

# Payden & Rygel

## Mythbusters!

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*August 2011*

**Mythbusters = Two Hollywood Stunt  
Guys + Science + Glee for  
the Truth**



## Asking (And Answering) The World's Most Important Questions:

“Can a person take to the skies using only a lawn chair and weather balloons?”

“Can Pop Rocks and Soda, when eaten simultaneously, cause the eater's stomach to rupture?”

“Will a penny dropped from the top of the Empire State Building kill a person?”

“Will diving underwater protect a person from bullets?”

“Was it possible to survive an escape from Alcatraz?”

“Can a person take  
to the skies using  
only weath

PLAUSIBLE

“Can Pop Rocks and  
Soda, when eaten  
simultaneously,  
rupture the eardrums?”

BUSTED

“Will a penny  
dropped from  
the top of the  
Empire State  
Building kill a  
person?”

BUSTED

“Will diving  
upward  
protect you  
from bullets?”

BUSTED

“Was it  
possible to  
hear the  
Alcatraz?”

PLAUSIBLE

Alcatraz?”

## **We Do the Same, With A Macroeconomics Twist:**

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**1**

**“China Will Unseat the Dollar as the World’s Reserve Currency”**

**2**

**“China Is Growing at the Expense of the United States”**

**3**

**“The Global Economy Will Bust Out of Its Historical 1% to 5% Growth Range”**

**4**

**“We Are Running Out of Everything”**

**5**

**“The Demographic Time Bomb Will Drag Developed Economies to Ruin”**

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1

**“China Will Unseat the Dollar  
as the World’s Reserve  
Currency”**

# China Will Unseat the Dollar as the World's Reserve Currency

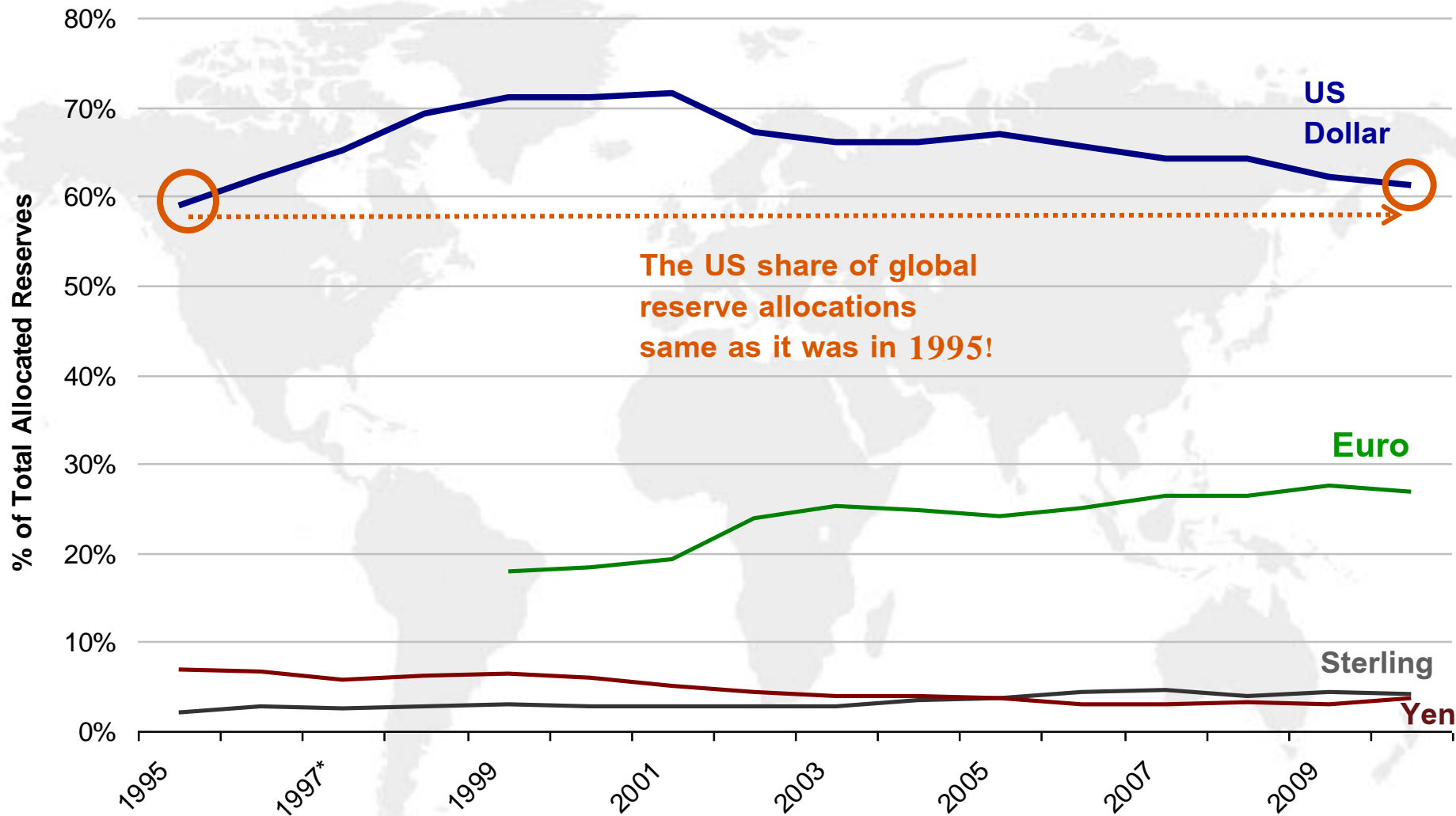
## Background

Reserve currency nations pay relatively low interest rates on their foreign liabilities (due to demand for that government's bonds) while also receiving relatively high returns on foreign assets. This large excess return is the "exorbitant privilege" that allows for a large negative trade balance. The US has enjoyed this privilege since WWII.

## The Claim

China has announced that it aims to become the world's primary reserve currency by 2020. Whether you subscribe to that particular timeframe or not, China has 1/6 of the world's population and a large and rapidly-expanding share of the world economy, prompting speculation that China will overtake the US as the world's reserve currency.

# Debunking a Myth Within a Myth: The US Has Not Lost Its Throne Yet!



The US share of global reserve allocations same as it was in 1995!

Source: IMF

# Criteria for a Reserve Currency: What Constitutes a Contender?

## Recipe for Global Reserve Currency Status

- Step 1: Large, robust economy
- Step 2: Significant goods exporter
- Step 3: Free-floating currency
- Step 4: Currency used in higher % of international transactions
- Step 5: Open economy, eliminate capital controls
- Step 6: Strong, viable banking system with lender of last resort
- Step 7: International bank branches
- Step 8: Deep, liquid securities markets

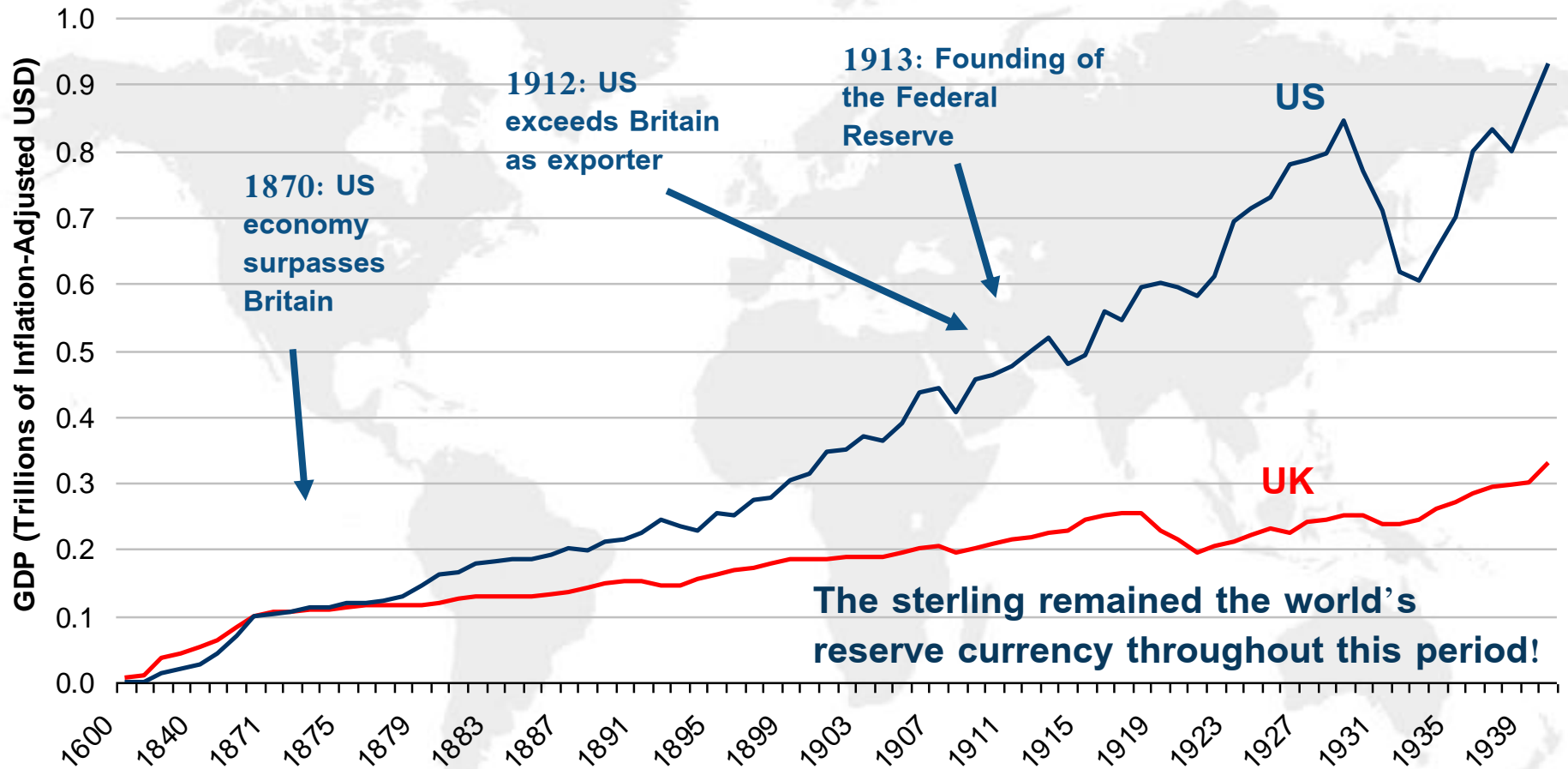
China has the world's second-largest economy (after the US), and is the world's largest exporter. However, there remain many impediments to becoming a serious reserve currency, not least because government still artificially holds down the value of the yuan and limits foreign holdings of Chinese assets. China must internationalize the yuan if its ambitions as a world reserve currency have a chance.

# Who is in the Running?

Criteria	US Dollar	Euro	Chinese yuan
Large, robust economy	Yes	Yes	Yes
Significant goods exporter	Yes	Yes	Yes
Free-floating currency	Yes	Yes	No
Currency used in many international transactions	Yes	Yes	No
Open economy, eliminate capital controls	Yes	Yes	No
Strong banking system with lender of last resort	Yes	?	No
International bank branches	Yes	Yes	No
Deep, liquid securities markets	Yes	Yes	No

# But What Happens When China's Economy Does Surpass the US?

Example: Gross Domestic Product for the UK and US: 1600 - 1940



Despite surpassing the U.K. in size in 1870, the United States did not become the world's reserve currency until after WWII. The depth and liquidity of the domestic financial market is key.

Source: Angus Maddison

# The Facts: Dollar Still Reigns Supreme

**The dollar is used for:**

- **75% of imports from countries outside the United States**
- **85% of foreign exchange transactions (down just 3% since 2004).**
- **45% of international debt securities**

**Moreover, U.S. Treasury securities have unrivaled liquidity.**

*Source: Barry Eichengreen, "Exorbitant Privilege: The Rise and Fall of the Dollar"*

## The Verdict:

**“China Will Unseat the Dollar as the World’s Reserve Currency”?**



**BUSTED**

**Reports of the U.S. dollar’s death have been greatly exaggerated. The euro, which could emerge from the current crisis with better institutional underpinnings, appears to be a more probable competitor than the Chinese yuan.**



2

**“China Is Growing at the  
Expense of the United States”**

## Common Misunderstanding of Trade and Wealth



← A zero-sum game

If there is a limited and unchanging amount of pie, any extra pie you take will subtract from my slice. U.S. trade with China is often conceptualized in this way. Is this accurate?

