What New Dynamics Drive California's Global Competitiveness

Presentation Prepared For the August 7, 2012 Joint Legislative Hearing

By **Time Structures, Inc.** an Economic Development Advisory Group since 1996

1545 University Ave., Sacramento, CA 916-564-8683 Gus@TimeStructures.com

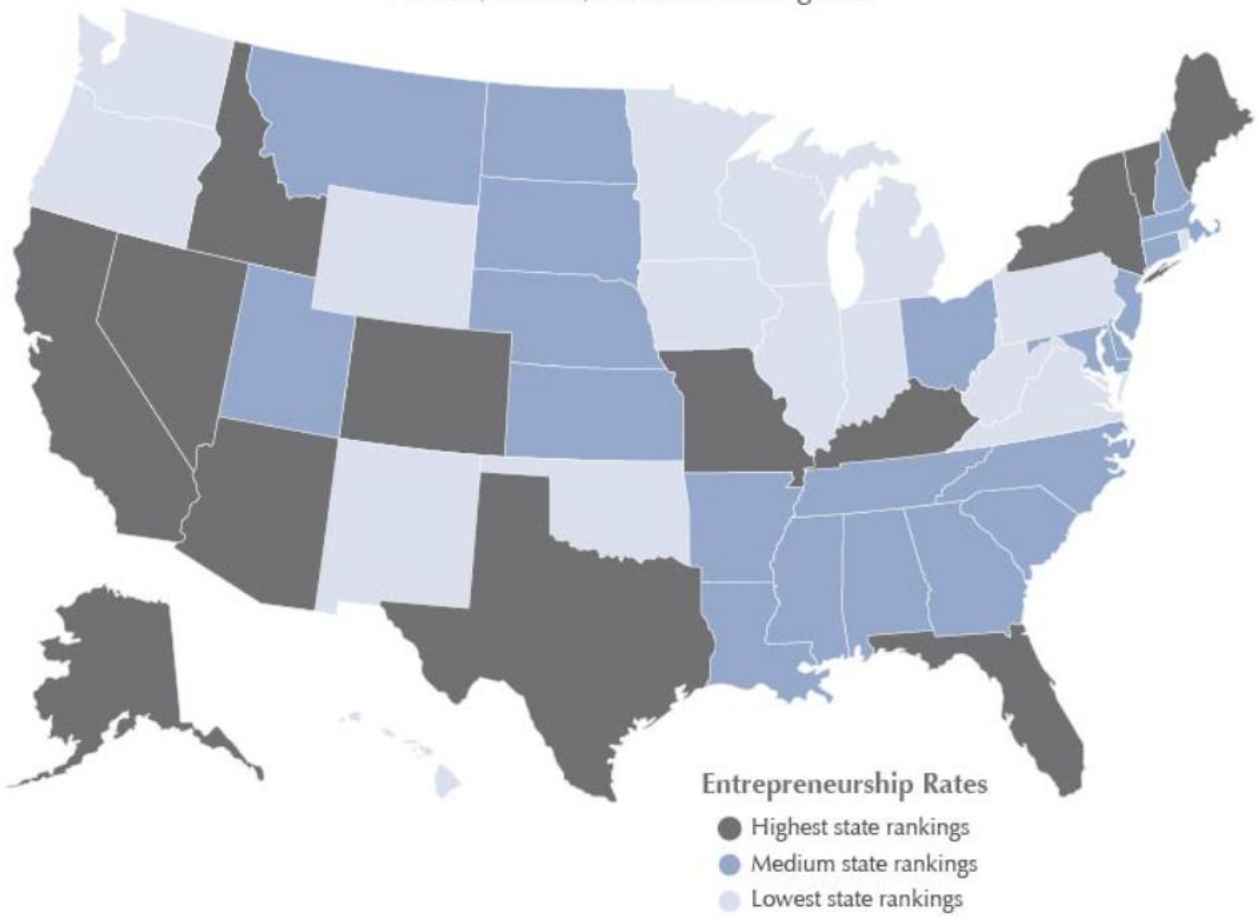
Picture by Yang Yongliang, "Viridescence, Stock World" 2009 LMIN Gallery, San Francisco, http://limnartgallery.com/artwork/952850_Yang_Yongliang_Viridescence_Stock_World.html

Global Dynamics Are Chaotic Creating Unexpected Market Opportunities and Collapses

- California's post recession economy will not be "business as usual."
- A highly trained, culturally diverse, and innovative workforce will drive competitive advantage.
- Exports markets will move more to the internet requiring higher computer and cultural marketing skills, and increasing product churn.
- California does not have a monopoly on small multicultural Innovative firms which will play an ever increasing trade role.
- Culturally complex middle class markets will grow fast in China, India, and other BRICS.
- Strong competencies in research, patenting and collaboration are central to the long-term domination of any single technology sector.
- Productivity, logistics, velocity of service as driven by global IT is critical to competitive advantage.

Entrepreneurial Activity by State

From 2010 to 2011, U.S. entrepreneurial activity rates decreased in all regions except the Northeast, which experienced a slight increase. The Western region had the highest entrepreneurship rate, and the Midwest had the lowest. The highest ranked states were Arizona, Texas, California, Colorado and Alaska; the lowest ranked states were West Virginia, Pennsylvania, Hawaii, Illinois, Indiana and Virginia.



Kauffman Foundation, 2012 at: http://www.kauffman.org/research-and-policy/kiea-2012-infographic.aspx

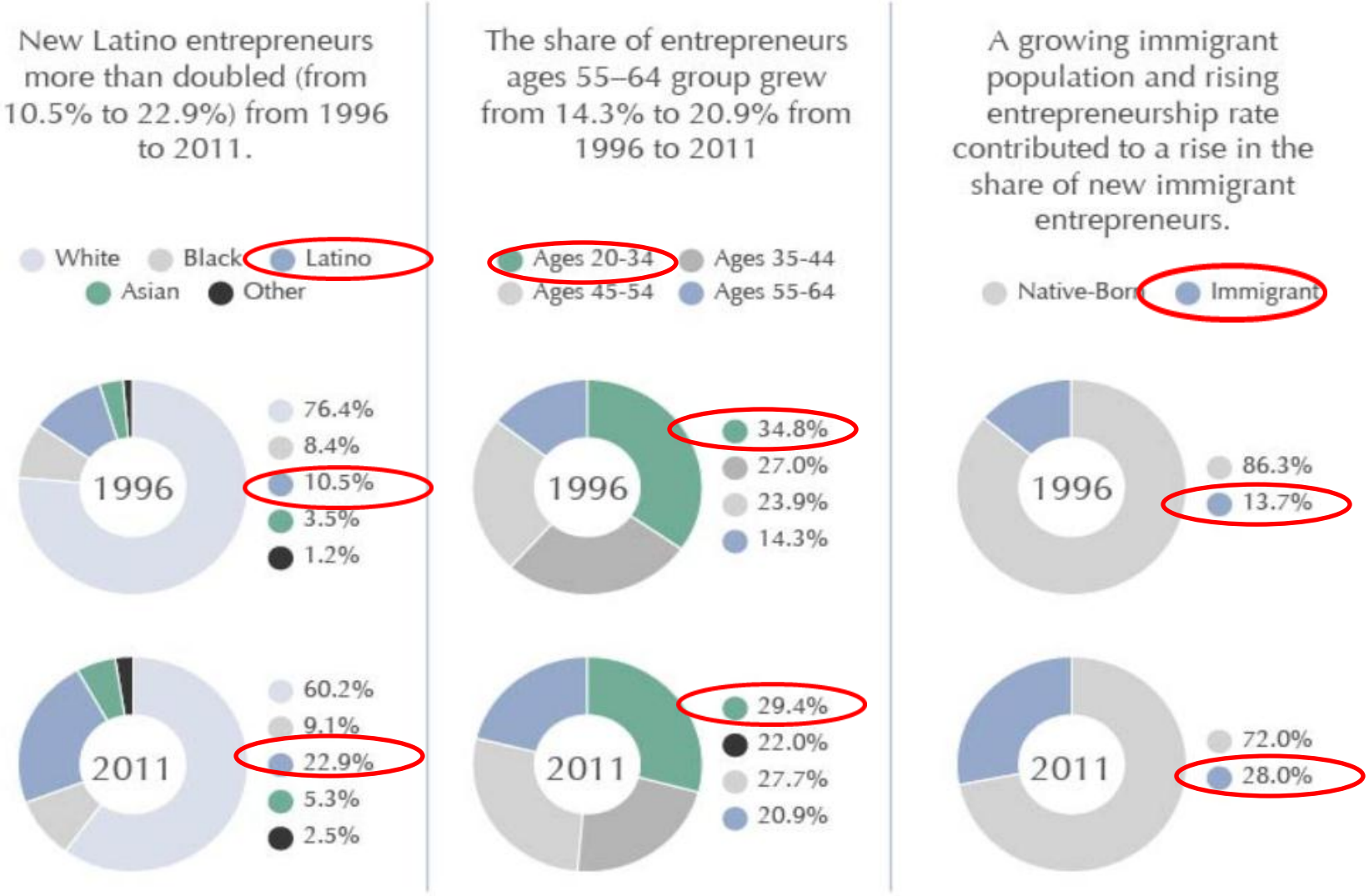
How California Compares

State New Economy Scores by Overall Rank: California's Highest Scores														
	Overall	IT Pro-fessional	Managerial, Professional, Technical Jobs	Workforce Education	Immigration of Knowledge Workers	Migration of U.S. Knowledge Workers	Manu-facturing Value-Added	High-Wage Traded Services	Export Focus of Manu-facturing and Services	Foreign Direct Invest-ment	"Gazelle Jobs"	Job Churning	Fastest Growing Firms	IPOs
State	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank
Massachusetts	1	5	1	1	9	1	8	9	11	6	17	20	1	2
Washington	2	6	15	8	13	13	1	32	2	32	4	39	9	31
Maryland	3	4	3	2	14	8	3	22	26	20	7	26	4	13
Delaware	4	2	5	24	11	23	14	1	3	3	6	23	28	41
New Jersey	5	3	6	10	32	11	41	5	12	4	3	28	5	11
Connecticut	6	7	4	4	5	5	2	2	20	1	23	49	7	7
Virginia	7	1	8	8	7	7	4	8	25	18	21	41	2	20
California	8	21	11	23	42	16	16	6	10	23	9	47	10	8

The New Economy is a global, entrepreneurial, and knowledge-based economy in which the keys to success lie in the extent to which knowledge, technology, and innovation are embedded in products and services. The most recent Federal data is used and state ranking are adjusted for size and industry mix. The report discusses the importance of each indicator and gives much more detail on how it was calculated. See: http://www.itif.org/files/2008_State_New_Economy_Index.pdf , p. 7. The report was produced the Information Technology and Innovation Fund, with a grant from the Kauffman Foundation.

Entrepreneurial Activity by Demographics

Between 1996 and 2011, changing demographics and changing propensities for entrepreneurship led to some large shifts in the composition of new U.S. entrepreneurs.

