source: E. H. Bradley and L. A. Taylor, *The American Health Care Paradox: Why Spending More Is Getting Us Less*, Public Affairs, 2013.



The
COMMONWEALTH
FUND

China's Spending on Social Services

- Expected to triple in China
 - It should rise from 7% to 20% of GDP or even more by some estimates
- OECD countries average is 16%
- *By 2050 healthcare & social services can be RMB 86 (USD 14 trillion) that is 122% of 2017 GDP for China*

Source: IMF

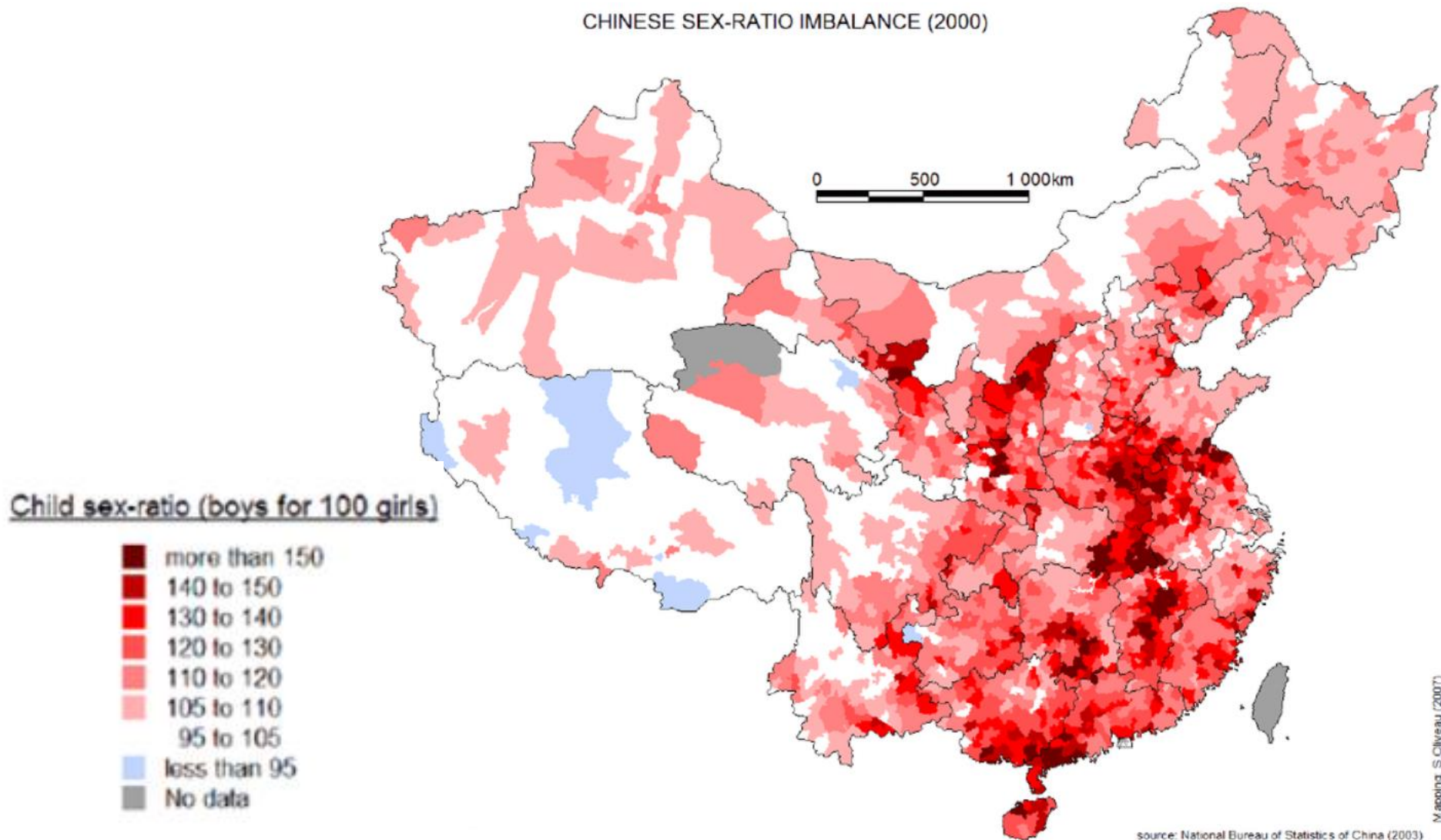
The 4:2:1 Problem

- Average age went from 24.9 in 1990 to 37 in 2017 –to 42.9 in 2030 (American will be at 39.6)
- No social security style system in place → so children must shoulder the burden
 - 2x bigger problem than boomer's retirement in US
 - Not enough young labor (prices are 6X since 2002)
 - End of cheap, low-cost labor to drive exports
 - And export-led to consumption-led economy will be hard

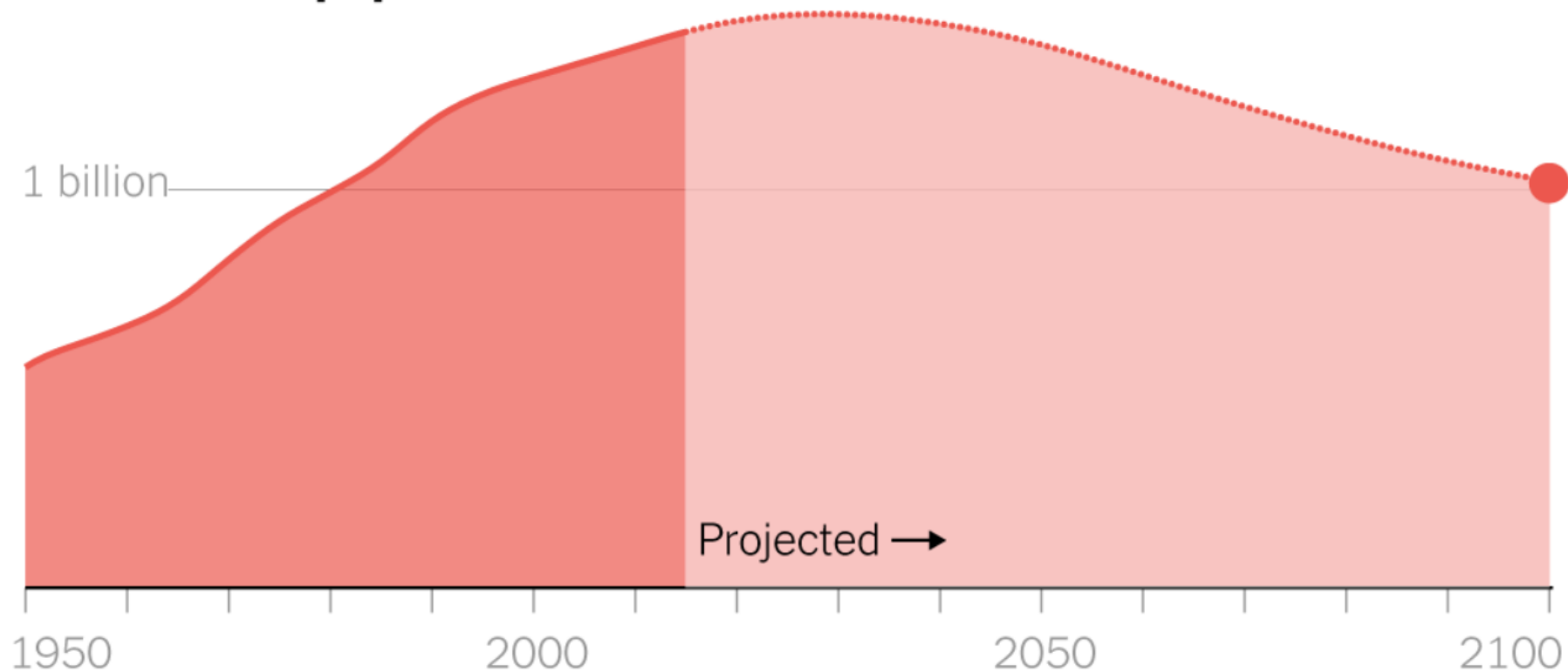
Even changing the 1-child policy now will take 20+ years before one can have enough working bodies

One-Child Policy 1979-2015

Created 34 million more males today

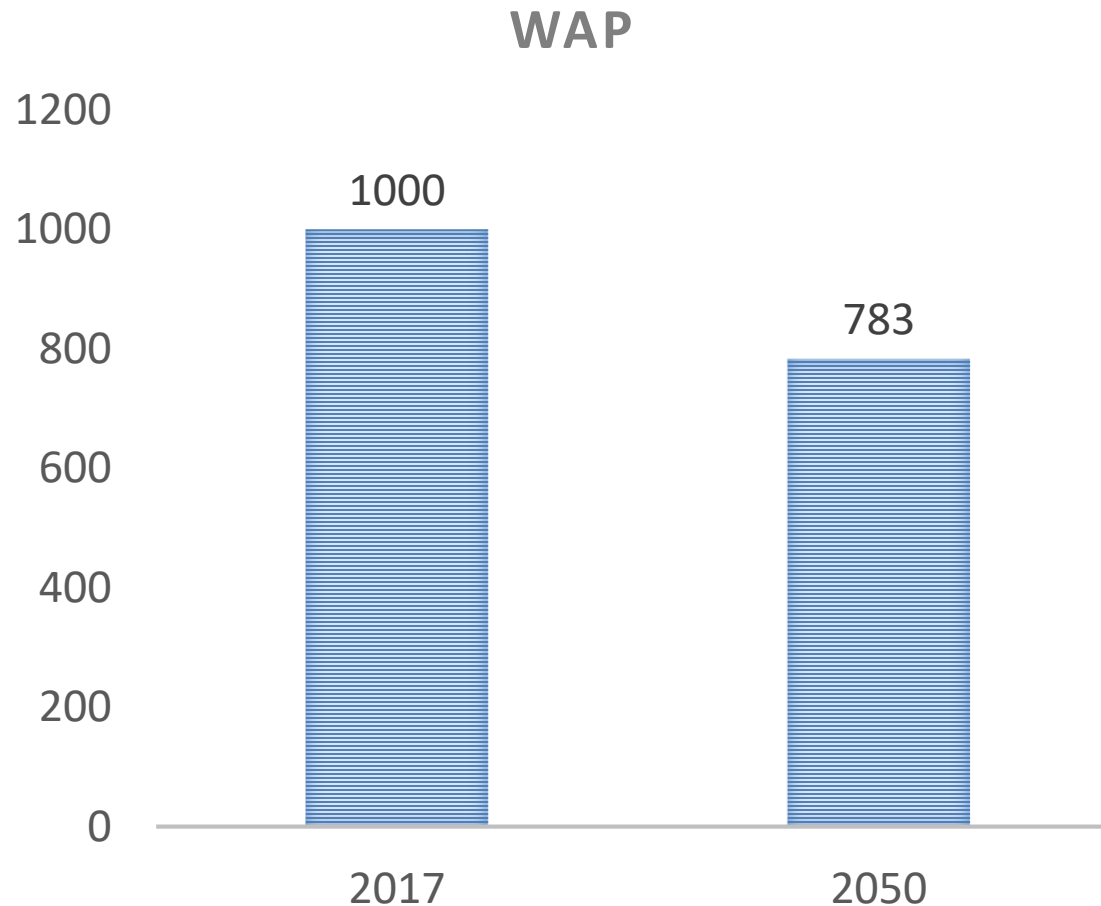


China's total population

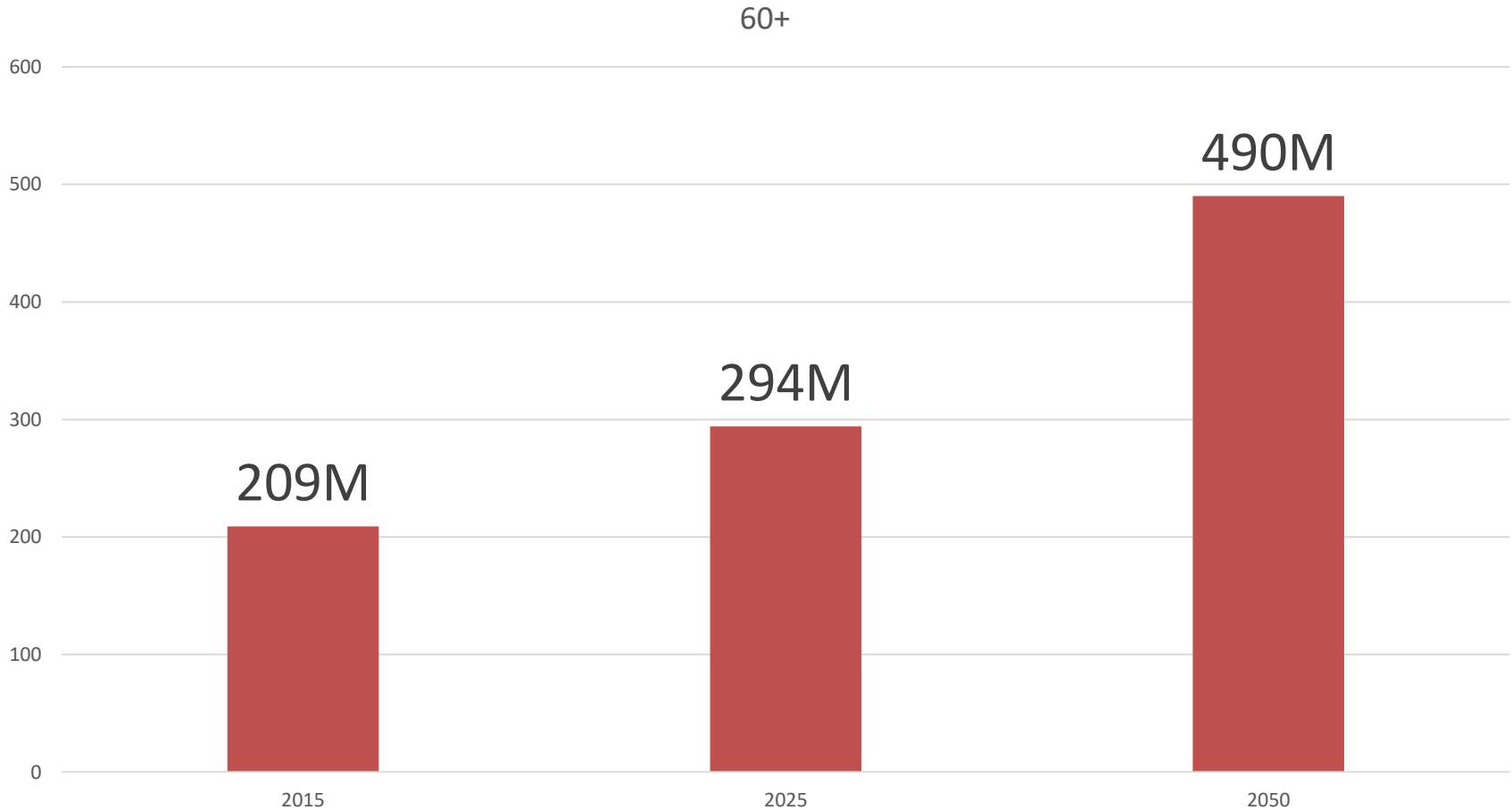


China's financial system is darker than the Europe's & demographic future is much darker than Japan's

