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**Attorneys for Proposed Intervenor-Defendant  
The National Association of Manufacturers**

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

ALEC L., et al.,	)	Case No. 3:11-cv-02203-EMC
	)	
<i>Plaintiffs,</i>	)	Assigned to: Edward M. Chen
	)	
vs.	)	<b>DECLARATION OF DR. CHAD</b>
	)	<b>MOUTRAY OF THE NATIONAL</b>
LISA P. JACKSON, et al.,	)	<b>ASSOCIATION OF MANUFACTURERS</b>
	)	<b>IN SUPPORT OF MOTION FOR</b>
<i>Defendants.</i>	)	<b>INTERVENTION</b>
	)	
	)	Date: November 28, 2011
	)	Time: 2:30 p.m.
	)	Place: Courtroom 5, 17th Floor

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

ALEC L., et al.,

*Plaintiffs,*

vs.

LISA P. JACKSON, et al.,

*Defendants.*

) Case No. 3:11-cv-02203-EMC

)

) DECLARATION OF DR. CHAD MOUTRAY  
) OF THE NATIONAL ASSOCIATION OF  
) MANUFACTURERS IN SUPPORT OF  
) **MOTION FOR INTERVENTION**

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1. I make this Declaration in support of the motion filed by the National Association of Manufacturers (the NAM) to intervene in the above captioned case. In this case, WildEarth Guardians, Kids vs. Global Warming and five of individuals (collectively Plaintiffs) have asked this Court to issue an injunction forcing six federal agencies (Defendants) to submit a:

Climate Recovery Plan to this Court setting forth the means to implement the necessary emissions reductions by January 1, 2013 to meet the following reduction trajectory: (1) not allowing United States carbon dioxide (“CO2”) emissions to exceed levels existing as of September 1, 2011; and (2) prohibiting significant deviation from the benchmark mitigation scenario of a minimum 6% annual CO2 reduction trajectory to return atmospheric CO2 levels to 350 ppm by December 31, 2099.

See Alec L., *et al.*, Plaintiffs’ Notice Of Motion And Motion For Preliminary Injunction And Memorandum Of Points And Authorities In Support Thereof (PI Motion) at 1 (Dkt. #24) (emphasis omitted). Plaintiffs also appear to be seeking to force the complete elimination of the use of conventional fossil fuels in the United States and a nationwide “transition to an almost fully renewable energy system by at least 2050.” PI Motion at 9; *see also* Alec L., *et al.*, Amended Complaint for Declaratory and Injunctive Relief (Compl.) at 35 (Dkt. #4).

2. The purpose of this Declaration is to provide my testimony on the impacts on the NAM's members should Plaintiffs be successful in forcing the economy-wide sea change in energy policy that they are seeking.

**I. Qualifications and Background**

3. I am currently chief economist at the National Association of Manufacturers (NAM). In this role, I serve as the NAM's economic forecaster and spokesperson on economic issues. I contribute forecasts, insights and opinions about U.S. economic trends and policies through quarterly surveys and interviews that focus on financial and industry trends and policies impacting America's industrial base and its ability to contribute to job creation and global competitiveness. I have studied the impacts of higher costs, including those arising from new regulations, taxes and increased liability under the legal system, on the ability of U.S. manufacturers to compete in the global economy. A true and accurate copy of my resume is attached as Attachment 1.
4. I spent the year prior to joining the NAM in April 2011 as president of Pinchfield Consulting & Analytics, LLC where I conducted economic research and analysis, much of which was focused on the issues faced by franchisors and franchisees.
5. From 2002 through 2010, I worked at the U.S. Small Business Administration (SBA), Office of Advocacy, first as Director of Economic Research and then as Chief Economist. I was directly responsible for the development and administration of the SBA's economic research agenda as it related to the role that entrepreneurs play in the economy and policy-relevant issues that are central to small business owners. I was responsible for increasing the awareness of the Office of Advocacy and its research, which included coordinated outreach with academics and policymakers and numerous speeches on small business economic trends.
6. Before my work at SBA, I spent roughly a decade in academia, which was capped by being named Dean of the School of Business Administration at Robert Morris College in Chicago, Illinois (now Robert Morris University of Illinois, effective May 2009) in 1997. I served in that role through late 2002.
7. I received my Ph.D. in Economics in 1996 from Southern Illinois University at Carbondale. I received an M.A. and B.A. in economics from Eastern Illinois University and an A.S. in Business Administration from Lake Land Community College.

