

# Manufacturing, exports and jobs for California and America

*Policies for economic growth and competitiveness*

Global Initiatives Council  
Los Angeles Area Chamber of Commerce  
August 18, 2010

**Ross DeVol**

*Executive Director, Economic Research*

(310) 570 4615

[rdevol@milkeninstitute.org](mailto:rdevol@milkeninstitute.org)

[www.milkeninstitute.org](http://www.milkeninstitute.org)

# Presentation Outline



MILKEN INSTITUTE

- **Manufacturing 2.0: The state of California manufacturing**
- **Current California manufacturing and export performance**
- **Jobs for America (and California)**
- **Summary**

# Manufacturing 2.0

## *Presentation Outline*



MILKEN INSTITUTE

- I. **Goals of the report**
- II. **The state of California manufacturing**
- III. **Why manufacturing matters**
- IV. **State case studies**



# I. Goals of the report

- **Assess the condition of California's manufacturing industry (2000 to 2007)**
- **Conduct a retrospective simulation to show where the industry *could* have been if the state sustained the same share of manufacturing employment as in 2000**
- **Identify the California manufacturing industry's competitive challenges**
- **Compare the decline of the California manufacturing industry to other states**
- **Provide recommendations to enhance the competitiveness of California's manufacturing industry**

## II. The state of California manufacturing

### *Share of the California economy*

	2000	2007	change
<b>Employment</b>	<b>12.8%</b>	<b>9.7%</b>	<b>-24.2%</b>
<b>Earnings</b>	<b>15.0%</b>	<b>11.7%</b>	<b>-22.0%</b>
<b>Real output</b>	<b>14.2%</b>	<b>11.1%</b>	<b>-21.8%</b>

Sources: BLS, Moody's Economy.com, Milken Institute.

## II. The state of California manufacturing

*Ranked by absolute change in employment, 2000-2007*



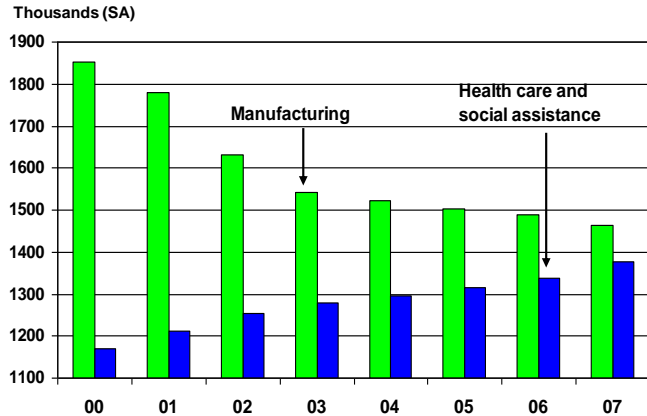
	Change in No. of Jobs	Percent Change
<b>Biggest gainers:</b>		
Beverage	9,900	29.9%
Pharmaceutical and Medicine	6,400	16.8%
Other Food	4,200	23.7%
Cement and Concrete Product	1,900	9.1%
Dairy Product	1,100	7.2%
<b>Biggest decliners:</b>	Change in No. of Jobs	Percent Change
Cut and Sew Apparel	-45,000	-40.2%
Semiconductor and Other Electronic Component	-39,900	-27.7%
Computer and Peripheral Equipment	-30,300	-34.7%
Printing and Related Support Activities	-23,500	-28.7%
Aerospace Product and Parts	-18,400	-20.3%

# II. The state of California manufacturing

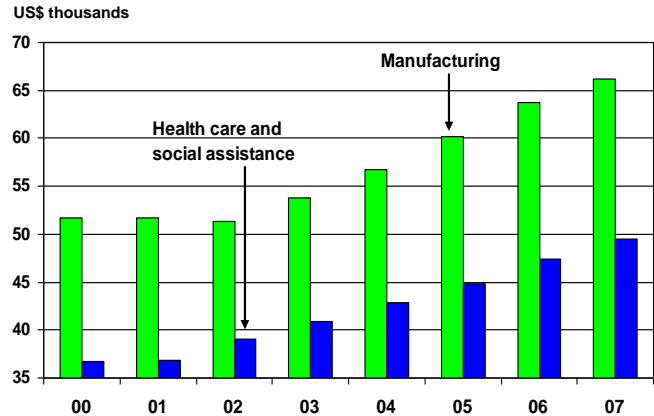
## Manufacturing versus social services



### Employment



### Wages



## II. The state of California manufacturing

### *High-tech contribution to manufacturing real GSP (US\$ billions)*

	2000	2007	% Chg	% of mfg real GSP (‘07)
High-tech manufacturing industries				
Navigational, measuring, electromedical, and control instruments	\$15.9	\$27.9	76.1	14.1
Semiconductor and other electronic component	\$21.8	\$27.3	25.4	13.8
Computer and peripheral equipment	\$19.3	\$22.5	16.6	11.3
Pharmaceutical and medicine	\$7.6	\$9.6	27.0	4.8
Aerospace product and parts	\$5.6	\$8.6	54.6	4.3
Medical equipment and supplies	\$6.1	\$7.0	15.3	3.5
Communications equipment	\$6.6	\$6.9	4.2	3.5
Manufacturing and reproducing magnetic and optical media	\$2.1	\$1.8	-14.2	0.9
Commercial and service industry machinery	\$3.5	\$1.5	-57.1	0.8
Audio and video equipment	\$1.1	\$1.5	33.4	0.8
<b>Total</b>	<b>\$89.6</b>	<b>\$114.8</b>	<b>28.1</b>	<b>57.8</b>

Note: Numbers may not add up due to rounding.

Sources: Bureau of Economic Analysis, Moody's Economy.com, Milken Institute.