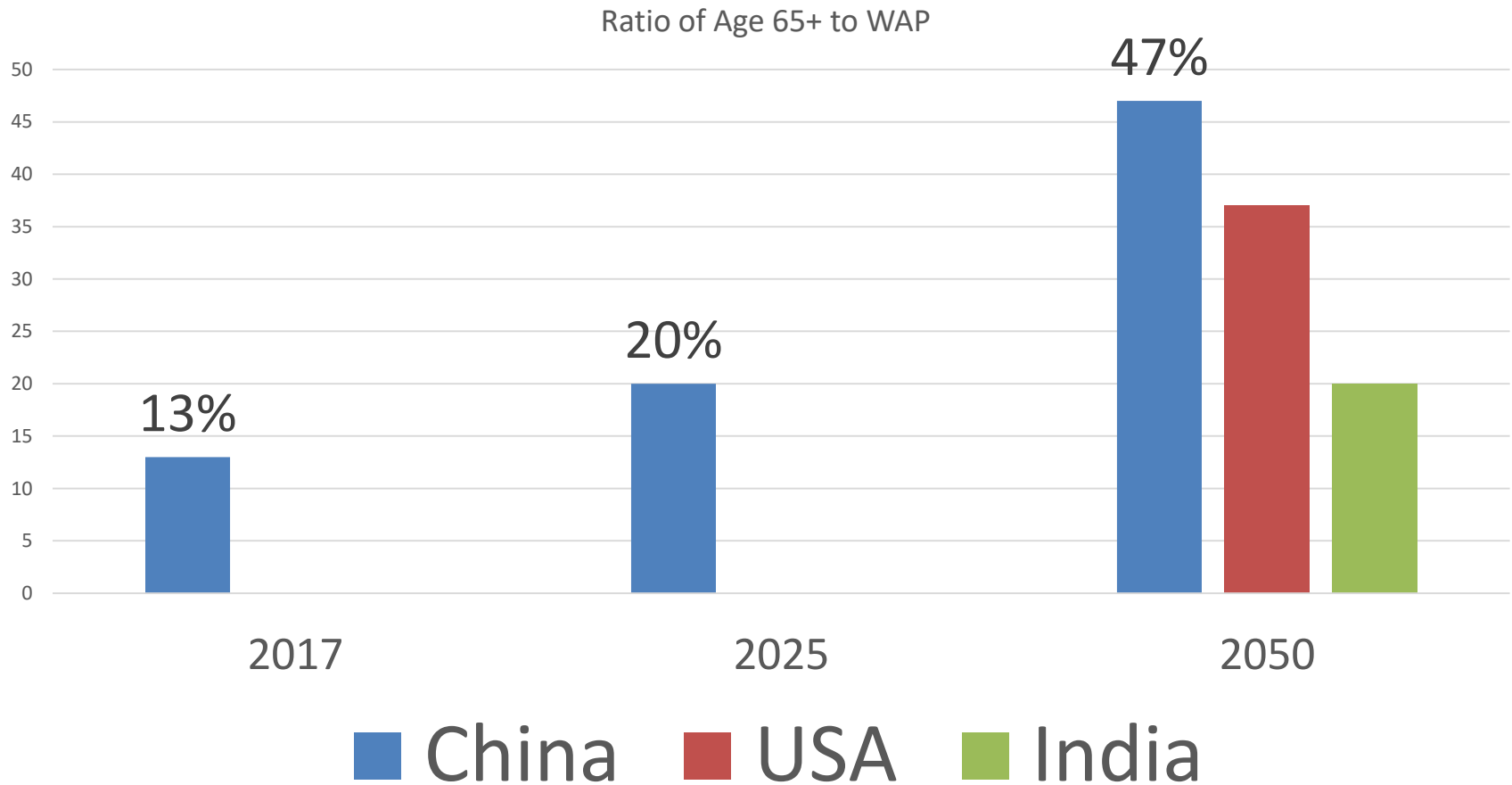
Chinese Working Age Population will Decline 23% by 2050



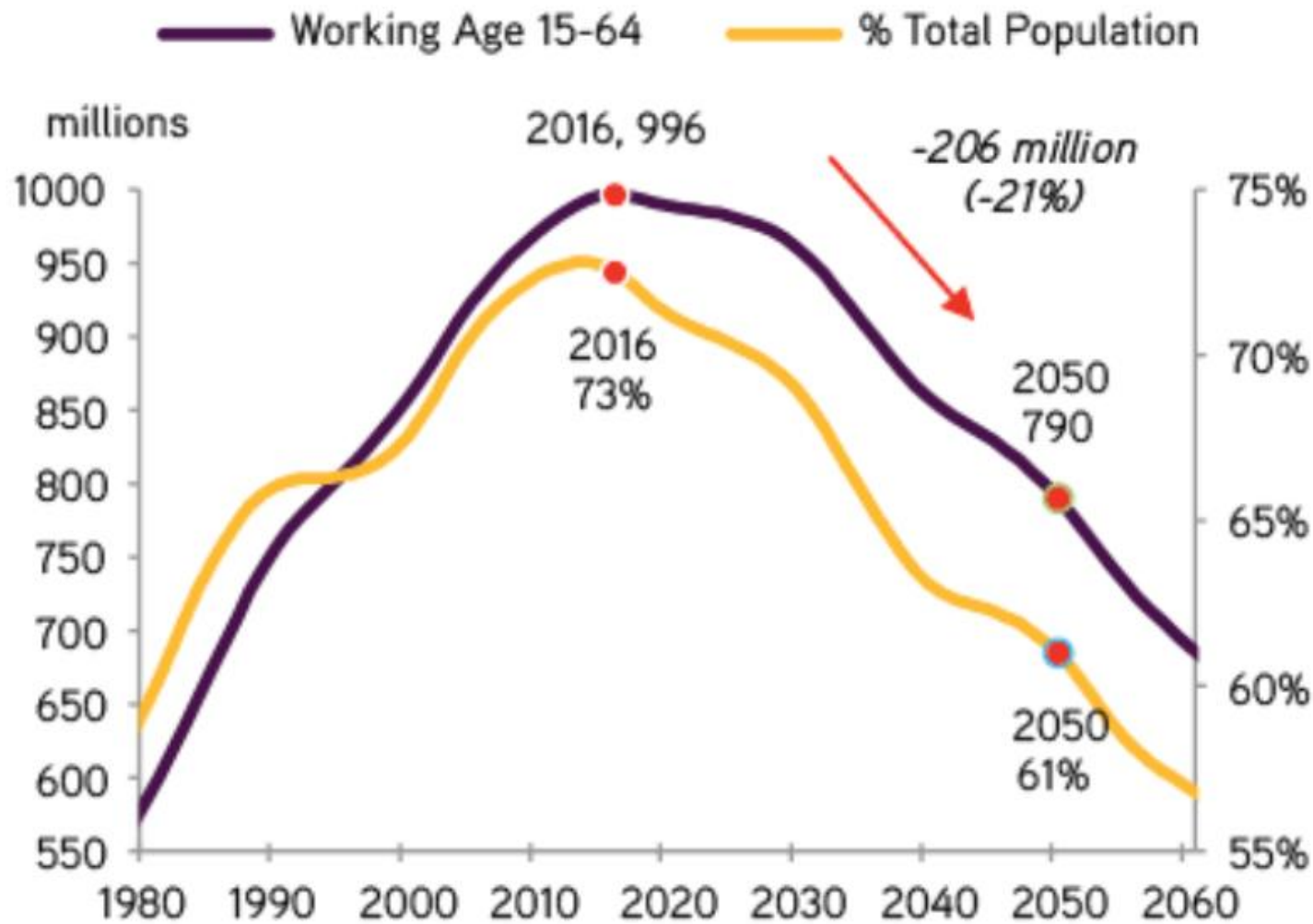
Significant Rise in 60+ Will Strain the Already Strained Economy



Ratio of 65+ to WAP (Working Age Population)



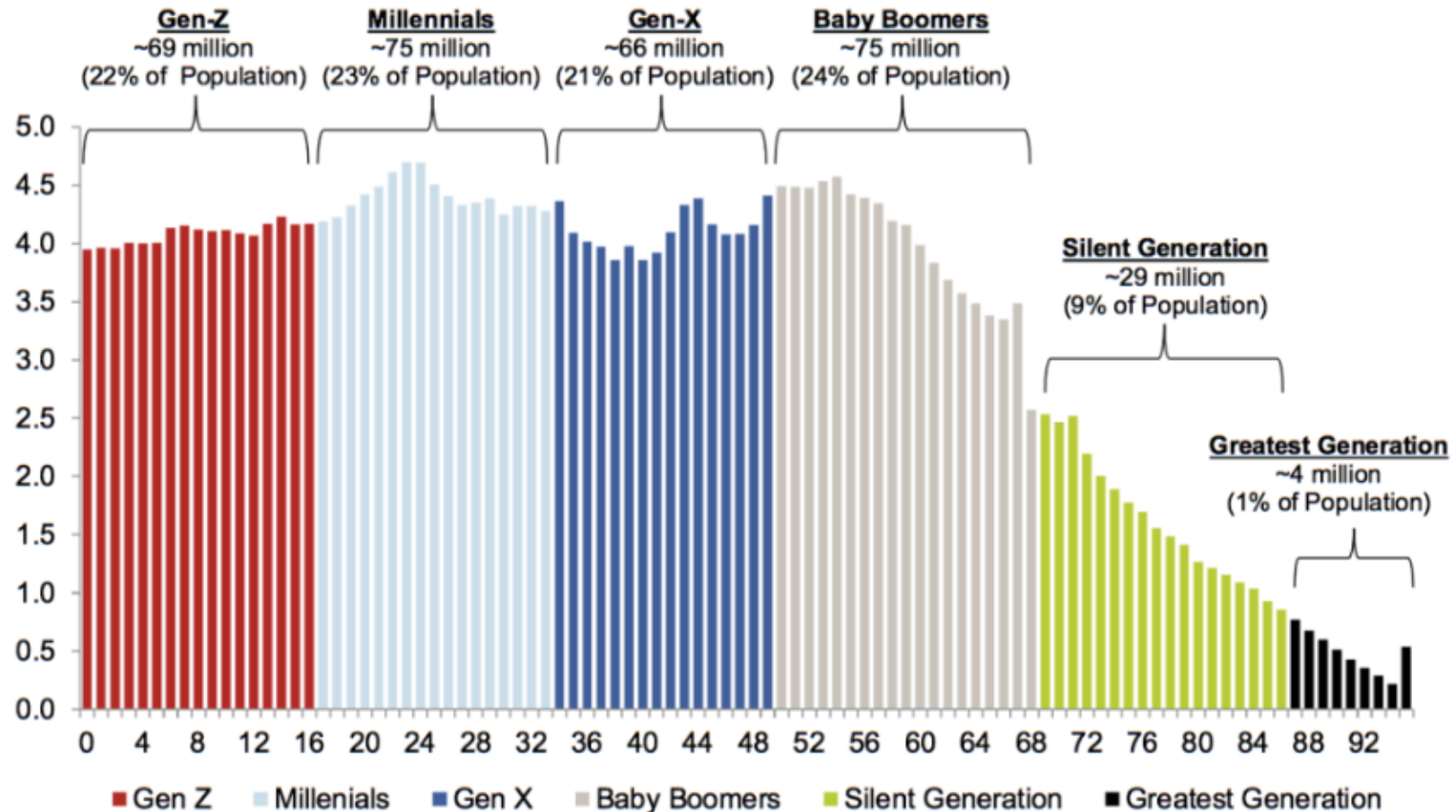
China: Working Age 15-64



Source: United Nations World Population Prospects.

Exhibit 11: Gen-Z represents more than 20% of the U.S. Population...

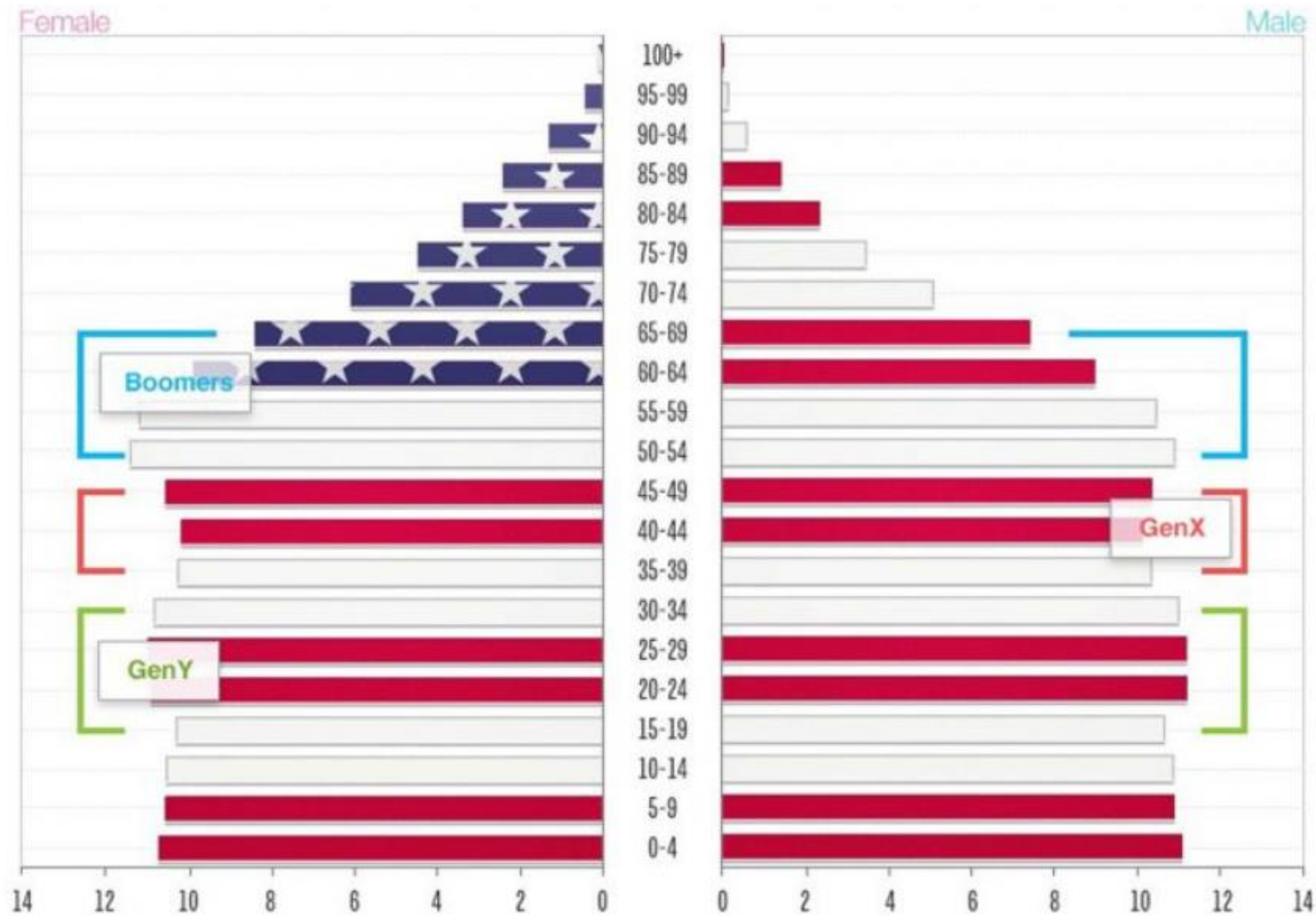
Total US Population by Age and Generation*, millions



*Note: For purposes of this report, our generational cutoffs are based on those outlined by Pew Research Center, and we acknowledge that there is no clear consensus on the cutoff date between Millennials and Gen-Z. Population data is as of July 1st, 2014, the latest available per the Census Bureau. Assuming a birthrate of roughly 4 million per year, we estimate that Gen-Z is currently approaching 75 million in size.

