



**THE FEDERAL RESERVE BANK OF DALLAS
SAN ANTONIO BRANCH**

Globalization and the Knowledge-Based Economy

August 21, 2008

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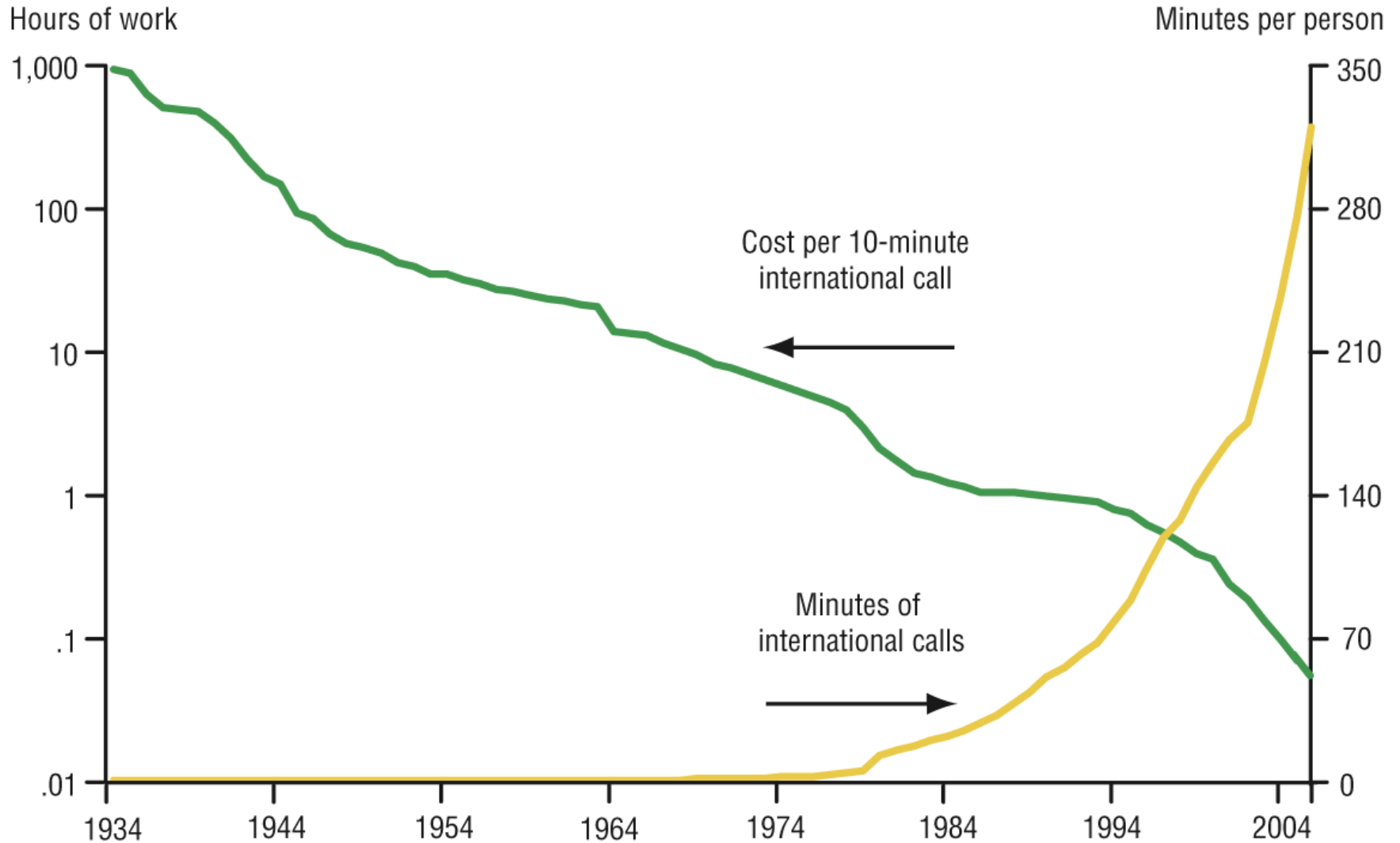
Resources

- 1. Cox, Michael W. and Richard Alm, Federal Reserve Bank of Dallas.** *1. Opportunity Knocks.*” 2007 Annual Report Federal Reserve Bank of Dallas. *2. “The Best of Both Worlds.”* 2006 Annual Report Federal Reserve Bank of Dallas.
 - 2. Kumar, Anil, Federal Reserve Bank of Dallas.** *“NAFTA: Impact Trends and Prospects.”* (Economic Development Administration Development Symposium. San Antonio, Texas. April 2007)
 - 3. Fisher, Richard President/CEO, Federal Reserve Bank of Dallas.** *“You Earn What You Learn.”* (Delivered to the North Dallas Chamber of Commerce – 7th Annual Real Estate Symposium. September 2007)
 - 4. Dolmas, Jim, Federal Reserve Bank of Dallas.** *“Globalization: An Overview.* (FRB of Dallas’ Global Economic Forum. San Antonio, Texas. June 2008)
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Globalization Today