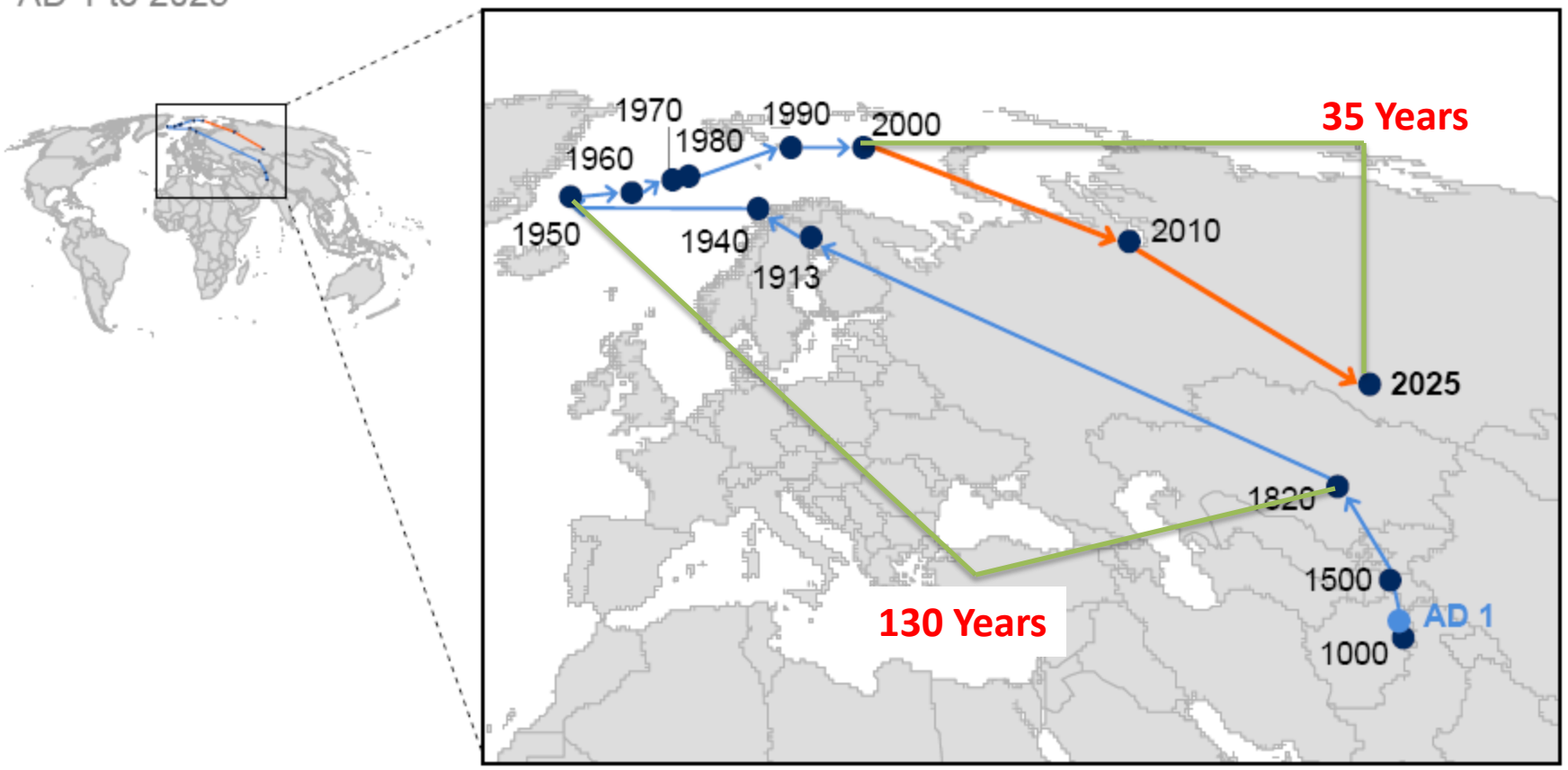


Kauffman Foundation, 2012 at: http://www.kauffman.org/research-and-policy/kiea-2012-infographic.aspx

By far the most rapid shift in the world's economic center of gravity happened in 2000–10, reversing previous decades of development

Evolution of the earth's economic center of gravity[1]

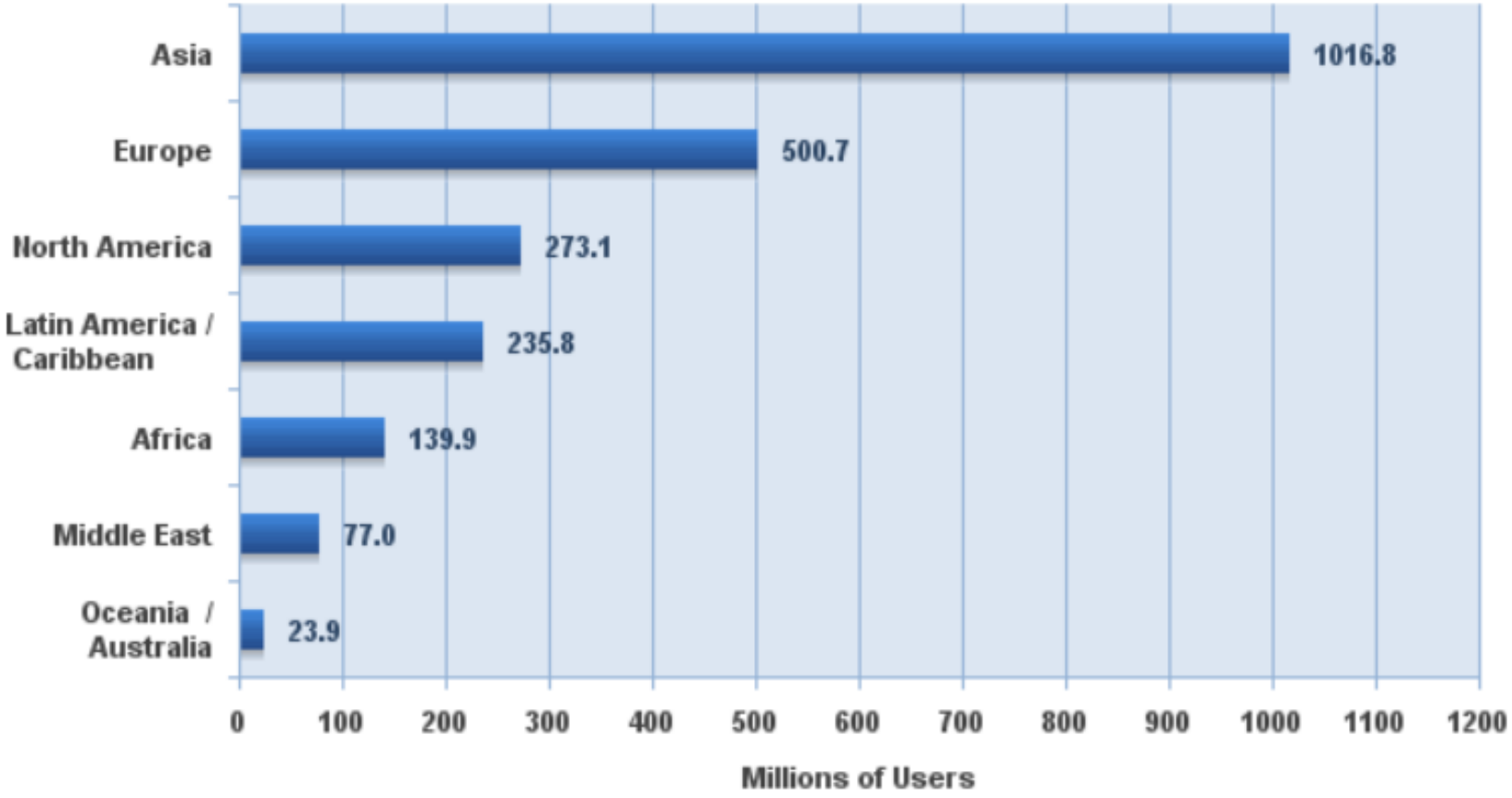
AD 1 to 2025



1 Economic center of gravity is calculated by weighting locations by GDP in three dimensions and projected to the nearest point on the earth's surface. The surface projection of the center of gravity shifts north over the course of the century, reflecting the fact that in three-dimensional space America and Asia are not only "next" to each other, but also "across" from each other.

SOURCE: McKinsey Global Institute analysis using data from Angus Maddison; University of Groningen

Internet Users in the World by Geographic Regions - 2011

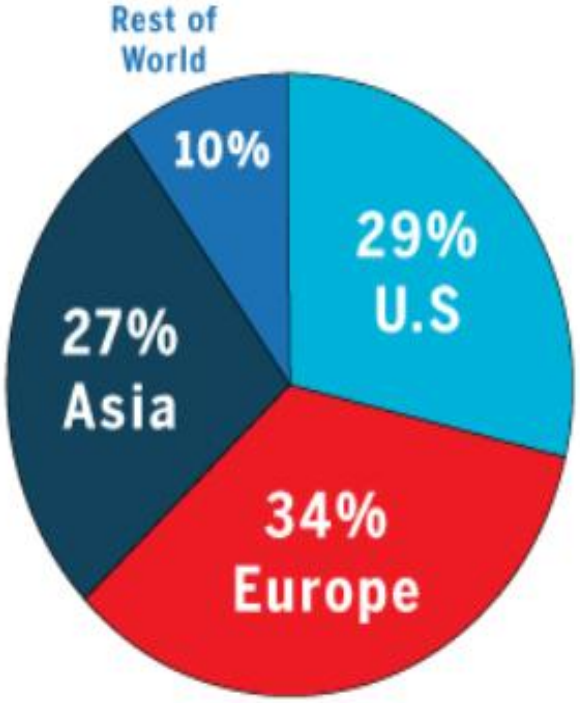


Source: Internet World Stats - www.internetworldstats.com/stats.htm
Estimated Internet users are 2,267,233,742 on December 31, 2011

Global e-commerce sales by region (2010)

Online commerce is growing by 27.5% a year in Asia, a region that will overtake Europe by 2012 as the e-commerce leader, predicts Goldman Sachs. Global e-commerce growth is 19.4% per year and worldwide e-commerce totaled $572.5 billion in 2010.