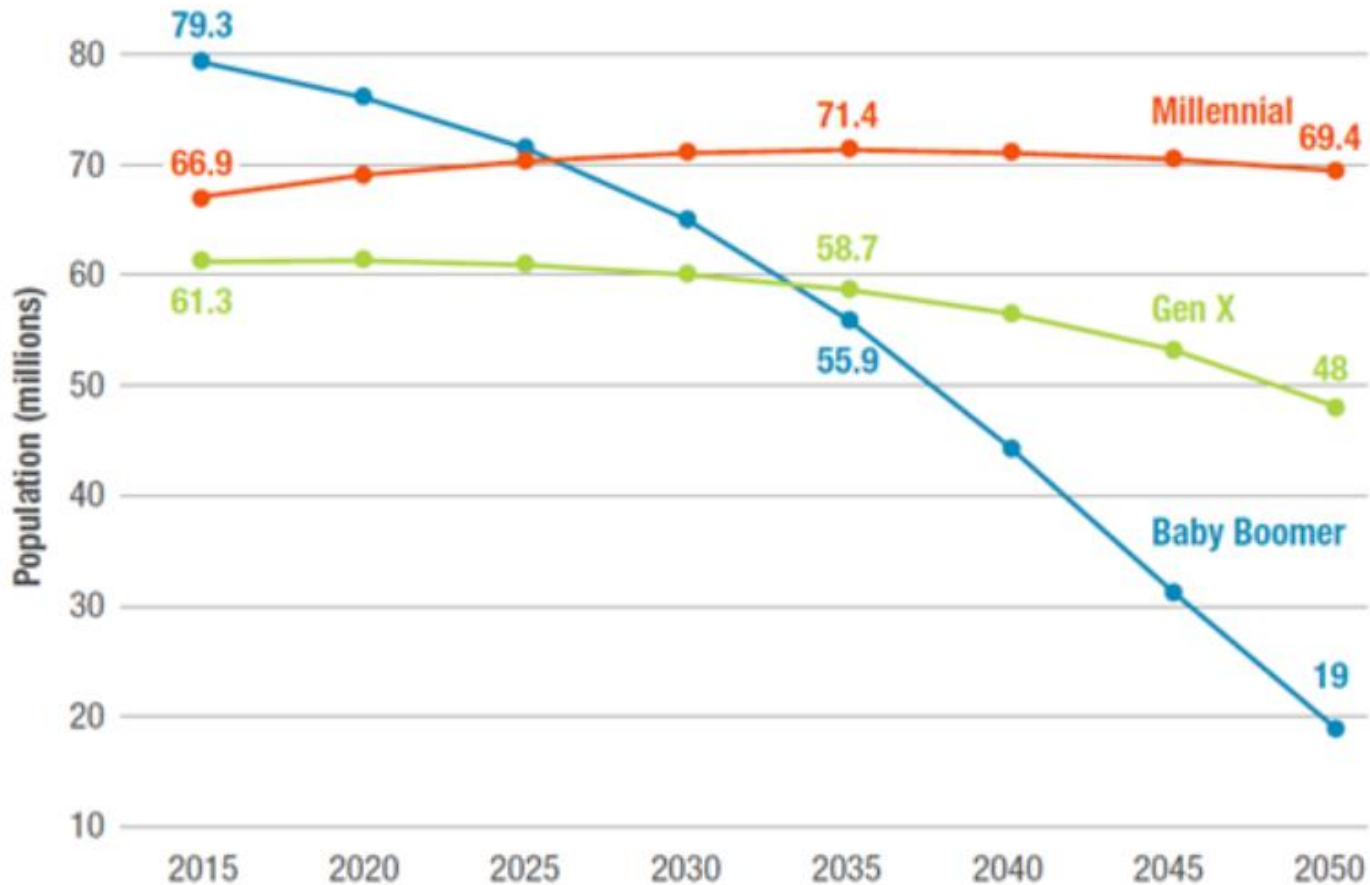
Source: Census Bureau, Pew Research Center, Goldman Sachs Global Investment Research.

Millennials by 2050 Solve the Problem



US Options

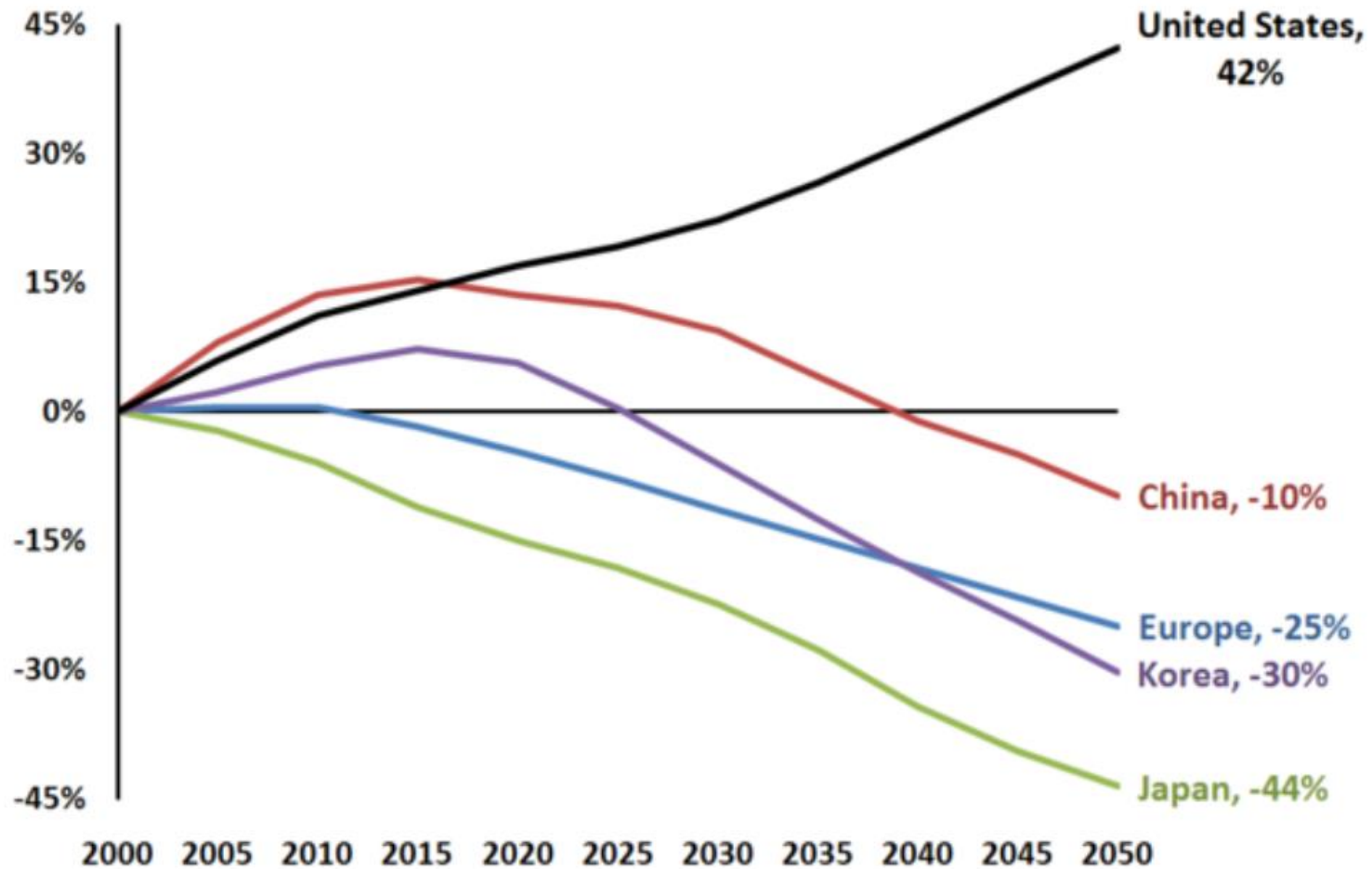
Projected Population by Generation



Source: Sage Policy Group, U.S. Census Bureau

Labor Force Growth

Growth in Age 15-64



NewGeography.com

U.S. Census Bureau, International Database

Exerting Influence

The South China Sea, between Malacca straits to the Strait of Taiwan (1,400,000 sq. miles) carries tremendous strategic importance

- one-third of the world's shipping passes through it, carrying over \$3 trillion in trade each year
- contains lucrative fisheries, which are crucial for the food security of millions in Southeast Asia
- Huge oil & gas reserves are believed to lie beneath its seabed

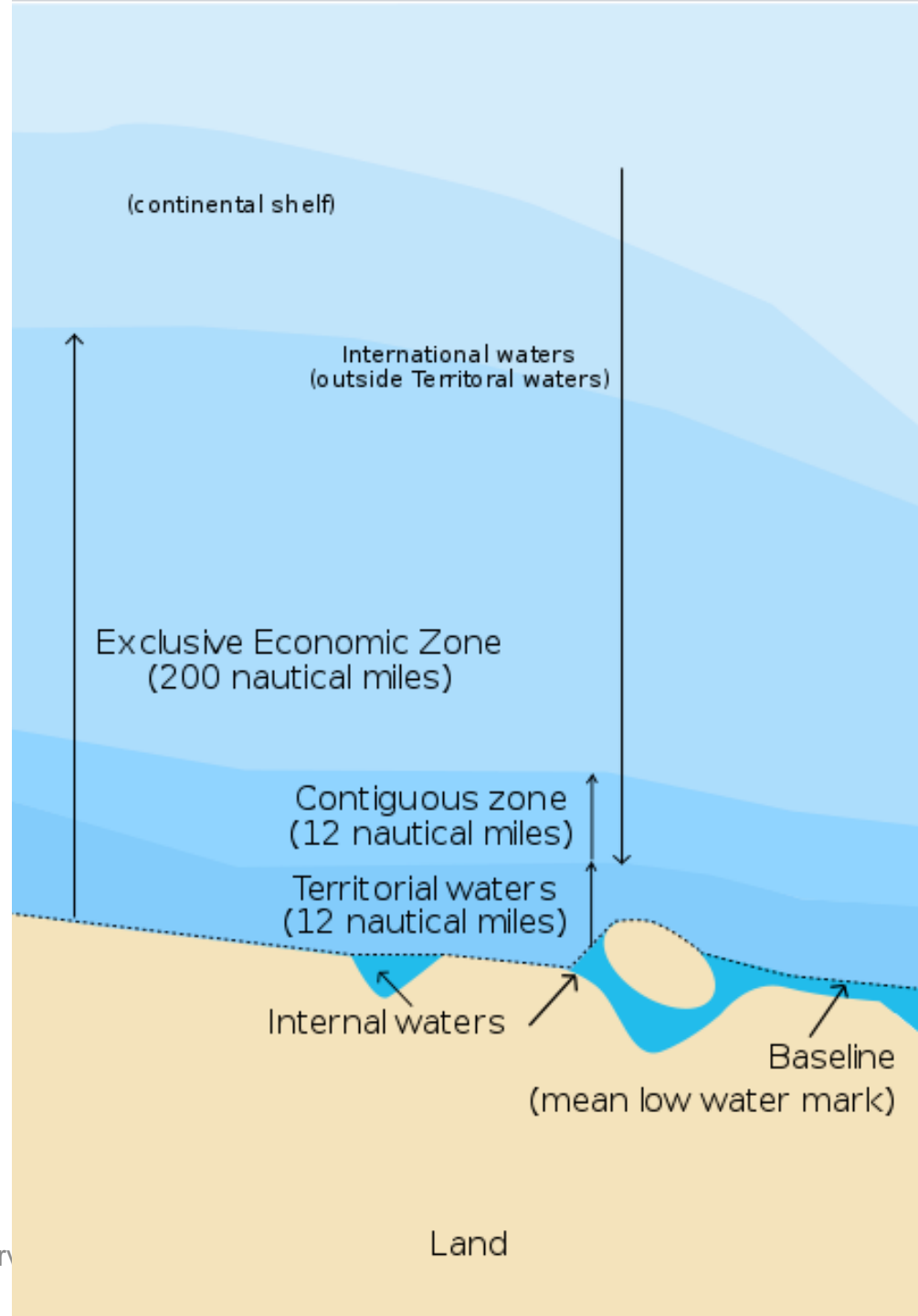


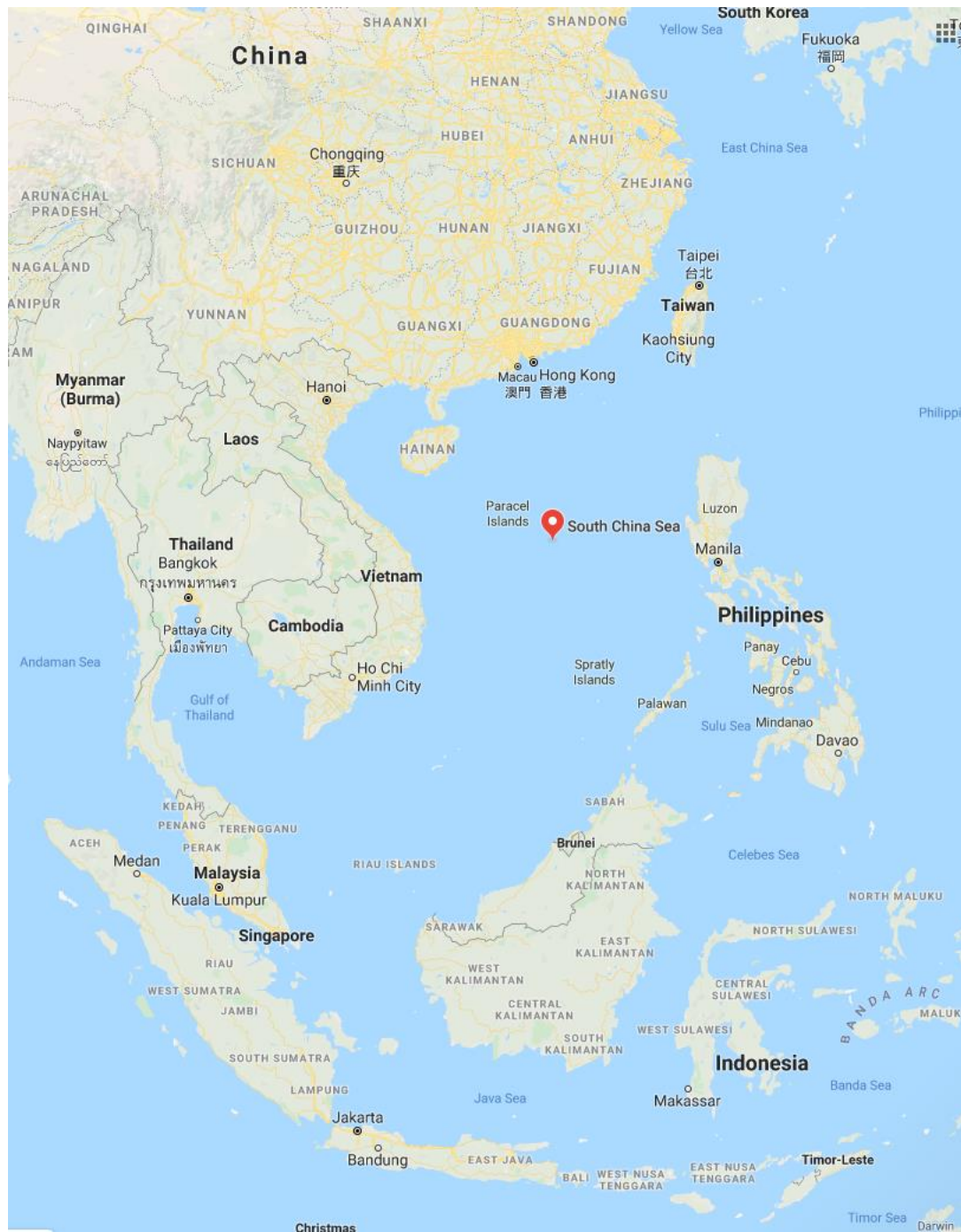
the baseline is either the low-water mark closest to the shore, or alternatively it may be an unlimited distance from permanently exposed land, provided that some portion of elevations exposed at low tide but covered at high tide (like mud flats) is within 3 nautical miles permanently exposed land.

a bay is defined as "a well-marked indentation whose penetration is in such proportion to the width of its mouth as to contain land-locked waters and constitute more than a mere curvature of the coast.