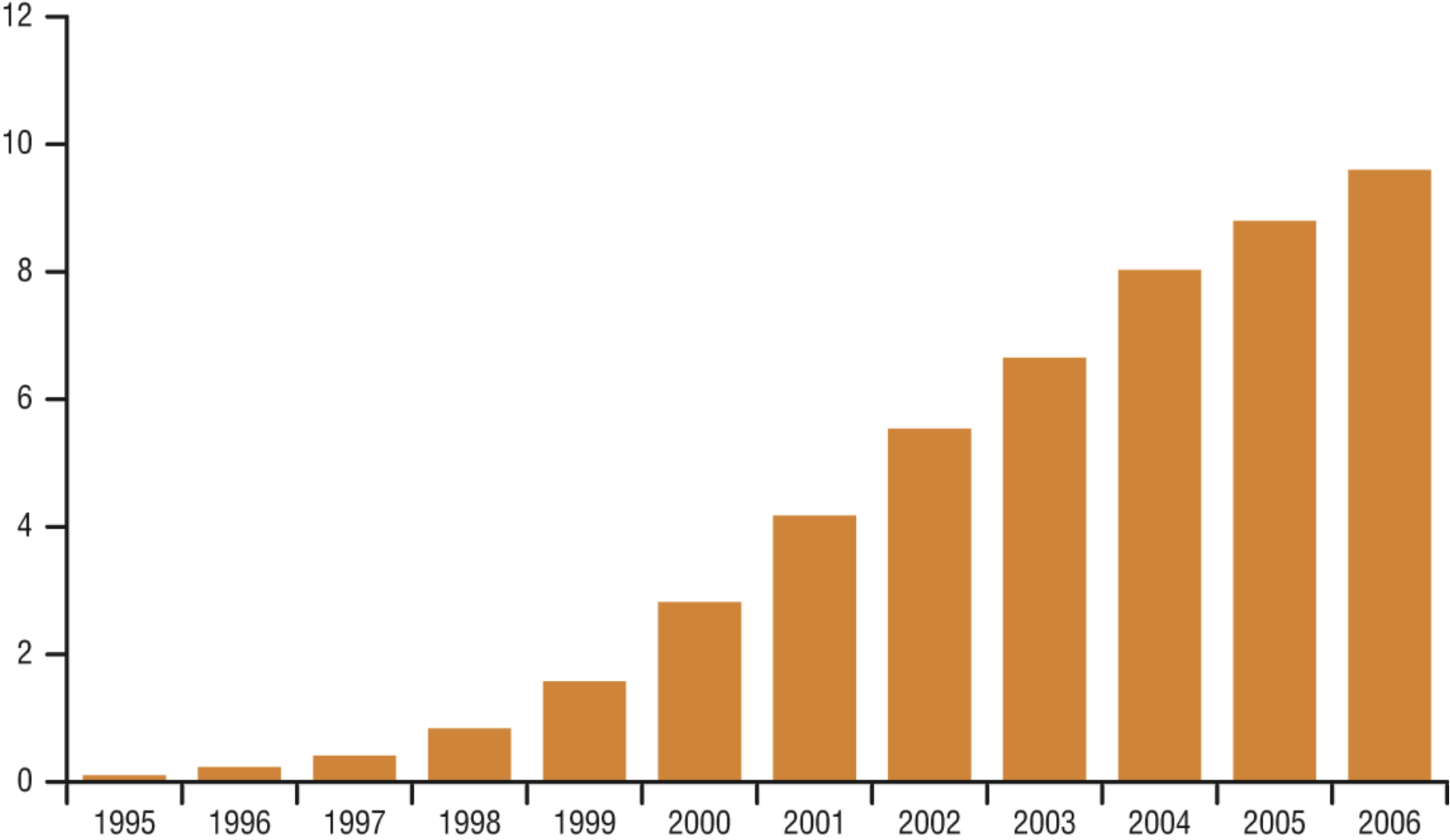
- Measures of Globalization
 - Since 1987, exports have soared from 16% to 27% of the global economy
 - Since 1990, worldwide foreign direct investment has nearly tripled and cross-border portfolio investment has risen fivefold as a percentage of world output
 - Factors Driving Globalization
 - International telephone lines, cell phones and internet connections make access to information easier and cheaper
 - Falling transportation costs facilitate trade
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Ties That Bind: The Telephone