Source: Goldman Sachs



http://www.internetretailer.com/trends/sales/

Competitive Advantage = Policies that Best Support:

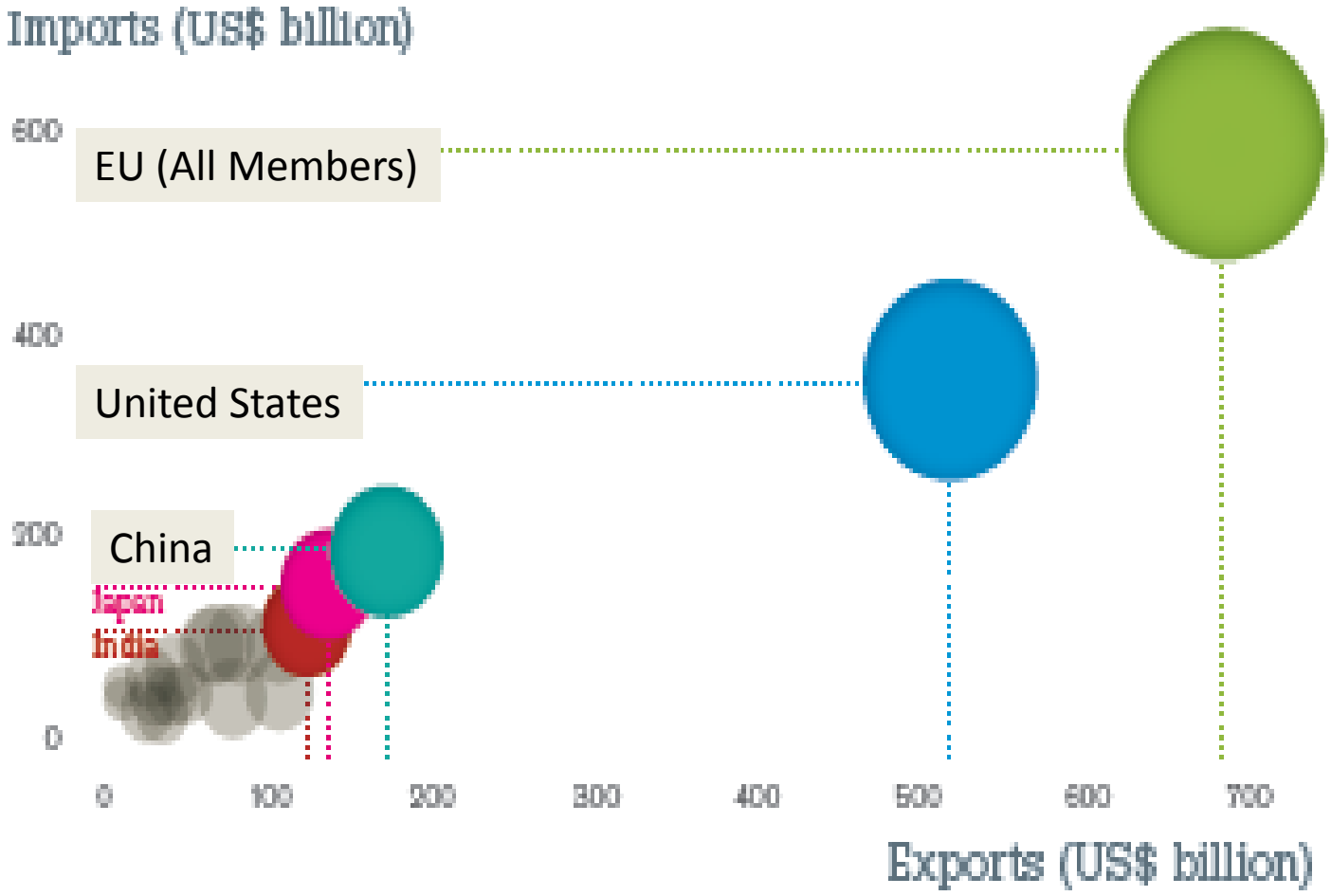
New Materials & Invented Programmable Organisms + Advanced Manufacturing Technologies: Machine Learning melds with cognitive Science + **Global Logistics Systems**

+ Energy Efficiency and Emission Reduction vs. Effects of Climate Change + New Organizational Forms and Services

+ **Diverse Networks (Research, Financial, Production, Energy, Conservation, Supply, etc.)** + Ubiquitous use of IT, Massive Data Bases and Social Media + Innovative Workforce Skills In Groups

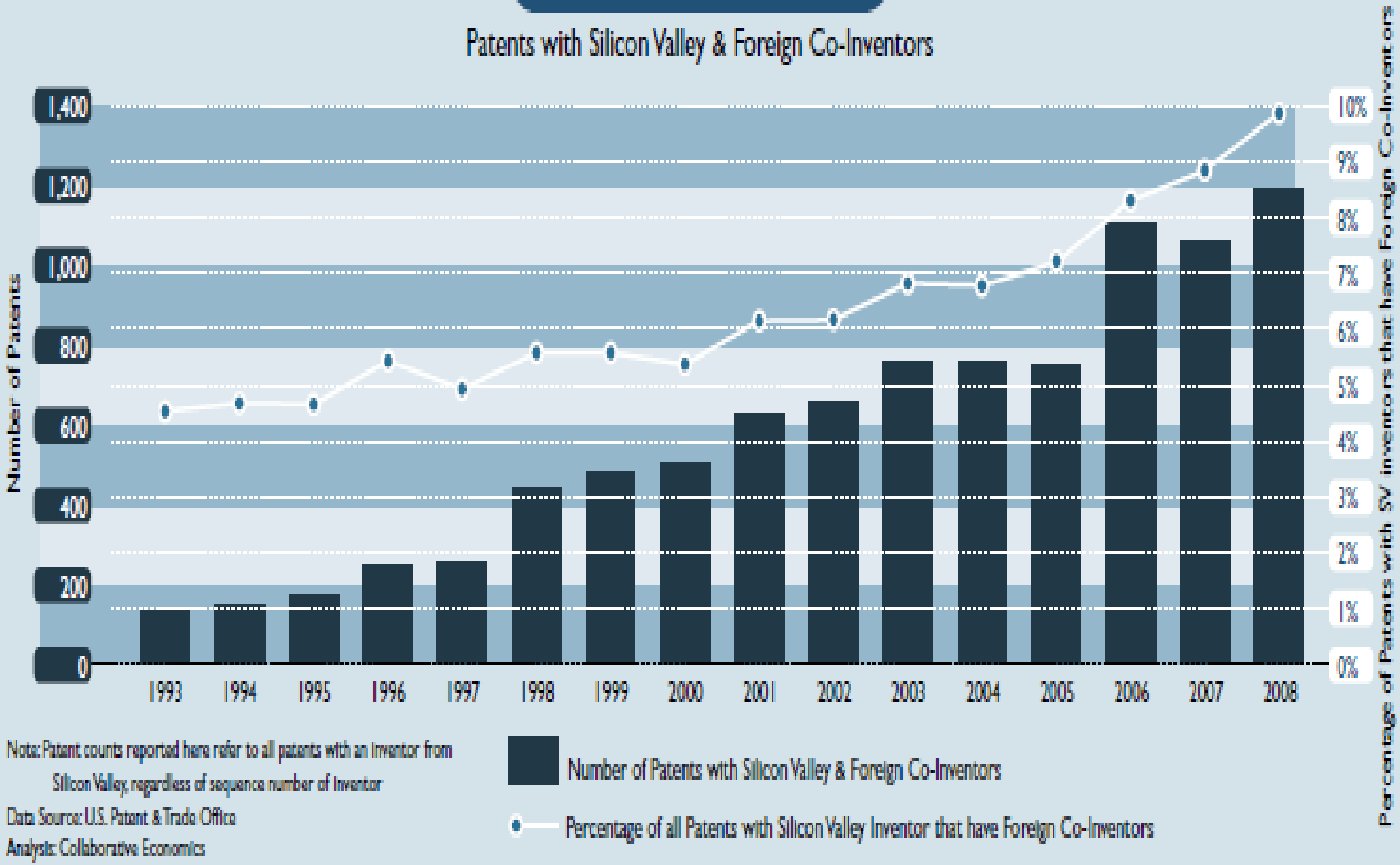
Level of Evolving Innovation: Red Highest, Orange Medium High, Green Medium, & Blue Lowest.