# “China Is Growing at the Expense of the United States”

## Background

A zero-sum game is a situation in game theory in which a gain by one player is countered by an equivalent loss by another player. If one person takes a bigger slice of pie, the other person loses the same amount.

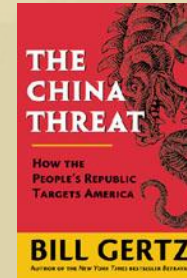
## The Claim

Though the concept of gains from trade is a cornerstone of economics, the mercantilist notion that the United States is “losing” a trade war with China is common concern among the public and in the popular press.

## The Popular Press Inflames Concerns About China's Rise

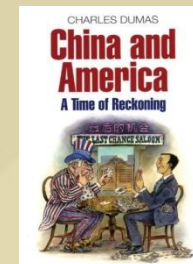
“The China Threat: How the People’s Republic Targets America”

By Bill Gertz



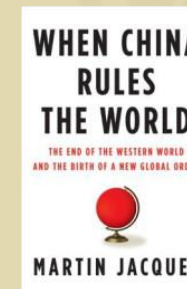
“China and America: A Time of Reckoning”

By Charles Dumas

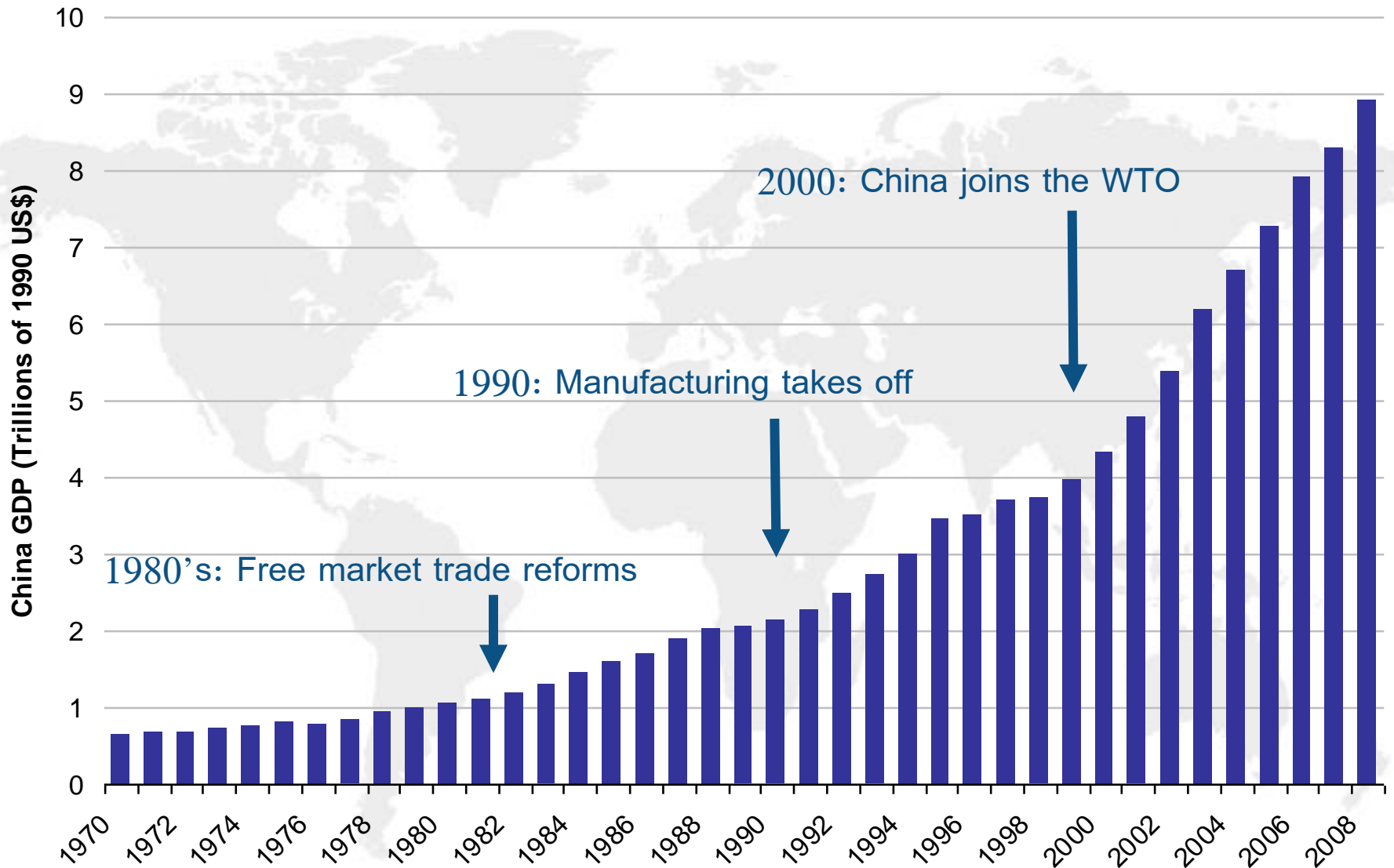


“When China Rules the World: The End of the Western World and the Birth of a New Global Order”