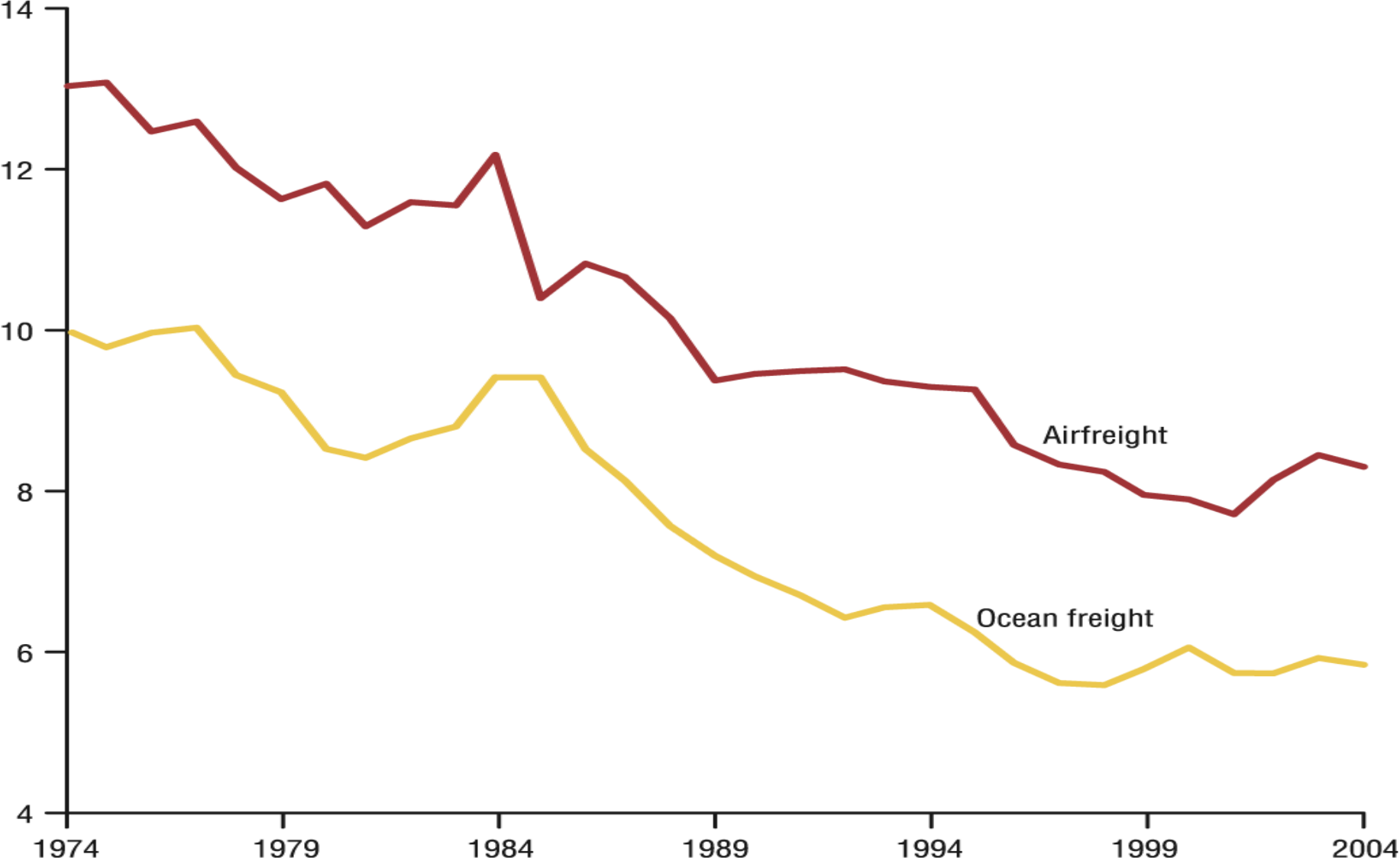
Ties That Bind: The Internet

Total e-mails sent (trillions)



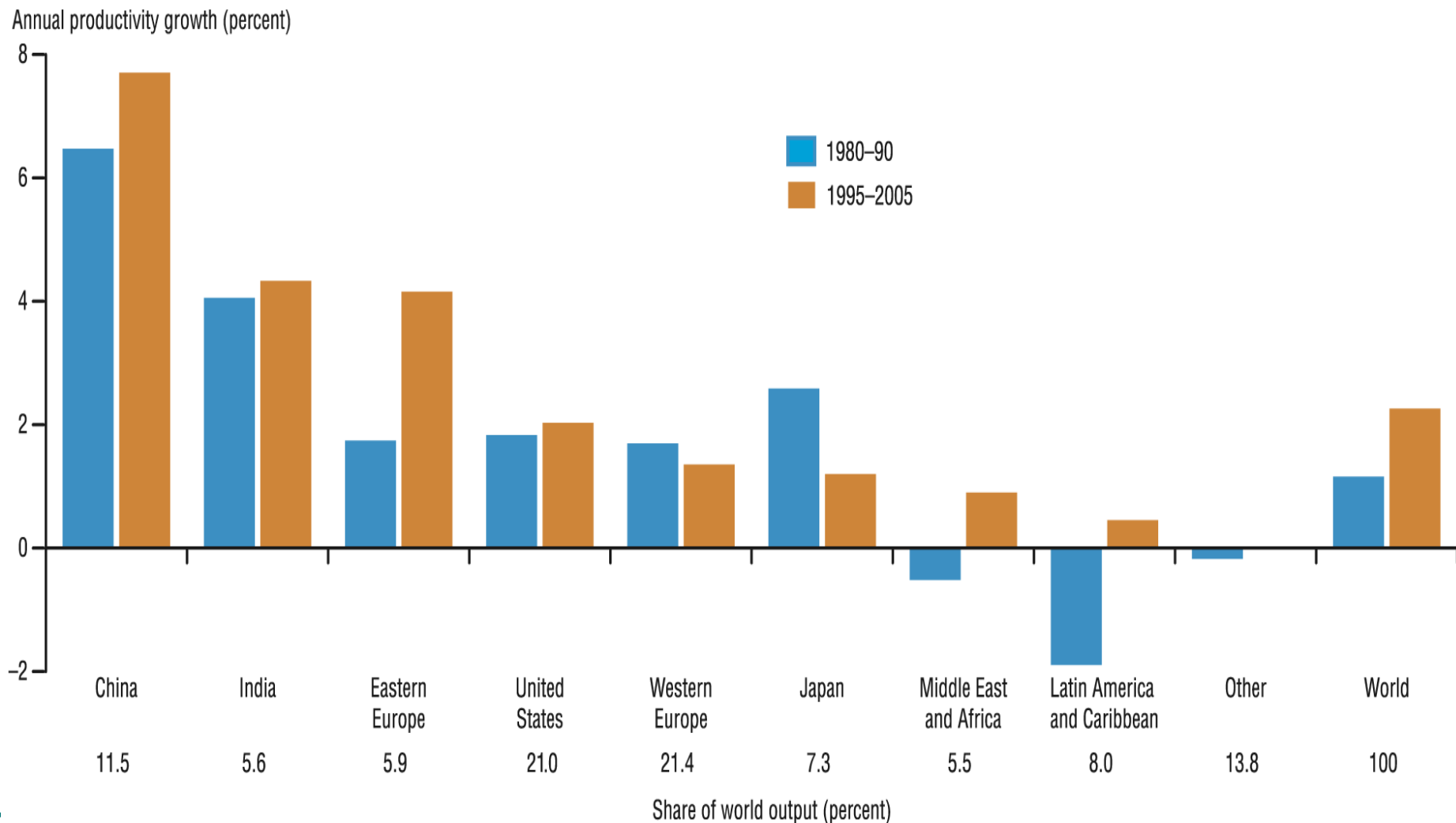
Getting the Goods More Cheaply

Cost as percentage of value shipped



The Net Result is World Productivity On the Rise

(For many economists productivity also means standard of living)