### III. Why manufacturing matters

#### *Retrospective simulation on California manufacturing*



	Hypothetical 2007 (assuming 2000 share)	Actual 2007	Net gain
Employment (thousands)	1,939	1,463	476
Earnings (US\$ billions)	\$124.2	\$96.9	\$27.3
Real output (US\$ billions)	\$216.0	\$169.1	\$46.9

#### Economic impacts of simulation to broader economy

	Multiplier	Direct impact	Indirect impact	Total impact
Employment (thousands)	3.5	476	1,174	1,650
Earnings (US\$ billions)	2.8	\$27.3	\$47.8	\$75.1
Real output (US\$ billions)	2.2	\$46.9	\$54.3	\$101.2

### III. Why manufacturing matters

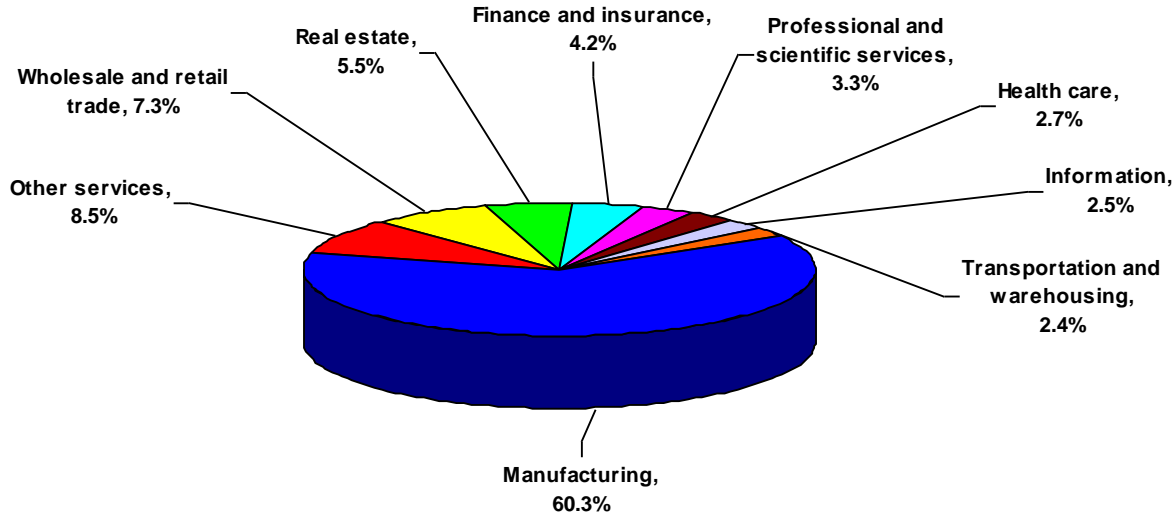
#### *Retrospective simulation by sub-sector*

Rank	Manufacturing subsector	2000 share of nonfarm employment	2007 share of nonfarm employment	Thousands	
				Hypothetical 2007 emp (assuming 2000 share emp)	Net gain
1	Cut and sew apparel manufacturing	0.77%	0.44%	117.2	50.3
2	Semiconductor and other electronic component manufacturing*	0.99%	0.69%	150.8	46.6
3	Computer and peripheral equipment manufacturing*	0.60%	0.38%	91.4	34.3
4	Printing and related support activities	0.56%	0.38%	85.7	27.3
5	Aerospace product and parts manufacturing*	0.63%	0.48%	95.0	22.7
6	Plastics product manufacturing	0.45%	0.31%	67.7	21.2
7	Navigational, measuring, electromedical, and control instruments mfg*	0.82%	0.68%	124.3	20.5
8	Communications equipment manufacturing*	0.30%	0.17%	45.9	19.5
9	Household and institutional furniture and kitchen cabinet manufacturing	0.34%	0.23%	52.2	17.9
10	Commercial and service industry machinery manufacturing*	0.19%	0.09%	28.3	14.3

\*denotes high-tech industry

### III. Why manufacturing matters

#### *Economic activity generated by manufacturing in California*



Sources: BLS, BEA, Moody's Economy.com, Milken Institute.

## IV. State case studies

### *Methodology*



#### California is compared to seven “peer states” chosen based on:

1. **Increasing share – the state’s share of U.S. manufacturing employment increased from 2000 to 2007**
2. **High-tech – the state’s share of U.S. high-tech manufacturing employment also increased during the same time period**
3. **Above average – The state’s share of U.S. high-tech manufacturing employment in 2007 either matched or exceeded the national average of 2 percent.**

**\*Texas did not meet all three criteria, but was included in the analysis because of its large share of U.S. manufacturing and similarity and proximity to California.**

## IV. State case studies

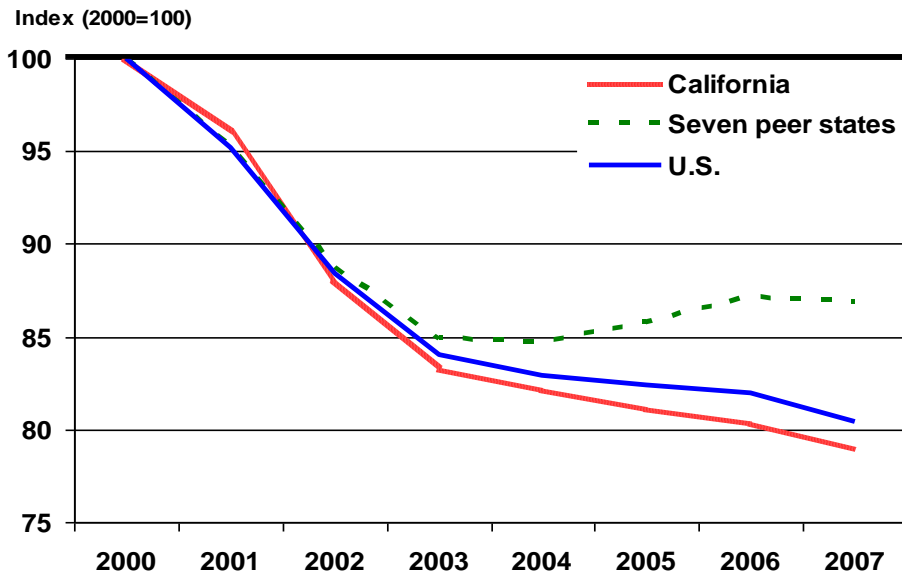
### *Analysis categories*



- **Economic climate – GDP growth, per capita income, exports**
- **Business climate – tax rates, per capita tax burden, government debt, business start-ups**
- **Business and economic rankings – selection of leading benchmarking studies**
- **Manufacturing indicators – share of real GDP, output, high-tech employment, research and development**
- **Public incentives – leading incentive programs from peer states are analyzed**

# IV. State case studies

## Manufacturing employment since 2000



Note: The peer states include Arizona, Indiana, Kansas, Minnesota, Oregon, Texas, and Washington.