An indentation shall not, however, be regarded as a bay unless its area is as large as, or larger than, that of the semi-circle whose diameter is a line drawn across the mouth of that indentation"

The baseline across the bay must also be no more than 24 nautical miles (44 km; 28 mi) in length.





Disputed claims in the South China Sea

Claims

- China
- Philippines
- Malaysia
- Brunei
- Vietnam



Area:

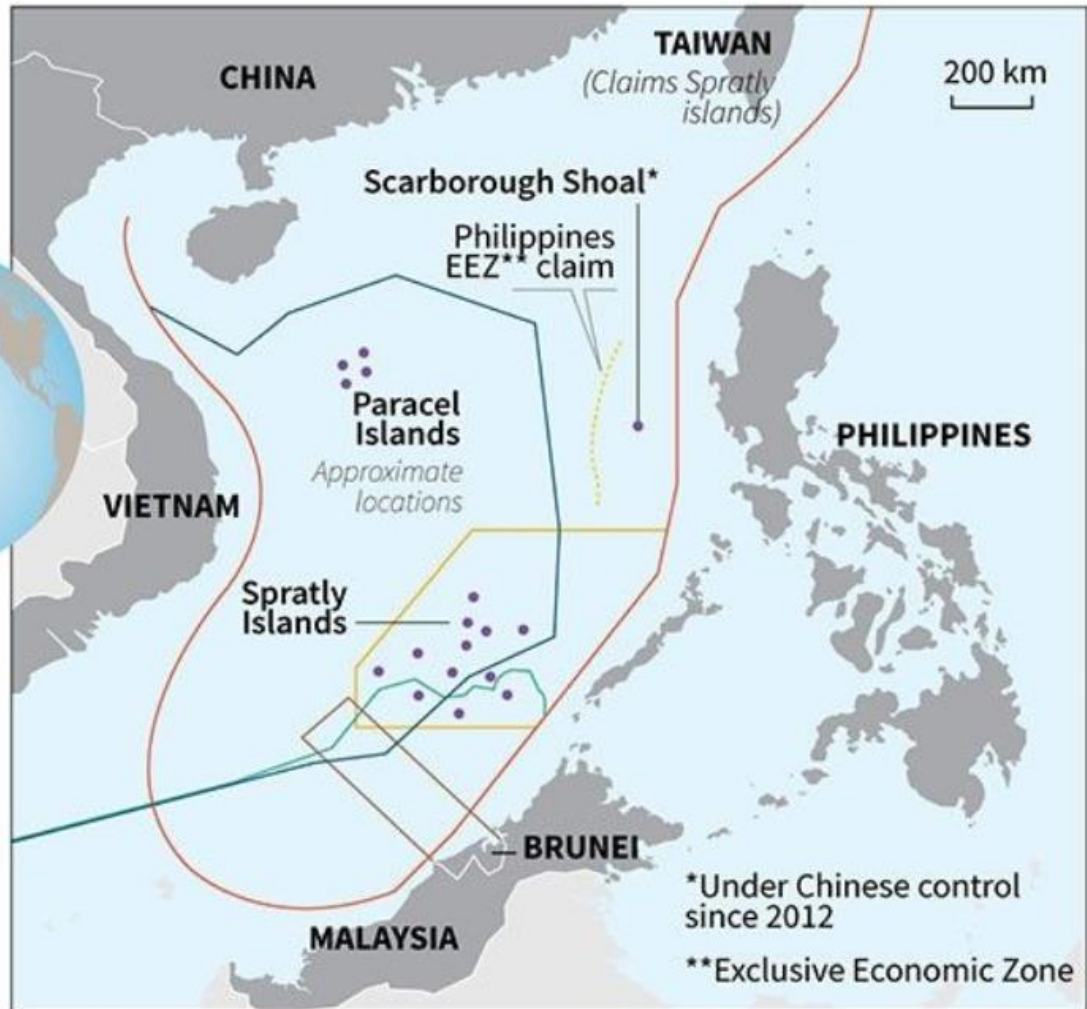
South China Sea covers more than 3 million sq km

Trade:

Over \$5 trillion in ship-borne trade passes through the sea annually

Oil and gas:

Major unexploited oil and gas deposits are believed to lie under the seabed



Sources: CSIS/AMTI/D.Rosenberg/MiddleburyCollege/HarvardAsiaQuarterly/Phil govt/ChinaMaritimeSafetyAdministration

© AFP



THAILAND

CAMBODIA

VIETNAM

Ho Chi
Minh City

500 km

Kuala
Lumpur

MALAYSIA

All rights reserved © Nacer

BRUNEI

Paracel
Islands

Spratly
Islands

Scarborough
Shoal

Manila

PHILIPPINES

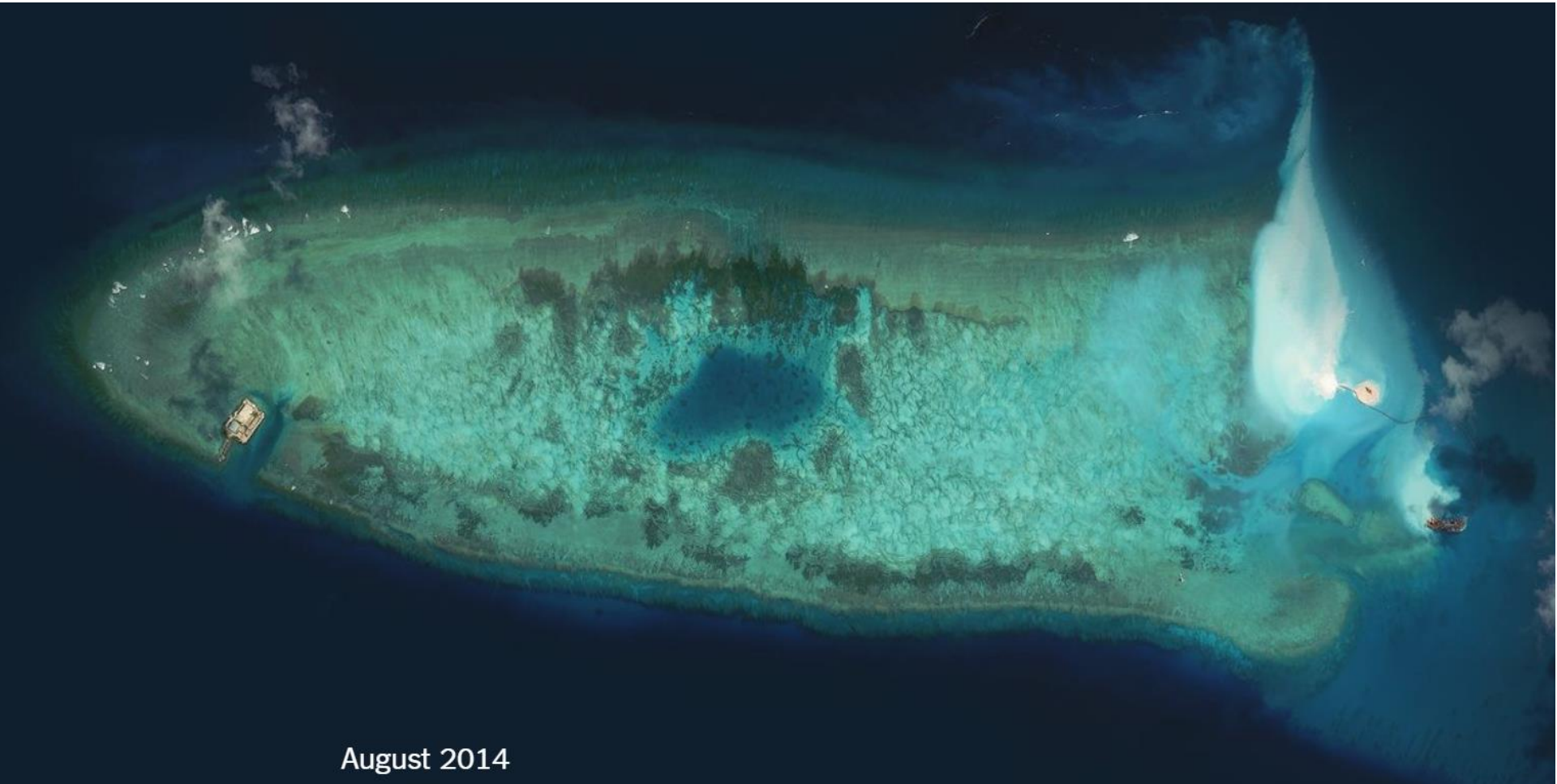
China Expanding Her Circle of Influence

- 200 miles EEZ from an inhabited island provides needed buffer for China
- Issue is being adjudicated in world court
 - Decision favored Philippines
- But naval forces are butting heads every month!

- Since 2013, China has resorted to island building in the Spratly Islands and the Paracel Islands region
 - These actions have been met with a wide international condemnation, and since 2015 the United States, France UK have conducted freedom of navigation operations (FONOP) in the region



China has been rapidly piling sand onto reefs in the South China Sea, creating seven new islets in the region -- it is straining geopolitical tensions that were already taut



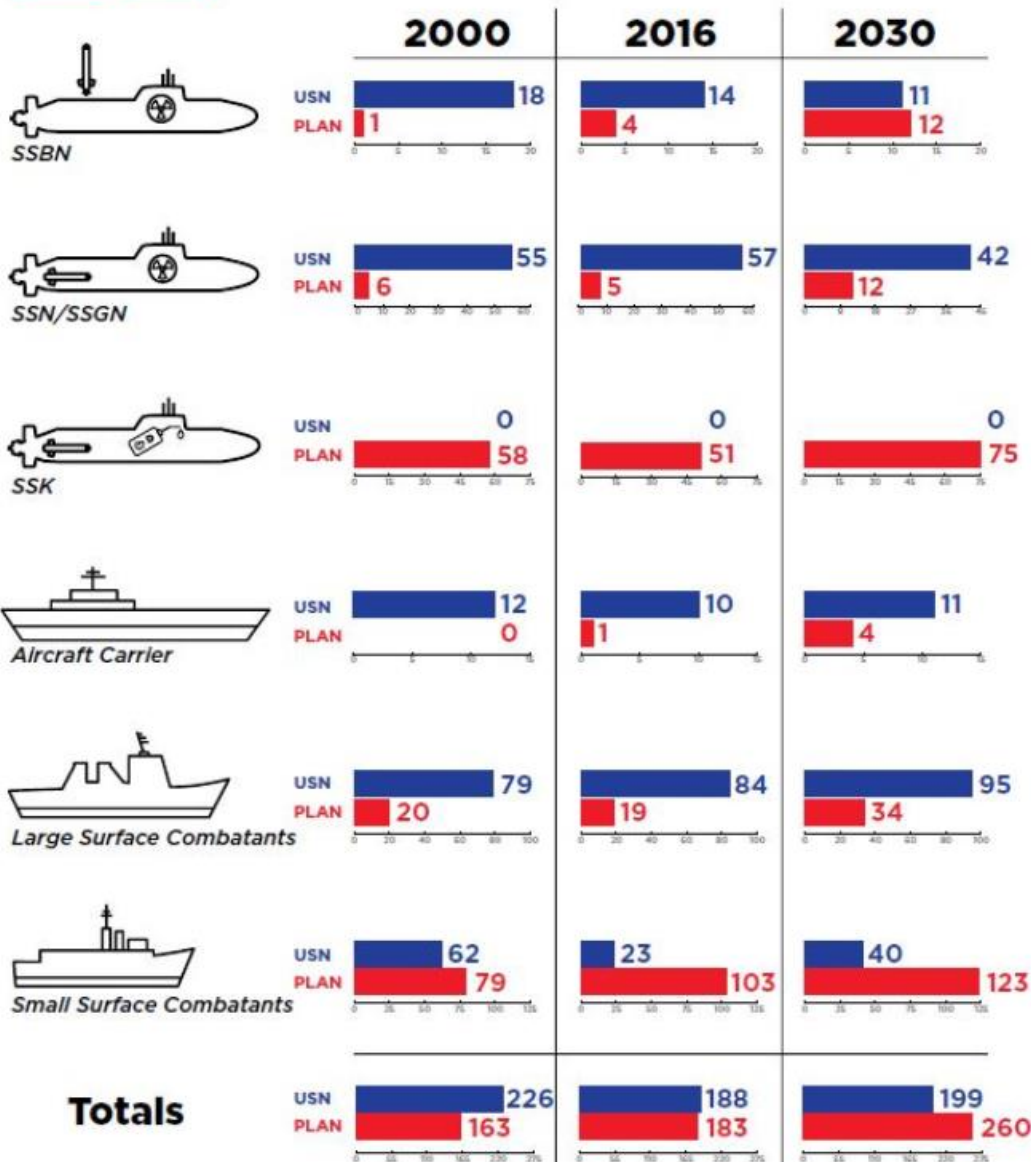
August 2014



80 percent of China's energy imports and 39.5 percent of China's total trade passes through the South China Sea

Naval Powers Faceoff

U.S. and Chinese Capabilities
in 2000, 2016, and 2030⁹¹



SSBN Ohio-Class Nuclear Attack Submarine



Aircraft Carriers Compared



Hong Kong





426 Sq. Miles with 7.4 million population Hong Kong is a Special Administrative Region of the People's Republic of China (HKSAR)

Hong Kong Protests



- Hong Kong became a colony of the British Empire after Qing China ceded Hong Kong Island at the end of the First Opium War in 1842
- The colony expanded to the Kowloon Peninsula in 1860 after the Second Opium War, and was further extended when Britain obtained a 99-year lease of the New Territories in 1898



The 99-Year Lease

- The territory was transferred to China in 1997 as special administrative region, Hong Kong maintains separate governing and economic systems from that of mainland China under the principle of "one country, two systems" for a period of 50-years
- The **lease ended on July 1, 1997**, and since then tensions between the democratically-minded Hong Kong population and the PRC have continued, although Hong Kong remains functionally separate from the Chinese mainland

Two Narratives

- People of Hong Kong fear this Anti Extradition bill would subject Hong Kong residents & visitors to mainland jurisdiction, undermining region's autonomy & civil liberties
- Beijing sees these protests as a start of a “separatist movement” that is being framed with deep fears of one Great Chinese nation

Dissent in Hong Kong

- Hong Kong is main financial center & very important to China
 - Access to Western markets
 - Trading & financial services hub
- Beijing is walking a tight rope: 50-year transition from SAR in 2047
- The real prize = Taiwan

US Has Problems Too But Our Systems Has Escape Values

- Issues are internal cohesion & political will
- Free speech & decentralized decision making
- Free market allows markets to dictate resource allocation more efficiently
- US military has long reach & is still considered the better alternative to any other military

Governance: Xi's China

Xi Jinping: President for Life?



Xi Jinping (with Liyuan Peng): General Secretary of the Communist Party of China, President of the People's Republic of China, and Chairman of the Central Military Commission

Xi Mingze

Harvard Graduate
2010-2014



Chinese Growth: Can it Continue?

- Chinese economy has already had a long run
- Debt crisis looms
- Certain things that contributed to growth can only be done once!
 - Entering WTO (2001)
 - Putting all children to secondary schools
 - Real estate boom (by relaxing property ownership)
 - Migration from rural to urban centers
 - Rode wave of globalization (1990-2010)

The Governance Issue!

- What is the role of State? Its relationship with local, provincial governments and SOEs (State Owned Enterprises)
- It is in the balance of state, the Party and market oriented allocation of resources

Challenges Faced by Leaders



1949-1976

Famine,
industrial
production,
political
unification

1988

Absence of
mkt-based
system for
allocation of
resources &
production
incentives

1993

Dominance
of SOE &
shifting
effects on
private
sectors

2003

Household
sector &
reconstruction
of social
safety net

2013

- Change China growth model with lower growth
- Incentives system redesign
- New economic, political & social contract with tech-aware citizenry

Challenges faced by Xi are greater & politically more awkward!