By Martin Jacques

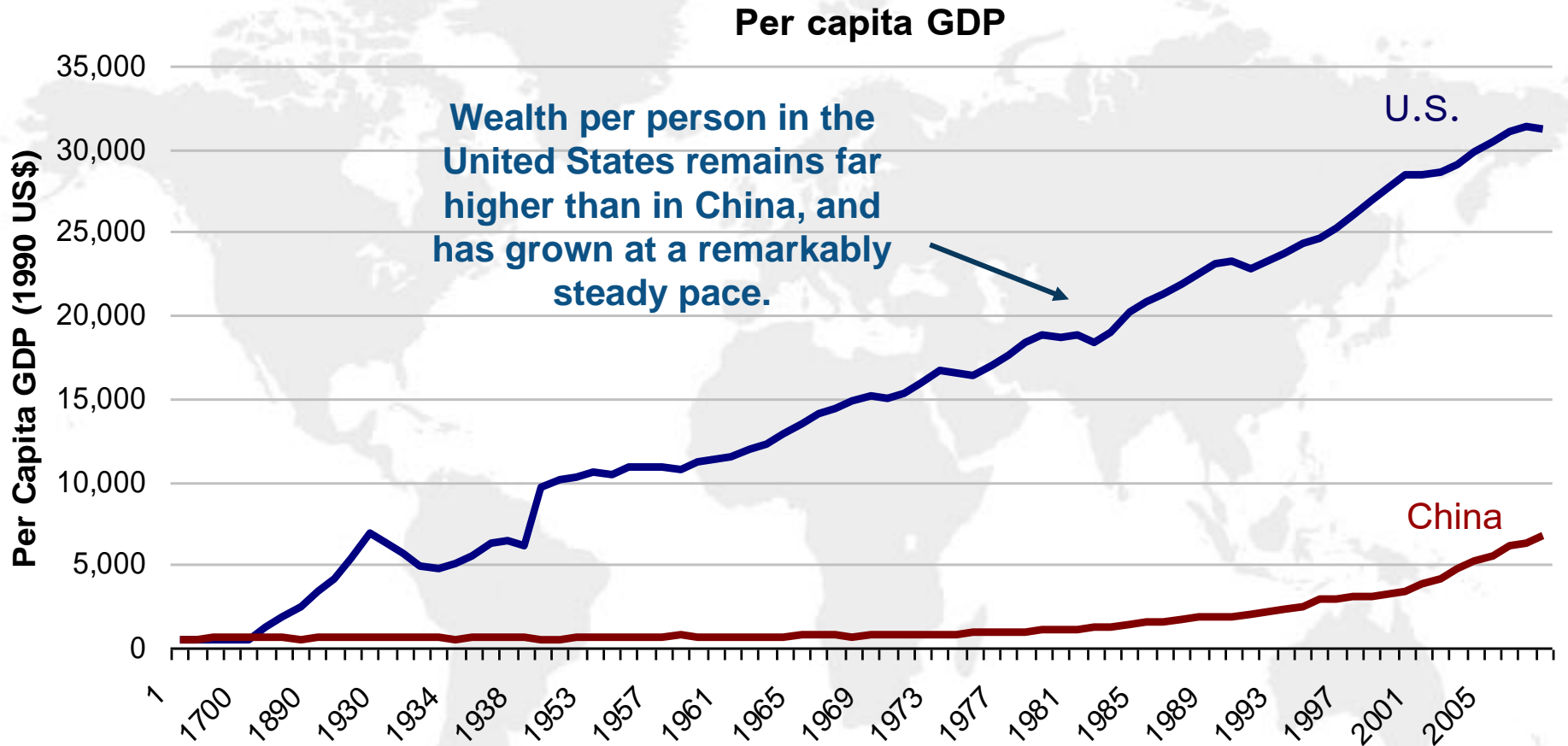


# Yes, China's Economy Has Been Growing Exponentially...



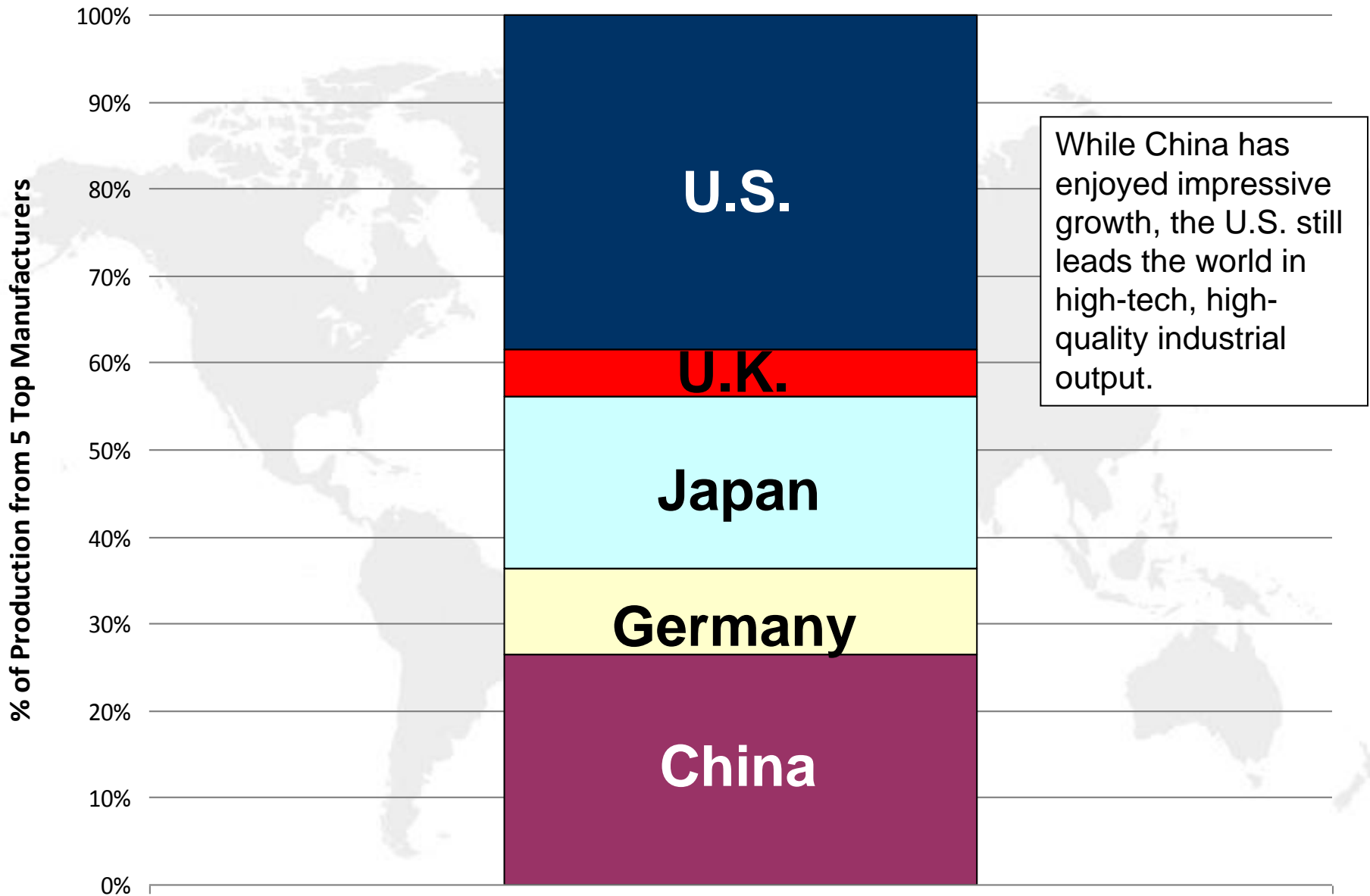
Source: Angus Maddison

# ...But Has This Come At the Expense of the United States? No.



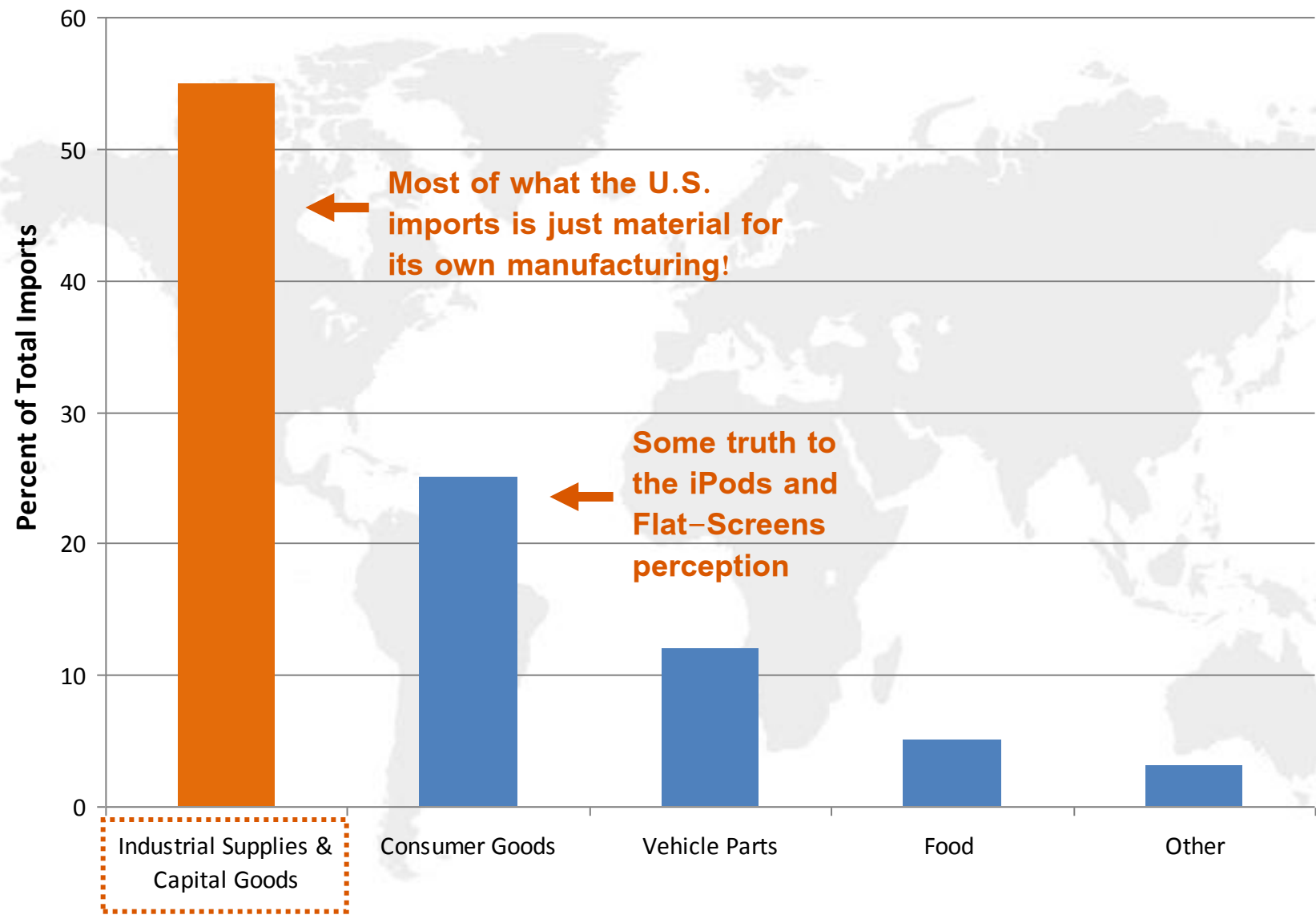
Source: Angus Maddison

# In Fact, The US Still Leads the World In Manufactured Goods Output



Source: United Nations

# And Those Imports From China? More Than Just "Flat Screen TVs and iPods"



# Which Country Makes the iPod? A Truly Global Product

## Cooperation, Not Competition

### The Idea

Steve Jobs?  
Engineers at Apple?  
Software and hardware companies?

### Components

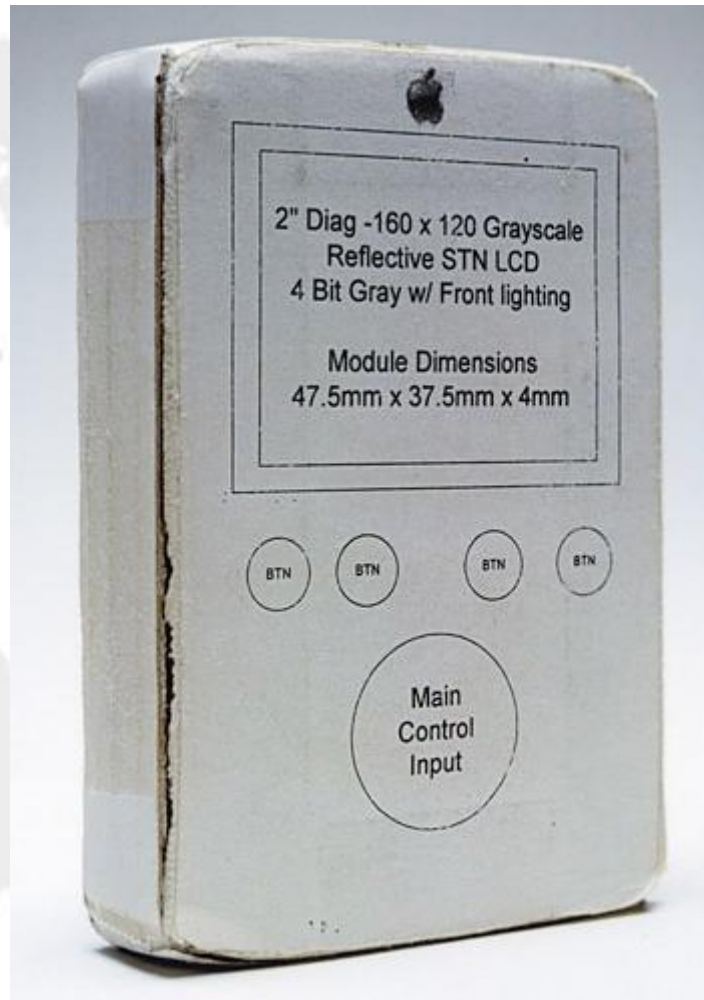
400+ parts, including generic parts like nuts and bolts, as well as more intricate parts like hard drives and controller chips

### Companies

Apple, Asustek, Inventec  
Appliances, Foxconn

### Countries

US, China, Phillipines, Japan,  
Singapore, Korea, Thailand,  
Taiwan, Other



**The complexity of today's global production process makes it difficult to assess each country's contribution. Some studies suggest that eliminating certain statistical biases would cut the US trade deficit in half!**

Sources: Wired Magazine, "Innovation and Job Creation in a Global Economy: The Case of Apple's iPod" by Greg Linden, Jason Dedrick and Kenneth Kraemer

# China's Gain Is *Not* a US Loss

## In Fact, U.S. *Exports* to China Have Also Surged



Source: BEA

## What Do We Make? High-Tech, High Quality Products

<b>Exports by End-Use</b>	<b>2010 Year-To-Date (USD Millions)</b>
Semiconductors	32,021
Pharmaceutical preparations	30,743
Industrial machines, other	27,090
Plastic materials	21,651
Chemicals-organic	21,481
Electric apparatus	21,140
Telecommunications equipment	21,108
Fuel oil	20,724
Petroleum products, other	20,607
Medicinal equipment	19,578
Civilian aircraft	19,566
Computer accessories	19,239
Chemicals-other	16,677
Industrial engines	15,999
Engines-civilian aircraft	15,247
Other industrial supplies	14,256
Measuring, testing, control instruments	13,719
Parts-civilian aircraft	12,552
Other household goods	12,520
Nonmonetary gold	11,694
Finished metal shapes	10,224
Gem diamonds	9,710
Computers	9,630

Source: Census Bureau

## The Verdict:

**“China Is Growing at the Expense of the United States”?**



**BUSTED**

**China’s gain is *not* the United States’ loss. In fact, exports to China have surged and U.S. imports from China are used for high-tech and high-value American manufacturing. Trade is a *positive-sum* game for both countries overall.**



3

**“The Global Economy Will  
Bust Out of Its Historical  
1% to 5% Growth Range”**

## The Global Economy Will Bust Out of Its Historical 1% to 5% Growth Range

### Background

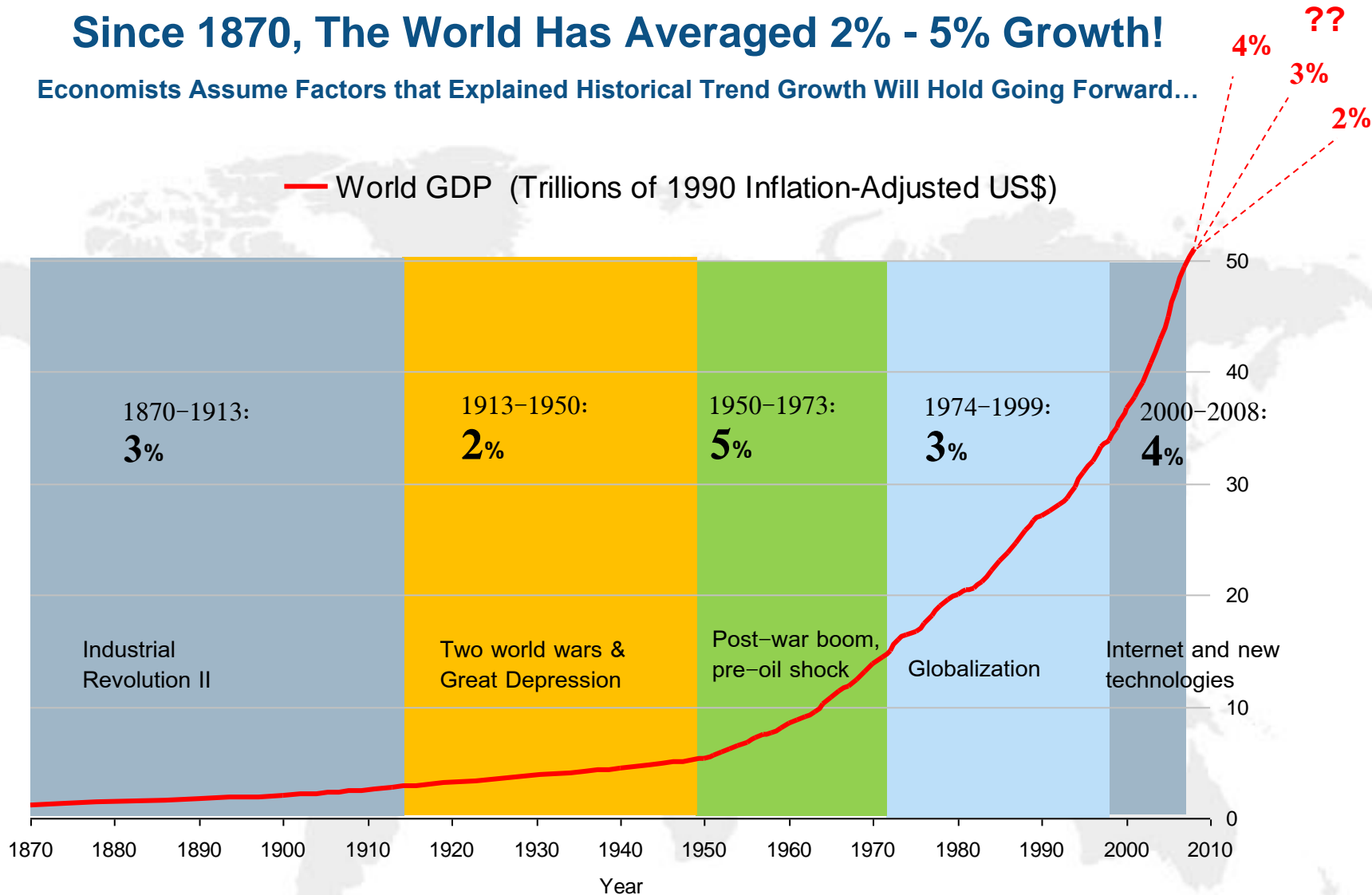
For most of human history, economic growth mirrored population growth. This ended with the rise of agriculture and slightly faster economic growth. In the 18<sup>th</sup> century, the Industrial Revolution sparked a second acceleration to the pace we are accustomed to today.