Sources: BLS, Moody's Economy.com, Milken Institute.

## IV. State case studies

### *Peer states' shares of U.S. high-tech manufacturing jobs*

Peer states	2000	2007	Change (+/-)
California	20.5%	19.7%	-
Texas	7.8	7.5	-
Washington	4.1	4.5	+
Minnesota	2.9	3.1	+
Arizona	3.0	3.1	+
Indiana	2.3	2.8	+
Kansas	1.9	2.2	+
Oregon	1.8	2.0	+

Sources: BLS, Moody's Economy.com, Milken Institute.

## IV. State case studies



### *Key findings*

1. **Employment – California is losing a larger share of manufacturing employment overall, in high-tech in particular, and at a faster rate compared to these other states**
2. **Performance – California has a wide gap between its capacity for ingenuity and entrepreneurship and its ability to efficiently commercialize innovation in manufacturing**
3. **Taxes and Regulation – This gap continues to widen in part due to the burden of an onerous regulatory climate and some of the highest taxes in the United States**
4. **Reputation – California has a reputation for being a state that is unfriendly to business, which harms its overall competitiveness**
5. **Incentives – Peer states are using targeted incentives to keep and lure manufacturers away from California**



# Top 10 California export markets



MILKEN INSTITUTE

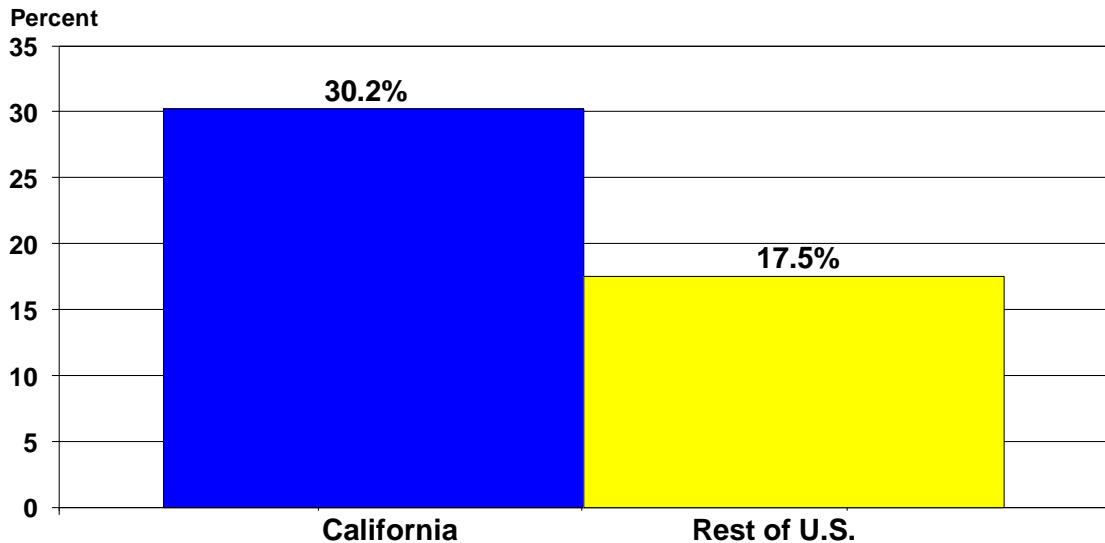
*Ranked by value of exports*

Country	Value (\$ mill.)	Share of CA (%)	Share of U.S. (%)
Mexico	17,474	14.6	12.0
Canada	14,315	11.9	19.0
Japan	10,902	9.1	5.0
China	9,744	12.9	9.0
South Korea	5,913	4.9	3.0
Germany	4,441	3.7	4.0
Taiwan	4,120	3.4	2.0
United Kingdom	3,916	3.3	4.0
Netherlands	3,566	3.0	3.0
Australia	3,445	2.9	2.0
<i>Top Asian countries</i>	<b>24,091</b>	<b>33.1</b>	<b>21.0</b>

Source: U.S. Census Bureau.

# Hi-tech share of exports

2009



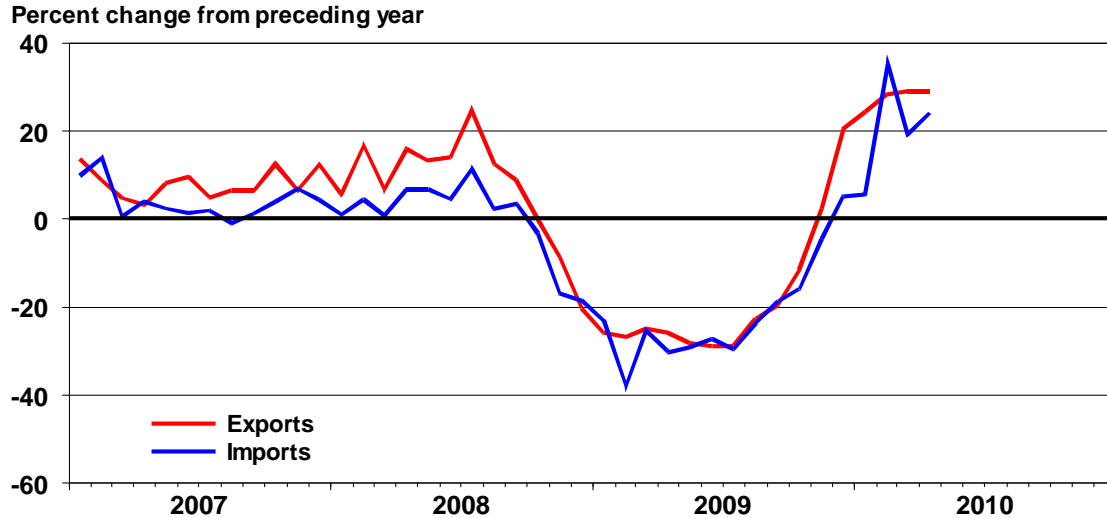
Sources: U.S. Census Bureau, Moody's Economy.com.