Financial Globalization a Double-Edge Sword

- Better risk-sharing: global financial markets provide countries with insurance against adverse shocks.
 - Speeds financial development in emerging economies.
 - But: Exposes economies to financial crises
 - Can we keep the good effects, while mitigating the bad?
 - Federal Reserve Governor, Frederic Mishkin (2007): “The issue is...not whether financial globalization is inherently good or bad, but whether it can be done right.”
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Globalization and the Knowledge Economy

The world economy has become knowledge based (services)

- The vital capital stock of today is not our buildings, factories or farms, but our brains (Fisher)
- Services is the largest part of modern economies' production
 - In the U.S. agriculture is only 2% of employment and manufacturing 11%
 - 82% of all US employment is services, 66% in the world
 - In 2005, the US auto sector employed 1.1 million and represented 0.8% of GDP compared to the legal sector that employed the same number but represented 1.5 % of GDP.

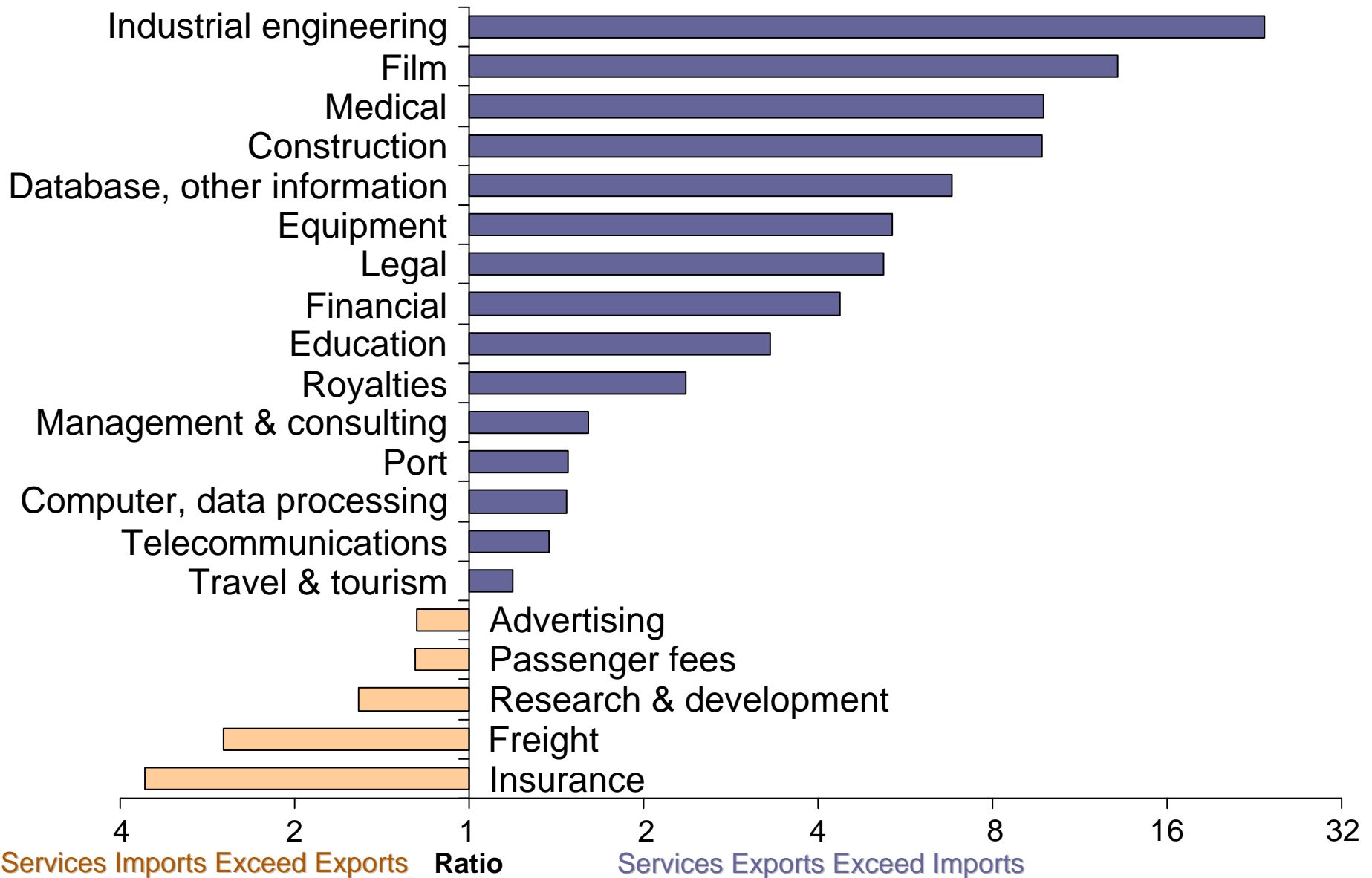
Trade in services also on the rise

- Ratio of services to goods in U.S. exports now stand at 44%, up from approx. 25%, a quarter century ago
 - The rest of the world has seen an increase from 21% to 25% of goods exported since 1975
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Global Trade More Dependent on Services