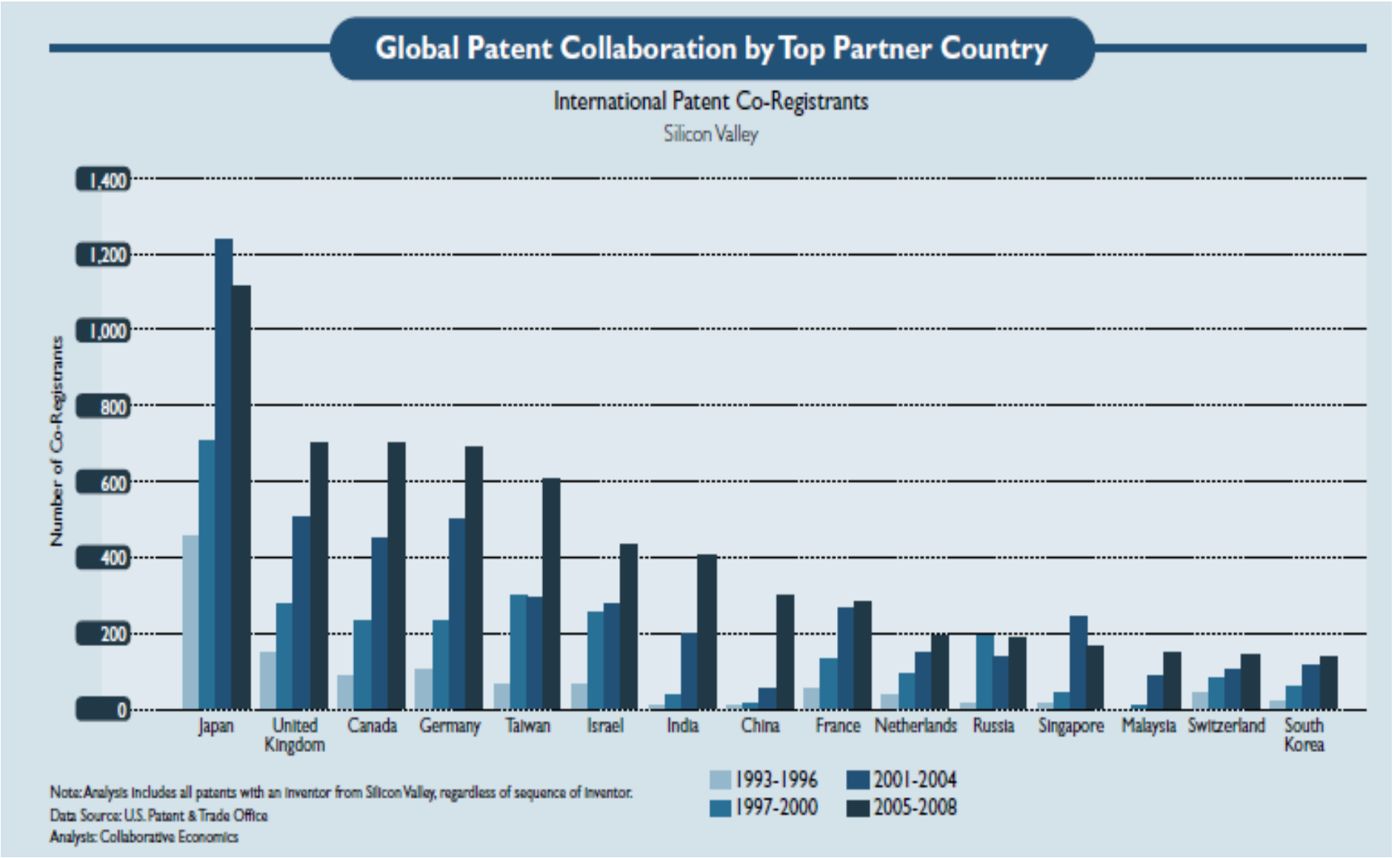
Leading players in services trade 2010

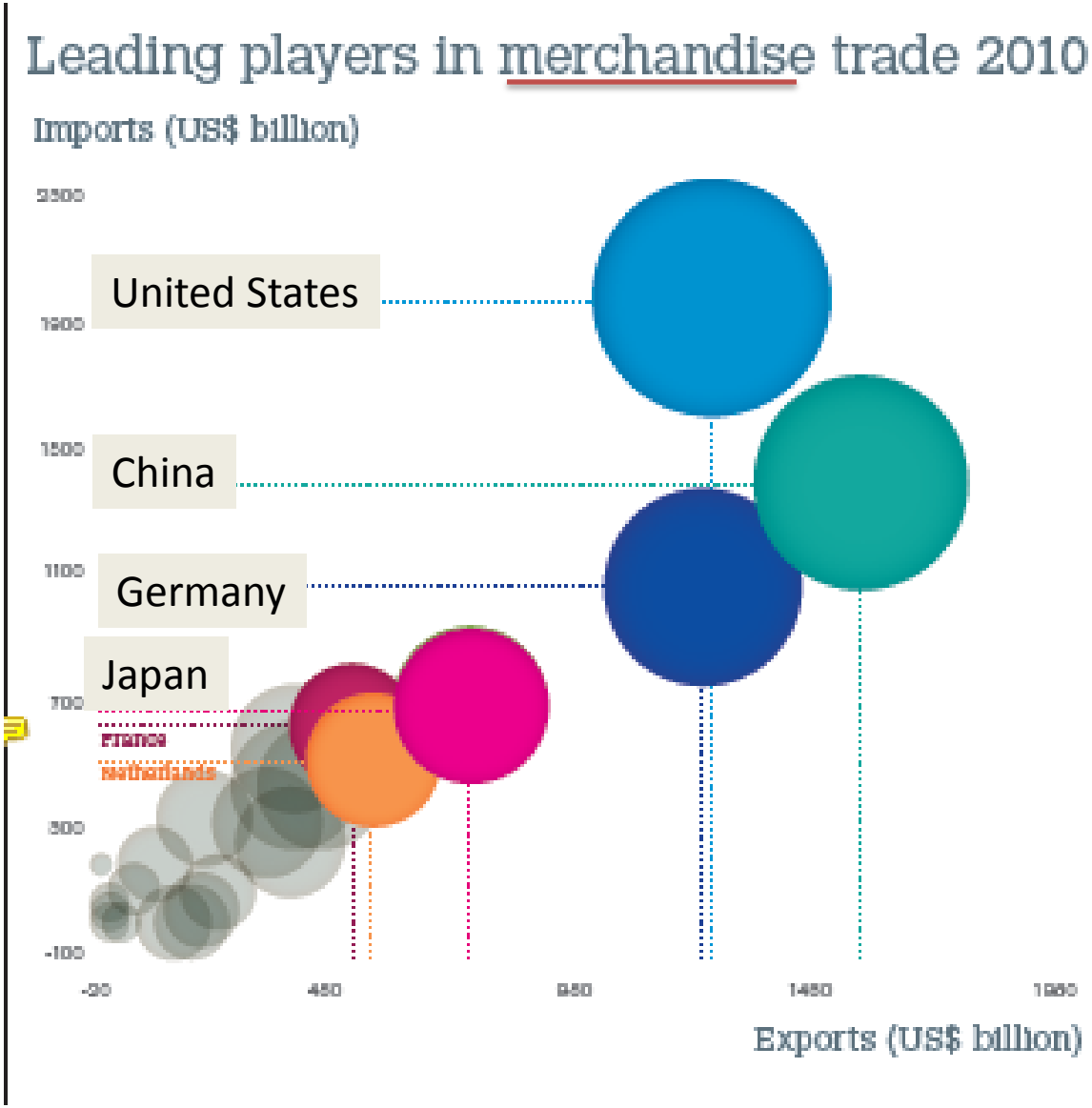


http://www.wto.org/english/res_e/statis_e/its2011_e/its11_world_trade_dev_e.pdf

Global Collaborations



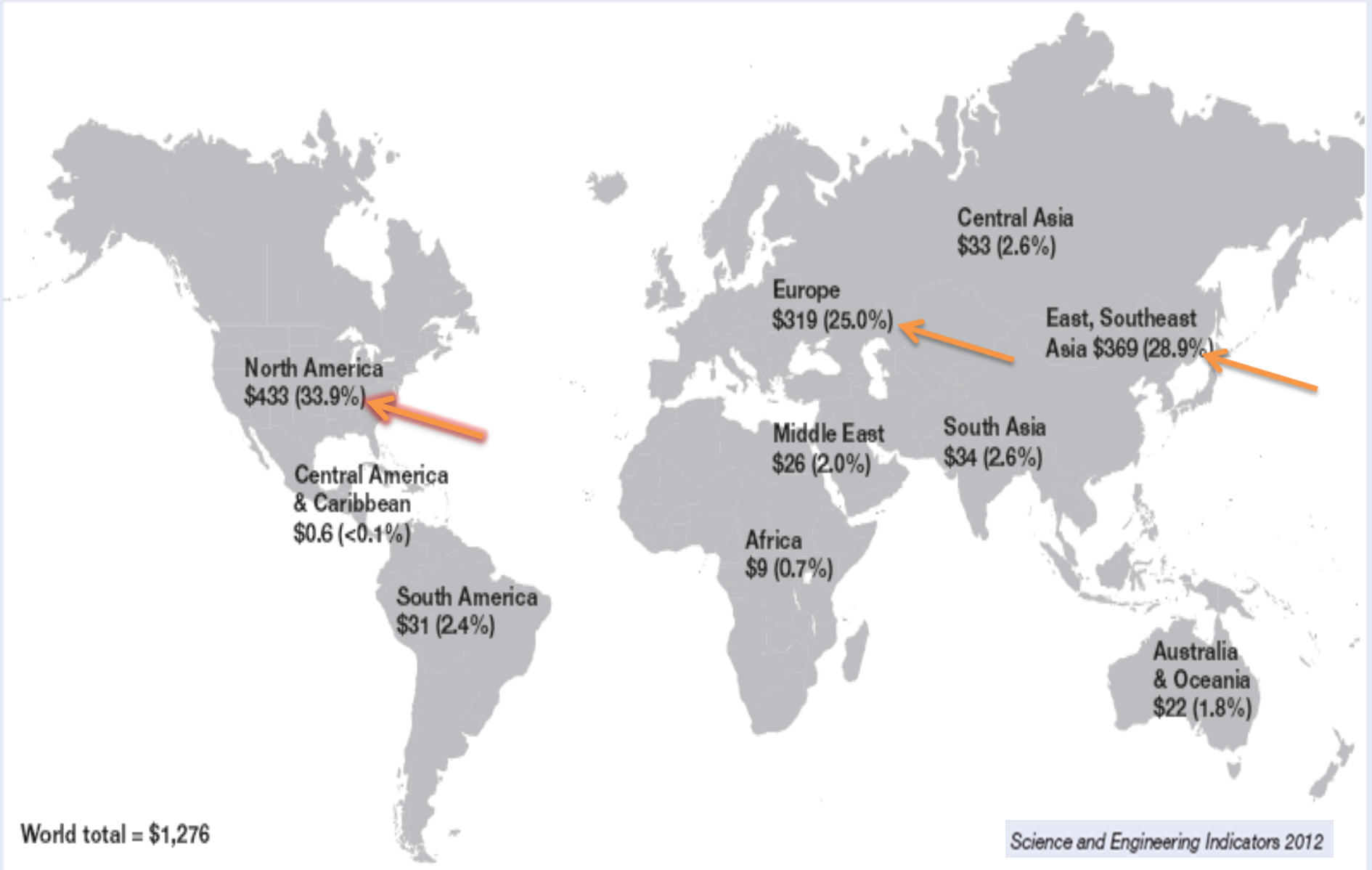

Global Patent Collaboration by Top Partner Country
International Patent Co-Registrants
Silicon Valley
Number of Co-Registrants
1,400
1,200
1,000
800
600
400
200
0
Japan
United Kingdom
Canada
Germany
Taiwan
Israel
India
China
France
Netherlands
Russia
Singapore
Malaysia
Switzerland
South Korea
1993-1996
1997-2000
2001-2004
2005-2008
Note: Analysis includes all patents with an inventor from Silicon Valley, regardless of sequence of inventor.
Data Source: U.S. Patent & Trade Office
Analysis: Collaborative Economics

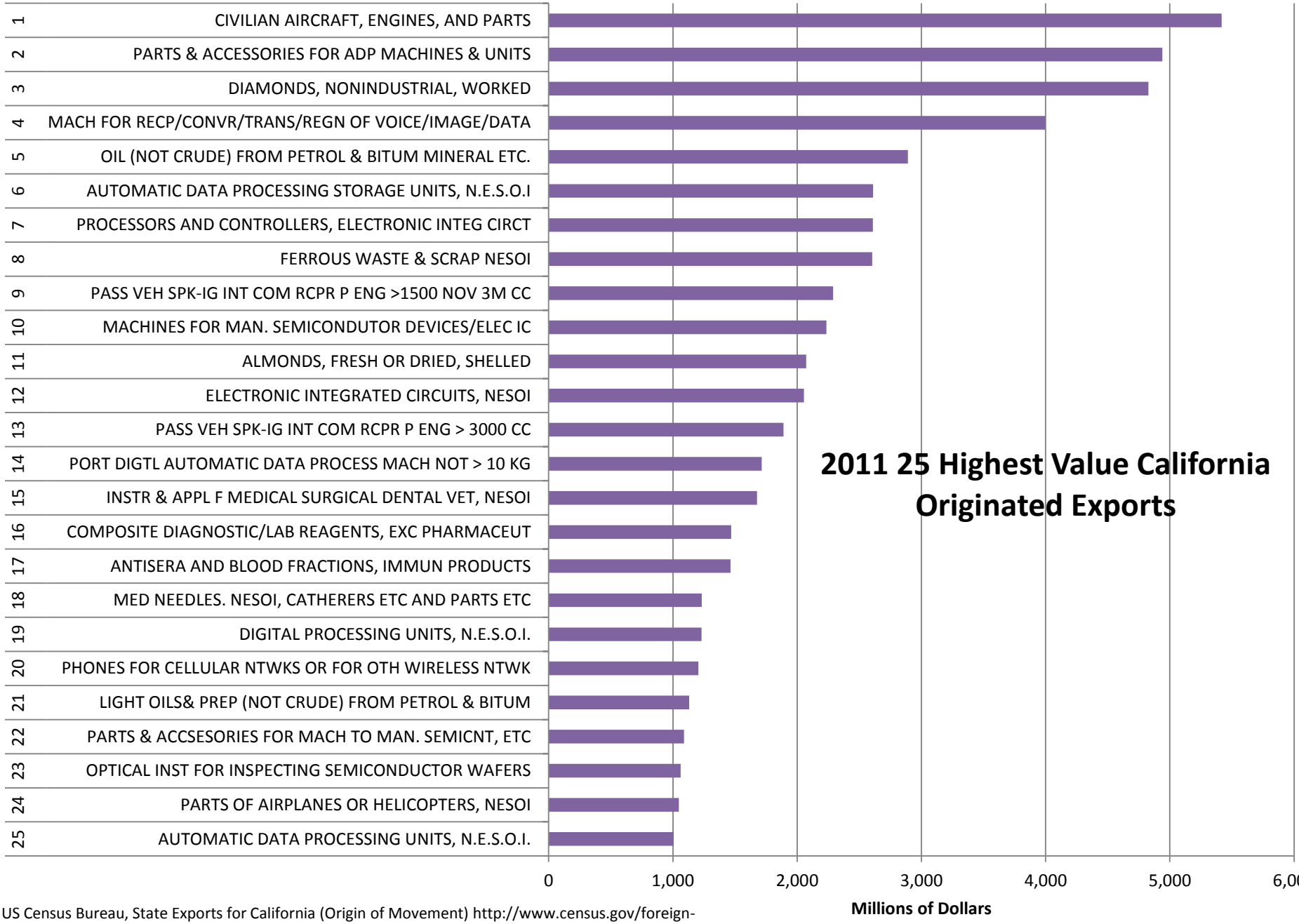


http://www.wto.org/english/res_e/statis_e/its2011_e/its11_world_trade_dev_e.pdf

Global R&D expenditures by region: 2009

U.S. PPP dollars (billions)