## **II. National Association of Manufacturers**

8. The National Association of Manufacturers is the nation's largest industrial trade association, representing small and large manufacturers in every industrial sector and in all 50 states. The NAM's mission is to enhance the competitiveness of manufacturers by shaping a legislative and regulatory environment conducive to U.S. economic growth and to increase understanding among policymakers, the media and the general public about the vital role of manufacturing to America's economic future and living standards. The NAM and its members are strongly affected by laws governing the manufacturing sector and regulatory restrictions on development, emissions and manufacturing. The NAM's members are already subject to many regulations addressing air emissions, including a number that focus squarely on GHG emissions.
9. The economic effects that would result from requiring sweeping measures to reduce GHG emissions are of great concern to the NAM. The NAM Board of Directors, a group of more than 200 representatives from member companies throughout the country, voted in 2008 in support of the following policy on the regulation of GHG emissions:

### **Climate Change**

The NAM understands the fundamental importance of protecting the environment. Our member companies are committed to greater environmental sustainability, including energy efficiency and conservation and reducing greenhouse gas emissions associated with global climate change. We know we cannot solve the climate change issue alone. The U.S. Congress must engage in a thorough and transparent deliberative process for establishing federal climate change policies to reduce greenhouse gas emissions, while maintaining a competitive level playing field for U.S. companies in the global marketplace. These Principles can help us achieve that goal.

## **III. The NAM's Members**

10. The NAM has more than 12,000 members across all major industrial sectors of the U.S. economy. The NAM's members include many of the leading members of the coal, oil and natural gas sectors, petroleum refiners, and petrochemical producers. Hundreds of the NAM's members have indicated that they conduct oil and gas extraction or conduct petroleum and coal products manufacturing, and over 150 members have indicated those areas represent their primary business. Further, the NAM's members also make tools and equipment that are used in the production and refining of conventional fuels. In addition, many of the NAM's members directly emit greenhouse gases either as a product of their manufacturing processes or through the

combustion of fuels at their facilities. Finally, most, if not all, of the NAM's manufacturing companies are heavily reliant on the availability of reasonably-priced and reliable energy.

### **III. The Manufacturing Sector**

11. The manufacturing sector produces \$1.6 billion of value each year, or 11.2 percent of U.S. gross domestic product, employing nearly 12 million workers. In addition, over 5 million employees are indirectly employed by the other sectors as a result of manufacturing activity. Manufacturers account for roughly 60 percent of U.S. exports and perform two-thirds of all business research and development in the country, which is critical to our nation's long-term productivity growth and economic viability.
12. The manufacturing sector was one of the hardest hit during the recession, losing 2.3 million workers between December 2007 and December 2009. This represented over one-quarter of all of the net nonfarm payroll losses during that timeframe. Since then, manufacturing has gained 285,000 jobs, but still remains roughly 15 percent below its pre-recessionary employment levels. Over that same time frame, manufacturing industrial production declined 17 percent, and while production has increased 9.9 percent over the course of the past 21 months, it also remains below its peak.
13. As noted, manufacturing has been one of the stronger elements of the recovery, making significant contributions to real GDP and to net employment since the end of 2009. In fact, the manufacturing sector's net job gains account for over 16 percent of the total increase in nonfarm payrolls during that time, signifying their outsized role (given that the industry accounts for roughly 9 percent of total employment). In addition, the consumption of durable and nondurable manufactured goods contributed almost 1 percentage point to real GDP in 2010, or one-third of the 3 percent increase for the year. Moreover, the export of goods added another 1.3 percent. (Because of faster growth in imports, however, net exports provided a drag on real GDP of 0.5 percent.)
14. The current economic environment remains tenuous. While manufacturing was growing strongly in the first quarter of 2011, there have been a number of headwinds since then which have provided weaknesses. These include supply-chain disruptions stemming from the Japanese earthquake and tsunami, rising energy and raw material prices, dampened business and consumer confidence, uncertainties regarding U.S. tax and regulatory policies and financial pressures in European markets. A number of manufacturing indicators reflected a deteriorating (or in some

cases, contracting) situation over the course of the last few months. While there has been some improvement since then, manufacturers remain anxious, but cautiously optimistic about the next six months to one year.

15. On the most recent *NAM/IndustryWeek Survey of Manufacturers*,<sup>1</sup> respondents were less optimistic about current and future conditions than on previous surveys. The top concern, cited by nearly 65 percent of manufacturers, was the weak domestic economy. This was followed by a perceived unfavorable tax and regulatory climate (61 percent) and rising raw energy and raw material costs (51 percent).