U.S. Edge in Services



Globalization and the Knowledge Economy

Greater emphasis on higher tech products & services

- America's (and Texas') edge in global markets is more likely to be found in goods and services that embody a high degree of advanced technology and skilled labor
 - Texas ranks 8th on the Milken Institute's technology and science workforce index and 12th in the overall concentration of high tech workers per 1,000 employees
 - In both Texas and the US skill intensive industries are more globalized and employ a greater concentration of export-related workers
 - In Texas, the computer and electronics sector is the most skill intensive and ranks No. 1 in share of jobs tied to exports (nearly 48% of all jobs in the sector)
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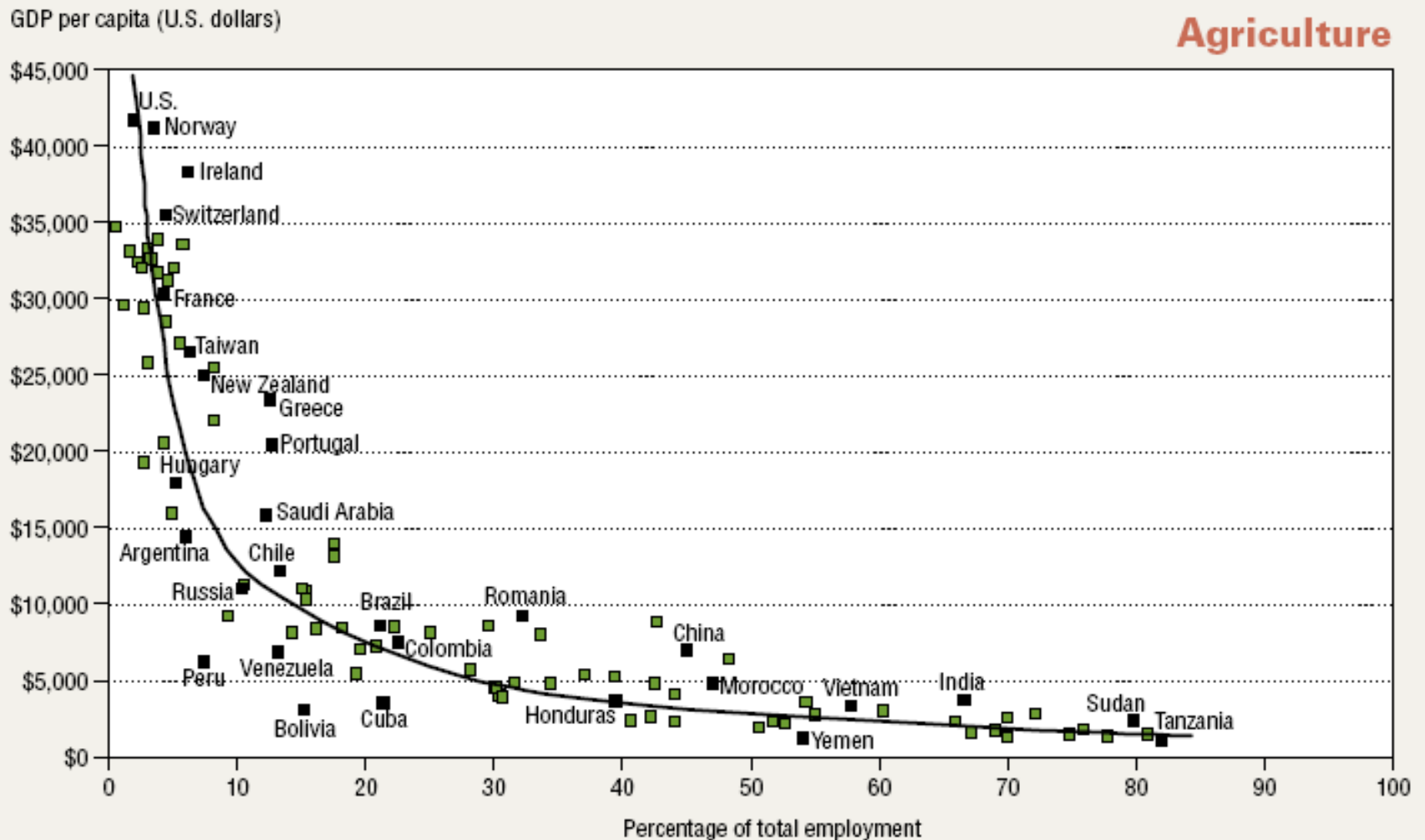
Skills Needed to Compete Today and Tomorrow

Our global competitors are responding

- Greater demand for skilled labor has increased demand for education
 - Literacy rates worldwide have gone from 63% to 82% in 35 years
 - Since 1980, college graduates have increased from 82 million to 212 million
 - Since 1980, the number of college professors has increased from 3.8 million to 8.5 million