### The Claim

Many people see the patterns of the past 140 years and assume we will continue growing between 1-5% per year. However, it is possible that we are about to witness a “Great Acceleration” driven by the rise of the internet and new technologies.

# Since 1870, The World Has Averaged 2% - 5% Growth!

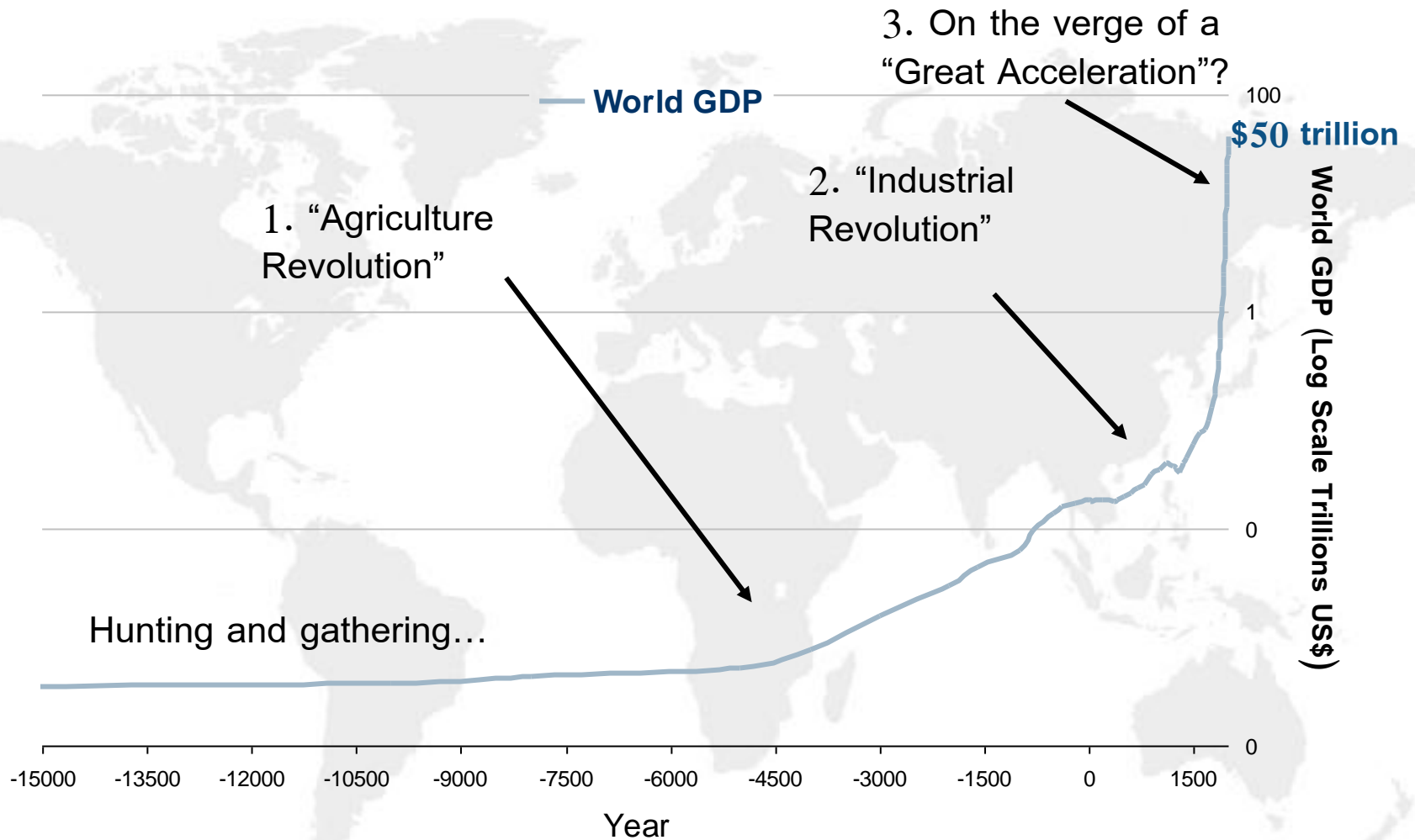
Economists Assume Factors that Explained Historical Trend Growth Will Hold Going Forward...



**Growth of the United States economy has varied but tends to remain within 2% and 5%, regardless of the era.**

Sources: Angus Maddison and Payden estimates

## But A Look Further Back Shows Two Major Growth Shifts



Source: Bradford DeLong, UC Berkeley and IEEA.org

## Are We On the Verge of Another Shift?

Growth Mode	Doubling Time (Years)	Begin Date
Hunting/Gathering	230,000	2,000,000 BC
Farming	860	4700 BC
Industrial Revolution I	58	1730 AD
Industrial Revolution II	15	1903 AD
Great Acceleration	1-2 weeks?	20??

The world economy is now doubling in size every 15 years, compared to almost 60 years in the first industrial revolution and almost 1,000 years in the farming revolution.

Source: Economist Robin Hanson, "Long-Term Growth As a Sequence of Exponential Modes," December 2000.

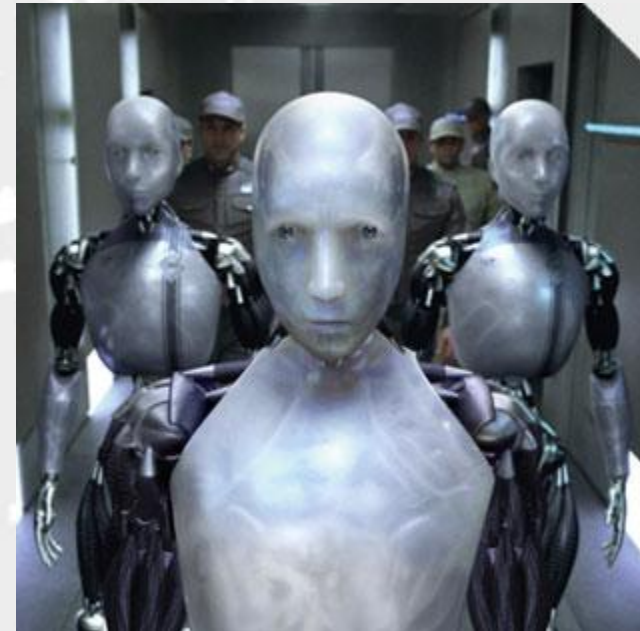
# What Could Spark The Shift? A “Technological Singularity”\*

Already happening...



“Crowd accelerated innovation” from collaboration on a global scale – the rapid sharing of ideas.

...one possible future?



–Billions of robots would expand the labor pool, boosting growth to levels unfathomable to us living today.  
–Nanotechnology will vastly increase productivity

\*Economist Robin Hanson, referring to the merging of man and machine

## The Verdict:

**“The Global Economy Will Bust Out of Its Historical 1% to 5% Growth Range”?**



**We may indeed grow at 3%. But do not discount the possibility of our advanced technologies propelling the world economy into a new era of unprecedented growth.**



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**4**

## **“We Are Running Out Of Everything”**

# We Are Running Out Of Everything

## Background

As billions of people enter the global middle class, the demand for resources has exploded. Unfortunately, excluding the sun, all of Earth's resources are finite, and many are nonrenewable.

## The Claim

The reality of finite supply has prompted declarations of impending shortages of oil, trees, arable land, and so forth. We explore whether this will indeed become a crisis, or merely a bump in the road.

## “Chicken Littles” Over Last 200 Years

“The power of population is indefinitely greater than the power in the earth to produce subsistence for man.”

– Thomas Malthus, 1798

“The United States has only a seven-year supply of petroleum remaining.”

– Federal Oil Conservation Board, 1926

“Are We Running Out of Everything?”

–Newsweek, 1973

“The battle to feed all of humanity is over. In the 1970s and 1980s hundreds of millions of people will starve to death in spite of any crash programs embarked upon now.”

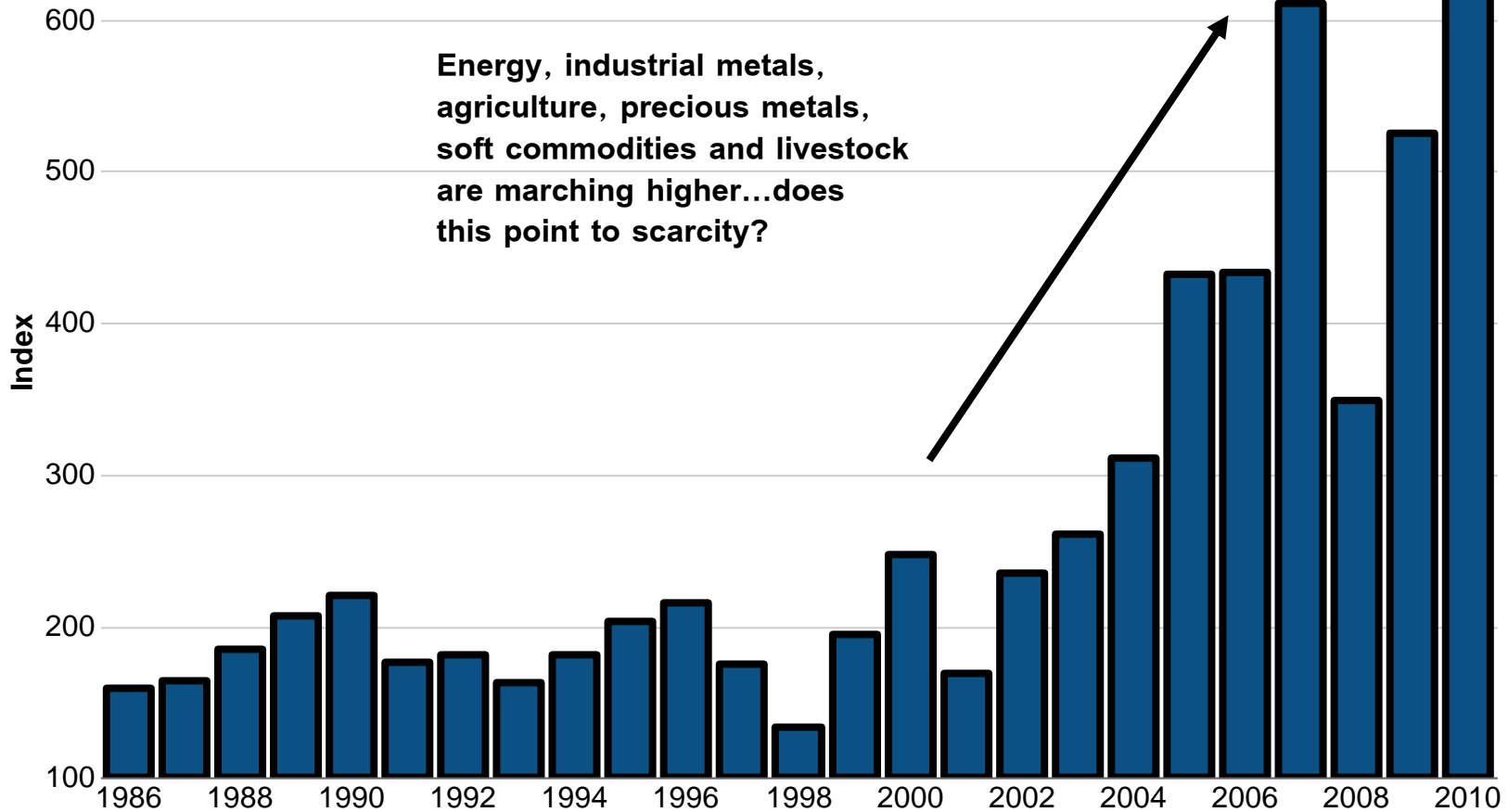
–Paul Ehrlich, *The Population Bomb*, 1968

Mad Lib:

Every few years, a (think tank/author/director/celebrity) claims that the (U.S./developing countries/world) is running out of (timber/farmland/oil, food) and that humans face certain (shortage/hunger/war/extinction).