#### **IV. Impact of Plaintiffs' Proposed GHG Regulation on the Manufacturing Sector**

16. If Plaintiffs succeed in eliminating or massively reducing U.S. conventional fuel consumption and imposing other severe restrictions on GHG emission limits, the impact on the NAM's members will be significant and varied.
17. The dramatic reductions in conventional fuels that Plaintiffs seek is clearly a central business concern to the NAM's members that are oil, coal and natural gas producers, petroleum refiners, and petrochemical producers, and to those manufacturing companies that make the tools and components critical to such industries. The short-term impacts of the Plaintiffs' demands—a capping of emissions at 2011 levels by January 1, 2013 and 6% annual reductions in CO<sub>2</sub> emissions—would immediately harm these companies. Further, if Plaintiffs are successful in forcing the ultimate elimination of conventional fuels, these companies will presumably need to find new lines of business in order to survive and/or move their operations to other countries that do not impose similar restrictions and controls on conventional fuels.
18. Further, Plaintiffs' demands have the potential to harm the NAM's members that rely on conventional fuels to power their manufacturing processes. These businesses have significantly invested in the infrastructure necessary to effectively and efficiently utilize, transport and combust particular conventional fuels. Further, many companies directly emit GHGs either through energy combustion or through manufacturing processes themselves. The elimination of conventional fuels would require these NAM members—at a minimum—to re-engineer their

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<sup>1</sup>

[http://www.industryweek.com/articles/nam/iw\\_q3\\_survey\\_manufacturer\\_outlook\\_still\\_positive\\_but\\_optimism\\_wanes\\_25580.aspx](http://www.industryweek.com/articles/nam/iw_q3_survey_manufacturer_outlook_still_positive_but_optimism_wanes_25580.aspx)

manufacturing processes and invest substantial capital, frequently at the cost of hundreds of millions if not billions per facility, in converting their facilities to new sources of power, assuming alternative reliable energy were even available.

19. The unprecedented GHG reductions that Plaintiffs are seeking will harm the U.S. manufacturing sector by driving up input costs for manufacturers. Requiring GHG emitters in the aggregate to abruptly cap GHG emissions at 2011 levels and then reduce emissions by 6% per year will likely drive up business costs, as companies scramble to achieve those reductions. The costs incurred in other sectors of the economy from these new regulations, such as the utility sector (which faces far less global competition than the manufacturing sector) will be transferred to the manufacturing companies, regardless of whether they are emitters of GHG, through higher electricity costs. These higher costs, which are outside the control of manufacturers, will exacerbate a global competitive disadvantage that is currently a significant problem for manufacturers operating in the United States. Non-production costs in the areas of taxes, energy, and regulatory compliance are much higher in the United States than in other major industrial countries. According to the latest report by the Manufacturing Institute (see Attachment 2), these structural costs create a 20 percent cost burden on U.S. manufacturers compared to our major global rivals. Absent these excess structural non-production costs, U.S. manufacturers would actually enjoy a cost advantage over most of their industrial competitors. If Plaintiffs are successful in their suit, the dramatic GHG restrictions they propose will likely add overwhelming structural non-production costs on U.S. manufactures that will reduce further their global competitiveness and market share both domestically as well as in other economies. As a less competitive location to produce, the U.S. manufacturing sector will be smaller and employ fewer workers, as companies will be encouraged to locate facilities and operations in other countries outside the regulatory reach of the United States.
20. A study by the American Council for Capital Formation and the NAM showed the impact on the economy from higher energy prices. While the study's focus was on the effects of higher energy prices from the cost of emission allowances associated with climate change policy, the major finding of the study—that higher energy prices reduces U.S. employment—is relevant to Plaintiffs proposed GHG reduction requirements, since the reductions will increase the cost of energy, a structural non-production cost, on U.S. manufacturers.
21. Manufacturing is the most globally engaged and influenced sector of the U.S. economy. In contrast to most other major sectors of the economy, which may face competition from, or

attempt to increase sales to, another area of the state or country, U.S. manufacturers face competition and opportunities from around the world. This engagement has increased significantly over the past few decades.