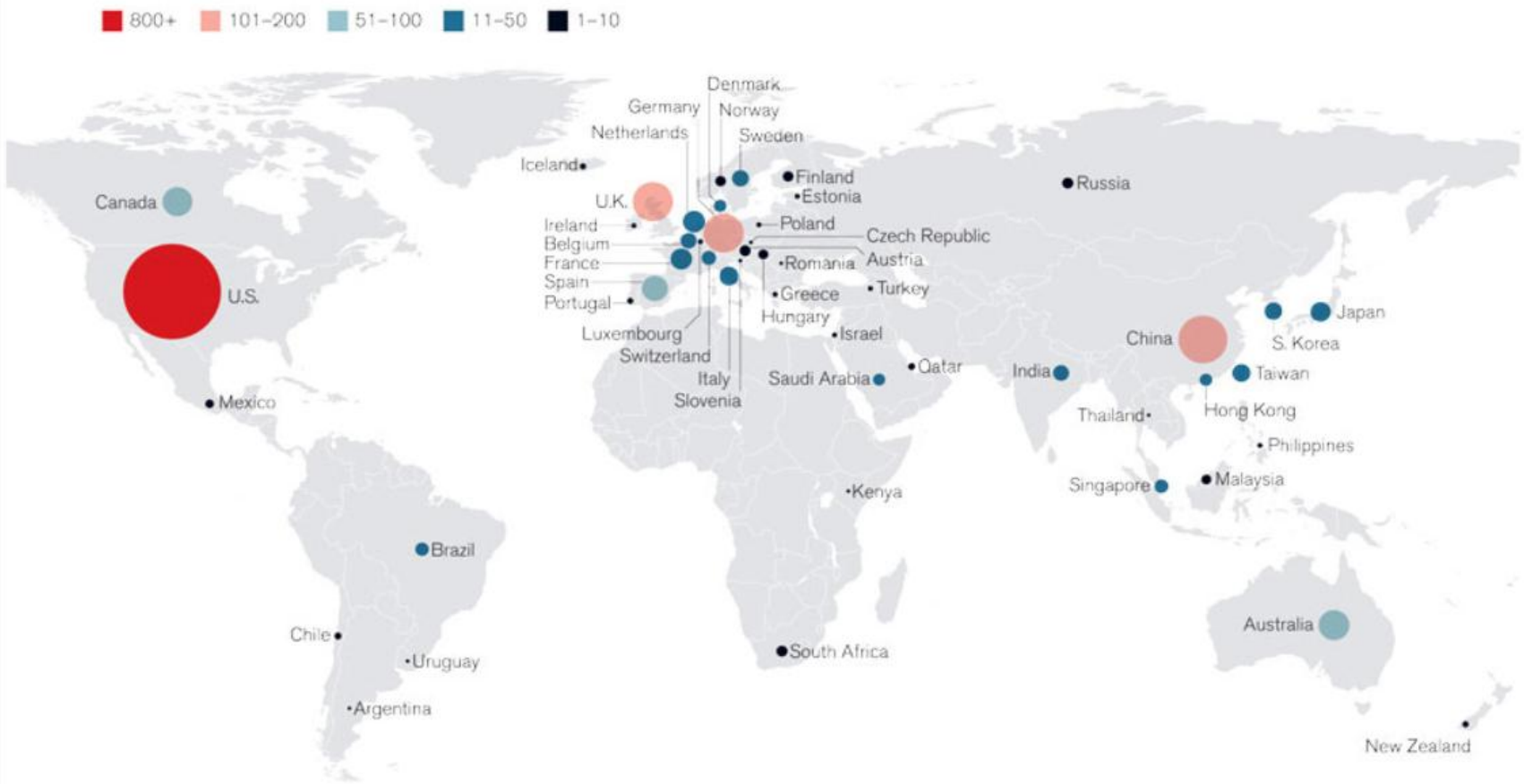




US Census Bureau, State Exports for California (Origin of Movement) http://www.census.gov/foreign-trade/statistics/state/zip/index.html#2012

High-Throughput Sequencing Goes Global

Approximate number of machines (by country)



The map is based on data from a user-generated database of publicly available statistics, representing 60 to 70 percent of all machines; it excludes biotech and pharmaceutical companies and some sequencing service providers.

Source: omicsmaps.com

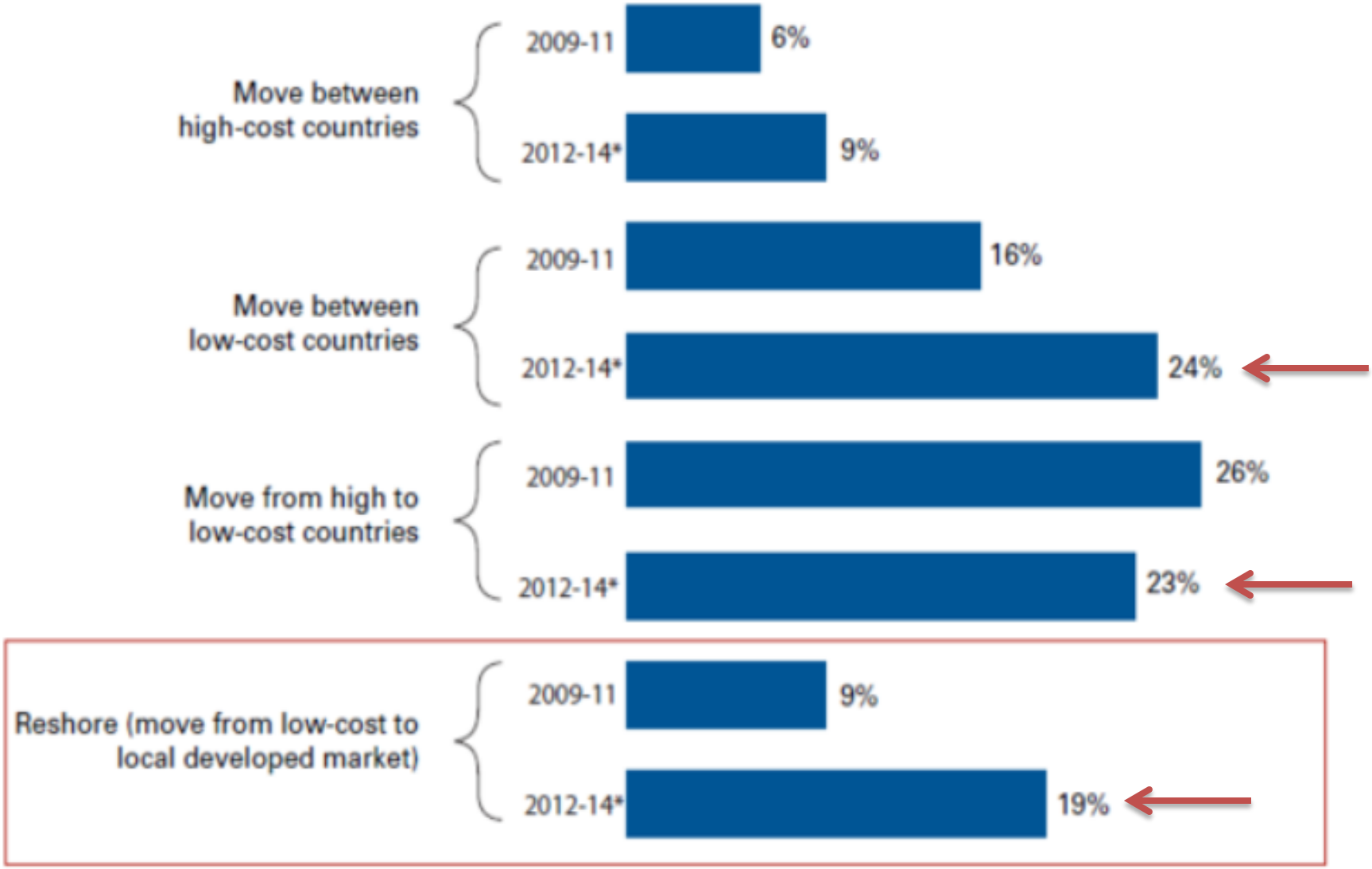
Technology Review (MIT) May/June 2012

California's Largest Metropolitan Centers Drove 73% of the State Exports in 2010

Export Performance of the 11 Largest California Metros of the Top 100 US Metros, 2010					
Metropolitan Area	Export Value (bln $)	Direct Export Production Jobs 2010, (1000s)	Total Export Jobs, 2010 (thousands)	Annuallized Growth rate (2003-2008)	Exports Growth Rate by Value (2009-10)
Los Angeles-Long Beach-Santa Ana	79.8	312.7	540.7	7.70%	9.00%
San Francisco-Oakland-Fremont	31.8	110	194.3	13.70%	8.20%
San Jose-Sunnyvale-Santa Clara	22.8	72.9	144.8	6.10%	12.20%
San Diego-Carlsbad-San Marcos	16	65.5	113.4	9.30%	11.10%
Riverside-San Bernardino-Ontario	10.9	39.4	73.6	9.30%	9.50%
Oxnard-Thousand Oaks-Ventura	6.2	16.6	34.2	7.70%	11.90%
Sacramento-Arden-Arcade-Roseville	6	26.8	44.3	8.10%	6.80%
Bakersfield-Delano	4	12.1	23.9	14.40%	9.00%
Fresno	3.7	14.5	28.5	9.30%	8.30%
Stockton	2	7.5	15.3	7.40%	6.20%
Modesto	1.9	6.3	13.4	7.70%	9.00%
Total	185.1	684.3	1,226	9.15%	9.20%

Brookings, Export Nation 2012.

Global Percent of manufacturing capacity impacted by change in sourcing strategy



Atlantic, June 13, 2012.