# Movement through California's ports

## Annual growth



MILKEN INSTITUTE

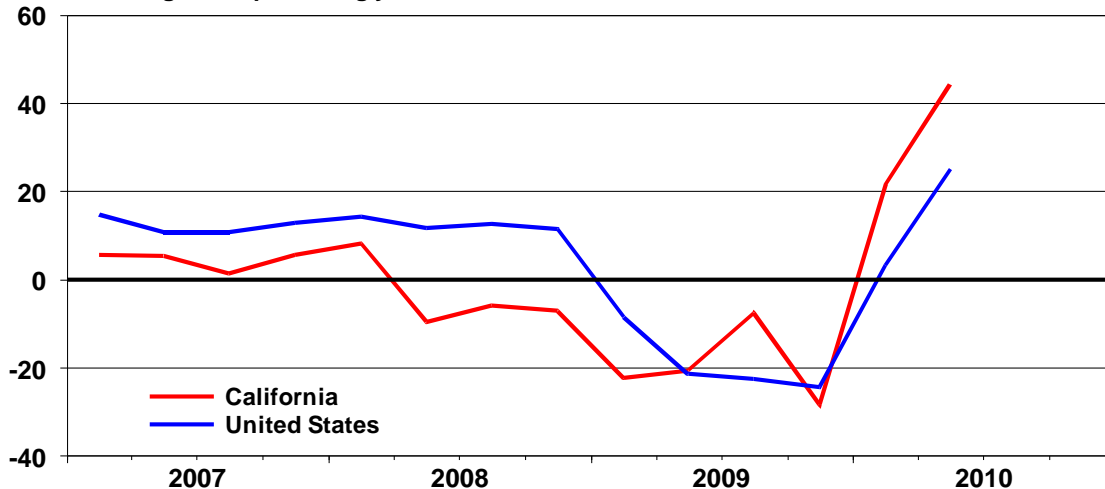


Source: California Department of Finance.

# California exports rebounding faster than U.S.

## Value of shipments

Percent change from preceding year

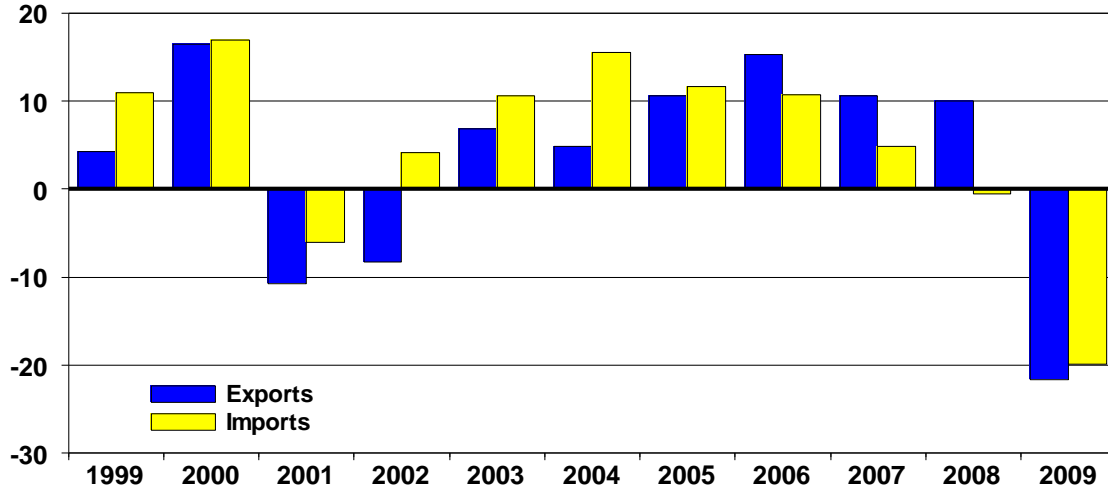


# Movement through LA customs district

## Annual growth



Percent change from preceding year



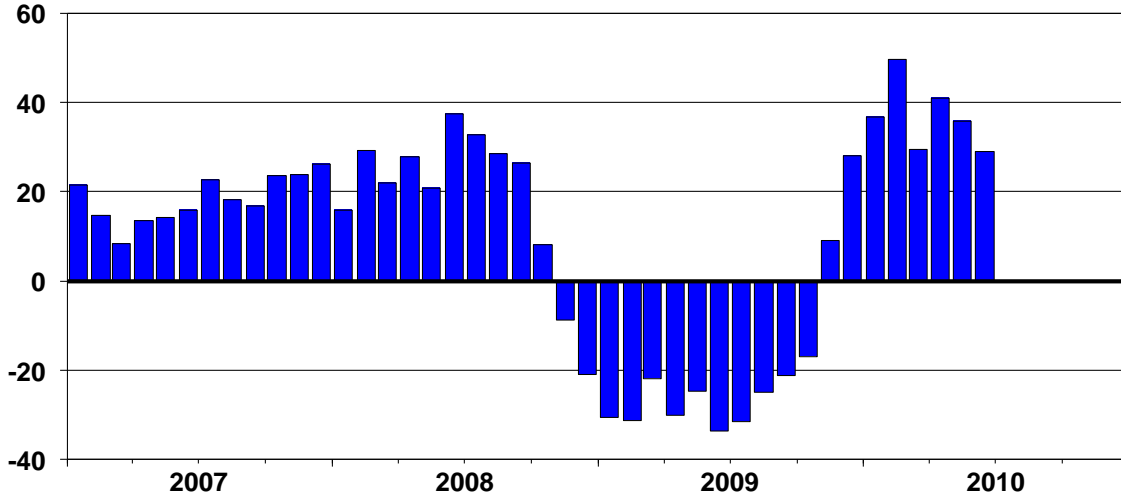
Sources: Los Angeles Economic Development Corporation, U.S. Census Bureau.