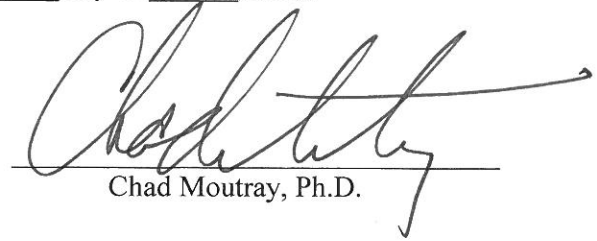
22. For instance, in 1972, 8 percent of U.S. manufacturing production was exported to markets abroad, while imports accounted for 8 percent of domestic purchases of manufactured products. By 2008, more than a quarter of U.S. manufacturing was exported while imports increased to 38 percent of domestic purchases of manufactured products. With U.S. manufacturing being more trade-sensitive than other sectors of the economy, increasing cost on U.S. manufacturers, without offsetting productivity increases, will reduce U.S. manufacturers' global competitiveness which will lead to higher import penetration and lower exports. Together, these effects will lower the level of domestic manufacturing output and employment.
23. Making the United States a more expensive place to build and operate a manufacturing plant, as well as disrupting reliable sources of energy and infrastructure, will discourage foreign companies' willingness to locate plant and facilities in the United States. This reduction in investment would have a significant negative effect on manufacturing. Nearly half (43 percent) of the value added in the U.S. economy coming from U.S. affiliates of foreign multinationals was in the manufacturing sector in 2006. During 2006, nearly one-sixth (16.2%) of U.S. manufacturing total output (value added) was generated by U.S. affiliates of foreign multinationals operating in the United States. Overall, U.S. affiliates of foreign multinationals employed 5.3 million workers in 2006 (latest year available), accounting for 4.5 percent of private sector employment. Of this total, a third were employed in manufacturing, where the 1.7 million manufacturing workers employed at U.S. affiliates of foreign multinationals accounted for 12 percent of overall employment in manufacturing that year. Not only was the level of employment in manufacturing at least 3 times greater than levels at U.S. affiliates in other sectors of the economy, the number of manufacturing workers employed at these U.S. affiliates was greater than the total employment in each and every one of the 19 major manufacturing industries.
24. Thus, making the United States a comparatively more expensive location to operate a facility would have a more adverse effect on the manufacturing sector than other sectors of the economy, since manufacturing is more dependent on foreign investment than other sectors of the economy. In addition, reducing the competitiveness of the United States as a place to manufacture will have a negative long-term impact on the U.S. economy for another reason: productivity. In 2005, the



latest year available, U.S. affiliates of foreign multinationals performed \$31 billion of Research and Development (R&D) activities, and 69 percent of this took place in manufacturing. This \$21 billion of R&D activities performed by U.S. manufacturing affiliates accounted for 10 percent of the total R&D performed by all businesses in the United States. Reducing the United States' attractiveness as a location to manufacture will also have an adverse impact on R&D, which is a fundamental source of higher productivity, which leads to better quality employment and higher paying jobs for working Americans.

25. Based on the significant potential impacts that GHG regulation would have on the NAM's members, the NAM has actively engaged with the administration, Congress and the courts on the ongoing debate relating to climate change controls. This has involved providing extensive—and sometimes critical—comments on the range of GHG regulations that Defendants have proposed and finalized over the last several years. A selection of NAM's administrative comments are available at <http://www.nam.org/Issues/Energy-and-Climate/EPA-Overregulation.aspx>.
26. In addition, the NAM has been forced to challenge a number of Defendant's GHG regulations in court, including a number of the major rules issued by the Environmental Protection Agency to regulate GHG emissions. A selection of documents from NAM's various court challenges to GHG regulations is available at [http://namissvr.nam.org/minisites/epa/index.aspx?utm\\_source=nam&utm\\_medium=alias&utm\\_campaign=EPAminisite](http://namissvr.nam.org/minisites/epa/index.aspx?utm_source=nam&utm_medium=alias&utm_campaign=EPAminisite).
27. At the same time, the NAM is committed to working with Congress to establish climate and energy policies that will help protect the environment, while at the same time ensuring a reliable source of low-cost energy. It is critical to do so in a way that does not impose extraordinary burdens on our struggling economy and put manufacturers in the United States at a competitive disadvantage and jeopardize the very viability of the sector in the future.

I, Chad Moutray, declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed this 31st day of Oct., 2011.



Chad Moutray, Ph.D.

**Declaration of Chad Moutray**

# **Attachment 1**

## **CHAD MOUTRAY, Ph.D.**

175 Martin Lane  
Alexandria, Virginia 22304  
[moutray@comcast.net](mailto:moutray@comcast.net)  
(Home) 703-751-1027  
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### **Professional Experiences**

#### **National Association of Manufacturers (NAM), Washington, DC**

*Chief Economist (April 2011 – Present)*

I am responsible for providing regular updates on the economy pertaining to the U.S. manufacturing sector, including regular briefings with senior NAM management, written analysis on the web (e.g., ShopFloor blog posts, Monday economic reports to member companies, NAM/*IndustryWeek* Survey of Manufacturers), and professional speeches. In addition, I work with others in the Policy & Government Affairs division to analyze regulatory and legislative actions to ascertain their impacts to manufacturers. I created an Economic Forum for NAM members that brought together senior-level economists in the manufacturing community to dialogue about and assess economic and policy issues of importance to the industry; the first meeting was in October 2011.