 - New technologies creating new skills (a moving target)
 - Since 1990, internet users have grown from 2.6 million to 1.02 billion
 - Since 1990, the number of PCs has grown from 131 million to 898 million
 - Science and engineering doctorates have grown from 57,217 to 154,710 since 1983 (from 125 to 10,096 in China alone)
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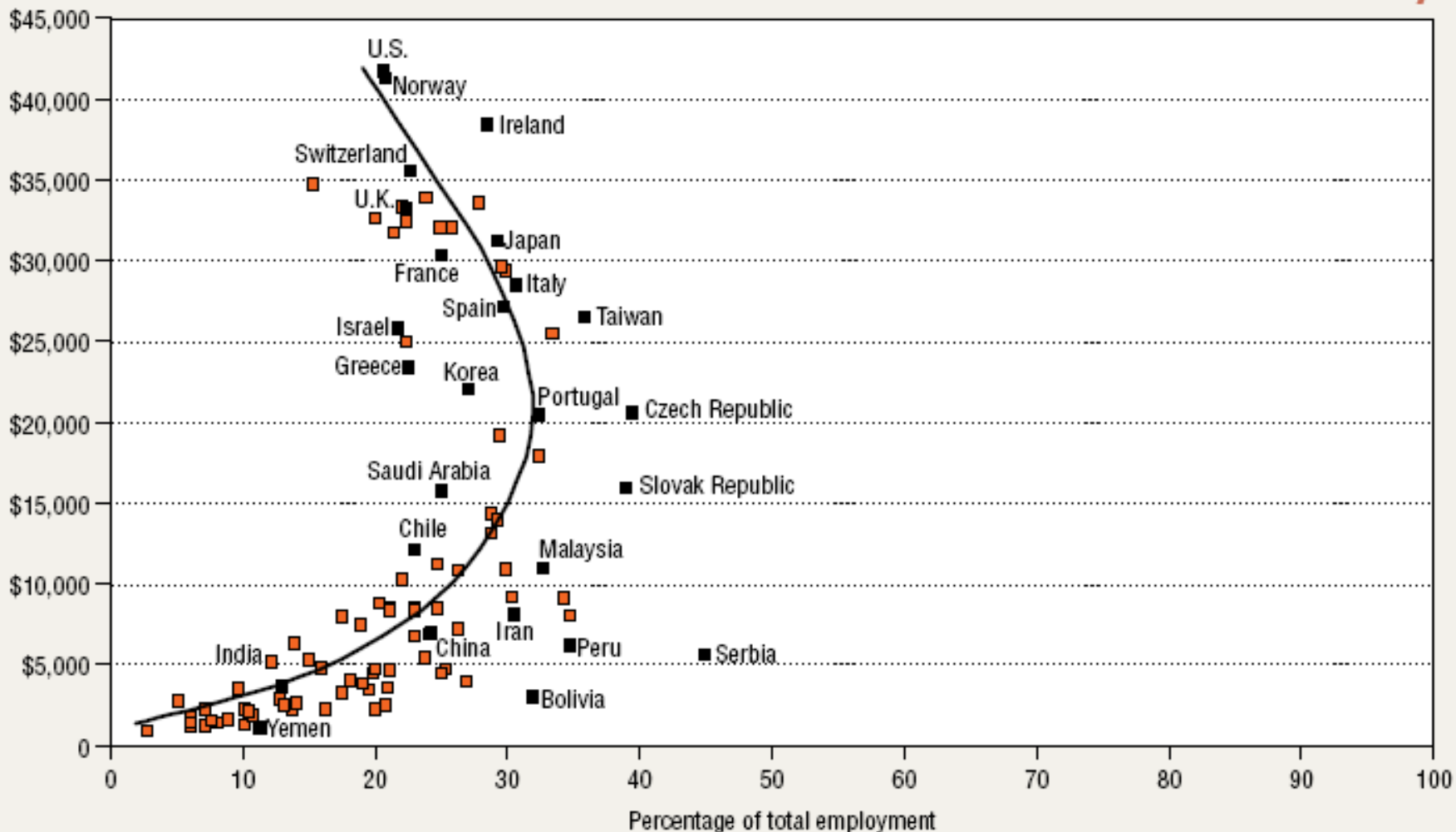
Larger Share of Farming Labor = Low Per Capita Income



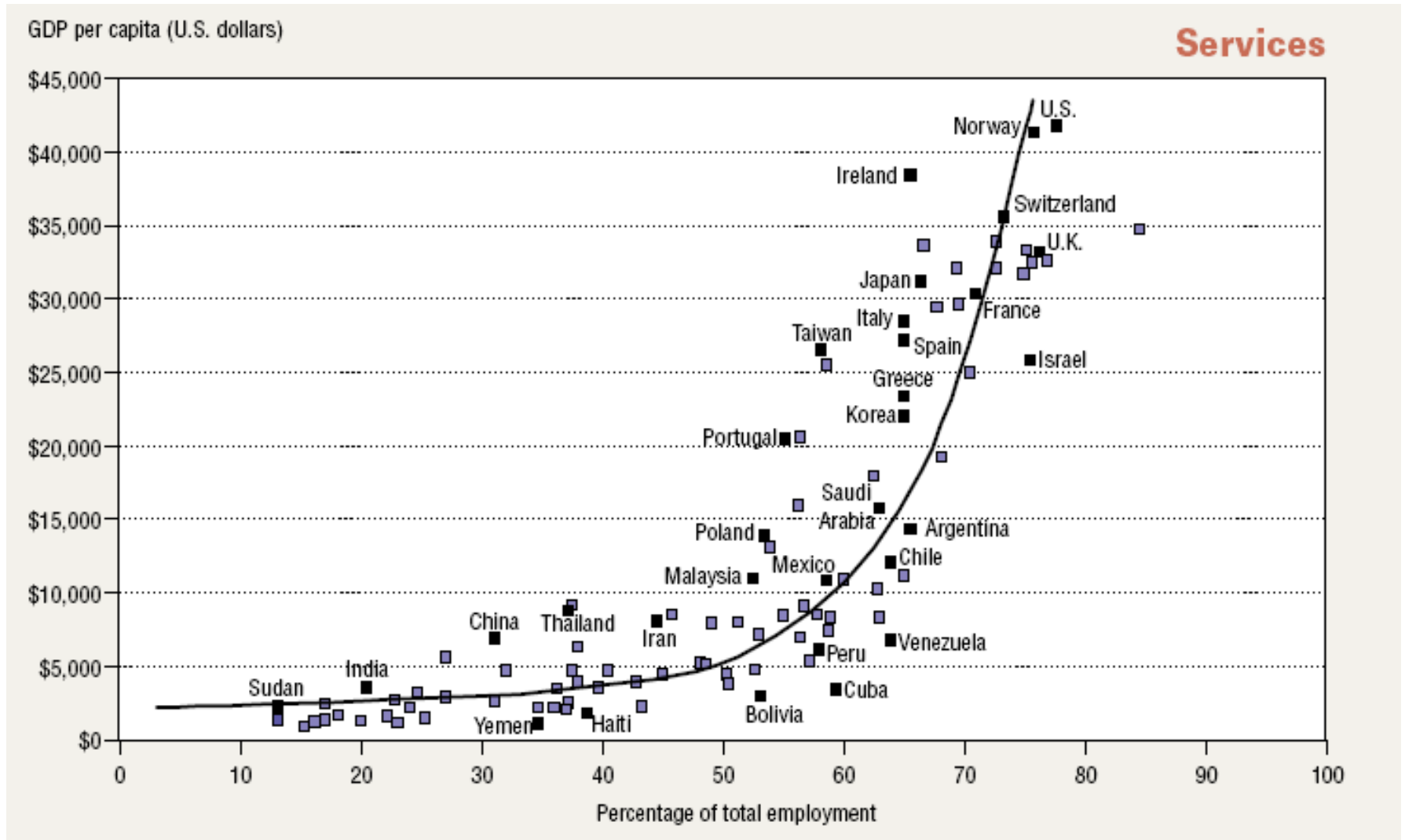
Per Capita Income Increases as Labor Shifts to Industrialization