* projected

Source: Supply Chain Optimization Study, The Hackett Group, 2012

USA LOST TECHNOLOGIES

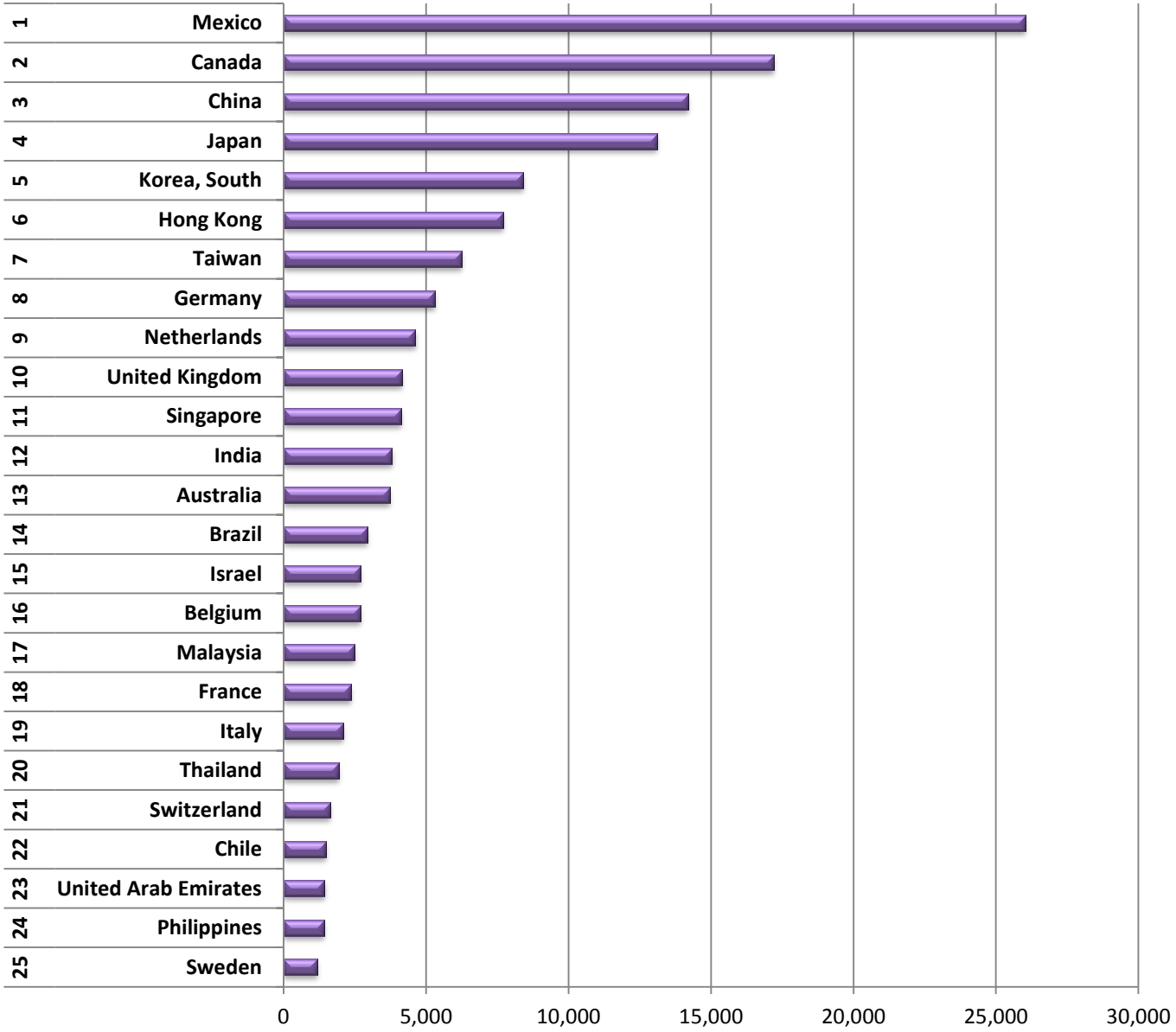
Research and innovation are essential, but alone they do not ensure a successful manufacturing sector. This is a sample[26] of technologies and products with both commercial and defense applications invented in the United States and now produced primarily abroad:

- Laptop computers
- Solar cells
- Semiconductor memory devices
- Semiconductor production equipment such as steppers
- Flat panel displays
- Robotics
- Interactive electronic games
- Lithium-ion batteries

President's Council of Advisors on Science and Technology, Report to the President on Ensuring American Leadership in Advanced Manufacturing, June 2011.

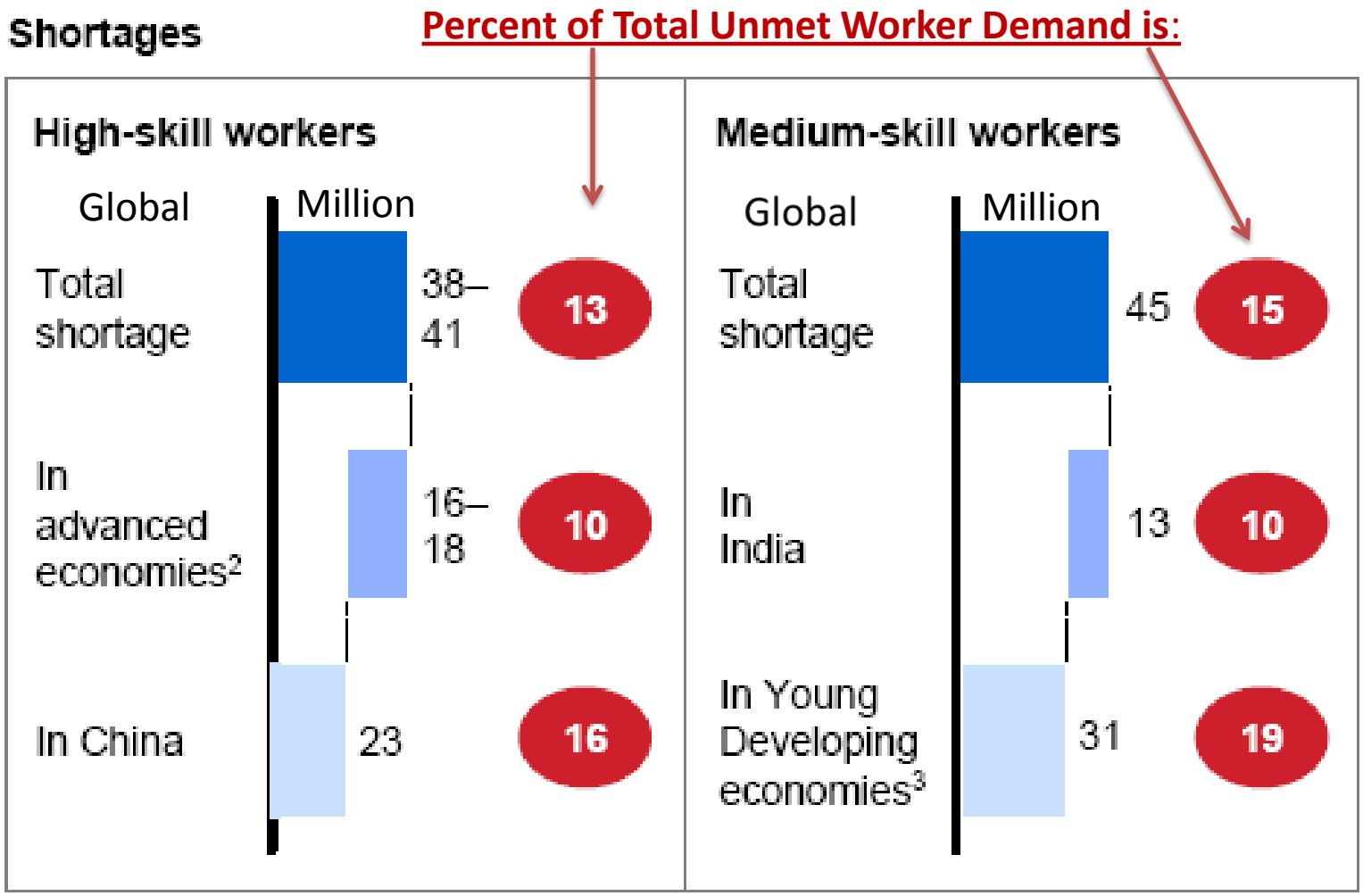
Can We Build Tomorrow's Breakthroughs? MIT Technology Review, Feb. 2012.

California's Top Export Countries by 2011 Value



US Census Bureau, State Exports for California (Origin of Movement) http://www.census.gov/foreign-trade/statistics/state/zip/index.html#2012

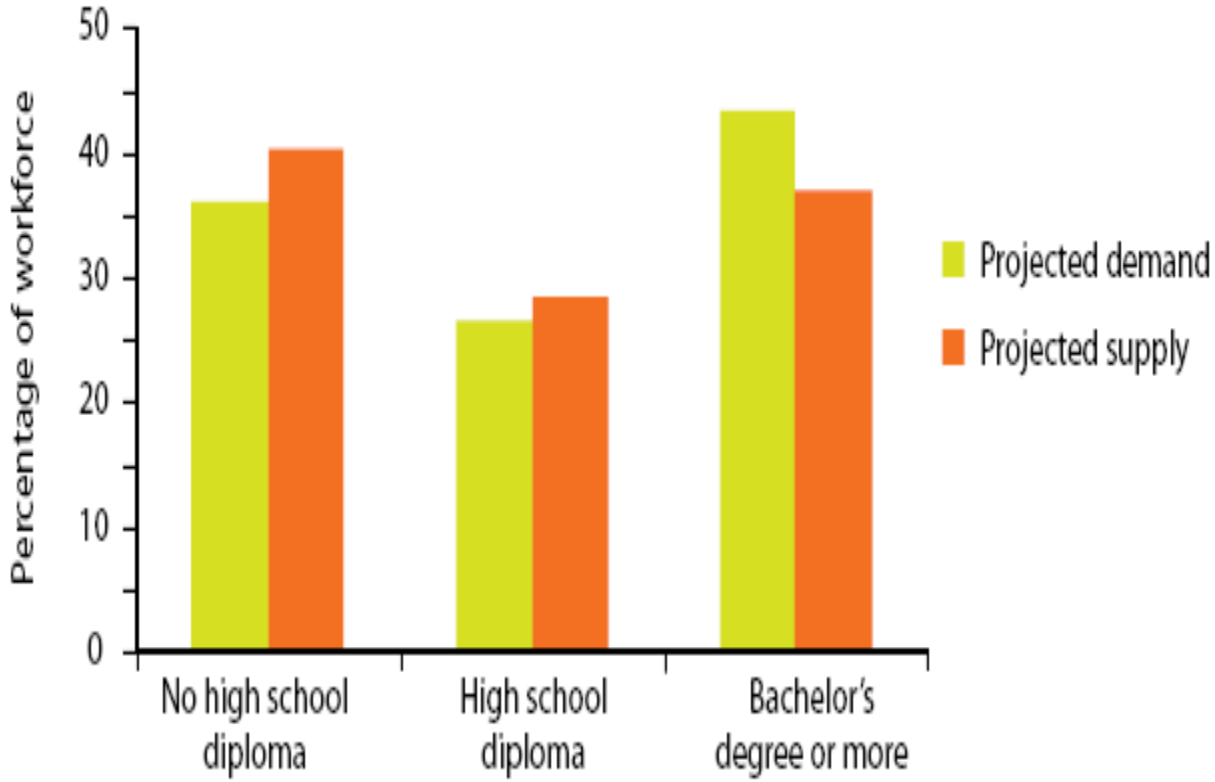
With too few High + Medium Skilled Workers - Countries with more skilled workers become business magnets



Source: McKinsey Global Institute, The World at Work 12 http://www.mckinsey.com/insights/mgi/research /labor_markets/the_world_at_work

For California:

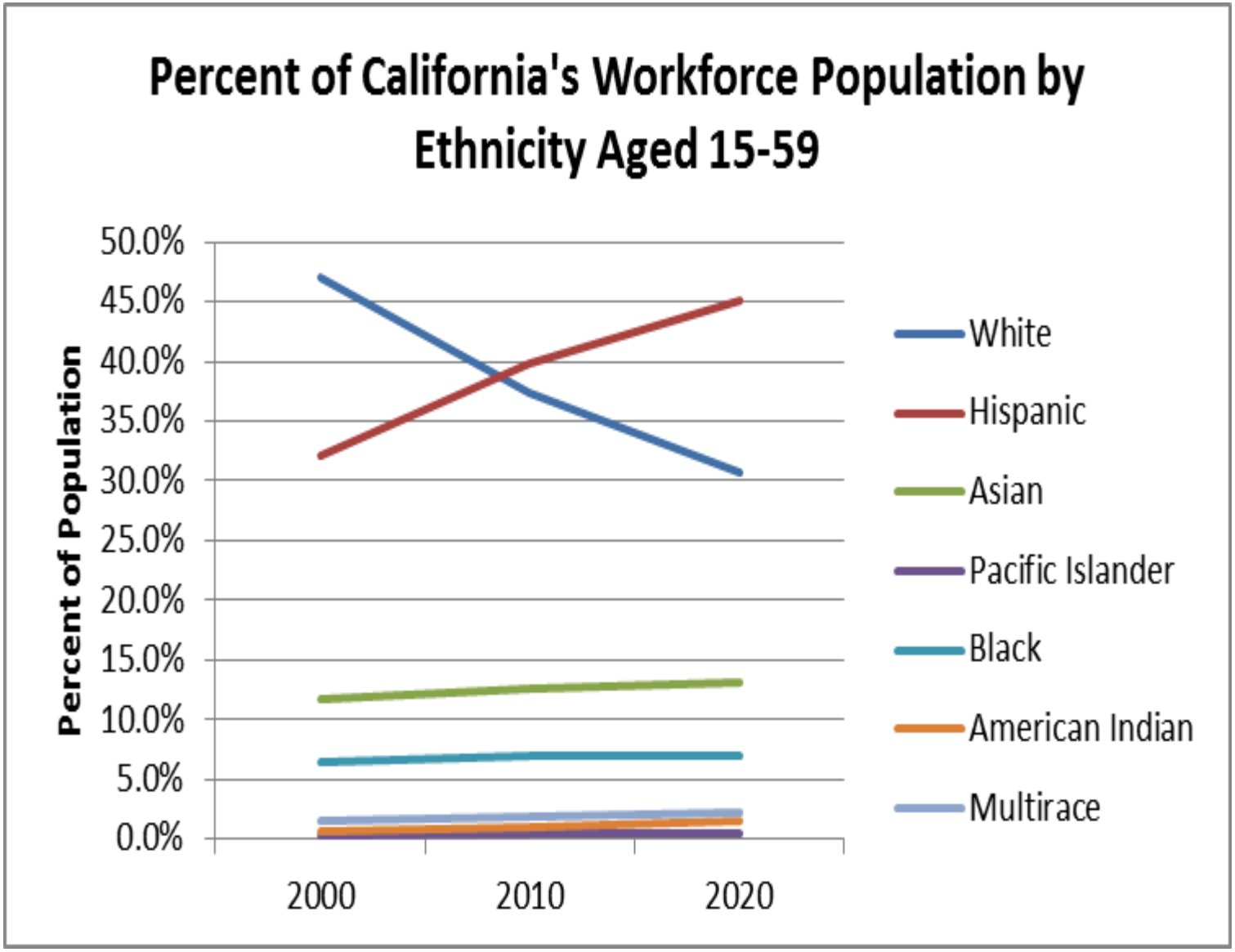
BY 2025, DEMAND FOR COLLEGE-EDUCATED WORKERS WILL OUTSTRIP THE SUPPLY



SOURCE: PPIC projections.

http://www.ppic.org/main/publication.asp?i=895

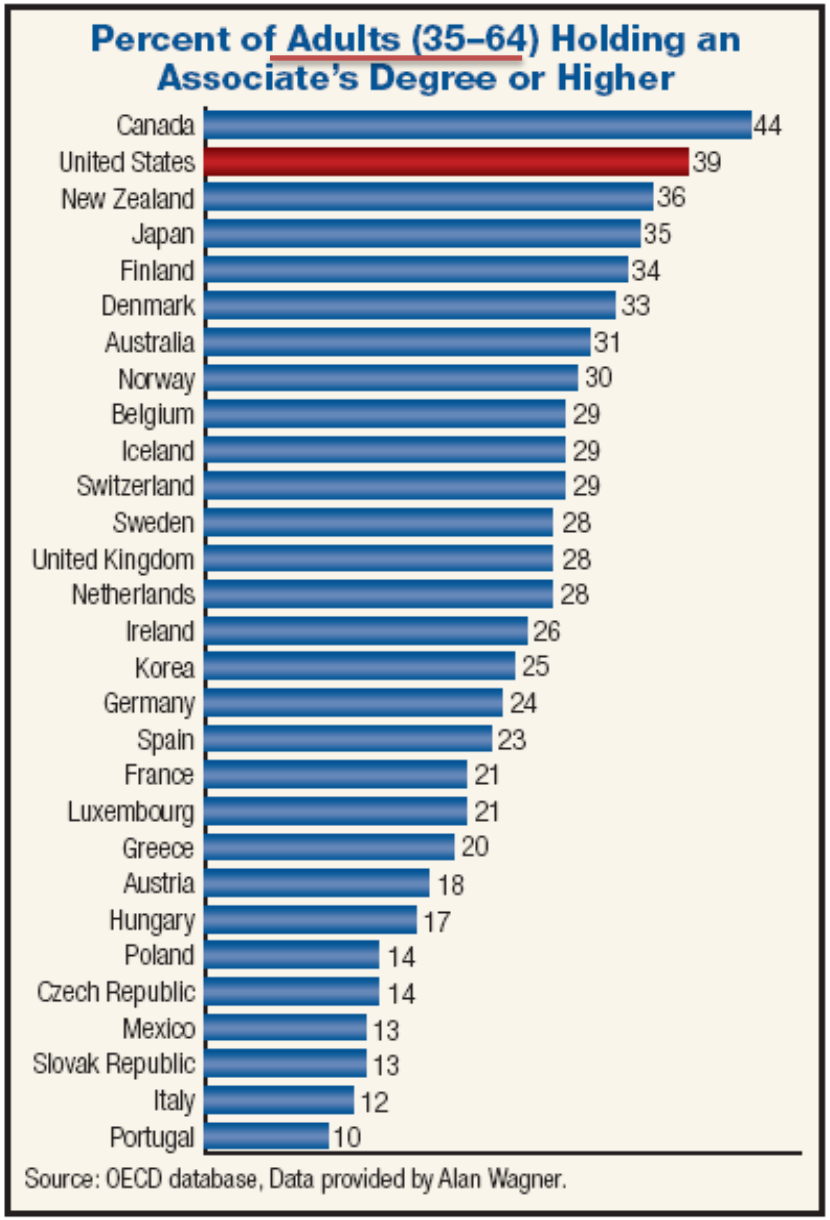
Latinos Will Dominate 2020 Workforce



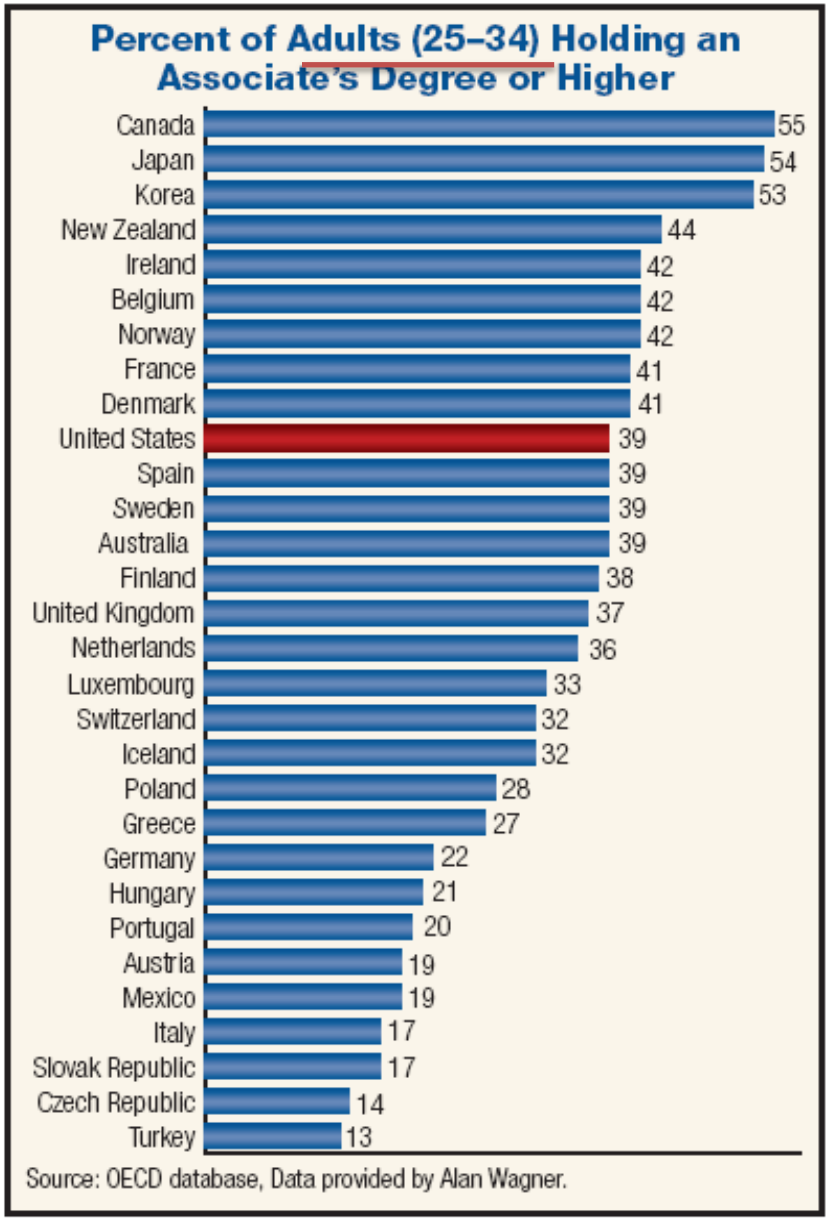
Source: CA Dept. of Finance and Time Structures

Slide Prepared for the August 7, 2012 Joint Legislative Hearing by **Time Structures**, an Economic Development Advisory Group since 1996 www.timestructures.com

Educational level of older Americans reflects educational progress of earlier times.