#### **Pinchfield Consulting & Analytics, LLC, Alexandria, VA**

*President (April 2010 – April 2011)*

I conducted economic research and analysis for two clients: the International Franchise Association and the Ewing Marion Kauffman Foundation. This work included planning a conference on access to credit issues for franchisors and franchisees, writing a white paper on the importance of franchises, and contributing regular analysis to the Policy Dialogue on Entrepreneurship.

#### **U.S. Small Business Administration (SBA), Office of Advocacy, Washington, DC**

*Chief Economist (October 2002 – May 2010)*

*Director of Economic Research (October 2002 – December 2010)*

This Director-level position reports directly to the Chief Counsel for Advocacy, a Presidential appointee confirmed by the U.S. Senate. I am directly responsible for the development and administration of the economic research agenda as it relates to the role that entrepreneurs play in the economy and policy-relevant issues that are central to small business owners. I supervise seven economists and maintain a \$1.1 million research budget for contracted research and data. I am also responsible for increasing the awareness of the Office of Advocacy and its research, which can be found online at [www.sba.gov/advo/research](http://www.sba.gov/advo/research). This includes coordinated outreach with academics and policymakers and numerous speeches on small business economic trends. My accomplishments in this role include:

- Providing monthly updates on economic trends to the SBA Administrator (mainly for Administrator Steven Preston, 2007-2008, with other briefings more periodic upon request).
- Establishing a working paper series to promote internal research amongst the staff economists.
- Publishing *The Small Business Economy: A Report to the President* on an annual basis and commissioning external academics to write chapters, thereby increasing its overall relevance.
- Organizing conferences with various co-sponsors, such as the Ewing Marion Kauffman Foundation, the Council on State Governments, the National Lieutenant Governors Association, the National Federation of Independent Business, the Edward Lowe Foundation, and the Urban Entrepreneur Partnership.

#### **Robert Morris College, Chicago, Illinois (now Robert Morris University of Illinois, effective May 2009)**

*Dean, School of Business Administration (December 1997 – September 2002)*

*Economics/Finance Faculty Member (September 1996 – September 2002)*

As Dean, I served in a Vice President-level position reporting directly to the Senior Vice President for Academics. The School of Business Administration was the largest academic division with 60 percent of the college's 5,000

students institutionally. I hired and evaluated 40 full-time faculty members and over 100 adjuncts. An Associate Dean assisted me with various projects including supervision of the adjunct faculty members. The Dean is ultimately responsible for curriculum development and academic outcomes, and as such, I supervised seven curriculum chairs, the Director of the Business Institute, and facilitators of the school's assessment program. I maintained the academic budget of the business division and coordinated budgets of other academic divisions (in concert with the Senior VP) -- \$12 million overall. During my tenure, academic enrollment grew 50 percent, due mainly to new programs and the opening of additional campuses. Other accomplishments include:

- Creating an MBA program, which ultimately began accepting students after my departure (February 2006) but utilized much of our early framework.
- Establishing the Business Institute, which worked with the business community to establish student internships and practical classroom projects (e.g., marketing or strategic plans for the business) that would provide the student body with real-world experiences.
- Creating and chairing advisory boards for the school's business and paralegal programs.
- Serving on the steering committees for the college's regional accreditation renewal self-study, and working to renew program-level accreditation.

**Kasem Bundit University, Bangkok, Thailand**

*Visiting Professor, Economics/Finance (July – August 1997)*

**John A. Logan Community College, Carterville, Illinois**

*Adjunct Faculty Member, Economics & Other Business Courses (August 1994 – May 1996)*

**Southern Illinois University at Carbondale, Carbondale, Illinois**

*Teaching Assistant, Economics (August 1992 – May 1996)*

**Eastern Illinois University, Charleston, Illinois**

*Graduate Assistant, Economics (August 1991 – May 1992)*

**Educational Background**

Ph.D., Economics (1996) – Southern Illinois University at Carbondale, Carbondale, Illinois

Fields of Concentration:     International Trade & Finance  
    Monetary Economics  
    Economics of Education (Untested)  
 Dissertation: “Assessing the Performance of Market-Based Education Reforms”

M.A., Economics (1992) – Eastern Illinois University, Charleston, Illinois

B.A., Economics (1991) – Eastern Illinois University, Charleston, Illinois

A.S., Business Administration (1989) – Lake Land Community College, Mattoon, Illinois

**Office of Advocacy Publications**

The Office of Advocacy of the U.S. Small Business Administration released nearly 200 reports during my tenure as Chief Economist & Director of Economic Research. I oversaw each of these projects, either directly as a contracting officer's technical representative (COTR) or indirectly in my capacity as Director. For a chronological listing of these studies, see <http://www.sba.gov/advo/research/chron.html>. In addition, I was responsible for drafting or coordinating some periodic publications, including the following:

- *The Small Business Economy: A Report to the President.* Annual from 2001-2002 to Present.
- “The Small Business Economy.” Chapter 1. Annual from 2008 to Present.
- “Profile of Small Business and International Trade.” Chapter 4. 2008.
- “Quarterly Indicators: The Economy and Small Business.” Quarterly from First Quarter 2004 to Present.
- “Frequently Asked Questions: Small Business by the Numbers.” Annually from 2003 to Present.
- “Research Resources.” Periodic from 2004 to Present.