How Can Xi Solve His Dilemma?

- Re-emphasis of ideology, instead of pragmatism
- Greater authoritarianism of the Party instead of rule by the State institutions
 - Creation of Party Department of Propaganda

Governance Effectiveness

- Example:
 - Creation of National Supervision Commission puts judicial function under Party Central
 - Abandonment of term limits
 - Corruption fight: all the way from ministers, to city officials, counties to anyone
 - Not just the party members

Can Authoritarian Governments be Effective?



Mustafa Kemal Atatürk, was a Turkish field marshal, revolutionary statesman, founder of the Republic of Turkey, first President from 1923 until his death in 1938



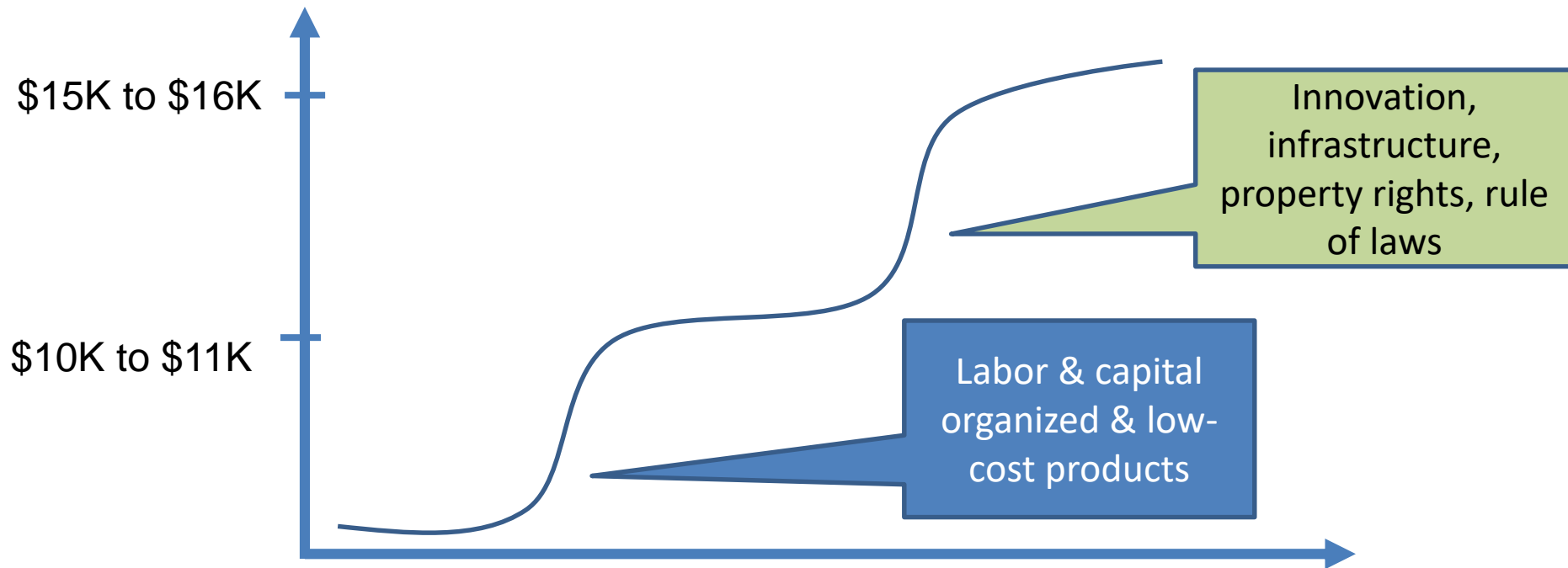
Lee Kuan Yew was the first Prime Minister of Singapore, governing for three decade

How China Differs from US

- State has to prevent vested interest, military, steel magnets, railroad tycoons, banks in an assent to industrial leadership
 - Distributing coalitions
- In China, the Party is the obstacle → collusion
- Political advisors present in private enterprises

The Role of Owner & Regulator cannot be played by the same party: The Government

China May Become Old Before It Becomes Rich!



Source: Gill & Kharas



Why China Missed Out on Renaissance of Modern Age?

- Smartest people all studied for years to pass civil service jobs
- Talent drain to government
- USA norms are different!

Xi Jinping's China

- Can Xi become benevolent dictator or omnipotent & unassailable?
- Xi started a Leninist campaign to get control of the party & ideology
 - Anti-corruption
 - Non-separatist
- Moved decision making from technocrats to party officials & committees (Leading Small Groups)
- In 2018 state constitution changed 2-term limits!

Is Xi Different?

- Xi has bigger challenges & needed time to shape china in his image (like Mao did)
- Ideology may be just be the glue
- But it is a tight rope given the tech savvy new generation (unlike what Mao dealt with!)

US Government is Highly Distributed

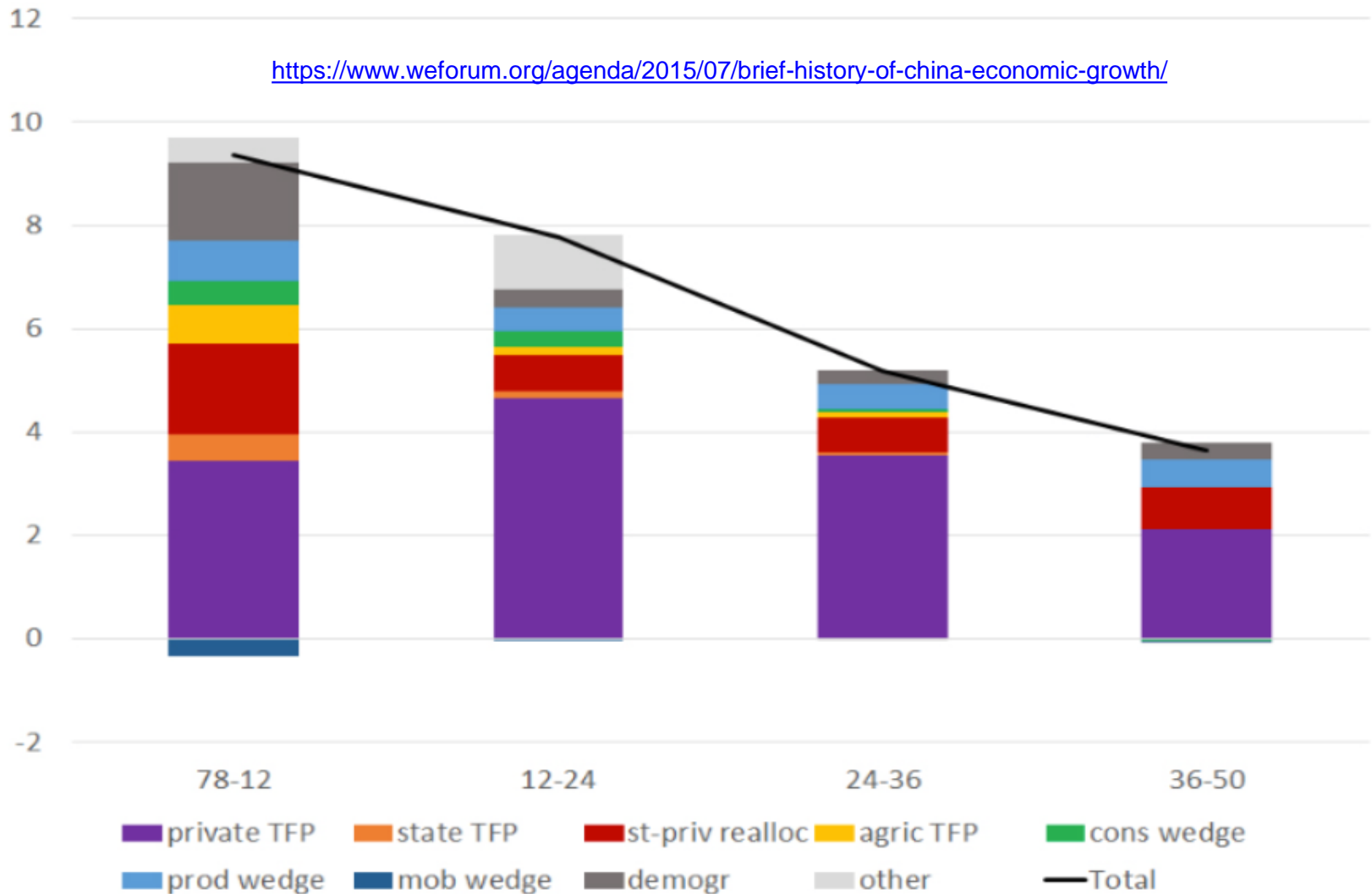
- Local governments & states make laws – minimal impact of a central government
- Checks & balances in US systems allows it to flourish for the long term

The Future

Chinese Options

1. Assert power regionally to keep trading lanes open & reduce US dependence → Navy
2. Open new routes to trade & import raw material → BRI
3. Seek soft landing on financial stress
4. Invest in technology to battle demographics

GDP Growth Will Fall Below 4%



Trade Wars

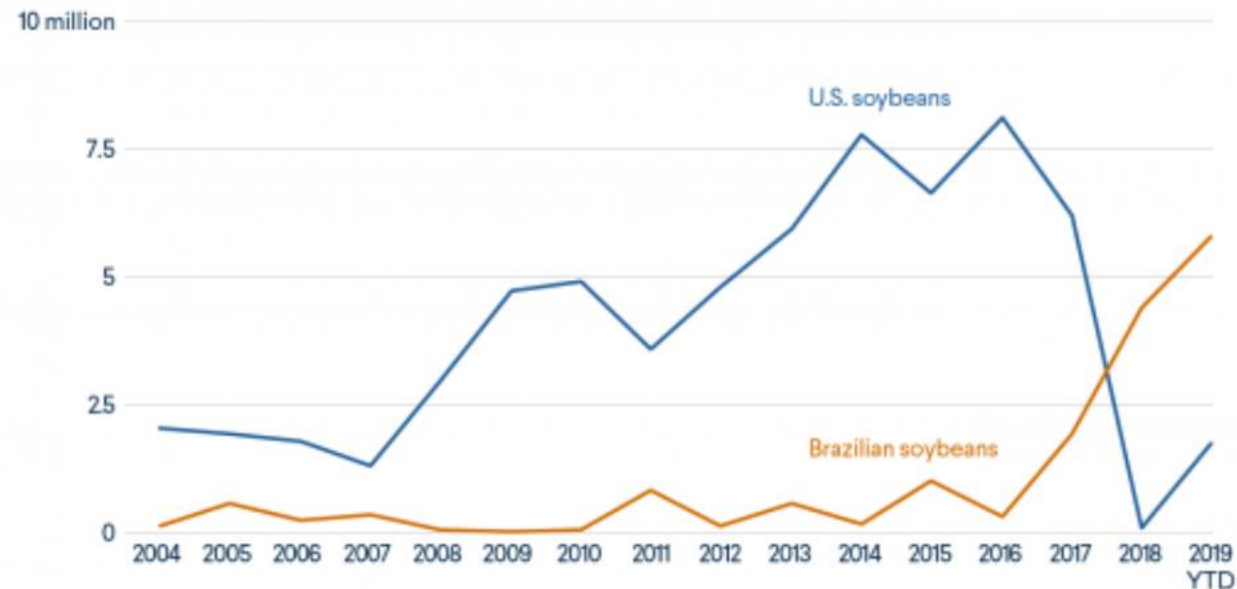
- China has not played fair for decades but no one wanted to confront them
 - Theft of intellectual property from US companies
 - Forcing US companies to share source code before allowing access to local markets!
- Currency manipulation
- Not allowed to import important American autos without tariffs
- Restriction on agricultural products

The Future: US China Relations

- China will have to capitulate: gotta feed the hogs

Brazil Is Becoming a Major Soy Supplier to China

Soybean exports to China (metric tons)

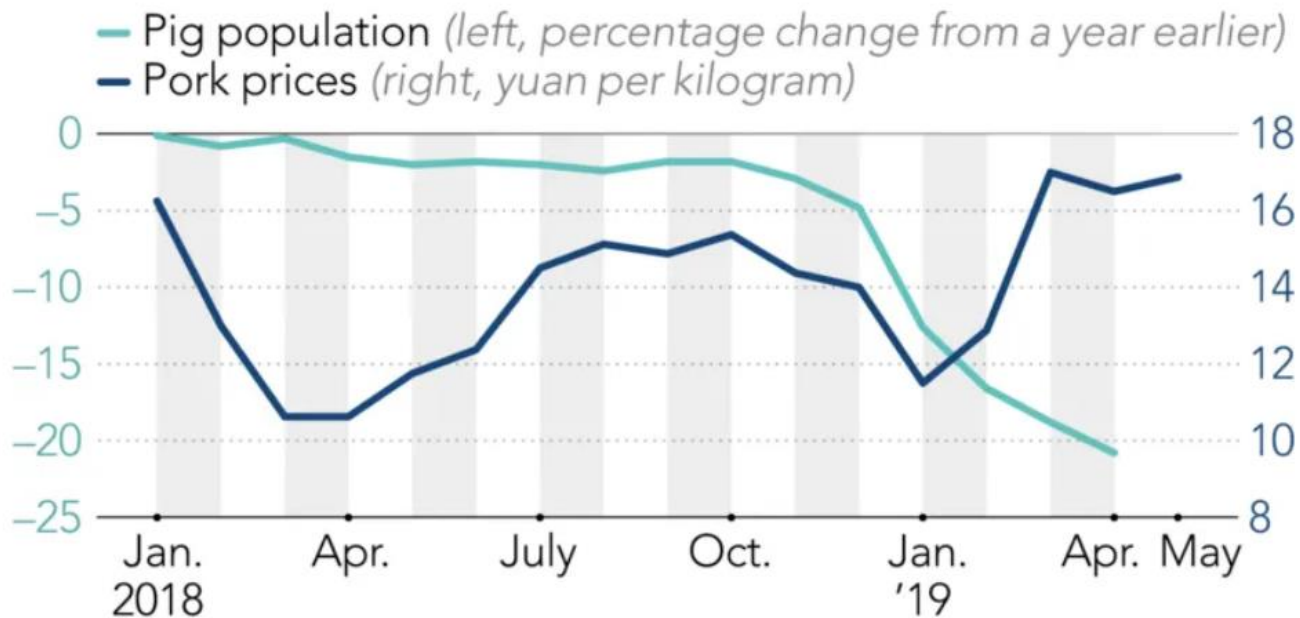


Source: Bloomberg.