# Exports through LA customs district

## *Value of shipments by sea*



Percent change from preceding year



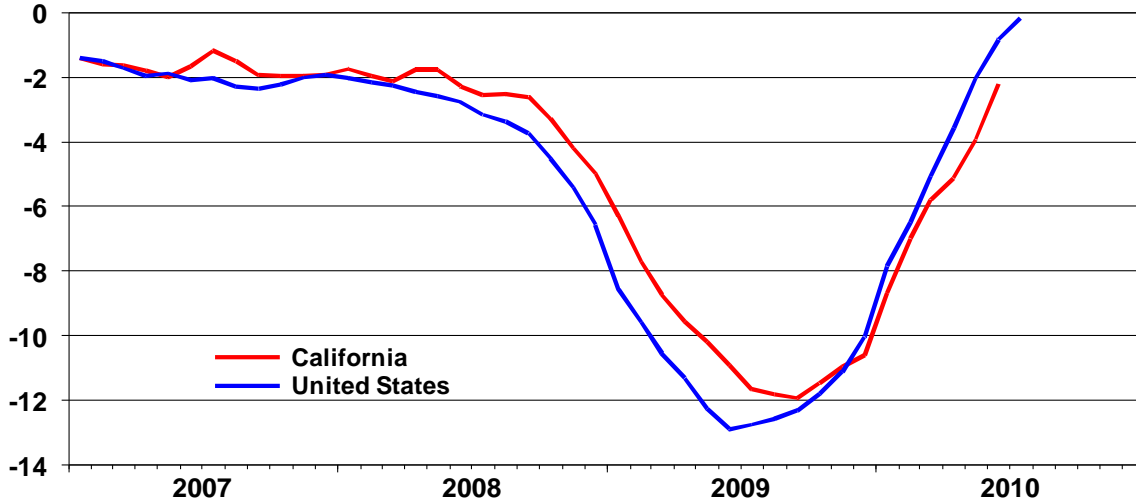
Sources: U.S. Census Bureau, Moody's Economy.com.

# Rate of manufacturing decline slows

## *Manufacturing employment*



Percent change from preceding year



Sources: Bureau of Labor Statistics, IHS Global Insight.

# Introduction: Jobs for America

## *Project outline*



MILKEN INSTITUTE

## **Improving economic and tax policy**

- **Reducing the U.S. corporate income tax rate to match the OECD average**
- **Increasing the R&D tax credit by 25 percent and making it permanent**
- **Modernizing U.S. export controls on commercially available technology products**



# Improving economic and tax policy

## *Methodology*



MILKEN INSTITUTE

- **Macro-econometric growth model of U.S. economy**
- **Long term tied to productive potential of economy**
  - **Human capital**
  - **Physical capital**
  - **Energy usage**
  - **Technological progress – R&D investment**
- **Short-run cyclical movements converge to long-run equilibrium**
- **Compare policy change scenario to a baseline projection without adjustment**

# Implications of high corporate income taxes

## *Background*



MILKEN INSTITUTE

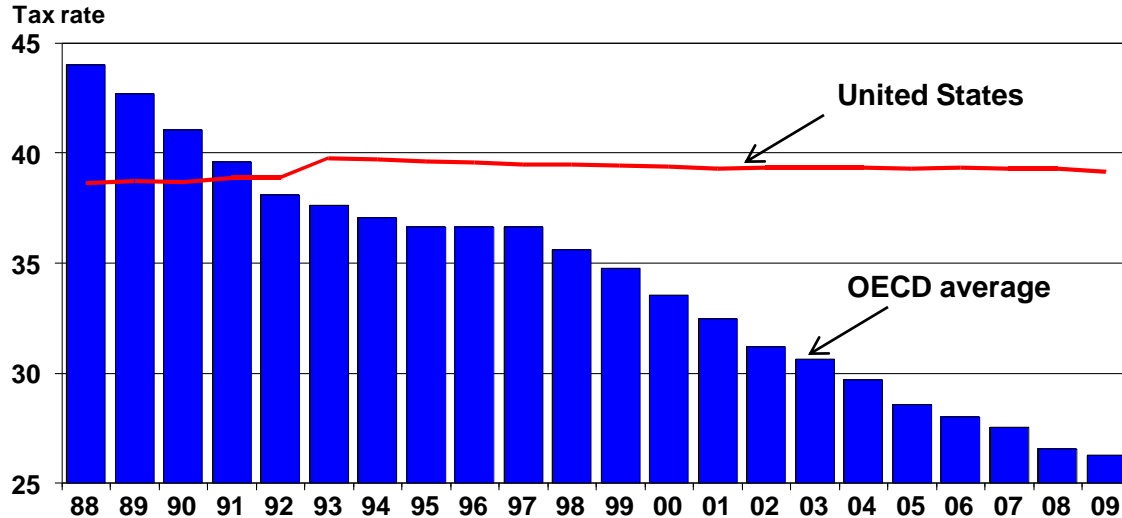
- **Globalization has altered the importance of tax and economic policy considerations.**
- **International differences in corporate income tax rates are a factor when firms determine where to locate operations.**
- **If U.S.-based multinational corporations do not find a favorable tax policy environment here, they will choose to produce more goods abroad and export fewer manufactured goods from the United States.**
- **A higher corporate tax rate lowers the hurdle rate, decreasing the long-run optimal capital investment.**
- **Internationally, a high corporate tax rate reduces the efficiency of investments.**

# Statutory corporate income tax rates

*OECD average vs. United States*



MILKEN INSTITUTE



Sources: OECD, Milken Institute.

# Empirical evidence of economic impacts of corporate tax rates



MILKEN INSTITUTE

- **Changes in international corporate tax rates have provided a rich environment for research to test impacts.**
- **Inward foreign direct investment and quality of investment.**
- **Disproportionately affect productivity growth in the economy.**
- **High rates reduce wage growth.**
- **Strong link between corporate tax rate and overall economic growth.**