### **Professional Speeches**

As part of my role as the Chief Economist in the Office of Advocacy and with the National Association of Manufacturers, I gave regular speeches on the state of the economy and other topics. The following are some of the highlighted speeches, listed alphabetically:

- American Legion, Small Business Task Force, Washington, DC. March 2009.
- Association of Small Business Development Centers, Alexandria, VA. March 2007.
- Chicago Association for Business Economics, Chicago, IL. November 2011.
- Chicago Council on Global Affairs, Chicago, IL. June 2011.
- Collegiate Entrepreneurs Organization, Chicago, IL. November 2003.
- Confindustria Imprese, General Assembly, Rome, Italy. June 2007.
- Eastern Illinois University, Lumpkin School of Business, Executive-in-Residence, Charleston, IL. November 2003.
- George Washington University, Howard Hoffman Distinguished Lecture Series, Washington, DC. October 2008.
- Governor's Entrepreneurial Business Conference, Wilmington, DE. June 2009.
- Greater Cleveland Association, Council on Small Enterprises, Cleveland, OH. December 2002.
- Illinois State Microenterprise Initiative, Chicago, IL. November 2008.
- Institute of Business Appraisers Business Valuation Conference, Orlando, FL. May 2005.
- International Assembly for Collegiate Business Education, Orlando, FL. April 2006.
- KPMG 2011 Insights Summit, Chicago, IL. November 2011.
- Maryland Biz Expo, Maryland Association of CPAs, Baltimore, MD. June 2009.
- National Association for Community College Entrepreneurship, Orlando, FL. January 2007.
- National Association of Development Companies, Washington, DC. March 2009.
- National Association of Regional Councils' National Conference of Regions, Washington, DC. February 2007.
- National Club Association Annual Meeting, Washington, DC. March 2008.
- National Dialogue on Entrepreneurship, "Box Lunch Briefings," Washington, DC. January 2005.
- National Economists Club, Washington, DC. October 2004, January 2006, December 2006, and December 2008.
- National Minority Business Council, New York, NY. June 2008.
- National Women's Business Council, Women's Business Summit, Washington, DC. February 2009.
- Richmond Association for Business Economics, Richmond, VA. May 2010.
- Robert Morris College, President's Leadership Forum, Chicago, IL. May 2003.
- Rotary Club of Washington, DC. December 2007 and February 2009.
- SAP Advanced Manufacturing Summit, Chicago, IL. October 2011.
- Shenandoah University, Byrd School of Business, Byrd Distinguished Lecture Series, Winchester, VA. October 2006.
- Small Business Leadership Summit (organized by Moran Media), New York. December 2008.
- UnitedHealthcare, Sales Leadership Meeting, Minneapolis, MN. April 2007.

### **Publications**

#### ***Professional***

- "Linking Franchise Success with Economic Growth and Net Job Creation." White Paper. International Franchise Association. April 2011.
- "The Determinants of Rural and Urban County-Level Establishment Changes." Working Paper. U.S. Small Business Administration, Office of Advocacy. Forthcoming, 2011.
- "Educational Attainment, 'Brain Drain,' and Self-Employment: Examining the Interstate Mobility of Baccalaureate Graduates, 1993-2003." Working Paper. U.S. Small Business Administration, Office of Advocacy. December 2009.
- "Start-up Resources Entrepreneurial Discontinuance: The Case of Nascent Entrepreneurs" with Jianwen (Jon) Liao and Harold Welsch. *Journal of Small Business Strategy*, 19(2), 2008/2009, 1-15.
- "Looking Ahead: Opportunities & Challenges for Entrepreneurship and Small Business Owners." *Western New England Law Review*, 31(3), 2009. pp. 763-780. (Also an Advocacy working paper, October 2008.)
- "Baccalaureate Education and the Employment Decision: Self-Employment and the Class of 1993." Working Paper. U.S. Small Business Administration, Office of Advocacy. October 2008.
- "Educational Attainment and Other Characteristics of Self-Employment." Working Paper. U.S. Small Business Administration, Office of Advocacy. December 2007.