GDP per capita (U.S. dollars)

Industry



Ten Countries With Highest Incomes Shifted Labor to Services



Education and Economic Development

You earn what you learn

- Gaining skills/education still the best investment
 - In 2006, A 25 year old high school graduate made \$6,100 a year more than a drop out of the same age
 - An associates degree added an additional \$7,260 and a bachelors degree \$15,260 on top of that
 - A 25 year old with a professional/masters degree added \$32,300 more (totaling \$61,000 over the drop out)
 - By the time they reach 60 the gap increases to over \$100,000 per year

 - A state perspective
 - Massachusetts ranks 3rd in college degrees per capita and No. 1 in per capita income
 - California is 11th in degrees and 10th in income
 - Texas ranks 29th in degrees and 29th in income
 - Arkansas is 49th in degrees and 49th in income
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RANKING OF REGIONAL MSAs

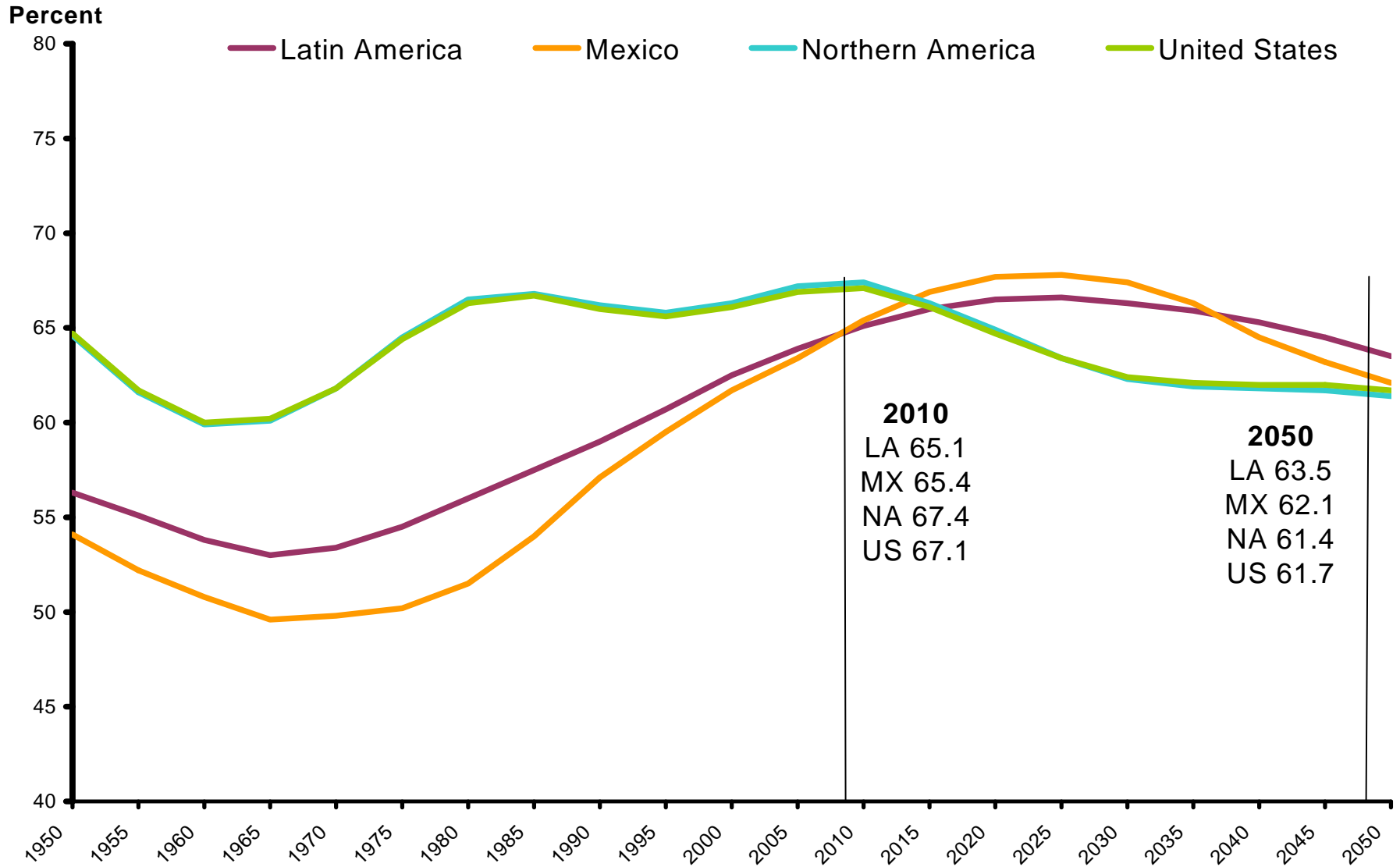
MSA	RANKED BY BACHELORS DEGREE + (%)	RANKED BY MEDIAN HOUSEHOLD INCOME (\$)
AUSTIN	3rd (38.8)	12th (52,882)
CORPUS CHRISTI	53rd (18.4)	48th (37,103)
LAREDO	53rd (12.7)	52nd (33,026)
MCALLEN-EDINBURG- MISSION	53rd (14.5)	52nd (28,660)
SAN ANTONIO	40th (24.0)	32nd (45,019)

* Ranking includes District of Columbia and Puerto Rico

Source: 2006 American Community Survey, U.S. Census Bureau

(Income Data in 2006 Inflation-Adjusted Dollars)

Labor Pool Trend (16-64 Yr.)