COUNCIL ON
FOREIGN
RELATIONS

African Swine Flu Saved Chinese Soybean Crunch

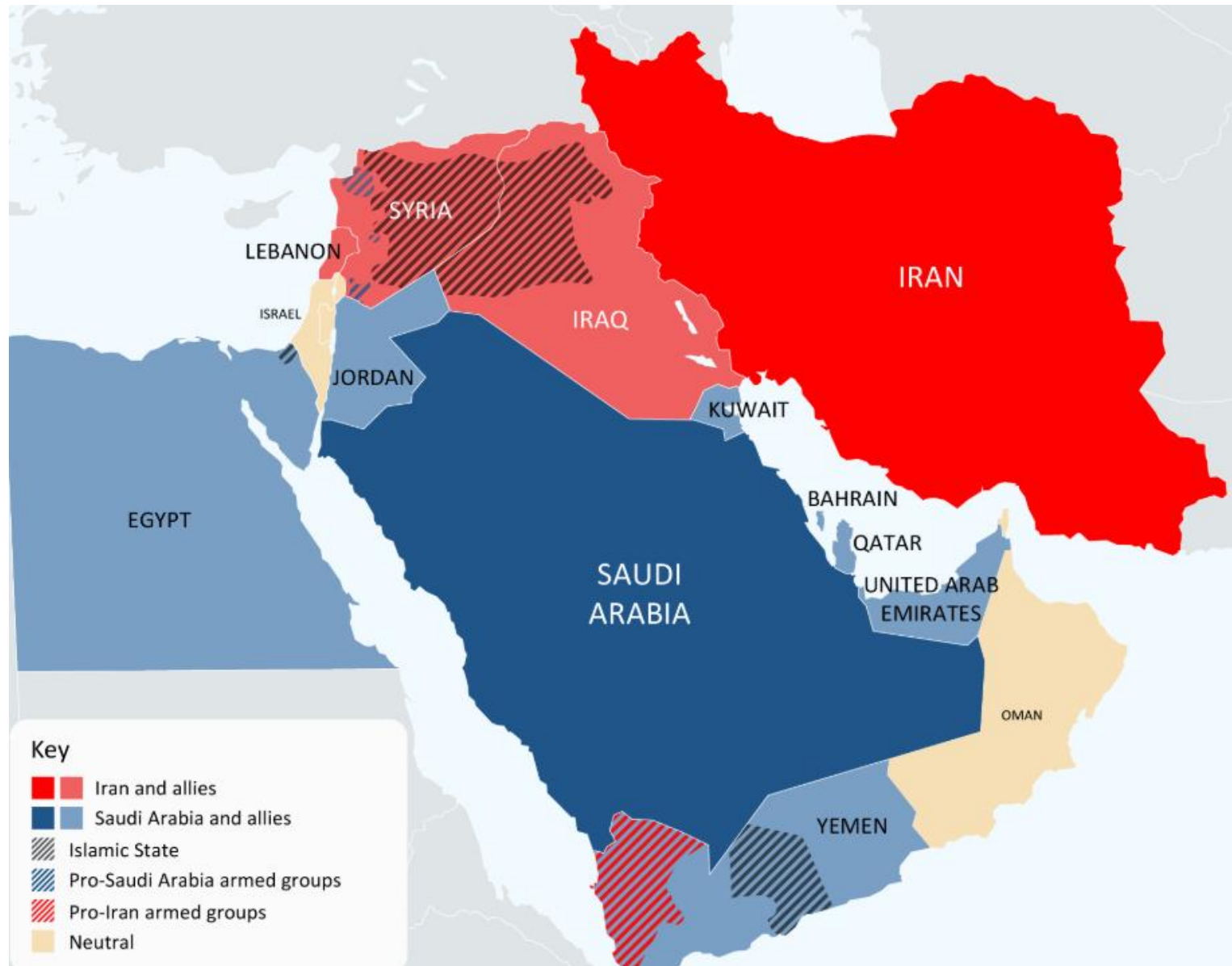
China's plunging pig population sends pork prices soaring



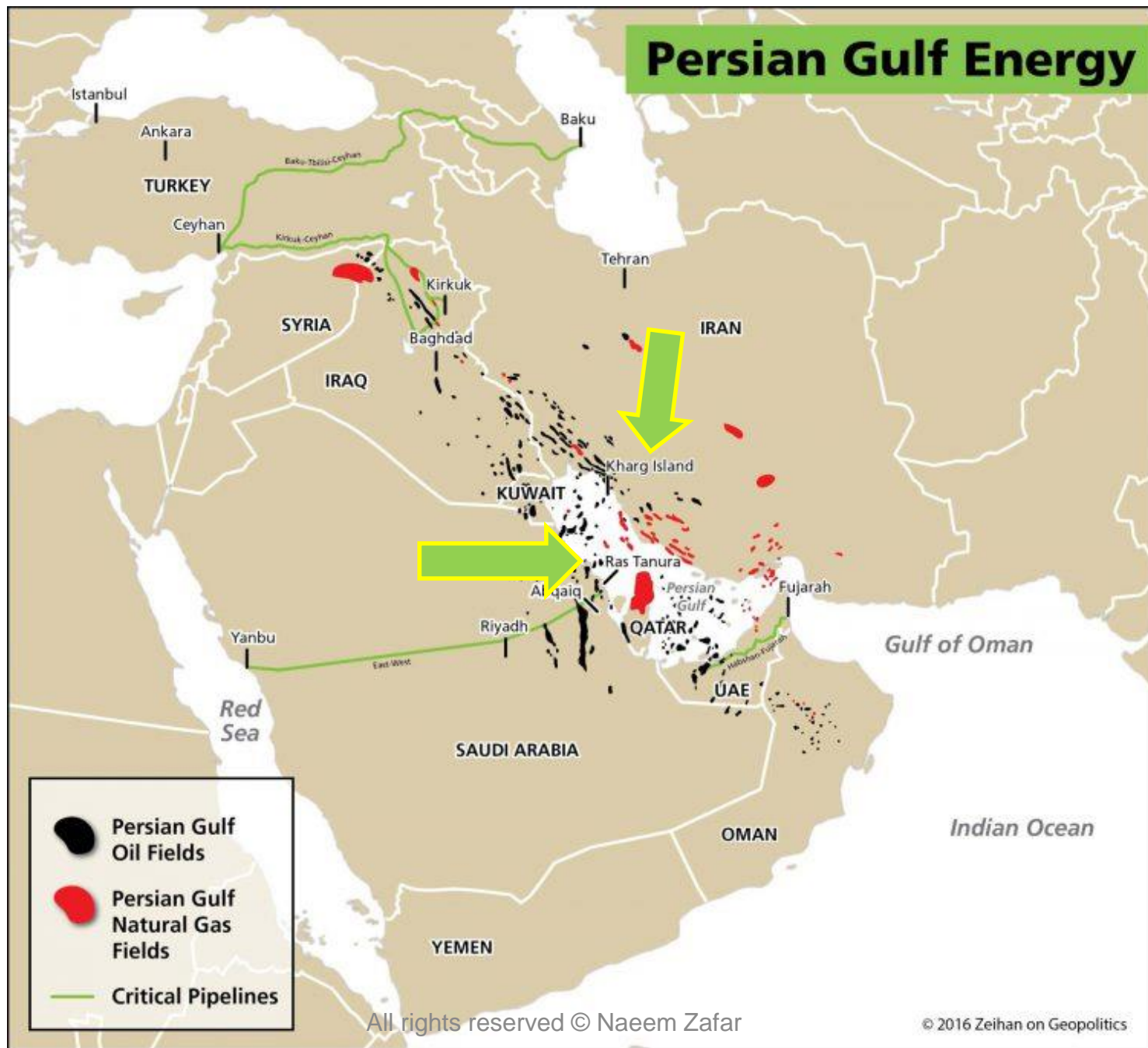
Source: Ministry of Agriculture and Rural Affairs, National Bureau of Statistics

Possible Scenario: Oil Wars in the Persian Gulf

A 1500 year old rivalry



Persian Gulf Energy



Strait of Hormuz



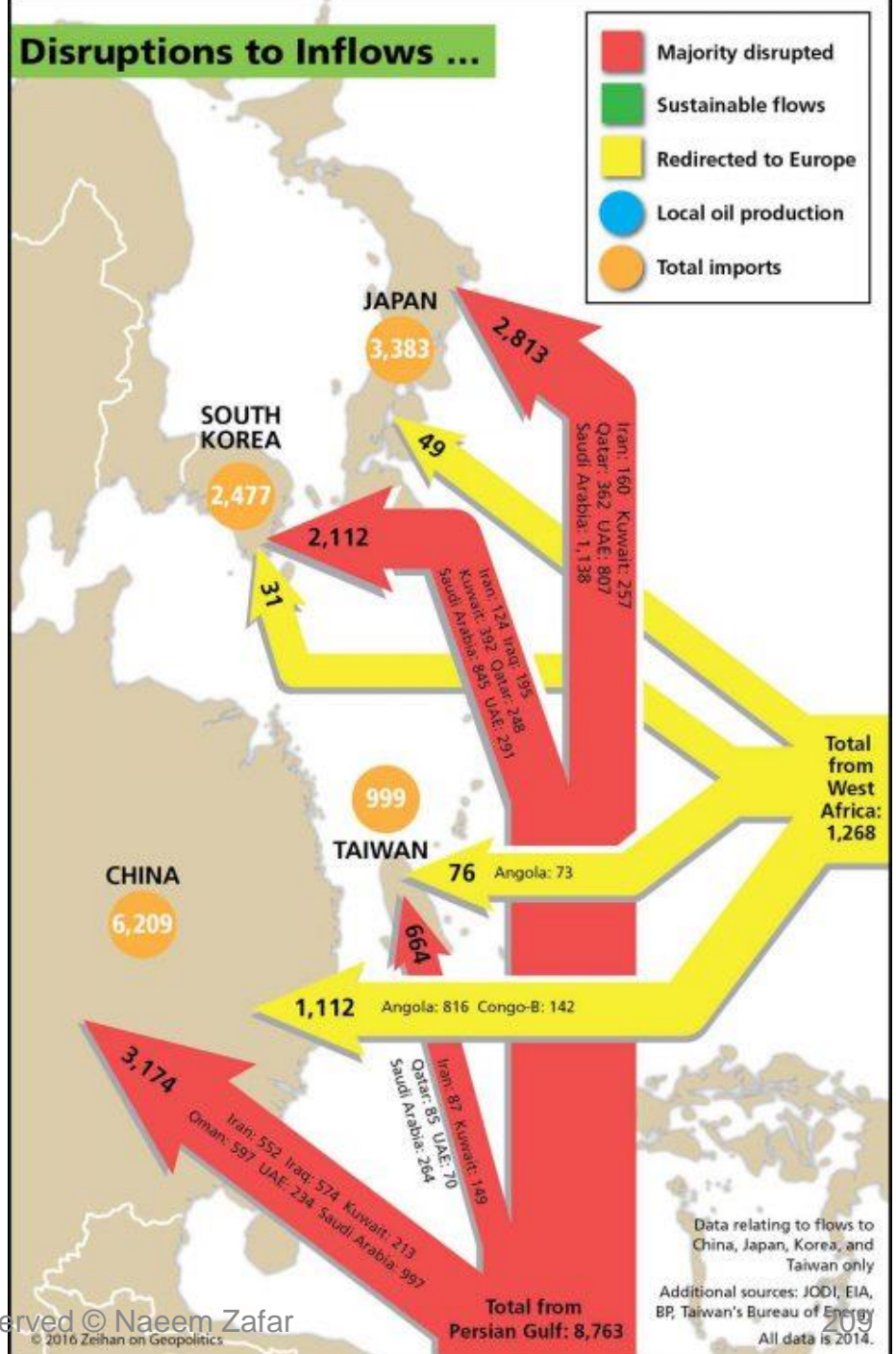
War Scenario

- Saudi Arabia attacks tankers to close Strait of Hormuz
 - Iranians exports from Kharg Island close!
 - Saudi shift production to the other coast (Red Sea) – Iranians do not have this option!
- Iranians realize that they need USA .. But US is not interested!

Who is Willing to Provide Naval Escort?

Price of oil can go to \$150/barrel

USA will enjoy a very favorable scenario due to its energy independence paying ~\$80/b



Dependency on America

- China's unification, industrialization, export-led economy & military build-up was all made possible by Bretton Woods (by USA)
 1. 33% of Chinese economy is export-based (15% to US alone) – any hiccup in this access can cause Great Recession x 3
 2. Whole economy relies on import of oil (just about all raw materials) – without protection this can be interrupted – Big Time!

And US has already started to pull back from Bretton Woods as it becomes a net oil exporter

Anyone of These Things Can Derail China's Momentum

- The Northern militarists vs. the Southern secessionists
- Chinese financial system
- Demography
- Dependence on America

Collectively they are more than enough reasons to return China to the fractured, self-containing mess that it has been for centuries

Scenarios of the Future

- Internal tensions are mounting
 - Numerous ethnic clashes in Tibet & Xinjiang
 - 100,000 events were recorded by government in 2011
- American withdrawal can create extreme shortage on raw material & mass unrest
 - Lights can go out literally, triggering mass movement & lack of food

Start of a Dark, Hungry & Harsh Future

(Same as the last 3,000 years!)

- China's ability to provide employment will end
 - Interior will suffer the most as it relies on the coastal regions for money, even fertilizers & electricity → food shortage, famine & protest, mass exodus to cities
- American withdrawal can create extreme shortage on raw material & mass unrest
 - Lights can go out literally, triggering mass movement & lack of food
 - Coastal central & southern regions will align with trading partners & rebel against Beijing – seeking military protection?

Chinese Economic Concentrations



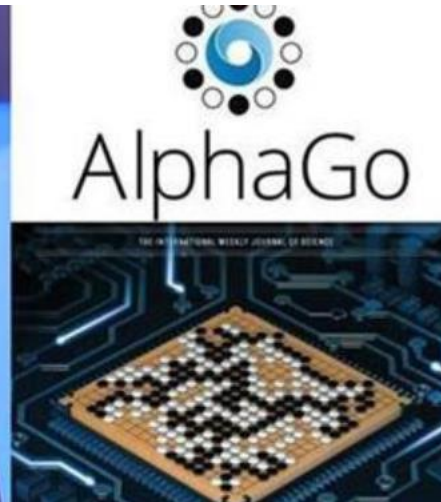
Start of a Harsh Future

- Beijing must focus on keeping the northern plains unified
 - Should it be fighting the interior refugees
 - Or defend against the Japanese aggression
 - Japanese will find northern plains as a source of food
 - Or the secessionist states from Shanghai to Hong Kong?

How to Get Out of this Mess?

Two large bets:
Artificial Intelligence (AI)
Re-build the Silk Road

China's Sputnik Moment: When Google's AlphaGo beat Ke Jie of China on May 2016



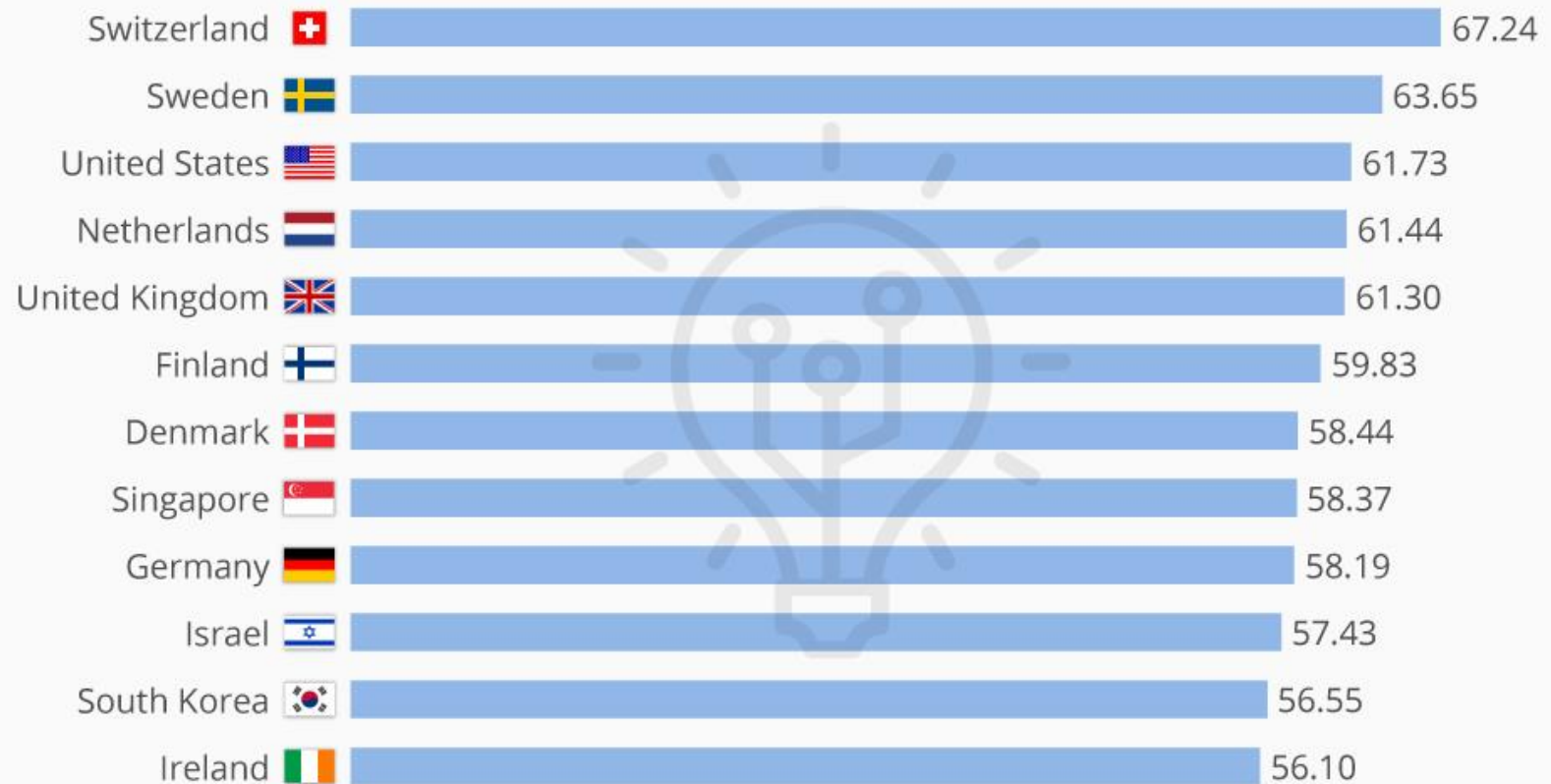
China's Dream 2017:
Become Tech power house by 2025 & Global powerhouse by 2050