“The Government’s Role in Aiding Small Business Federal Subcontracting Programs in the United States.”

Working Paper with Major Clark, III, and Radwan Saade. U.S. Small Business Administration, Office of Advocacy. October 2006.

“The Future of Small Businesses in the U.S. Federal Marketplace” with Major Clark, III. *Journal of Procurement Policy*, 4(3), 2004. pp. 450-470. (Also an Advocacy working paper, December 2004.)

“Evaluating Performance in Chicago Public Schools in the Wake of Decentralization” with Shawna Grosskopf. *Economics of Education Review*, 20(1), February 2001. pp. 1-14.

#### ***Personal***

*My Life with Laura: A Love Story*. Lulu Publishing (self-published memoir). 2008.

#### **Conference and Other Presentations**

“Baccalaureate Education and the Employment Decision.” United States Association for Small Business and Entrepreneurship (USASBE) annual meeting. January 2009.

“Looking Ahead: Political Outcomes and Entrepreneurship Policy.” Western New England College of Law and Business Center for Advancing Entrepreneurship annual meeting. October 2008.

“Educational Attainment and Other Characteristics of the Self-Employed.”

- USASBE annual meeting. January 2008.
- Hudson Institute. December 2007.

Discussant, William Baumol Special Session on Entrepreneurship, Innovation, and Growth II: Empirical Approach. American Social Sciences Association meetings. January 2006.

Panelist, Workshop on Regulation. International Council on Small Business meetings. June 2005.

Chair, Panel Discussion on Small Business Data Sources. Eastern Economic Association meetings. February 2004.

Chair, Panel Discussion on Small Business Regulation. USASBE annual meeting. January 2004.

Chair, Panel Discussion on Data. Women’s Small Business Research Roundtable sponsored by U.S. Small Business Administration’s Office of Advocacy, Office of Women’s Business Ownership, and the National Women’s Business Council. March 2003.

“Evaluating Performance in Chicago Public Schools in the Wake of Decentralization” with Shawna Grosskopf. Presented at the Midwest Economic Association conference, March 1996; INFORMS conference, May 1996; and the Southern Economic Association meetings, November 1996.

Chair, “Issues in School Performance and Finance” session. Illinois Economic Association meetings. October 1996.

#### **Awards**

Distinguished Alumni Society Member, Lake Land Community College, Mattoon, Illinois (Inducted April 2007)

Office of Advocacy Spot Awards (July 2005, September 2005, September 2006)

Eastern Illinois University Lumpkin School of Business Executive-in-Residence (November 2003)

#### **Memberships**

American Economic Association

National Association of Business Economists (NABE)

National Economics Club

#### **Professional/Community Service**

National Economists Club

- Board of Governors (Liaison with NABE, 2008; Chairman, 2010; Ex-Officio Member, 2011-2013)
- Member (President, 2009)

National Association for Business Economics

- Board of Governors (2009-2011)
  - Chapters Committee (Chair, 2010; Member, 2011)
  - Policy Survey Committee (Member, 2010; Chair, 2011)

- Small Business & Entrepreneurship Roundtable (Founder & Chair, 2010)
- Get Connected Chapters Committee (Chair, 2008)

First Baptist Church of Alexandria

- Deacon (2009 – Present)
- Finance Committee (Secretary, 2010; Member, 2011-2012)
- FBCA Foundation Board (Member, 2011-2013)

Oakland Hall at Cameron Station Condominium Association

- Board of Directors (Secretary, 2007; Member-at-Large, 2008)

Junior Achievement of the National Capital Area (2004–2005)

- Taught economics to T.C. Williams (Alexandria, Virginia) high school students

Midtown Educational Foundation (2000–2002)