# Corporate income tax policy simulation



MILKEN INSTITUTE

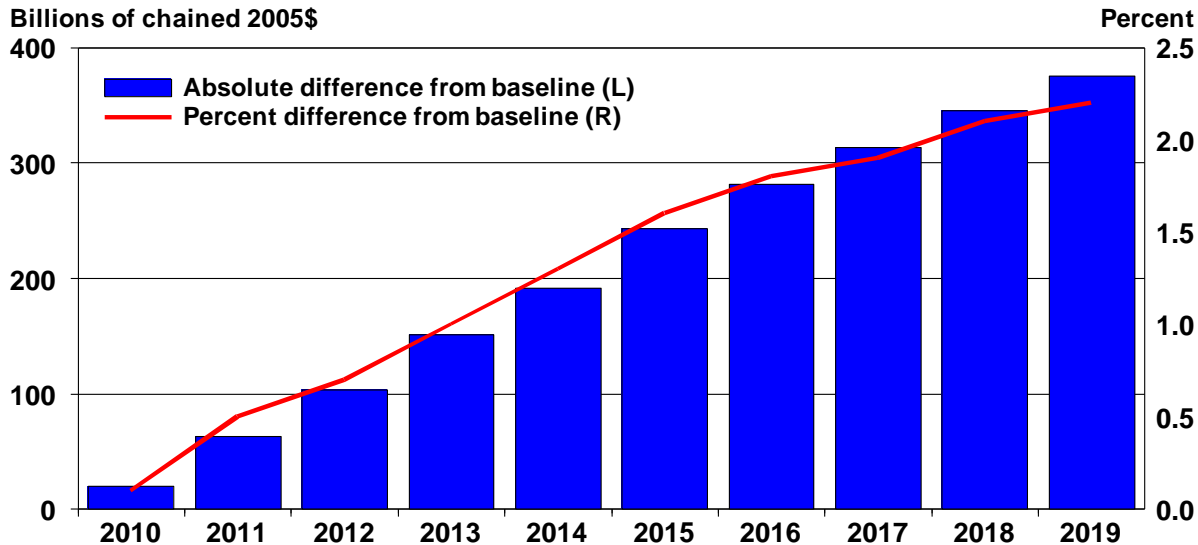
- Reduce the U.S. statutory rate to OECD average.
- Federal rate cut by 13 percentage points to 22 percent over five years.
- We compare the scenario where rates are reduced to a baseline economic projection without an adjustment.
- User cost of capital is cut making the U.S. a more attractive location to invest.
- Within two years businesses adjust investment plans.

# Corporate income tax policy simulation

*Impact on real GDP*



MILKEN INSTITUTE



Sources: U.S. Bureau of Economic Analysis, Milken Institute.

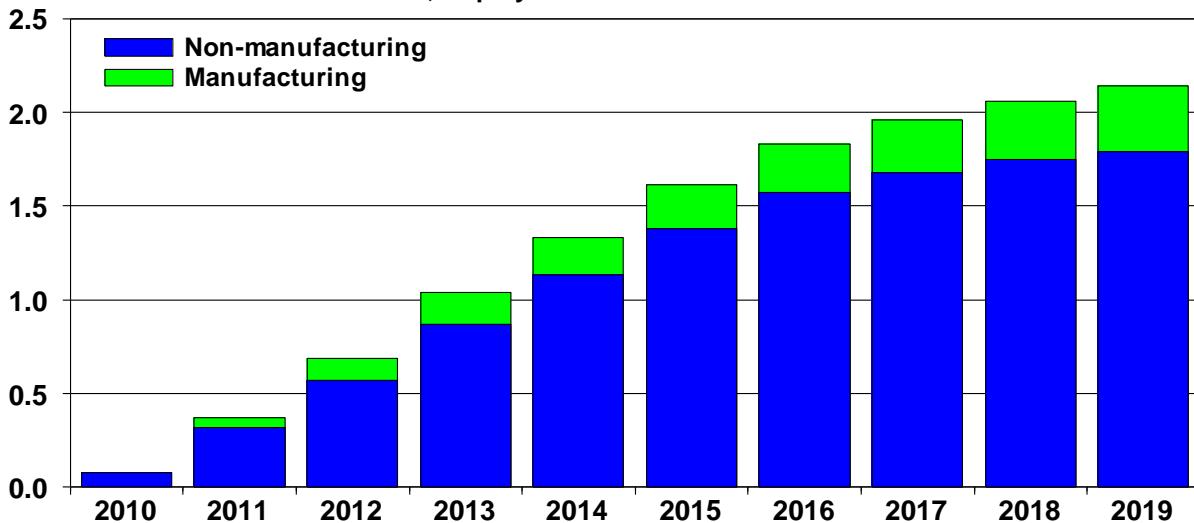
# Corporate income tax policy simulation

## *Impact on employment*



MILKEN INSTITUTE

Absolute difference from baseline, employment in millions



Sources: U.S. Bureau of Labor Statistics, Milken Institute.

# Implications of R&D tax credit

## *Background*



MILKEN INSTITUTE

- Innovation is increasingly important in a knowledge-based economy.
- Continuous research and development is essential for sustainable growth.  
--Subject to regulatory, innovation and monetary risks
- R&D tax credits encourage innovation.
- Allowing R&D tax credits to expire discourages investment in innovation.



# Tax subsidy rate for US\$ 1 of R&D

*OECD countries, large firms and SMEs, 2008*



MILKEN INSTITUTE

Rank	OECD countries	Large firms	SMEs
1	France	0.43	0.43
2	Spain	0.35	0.35
3	Portugal	0.28	0.28
4	Czech Republic	0.27	0.27
5	Turkey	0.22	0.22
6	Norway	0.21	0.23
7	Canada	0.18	0.33
8	Korea	0.18	0.16
9	Hungary	0.16	0.16
10	Denmark	0.14	0.14
19	United States	0.07	0.07
	OECD average	0.11	0.12

Source: Warda, J. (2009) "An Update of R&D Tax Treatment in OECD Countries and Selected Emerging Economies, 2008-2009".

# Empirical evidence of economic impacts of R&D tax credits



MILKEN INSTITUTE

- Strong relationship between R&D tax credits and R&D activities.
- R&D tax credits generated greatest change in R&D spending relative to other incentives.
- Across industrialized countries, increase in GDP is greater than the costs of credits.
- A study in France showed more than a tripling in R&D activities through tax credits.
- Evidence across state/provincial show a robust relationship between R&D tax credits, R&D investment and economic performance.