Made in China: MIC 2025

- Investment in AI [Artificial Intelligence] & Machine Learning [ML]
 - Become inline by 2020
 - World-leading by 2025
 - Primary source 2030

The World's Most Innovative Countries

2019 rankings of the Global Innovation Index (100=most innovative)



Global Innvovation Index 2016: **Top 10**

Rank 2016 (2015)	Country/ Economy	Score (0-100)
1 (1)	Switzerland	66.28
2 (3)	Sweden	63.57
3 (2)	UK	61.93
4 (5)	US	61.4
5 (6)	Finland	59.9
6 (7)	Singapore	59.16
7 (8)	Ireland	59.03
8 (10)	Denmark	58.45
9 (4)	Netherlands	58.29
10 (12)	Germany	57.94



Rank 2016 (2015)	Country/ Economy	Score
25 (29)	China	50.57
43 (48)	Russia	38.5
54 (60)	South Africa	35.85
66 (81)	India	33.61
69 (70)	Brazil	33.19

Global Innovation Index Tells a Better Story

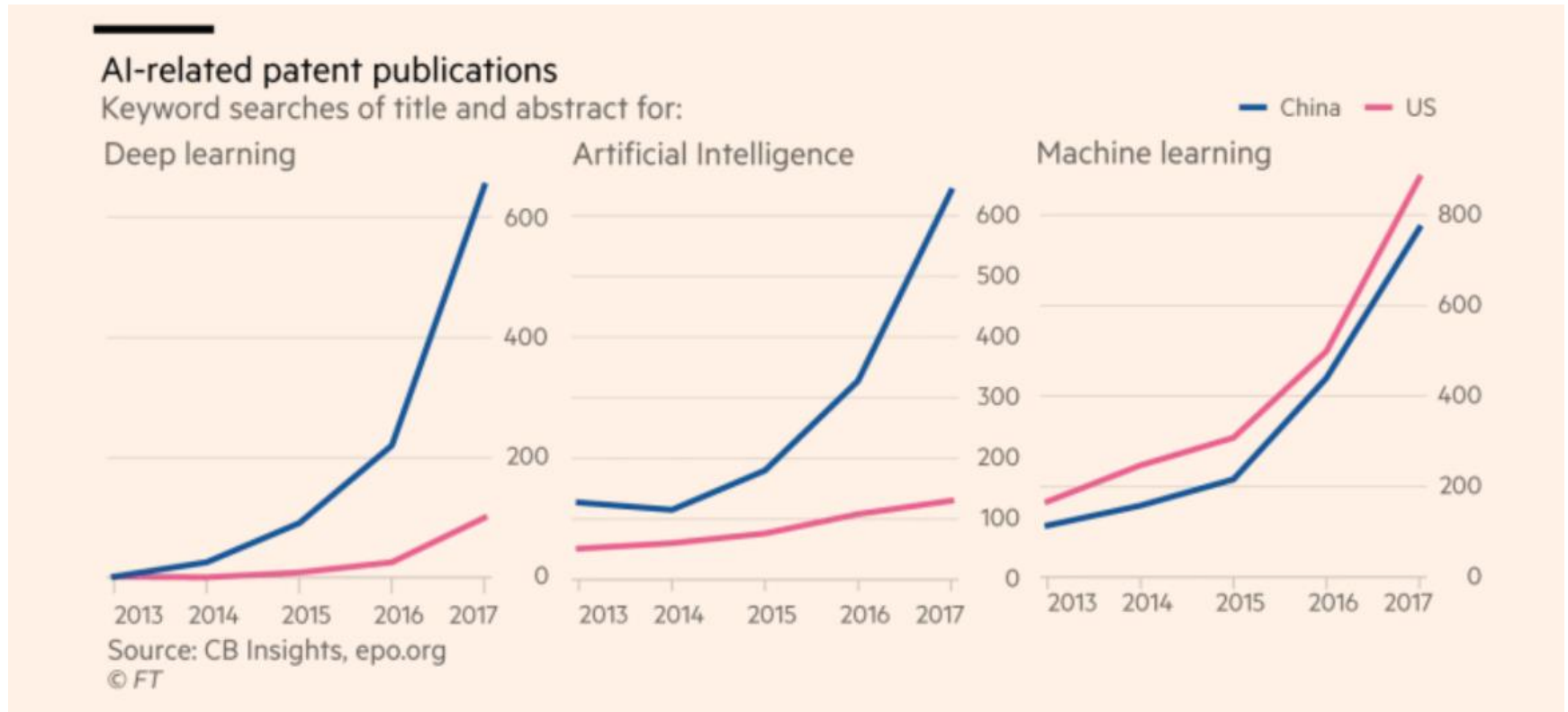
Global Innovation Index

Country	Rank	
	2016	2017
Switzerland	1	1
Sweden	2	2
Netherlands	9	3 
United States of America	4	4
United Kingdom	3	5 
Denmark	8	6 
Singapore	6	7 
Finland	5	8 
Germany	10	9 
Ireland	7	10 
Republic of Korea	11	11
Luxembourg	12	12
Iceland	13	13
Japan	16	14 
France	18	15 
Hong Kong (China)	14	16 
Israel	21	17 
Canada	15	18 
Norway	22	19 
Austria	20	20
New Zealand	17	21 
China	25	22 
Australia	19	23 
Czech Republic	27	24 
Estonia	24	25 

AI Will Change Labor Markets & Societies over the next 20 Years

- President Xi Jinping has made AI one of the central pillars of the **Made in China 2025 plan**
 - To transform the country's economy
 - Goal set of being world leader in technology by 2030

China Has Started a Huge AI Initiative



AI Needs Algorithms & Lots of Data



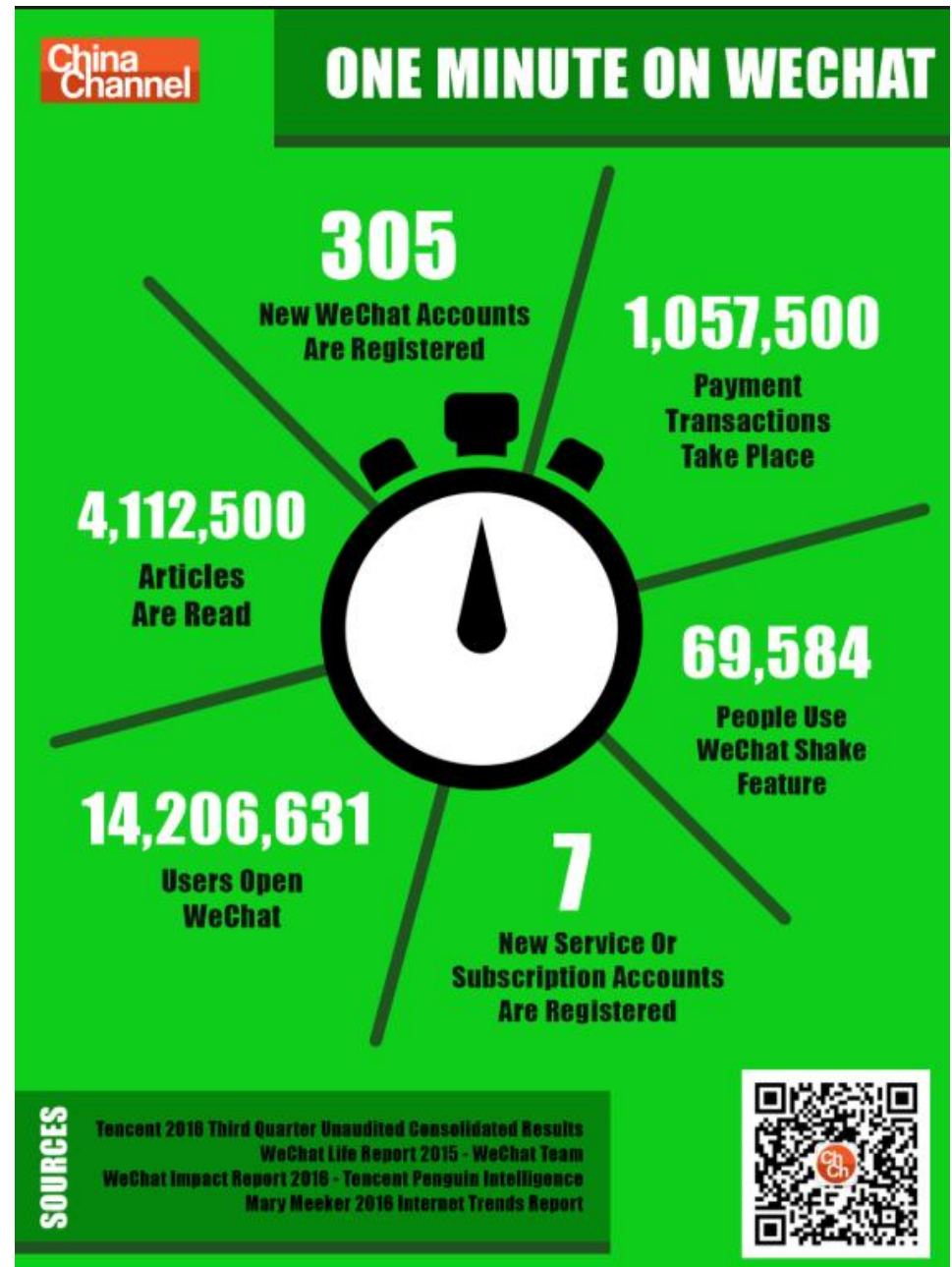
A Chinese police officer wears a pair of smartglasses with a facial recognition system in Zhengzhou, Henan province © AFP

Chinese politics make it much easier to collect data on all aspects of citizens, creating a huge boon to the AI algorithms & research





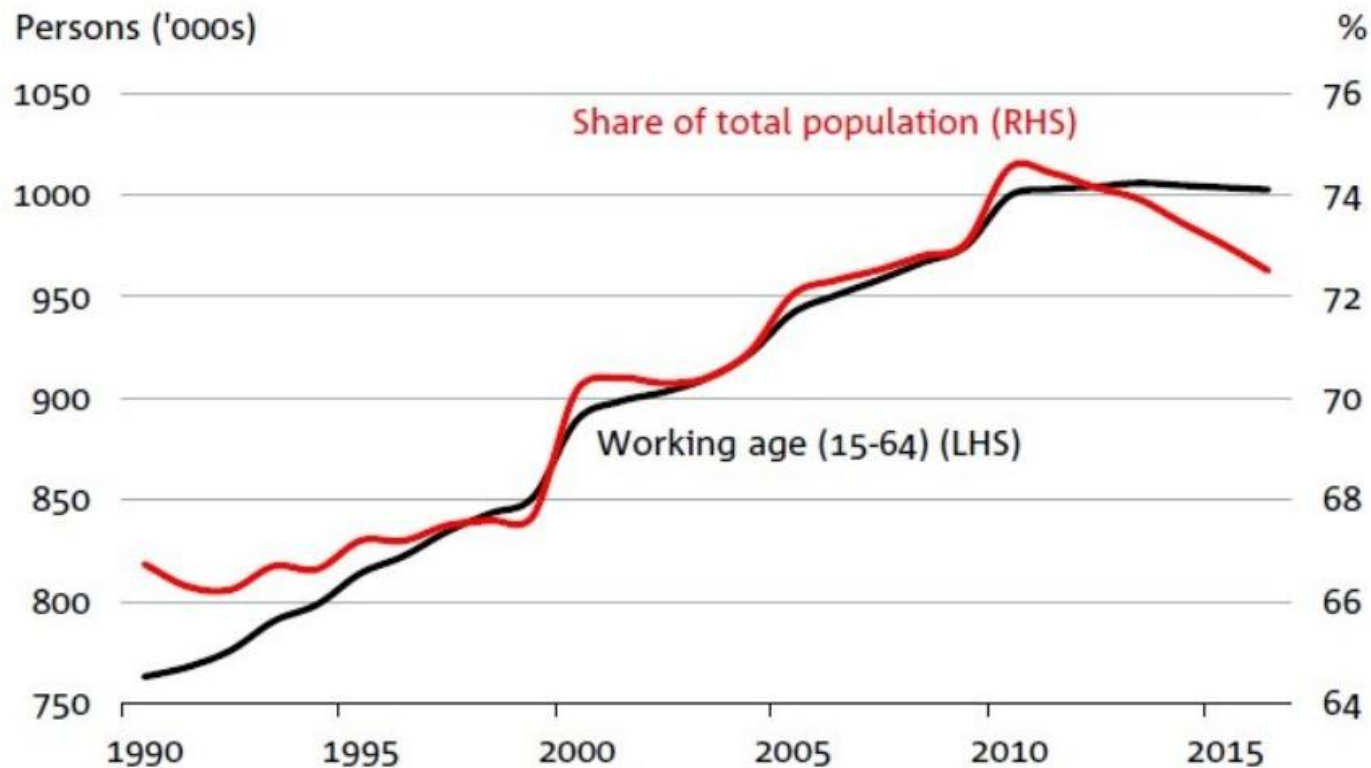
- WeChat is a Chinese multi-purpose messaging, social media & mobile payment app by Tencent
- Released in 2011, it is now one of the world's largest standalone mobile apps by monthly active users, with **over 1 billion monthly active users**