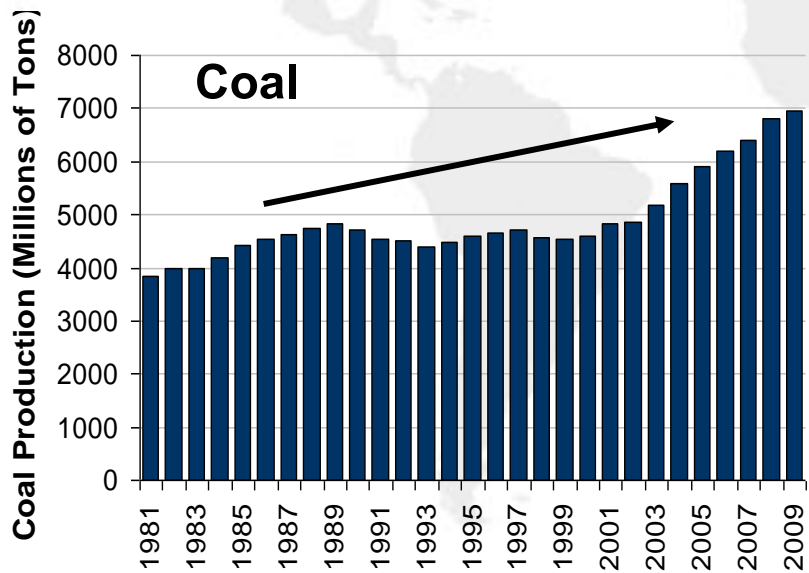
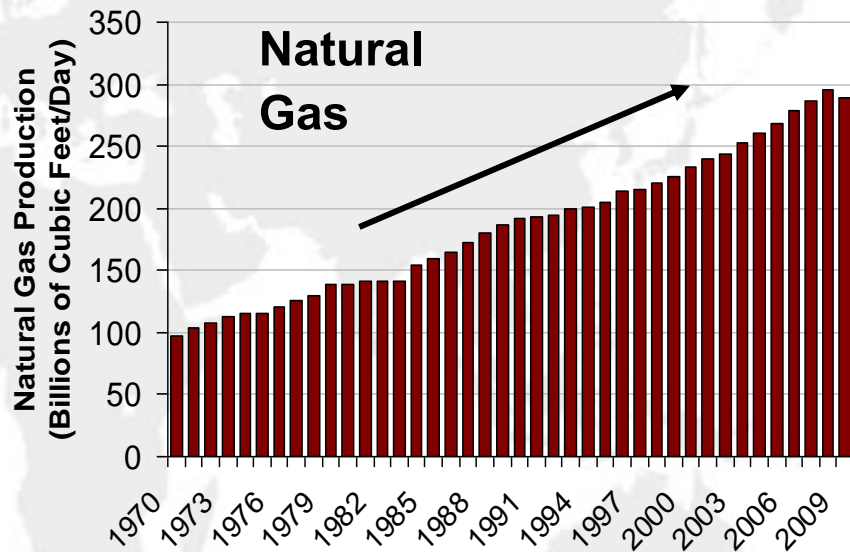
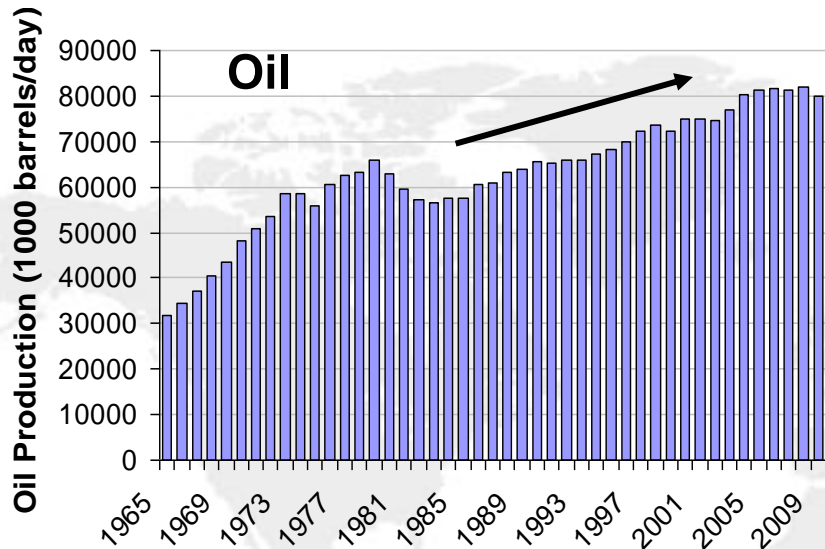
# It's True, Rising Commodity Prices Suggest Shortages...

■ S&P GSCI - Spot Index



Source: S&P

# ... However, Oil, Coal, and Natural Gas Production Has Continued to Rise to Meet Demand





# So What's Going On?

## The Man on the Street vs. the Economist



**The "man on the street" says: A growing world population will drive up demand. This will result in shortages!**

**The Economist replies: Nonsense! Scarcity is the natural state of things. As demand increases, prices rise. This signals to producers and users to economize on scarce resources and produce *more*. Thus, prices are the language of the economy.**

## The Verdict:

**“Are We Running Out of Everything”?**



**BUSTED**

**Resources may be limited, but the only real constraint on global output is human ingenuity. Innovation, driven by higher prices, will propel us beyond any shortages that arise.**



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**5**

**“The Demographic Time Bomb Will Drag Developed Economies to Ruin”**

# The Demographic Time Bomb Will Drag Developed Economies to Ruin

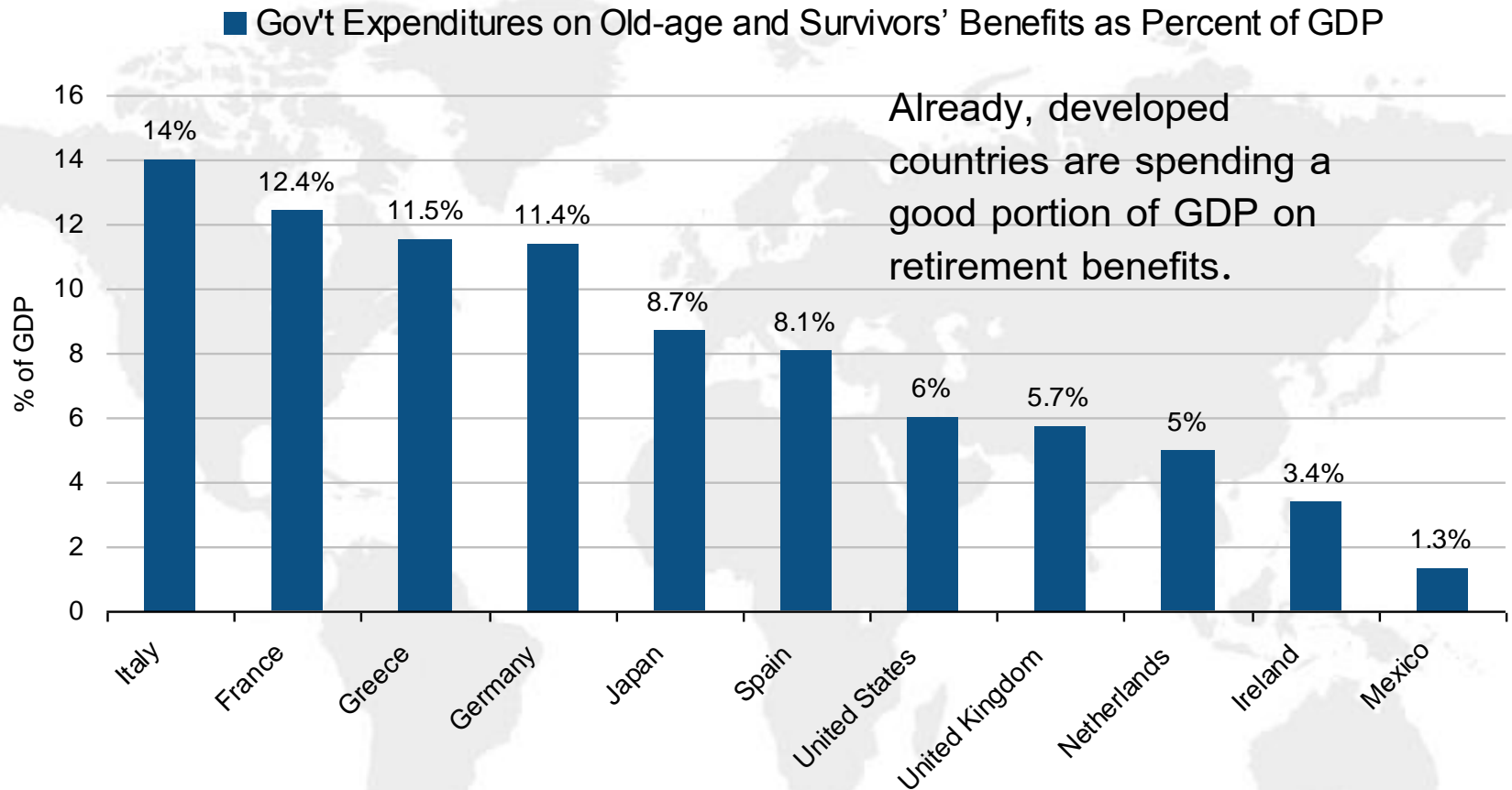
## Background

Most developed countries have established social pacts with their citizens with various guarantees like income and healthcare in retirement.

## The Claim

Social security programs worked great when the baby boomer generation was young and working to support a small number of retirees. Now that the boomers are reaching retirement age, many predict that the money coming into the system will not be sufficient, and that already-strained government budgets will be forced to foot an enormous bill.