# R&D tax credit policy simulation

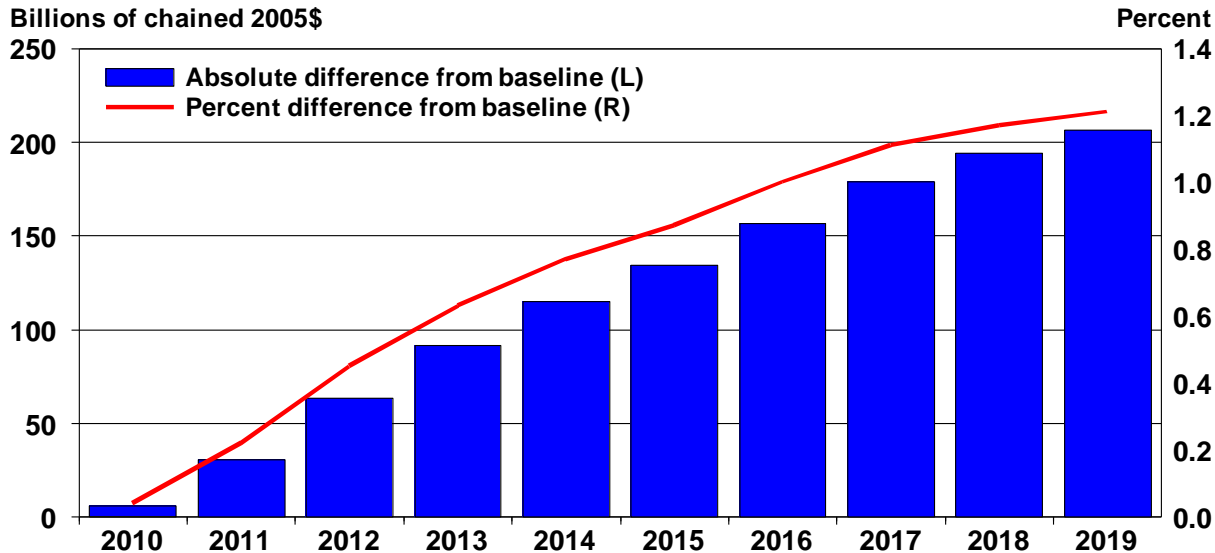


MILKEN INSTITUTE

- **Make R&D tax credit permanent and increase by 25 percent.**
- **We compare the scenario where the credit is increased to a baseline economic projection without an adjustment.**
- **After tax cost of R&D activities reduced encouraging greater investment.**
- **Dynamic feedback mechanism on economic activity.**

# R&D tax credit permanent and increased by 25 percent policy simulation

*Impact on real GDP*



Sources: U.S. Bureau of Economic Analysis, Milken Institute.

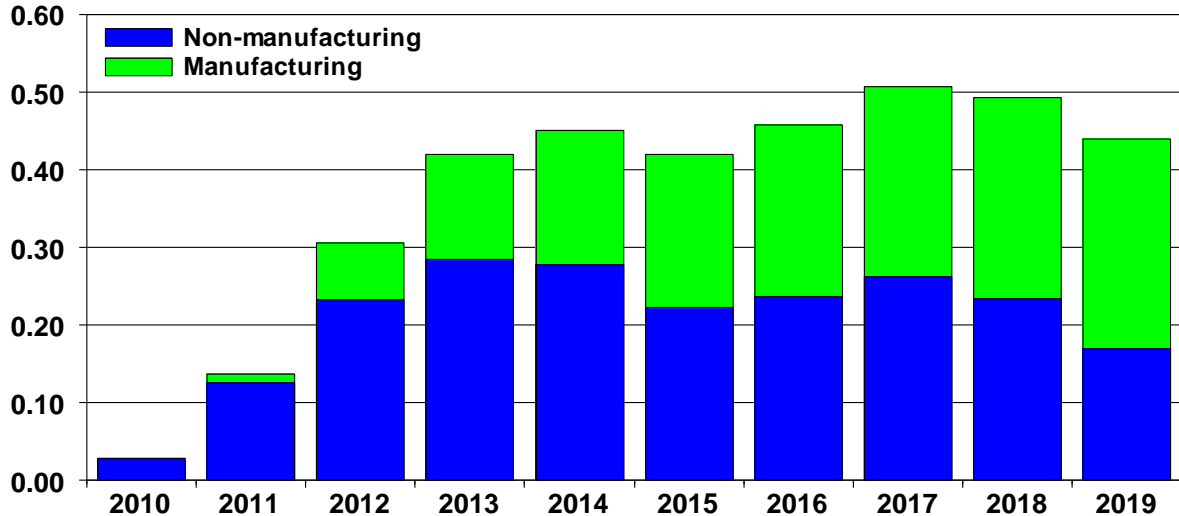
# R&D tax credit permanent and increased by 25 percent policy simulation

## *Impact on employment*



MILKEN INSTITUTE

Absolute difference from baseline, employment in millions



Sources: U.S. Bureau of Labor Statistics, Milken Institute.

# Modernizing export controls in the U.S.

## *Background*



MILKEN INSTITUTE

- **Globalization has provided the opportunity for exporting countries to tap vast new markets.**
- **For legitimate national security reasons, the U.S. placed export controls on dual-use goods and sensitive technologies.**
- **However, many of these controls reflect a Cold-war mentality.**
- **Modernizing U.S. export controls might allow:**
  - Greater exports of widely available technology to countries around the globe.**
  - Increasing technology exports that build strong linkages with user nations, creating a positive feedback loop.**
  - Maintaining a competitive edge in the world market through multilateral trade agreements rather than unilateral trade agreements.**

# Trade value of electronic integrated circuits and micro-assemblies

*China and world, 2008*



MILKEN INSTITUTE

	China's imports		World imports
	Amount (US\$ billions)	Share (percent)	Share (percent)
<b>World</b>	<b>130.8*</b>	<b>100</b>	<b>100**</b>
<b>Leading exporting countries</b>			
<b>United States of America</b>	<b>7.3</b>	<b>5.6</b>	<b>11.0**</b>
<b>Chinese Taipei</b>	<b>29.5</b>	<b>22.6</b>	<b>10.6</b>
<b>Republic of Korea</b>	<b>23.0</b>	<b>17.6</b>	<b>14.0</b>
<b>Japan</b>	<b>14.2</b>	<b>10.9</b>	<b>8.7</b>
<b>Malaysia</b>	<b>12.9</b>	<b>9.9</b>	<b>1.6</b>
<b>Philippines</b>	<b>12.0</b>	<b>9.2</b>	<b>3.6</b>
<b>Singapore</b>	<b>3.8</b>	<b>2.9</b>	<b>16.7</b>
<b>Thailand</b>	<b>2.8</b>	<b>2.1</b>	<b>1.9</b>
<b>Costa Rica</b>	<b>2.2</b>	<b>1.7</b>	<b>0.3</b>
<b>Hong Kong</b>	<b>1.8</b>	<b>1.4</b>	<b>11.7</b>
<b>Germany</b>	<b>1.3</b>	<b>1.0</b>	<b>3.5</b>

\*China's share of World imports was 30.4 percent.

\*\* Total World imports were US\$ 430.2 billion.

\*\*\* Total U.S. exports were US\$ 41.94 billion.