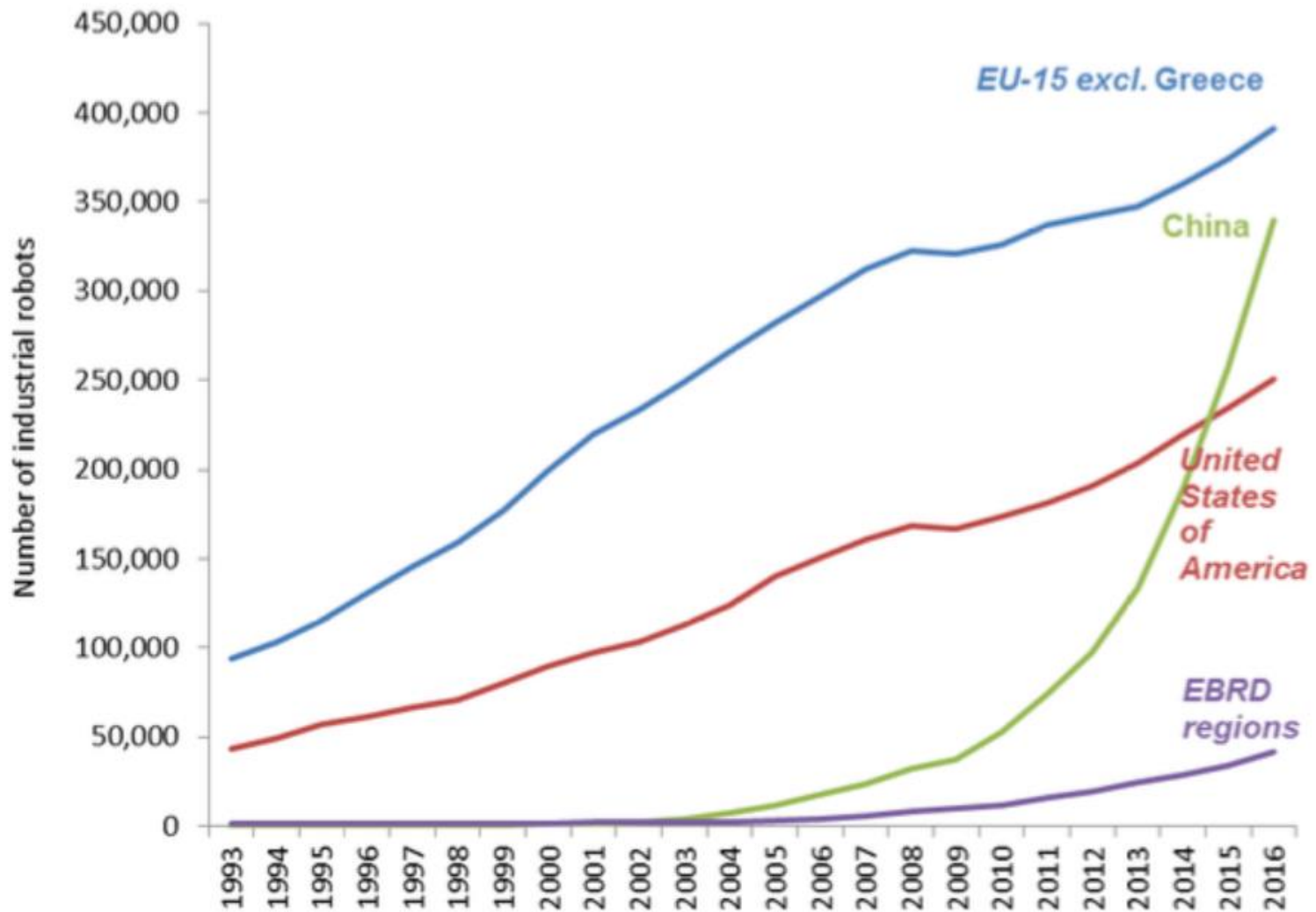
Hello Robots!

THE DEMOGRAPHIC DECLINE

China's working population has peaked

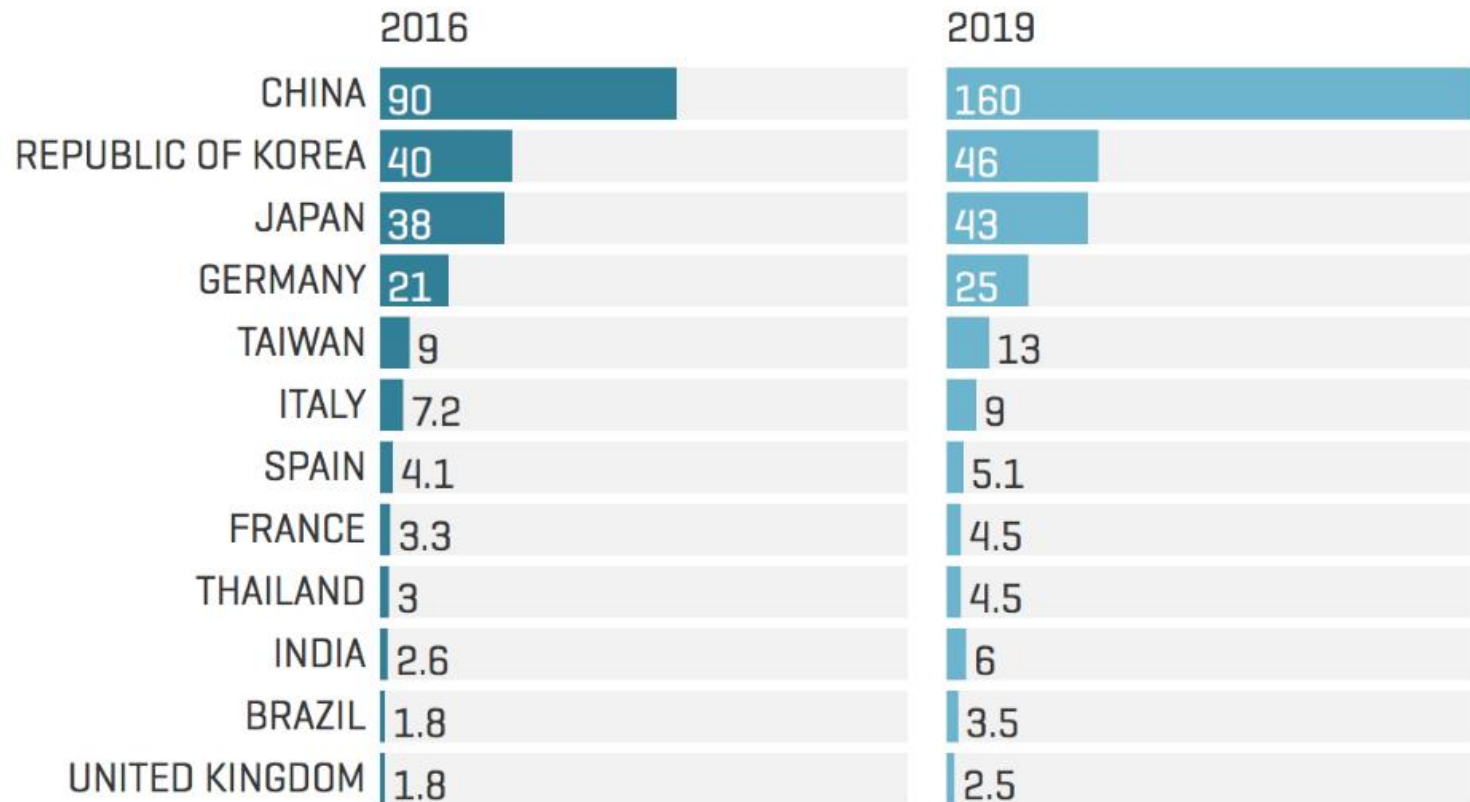


Source: CEIC, NAB Economics



Source: International Federation of Robotics (IFR) and EBRD (2018).

China Imported 40% of All Robots Worldwide



Figures in thousands of units

SOURCE: International Federation of Robotics

FORTUNE

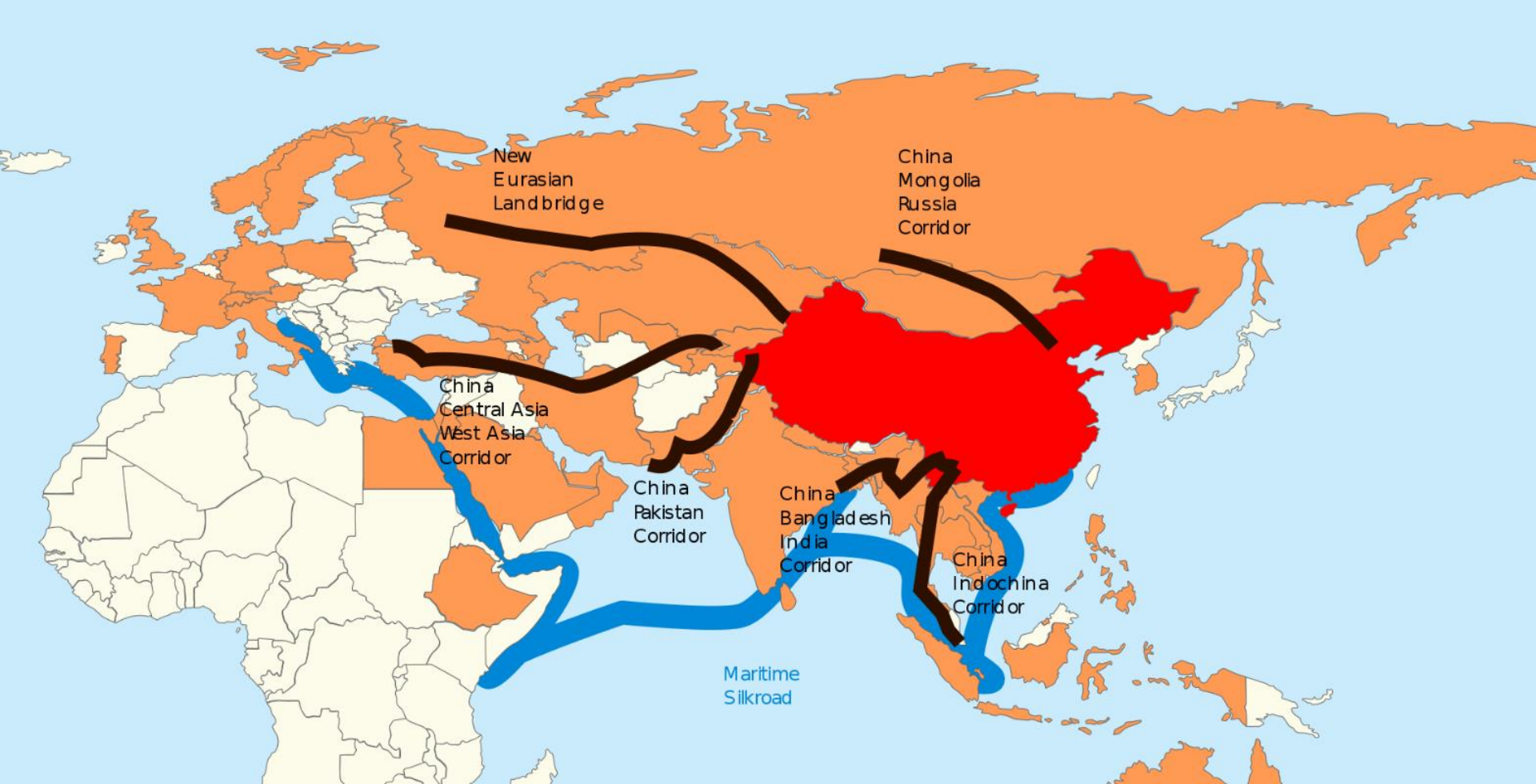
Exoskeletons Help Manage Elderly Population



One Belt, One Road Initiative

- Connect China with the world – open new markets through new partners
- The initial focus has been infrastructure investment, education, construction materials, railway & highway, automobile, real estate, power grid, & iron & steel





Chinese Bets on the Future

- One Road One Belt initiative
- \$900B infrastructure project

One Belt, One Road Initiative

- The Belt & Road Initiative as one of the largest infrastructure & investment projects in history, covering more than 68 countries, including 65% of the world's population & 40% of global GDP as of 2017
- Eventually to be completed by 2049 will touch 152 countries

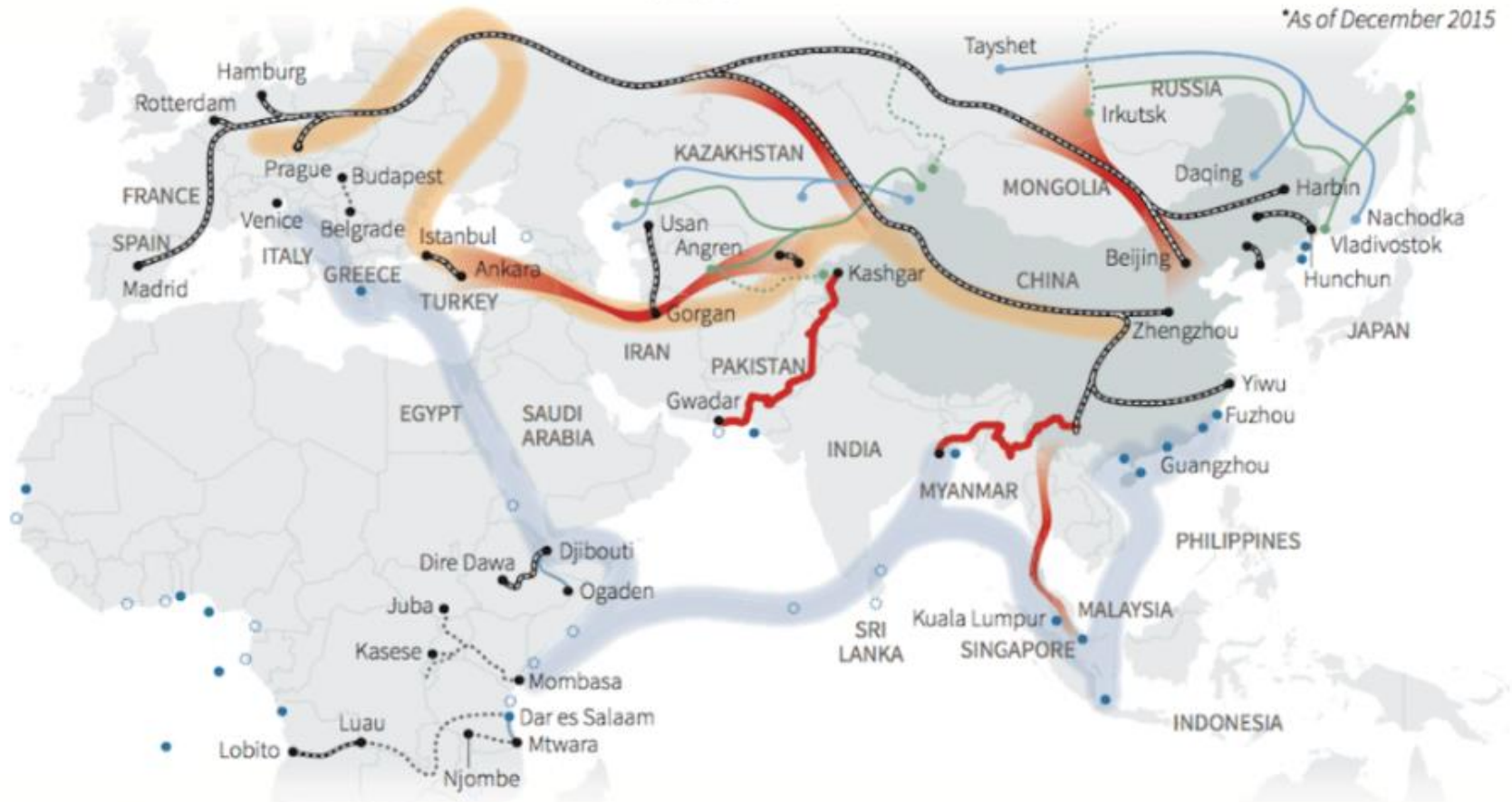
Key

- Silk Road Economic Belt
- New Maritime Silk Road

Projects subsumed under China's Belt and Road initiative

- Gas pipelines
- Oil pipelines
- Railroad
- Proposed economic corridors
- Ports with Chinese engagement
- Planned or under construction

*As of December 2015



Source: Mercator Institute for China Studies.

C. Inton, 24/03/2017

REUTERS

BRI Aimed to Create Chinese Influence

- Will this initiative work to create soft-power China seeks?
- Is the cost sustainable given the economic stresses in China?

Summary

- US strength from its geography & its institutions
 - Our unique system – balance of power between the states & the federal government
 - Decentralized development is the strength
- Our culture celebrates entrepreneurship & it has been allowed to flourish
- China faces severe headwinds & likely to close up (Mao era) to avoid fracture