# Developed Nations Have Costly Social Pacts That Threaten Fiscal Stability

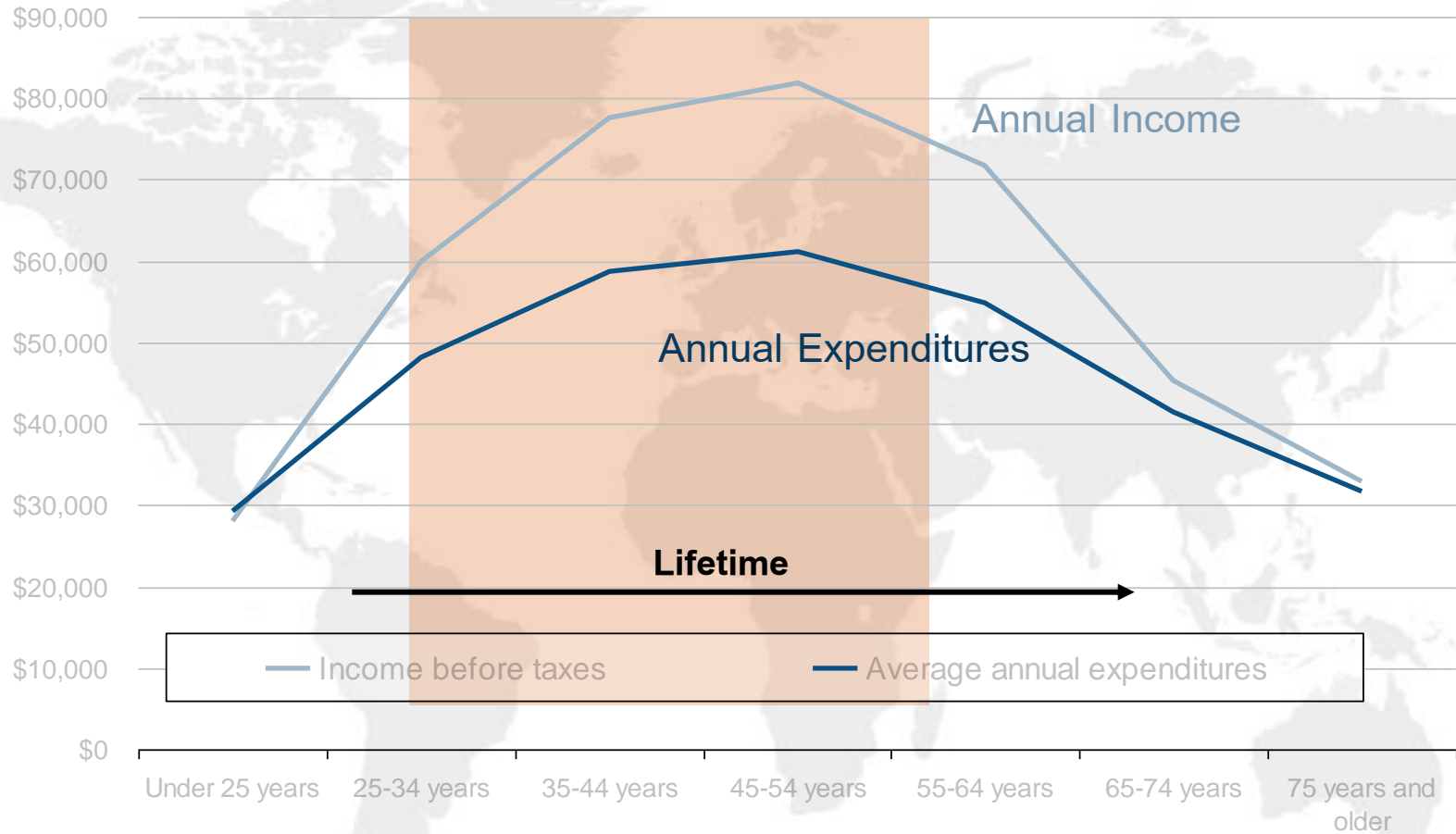


Source: Organization for Economic Cooperation and Development (OECD)

\*Current as of August 2009

The amount governments spend on retirement benefits is rising as a share of GDP. In Italy, government expenditures on benefits has reached 14% of gross domestic product (GDP). In countries with a weaker social contract, such as Mexico, the ratio is far lower.

# As Baby Boomers Leave the Workforce, They Will Also Spend Less



This year, the first of the roughly 79 million baby boomers born between 1946 and 1964 will reach the full retirement age of 65. According to the consumer expenditures survey from the Labor Department, spending and income tend to fall sharply in retirement. Thus, not only will the boomers draw heavily on government coffers, but they will also be putting less back into the economy.

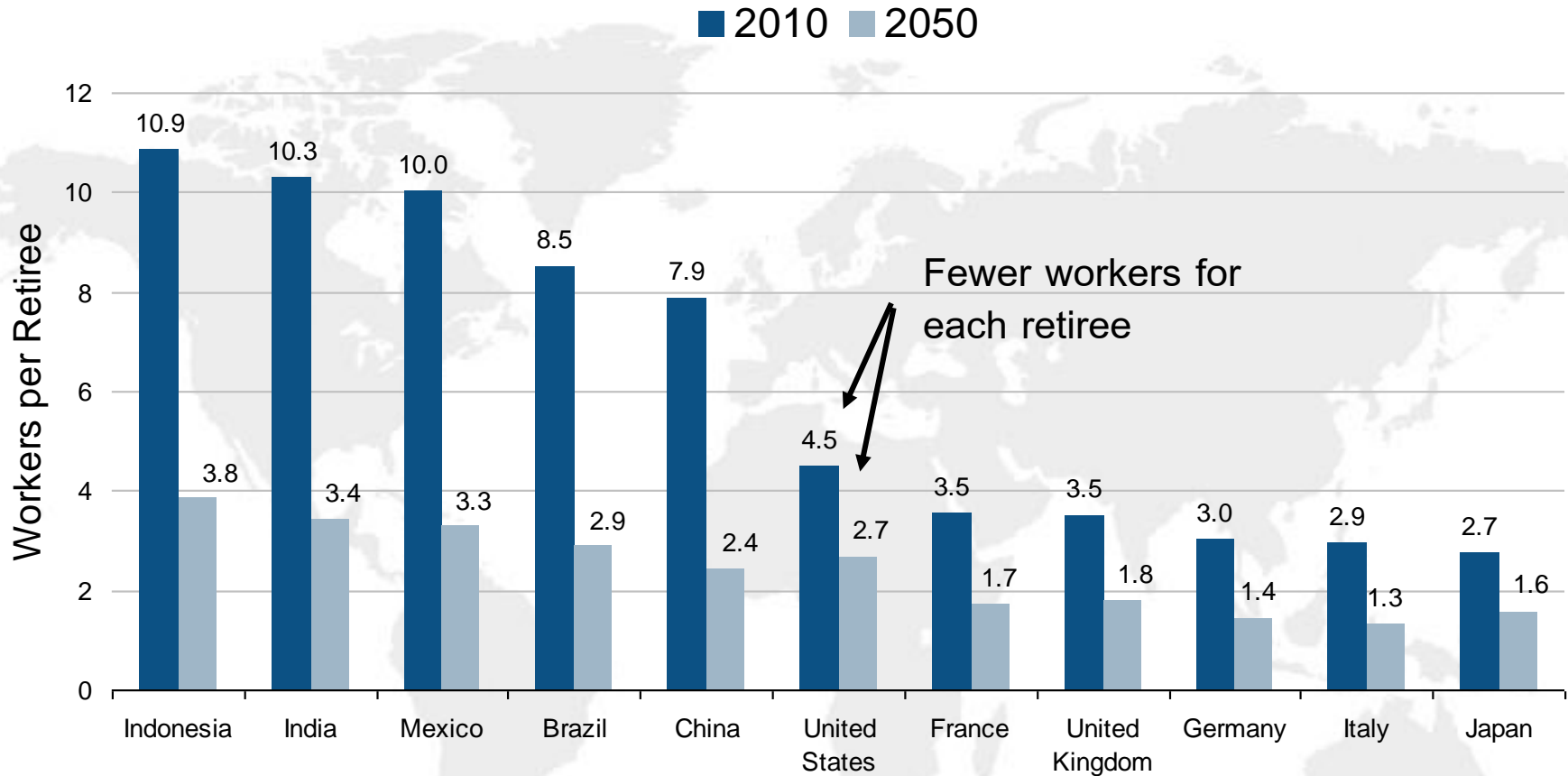
## People Are Living Longer in Retirement

	Life Expectancy at Birth	Median Age of Population	Full Retirement Age	Number of Years in Retirement
<b>Japan</b>	82.6	44.2	63	<b>19.6</b>
<b>France</b>	80.7	39.4	62	<b>18.7</b>
<b>Spain</b>	80.9	41.1	65	<b>15.9</b>
<b>Greece</b>	79.5	41.8	65	<b>14.5</b>
<b>UK</b>	79.4	40.2	65	<b>14.4</b>
<b>Germany</b>	79.4	43.8	67	<b>12.4</b>
<b>US</b>	78.2	36.7	66	<b>12.2</b>
<b>Mexico</b>	75.7	26.3	65	<b>10.7</b>

Source: Organization for Economic Cooperation and Development (OECD)

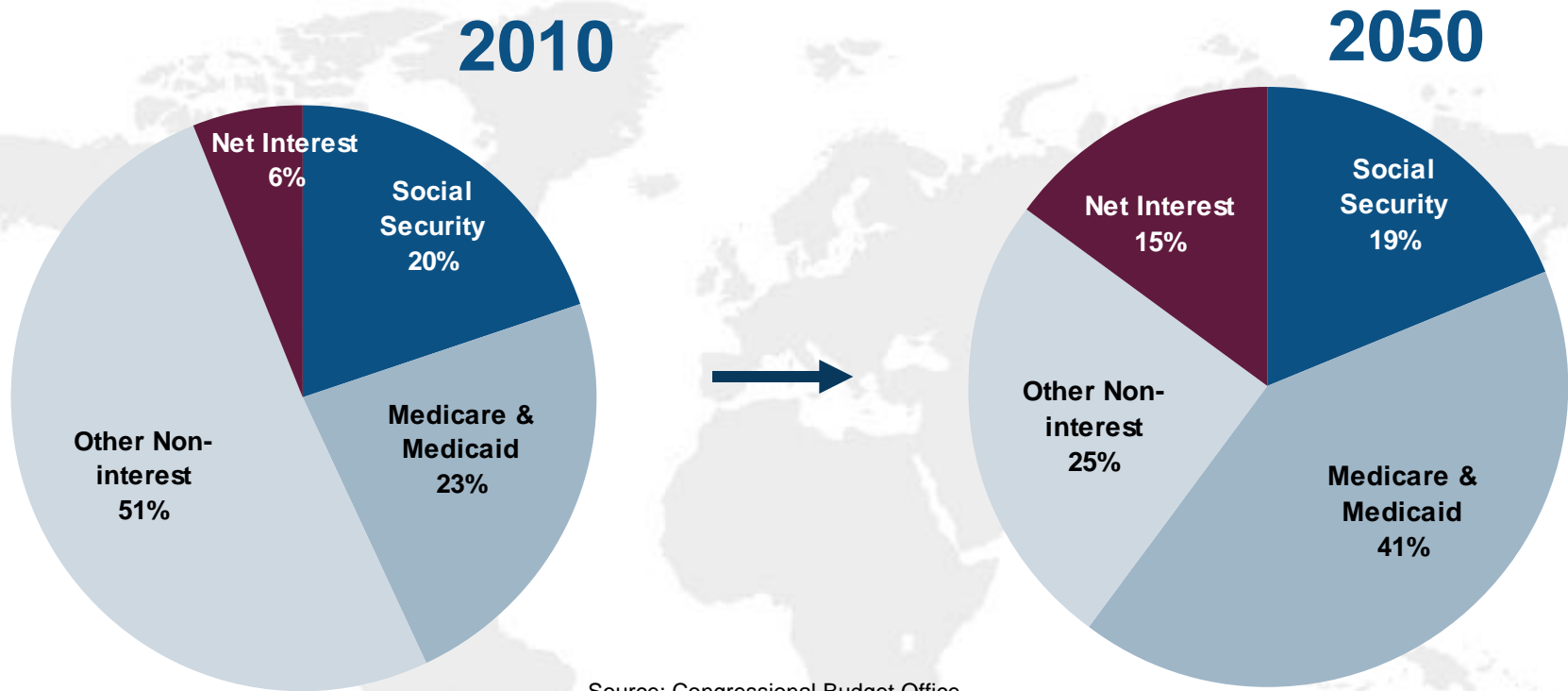
Life expectancy has risen dramatically in the developed world and the median age of the population is rising. Yet, many countries have been reluctant to raise the retirement age. Consequently, the number of years spent in retirement has increased.

# And As Boomers Retire, There Will Be Fewer Workers to Support Each Retiree



As the number of workers supporting each retiree declines, governments will have to fill the void. This will force policymakers to make difficult decisions about cutting spending and raising taxes. Either way, economic growth is likely to suffer.

## As a Result, Healthcare and Interest Payments Will Grow as Portions of the Budget



Rising healthcare costs, an aging populace and a large government debt load will drastically alter budget allocations by 2050. Spending on Medicare and Medicaid will increase to 41% from 23% of all expenditures, and net interest payments on the debt will rise to 15% from 6%. This will relegate all other expenditures to a quarter of the budget, just half of today's level.