2010

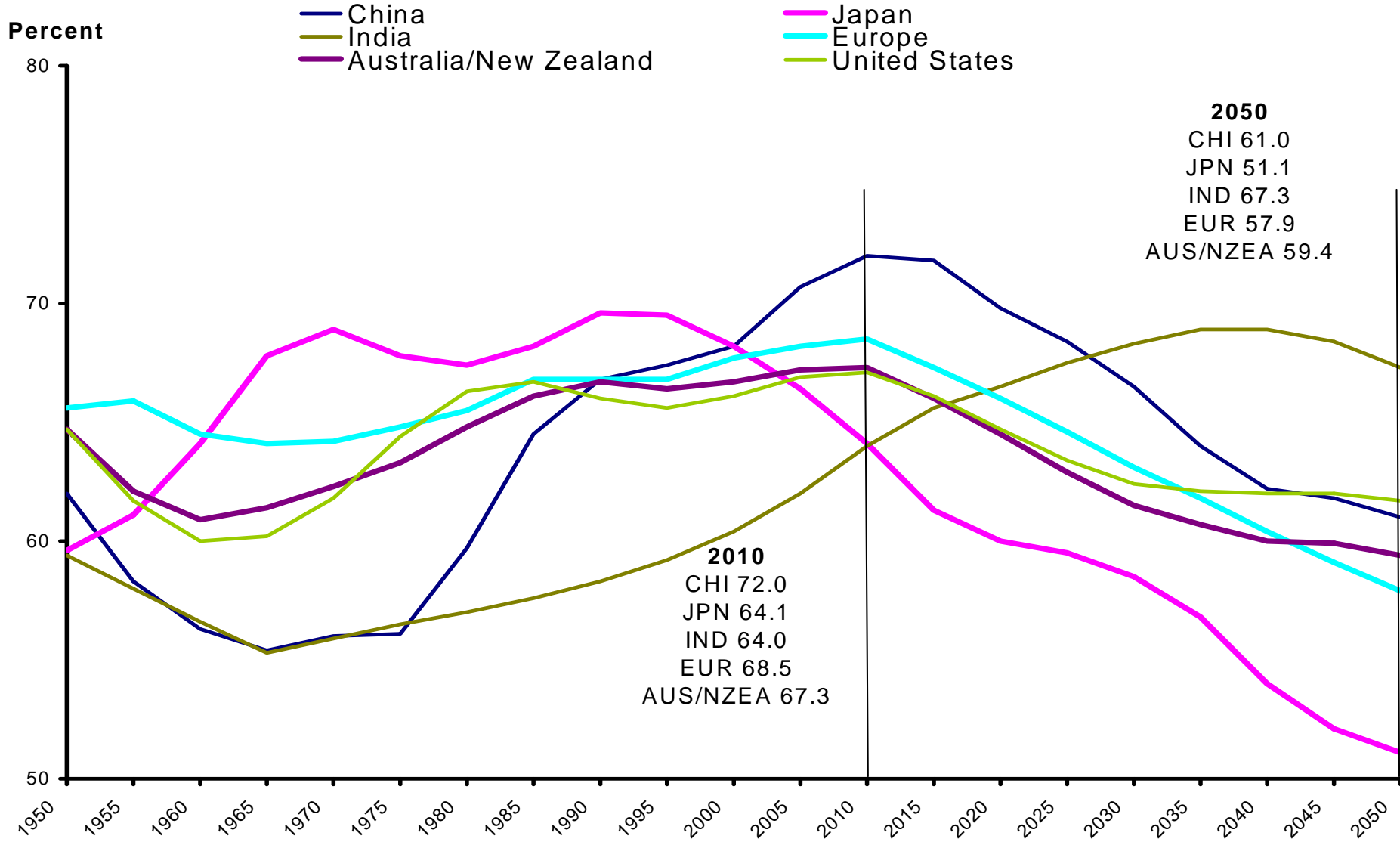
LA 65.1
 MX 65.4
 NA 67.4
 US 67.1

2050

LA 63.5
 MX 62.1
 NA 61.4
 US 61.7

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2005 Revision, <http://esa.un.org/unpp>, Tuesday, April 22, 2008; 2:49:57 PM.

Labor Pool Trend (16-64 Yr.)



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2005 Revision, <http://esa.un.org/unpp>, Tuesday, April 22, 2008; 2:49:57 PM.

Responses

Growing Your Own Workforce

Attracting & Retaining People in Addition to Companies

- The Challenges
 - Tightening worldwide labor supply (particularly high skilled)
 - Emphasis on skilled labor force in knowledge based economy
- Examples
 - Incentives for labor (example of Montreal)
 - UT Austin Engineering School Event in San Diego (leveraging education strength)

National, State and Local Policy Questions

- Immigration
 - Taxes (Particularly for R&D, Education, etc.)
 - Regulation (Industries, Research, etc.)
 - Fiscal (Looming issues with Medicare and Social Security)
 - Trade (Protectionism vs. Free Trade)
 - Monetary
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<http://dallasfed.org/sanantonio>