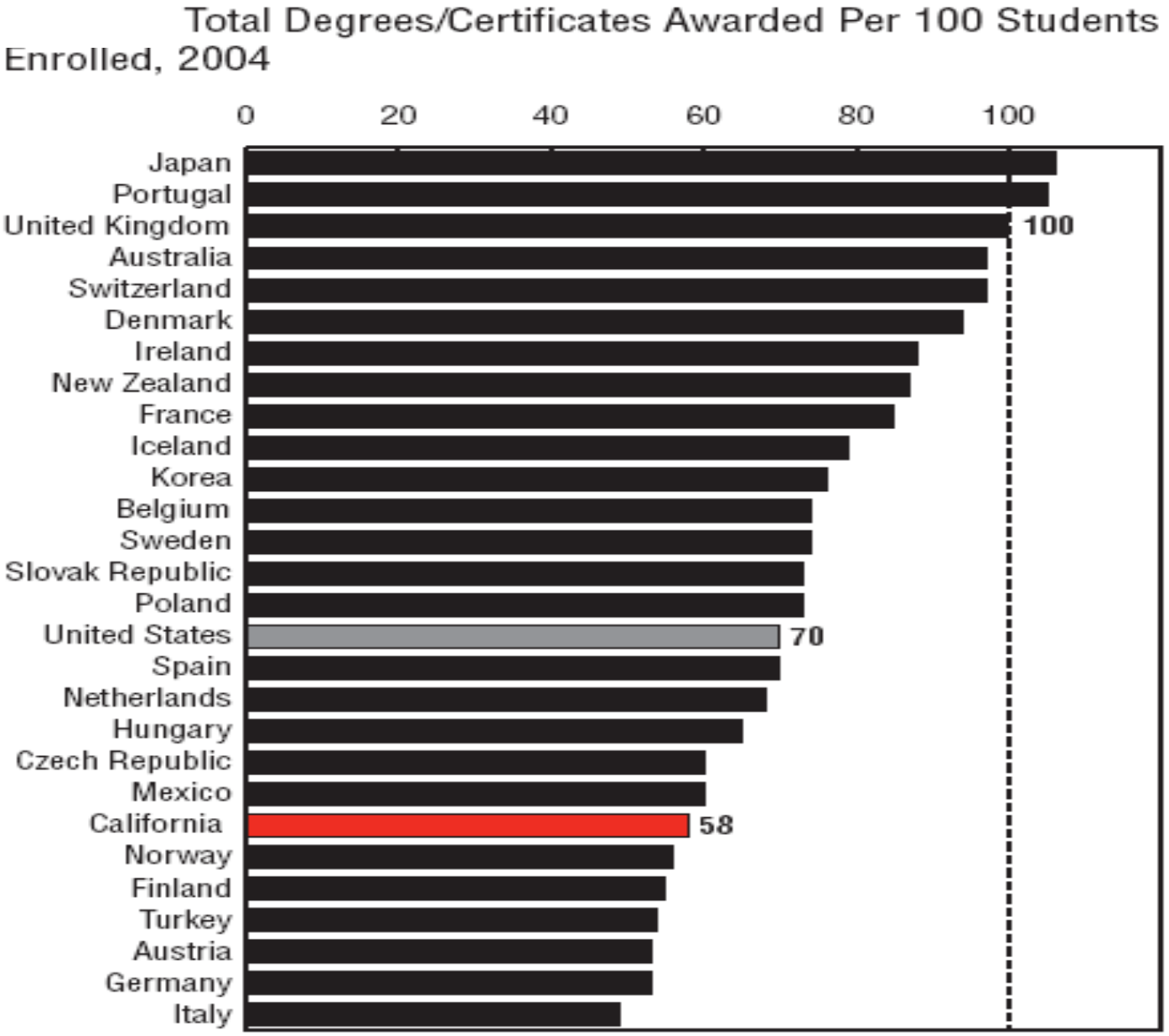


Educational level of younger American adults has slipped.

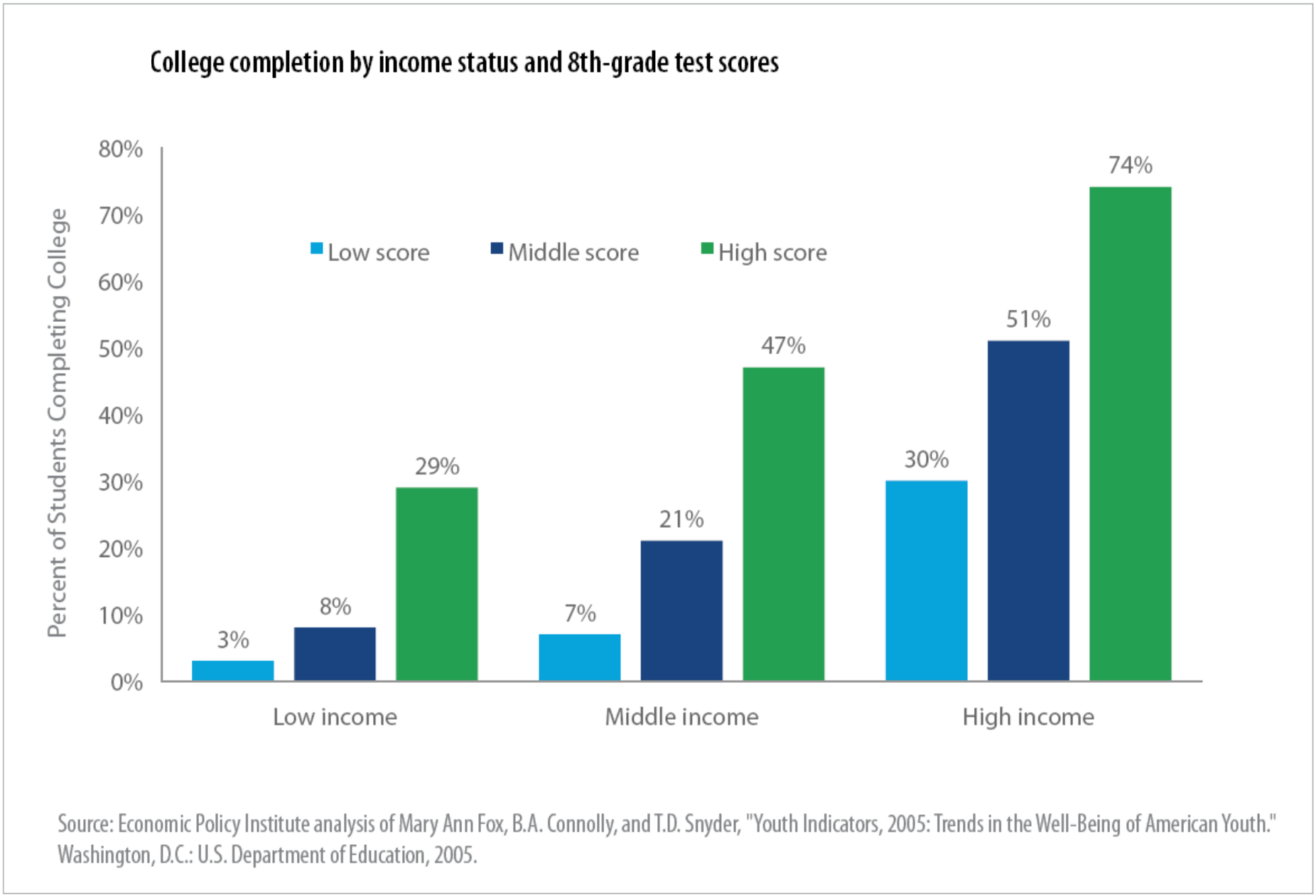


http://measuringup2008.highereducation.org/print/NCPPHEMUNationalRpt.pdf

California Certificate and Degree Completion Rate Is Low



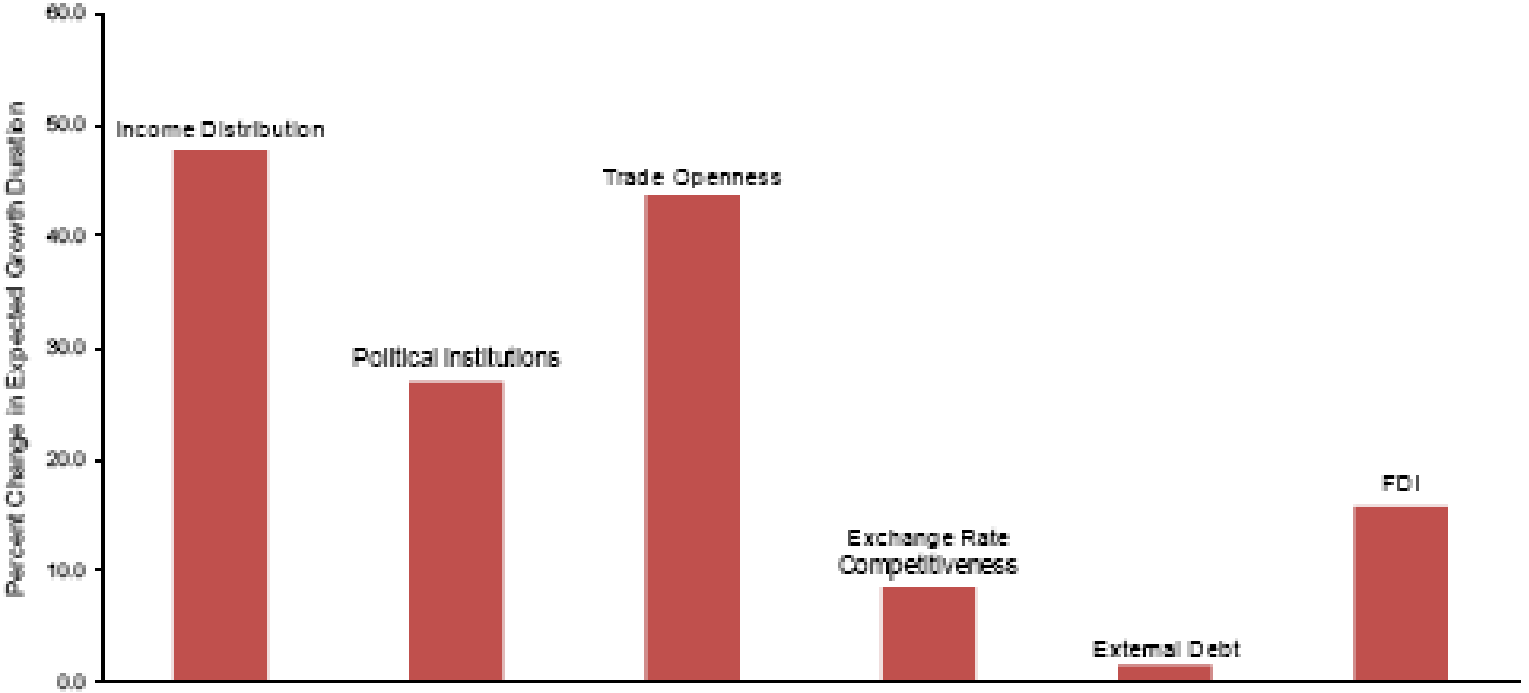
Source: The National Center for Public Policy and Higher Education, "Measuring-up 2006." http://measuringup.highereducation.org/_docs/2006/statereports/CA06.pdf



Source: Prosperity Economics, 2012http://www.epi.org/files/2012/Prosperity_Economics.pdf

Income Inequality Slows Growth Spells

Figure 3. Effect of Increase of Different Factors on Growth Spell Duration



Sources: Berg, Ostry, and Zettelmeyer (2008) and authors' calculations.
Note: For each variable, the height of the figure shows the percentage increase in spell duration resulting from an increase in that variable from the 50th to the 60th percentile, with other variables at the 50th percentile. For trade, the figure shows the benefits of having an open instead of a closed regime, using the Wacziarg and Welch (2008) dichotomous variable. For autocracy, the figure shows the effects of a move from a rating of 1 (the 50th percentile) to 0 (the 73rd percentile.)

A. Berg and J. Ostry (2011). Inequality and Unsustainable Growth: Two Side of the Same Coin? International
B. Monetary Fund. http://www.imf.org/external/pubs/ft/sdn/2011/sdn1108.pdf

Report of the number of computers used for instruction-related purposes and number of classrooms with Internet access in California public schools by type of school for the 2010-11 school year.

Type of school	Number of schools	Enrollment	Number of computers	Number of students per computer	Number of classrooms with Internet
Elementary schools	5,750	3,049,067	481,970	6.3	162,151
Middle and junior high schools	1,302	1,050,521	202,083	5.2	53,406
High schools	1,289	1,808,490	316,297	5.7	83,433
Continuation and alternative schools	743	133,552	31,200	4.3	7,234
Other	1,136	166,798	38,580	4.3	8,659
Total	10,220	6,217,002	1,070,130	5.8	314,883

Connecting California's Children Report, 2009. http://www.k12hsn.org/files/publications/ccc2009.pdf