## The Verdict:

**“The Demographic Time Bomb Will Drag Developed Economies to Ruin”?**



**As the number of workers supporting each retiree declines, governments will indeed have to fill the void, further straining budgets and harming economic growth.**

## The Final Score

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A rectangular stamp with the word "BUSTED" in a bold, sans-serif font, tilted slightly to the right.

**“China Will Unseat the Dollar as the World’s Reserve Currency”**

A rectangular stamp with the word "BUSTED" in a bold, sans-serif font, tilted slightly to the right.

**“China Vs. United States is a Zero-Sum Game”**

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**“The Global Economy Will Bust Out of Its Historical 1% to 5% Growth Range”**

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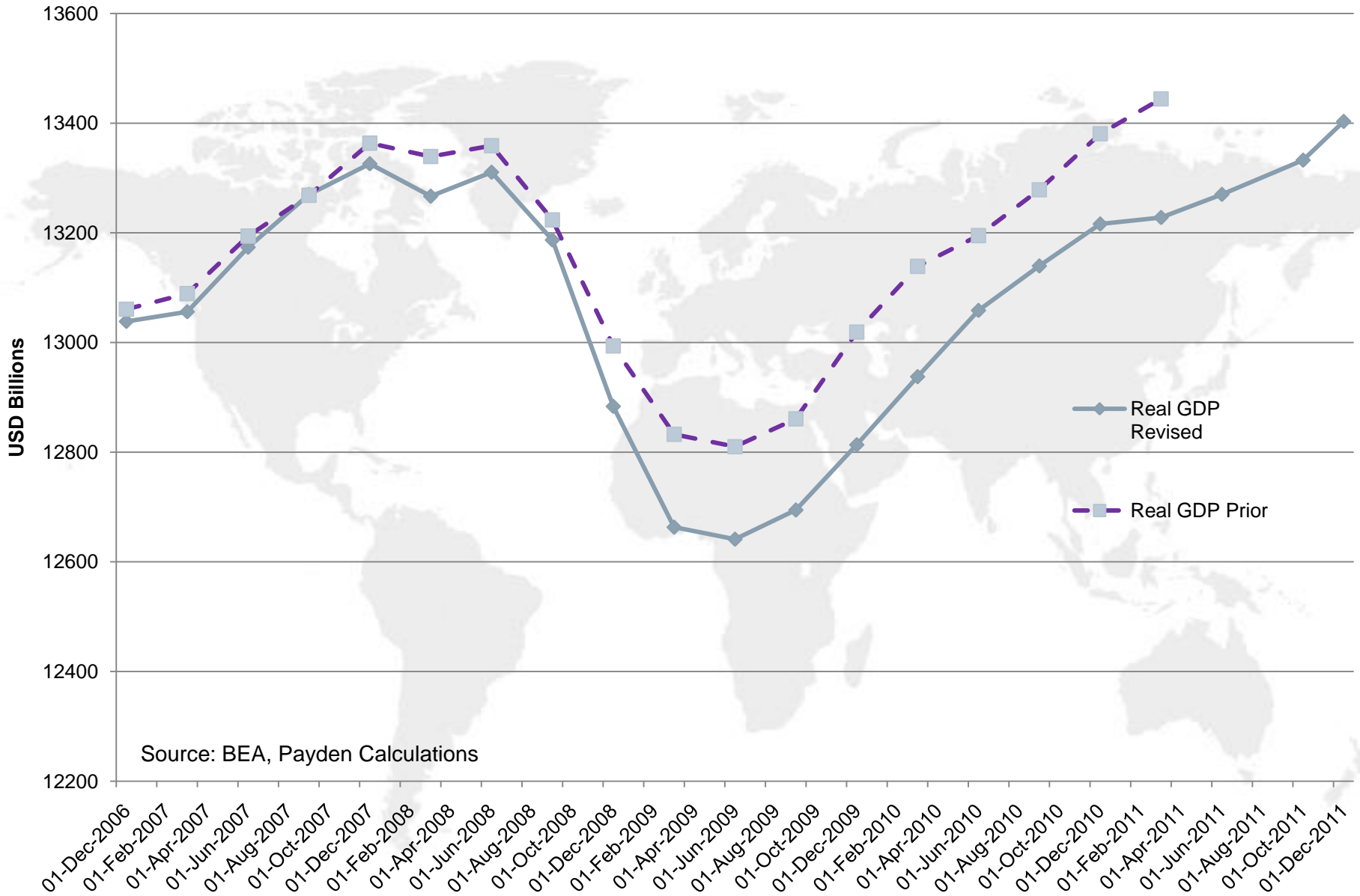
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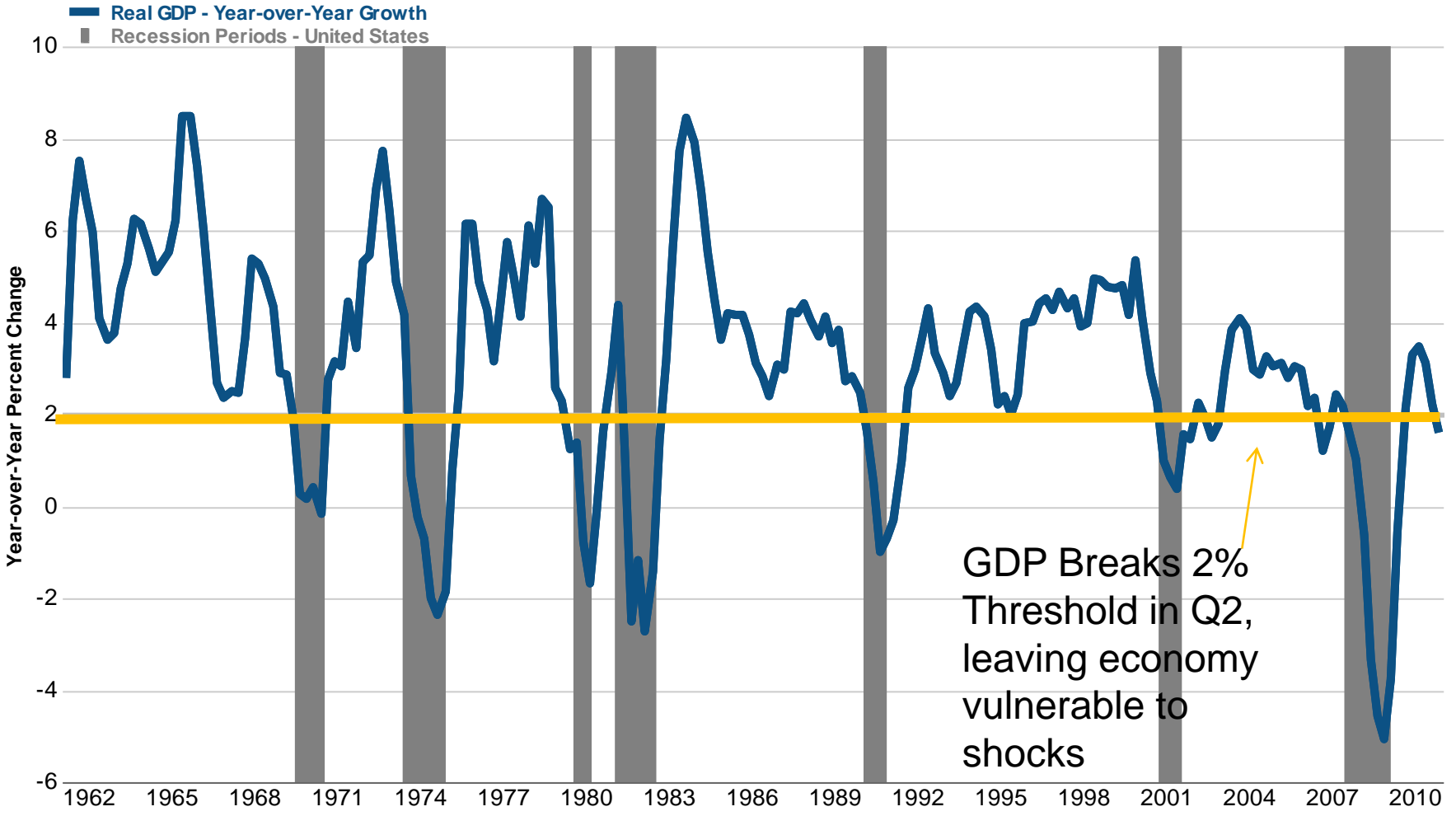
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# US Gross Domestic Product (GDP) Revised Sharply Lower in July



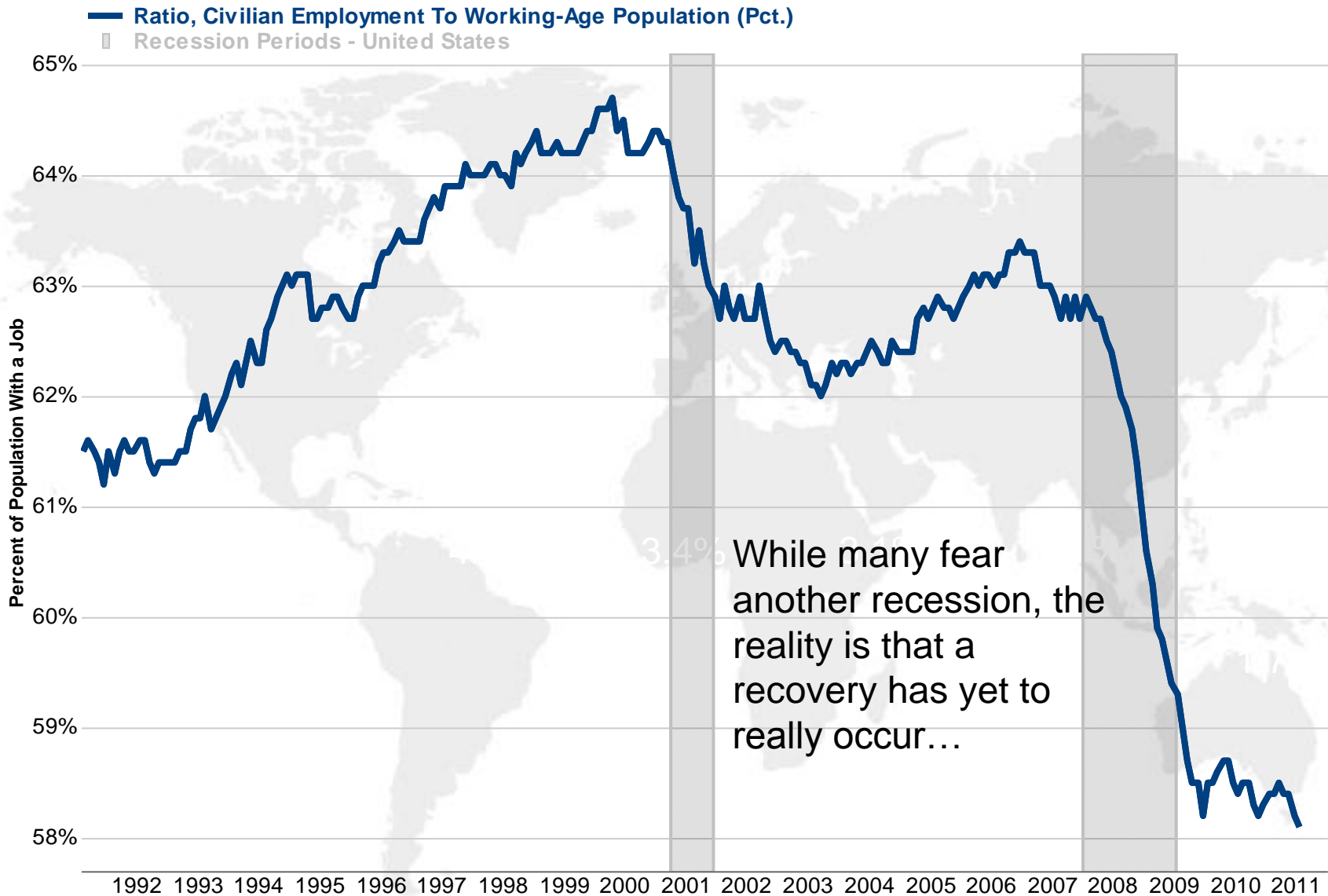
# “Stall Speed”? Real GDP Growth Rate Dipped Below 2% on A Year-over-Year Basis – Not Usually a Good Sign