# Modernizing export controls simulation



MILKEN INSTITUTE

- **U.S. innovation and competitiveness in international markets improves which is an essential element of national security.**
- **Other countries will supply the commercially available technology products if the U.S. doesn't.**
- **Close the gap between U.S. market share in these nations and the world market by 50 percent.**
- **U.S. suppliers gain in third-party markets as our components would be designed into future foreign technology products which are exported.**

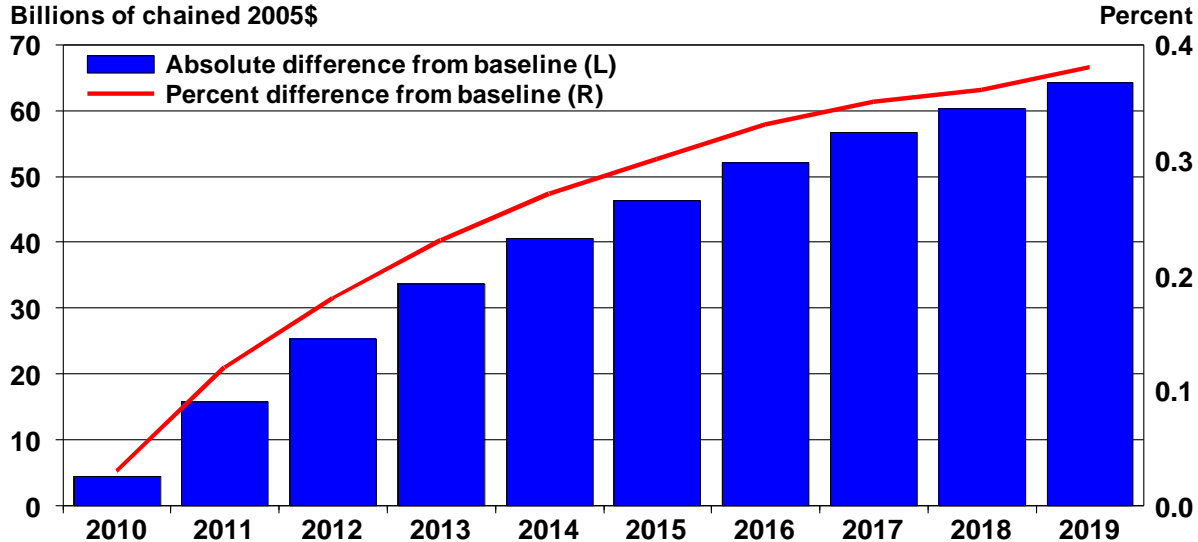


# Modernizing export controls on commercially available technology products policy simulation



MILKEN INSTITUTE

## Impact on real GDP



Sources: U.S. Bureau of Economic Analysis, Milken Institute.

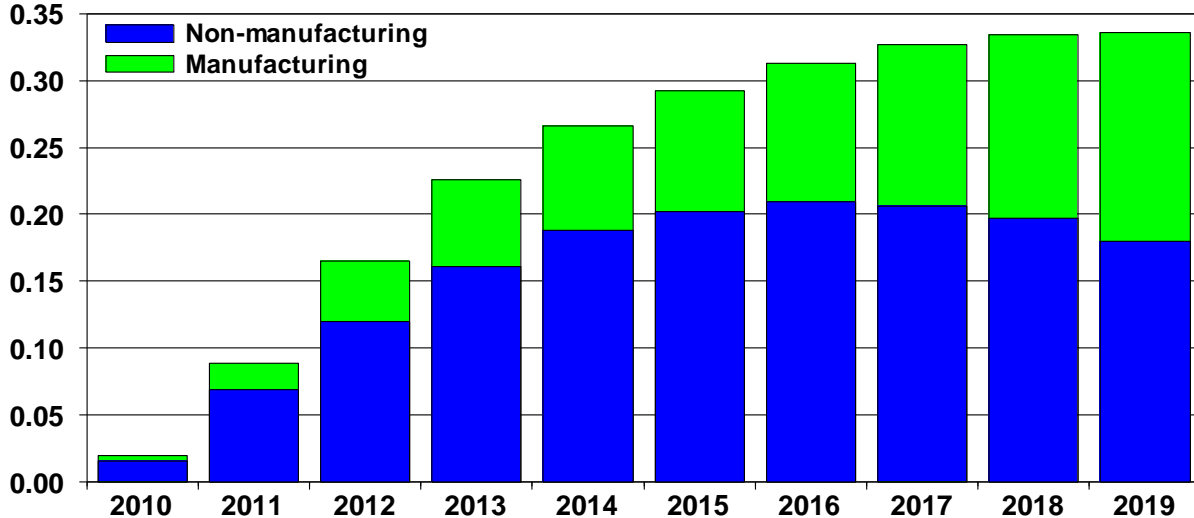
# Modernizing export controls on commercially available technology products policy simulation



MILKEN INSTITUTE

## *Impact on employment*

Absolute difference from baseline, employment in millions



Sources: U.S. Bureau of Labor Statistics, Milken Institute.

# Summary 1: A Path to Prosperity

## *Public-Private Initiatives for California*



MILKEN INSTITUTE

1. Streamline regulations, increase transparency and accountability, and encourage long-term investment through new policy tools—all of which can be achieved without relaxing a single regulatory standard.
2. Enhance public incentives through better planning, coordination across government agencies, and partnering with the private sector.
3. Launch a campaign to encourage Californians to pursue careers in manufacturing, highlighting the attributes of modern manufacturing, its importance to the economy, record of environmental stewardship and high wages.
4. Create a network of education, training, research, and business incubation centers to develop a highly qualified manufacturing work force, invent and commercialize advanced manufacturing techniques, and assist start-up businesses.
5. Develop a public-private initiative to conduct research, develop new technologies and processes, and commercialize more efficient and environmentally sustainable manufacturing practices with incentives to facilitate adoption of new standards.

# Summary II: National Initiatives



MILKEN INSTITUTE

## *Policies to boost exports and manufacturing*

1. Small businesses need access to bank credit to create jobs.
2. Push trade deals with South Korea, Colombia and Costa Rica through Congress.
3. Modernize Cold War–era restrictions on exports of technology products and services.
4. Restore the lapsed R&D tax credit (even better, expand the credit and make it permanent).
5. Reduce the U.S. corporate income tax rate to match the OECD average