Source:

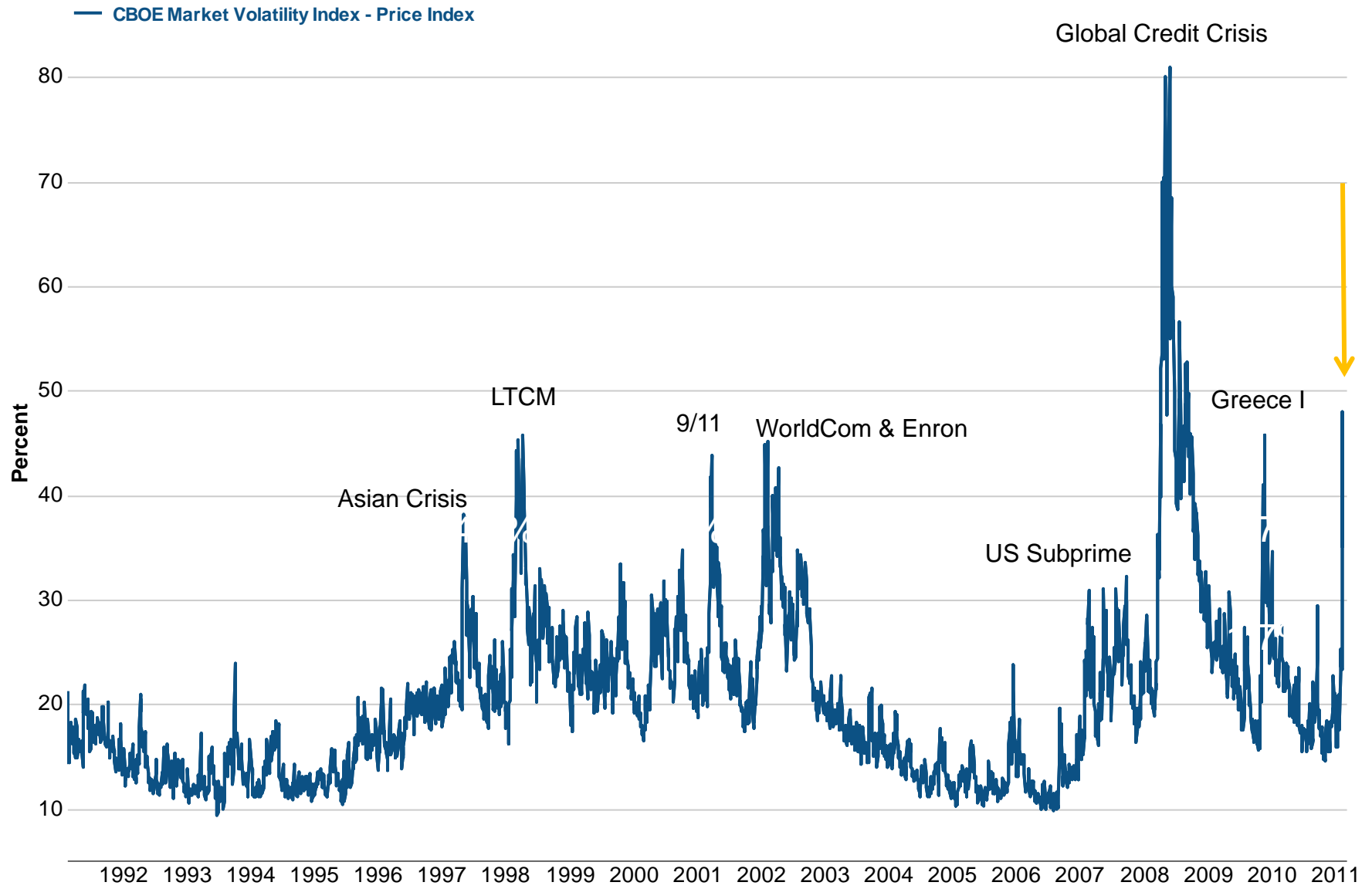
©FactSet Research Systems

# The Employment-to-Population Ratio = No Recovery



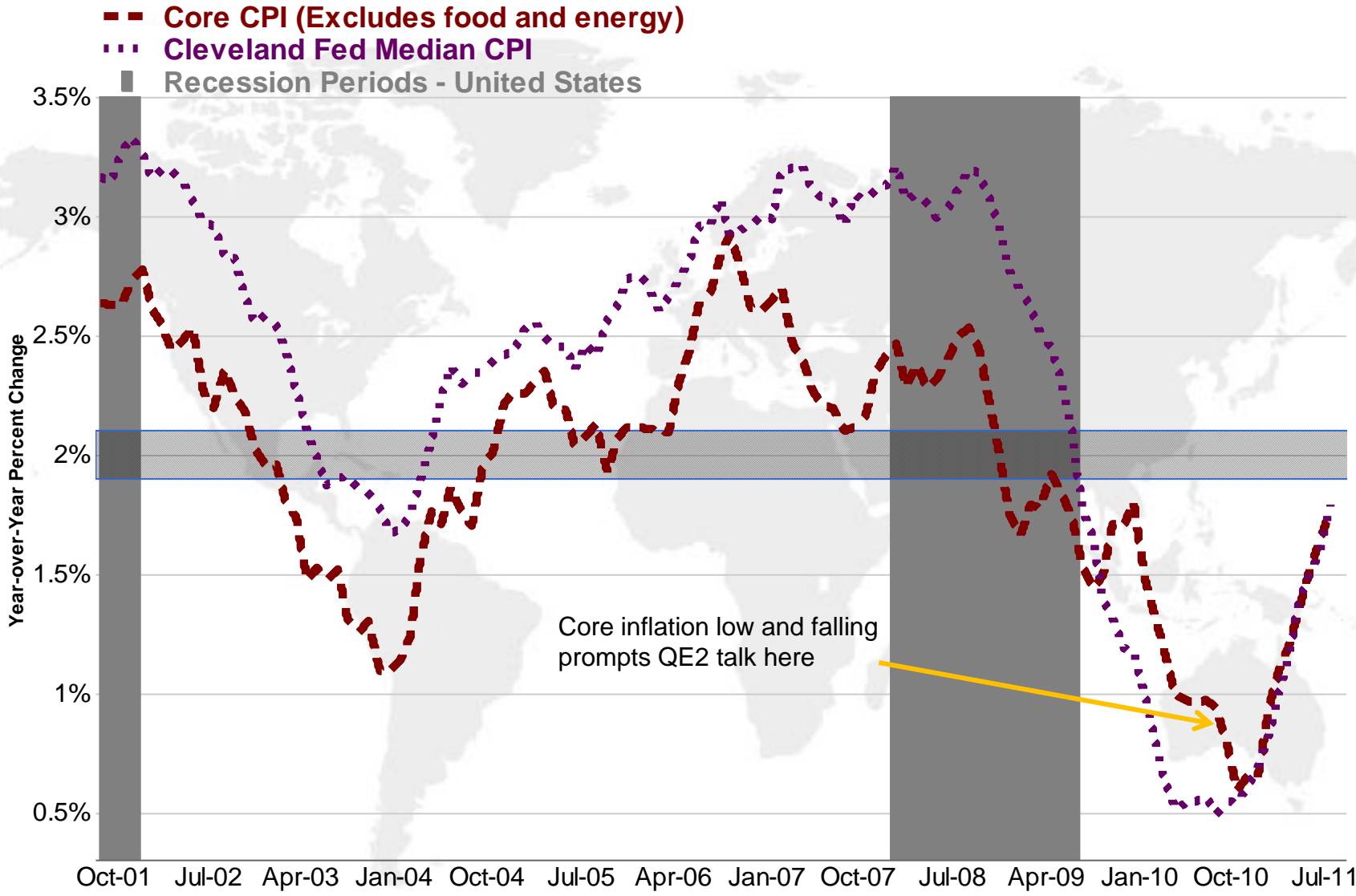
Source: BLS

# Uncertainty and Volatility Pose Risks to Economic Outlook



Source: Standard & Poor's

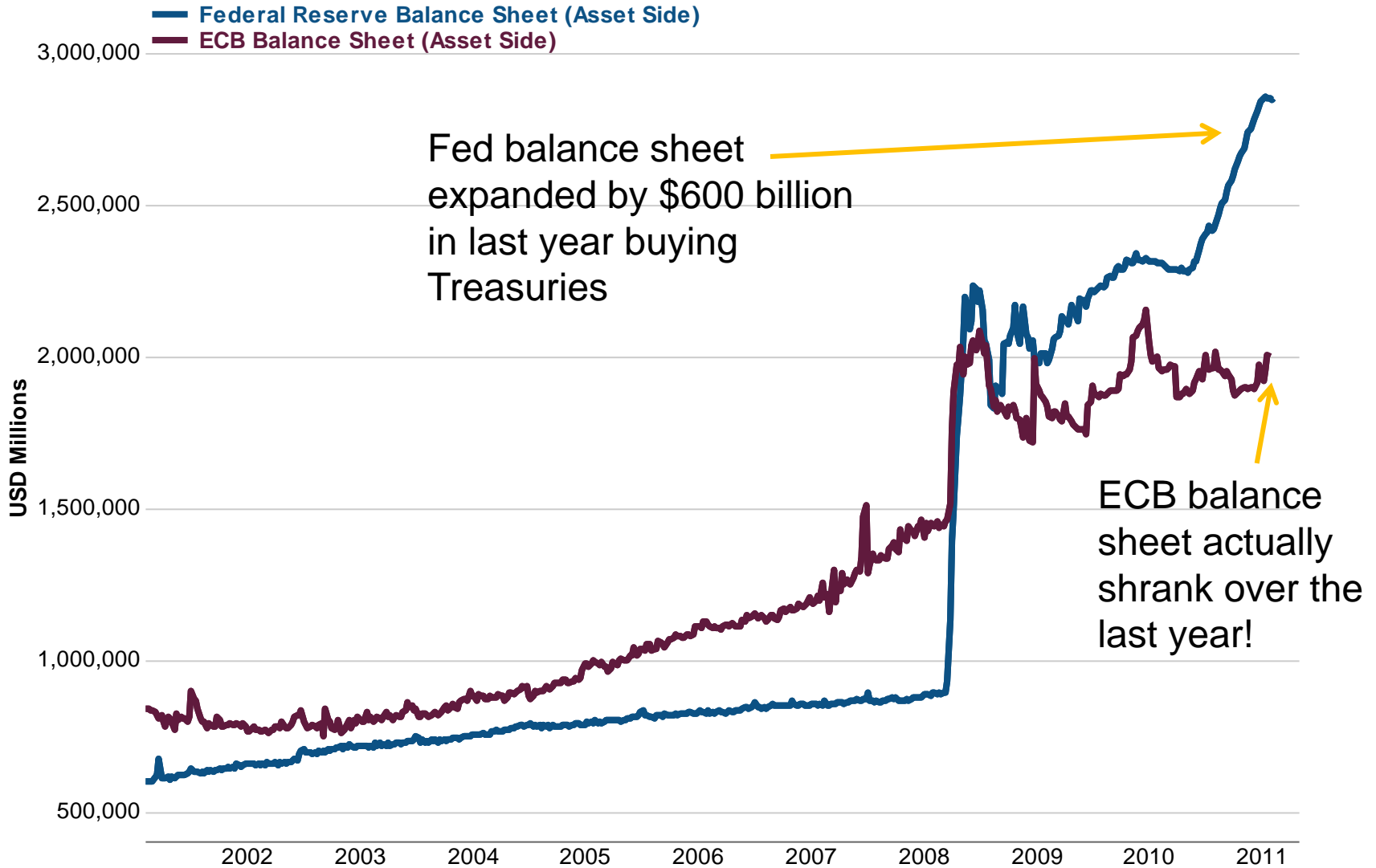
# Are Policymakers' Hands Tied? Near-Term Deflation Risks Have Diminished



Source: Bureau of Economic Analysis

©FactSet Research Systems

# Will the ECB Reverse Course With More Bond Purchases?



Sources: US Federal Reserve, European Central Bank

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