- Tutor/mentor an inner city 4th through 6th grade boy in various subjects

**References Available Upon Request**

*\*\* Revised June 2011 \*\**



**Declaration of Chad Moutray**

# **Attachment 4**

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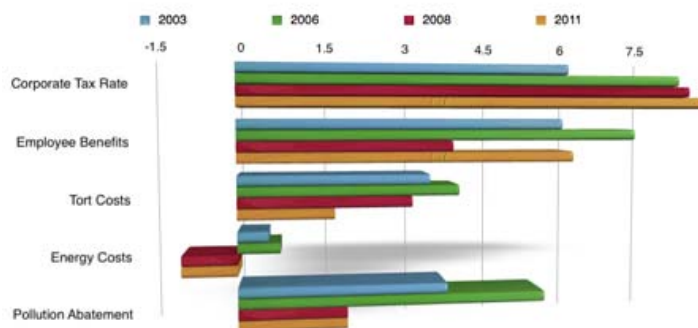
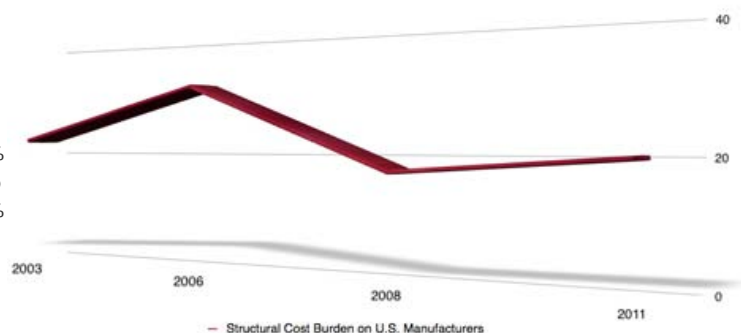
## The Structural Cost of Manufacturing in the United States



The Manufacturing Institute and the [Manufacturers Alliance for Productivity and Innovation](#) (MAPI) partnered to produce the 2011 Structural Cost Study. This report is the fourth in our on-going series comparing the structural costs of the United States to our nine largest trading partners.

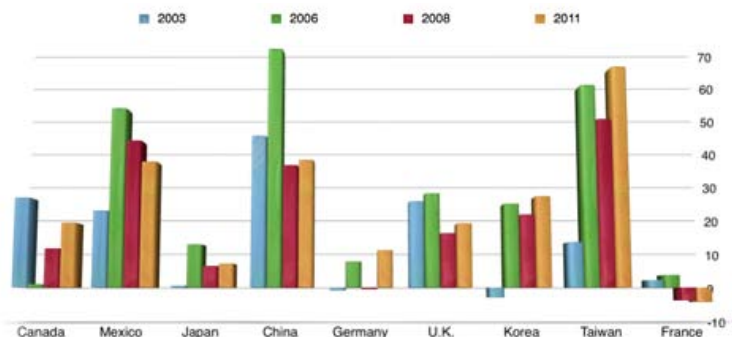
[See the 2011 Structural Cost Report](#)

The key finding is that U.S. manufacturers face a 20.0% structural cost burden in the global market compared to manufacturers in those countries. This is up from 17.6% in 2008.



The two greatest factors contributing to the increase in the structural cost burden were the corporate tax rates and the employee benefit costs. The spread in tort costs continued to fall and energy and pollution abatement costs held steady.

The largest structural cost burdens were in relation to Taiwan, Mexico, and China. The greatest change in cost burden from 2008 were with Canada and Germany and were substantially a result of the lowering of corporate tax rates in those countries since the last study.



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## Summary Results from the 2011 Structural Cost Study



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The trade-weighted average structural cost burden (which includes corporate tax burden, employee benefits, tort costs, pollution abatement compliance, and energy costs) of U.S. manufacturers relative to their counterparts in our nine largest trading partners rose to 20 percent, up from 17.6 percent in the 2008 cost study.

- U.S. manufacturers enjoyed a raw cost index (which represents production costs that are under the direct control of manufacturers) that is 9 percent lower than the trade-weighted average of their 9 largest trading partners. In all previous cost studies, the U.S. RCI was higher than the trade-weighted average of the 9 countries.
- As a result, the RCI advantage is completely erased by the structural cost burden. All in, U.S. manufacturing costs are 9.3 percent higher than their 9 largest trading partners on a trade-weighted basis.
- The increase is due entirely to widening gaps with our foreign competitors with regard to corporate tax rates and employee benefits. Taken together, these two structural costs account for 85 percent of the total gap, up from 75 percent in the 2008 cost study.
- A bright spot in the update is trends in commercial tort costs, which have come down considerably in recent years. As a result, the foreign advantage with regard to tort costs has fallen steadily since the 2006 cost study, and is now estimated at just 1.6 percent below the U.S. burden.
- U.S. manufacturers continue to enjoy a modest advantage with regard to energy costs, which, at 0.9 percent is unchanged from the 2008 study.
- The burden of pollution abatement compliance is also unchanged, but this is mainly due to a lack of new relevant data for the United States. Unlike most other countries in the study, the United States does not collect systematic information on a regular basis, and the last such survey was completed in 2005.

	United States	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France	Average of 9 partners
Raw Cost Index	\$29.83	\$40.43	\$18.99	\$40.27	\$12.41	\$55.92	\$48.98	\$34.75	\$23.85	\$34.79	\$32.75
Corporate Tax Rate		-9.0	-10.05	0.7	-15.0	-10.6	-12.0	-15.8	-23.0	-6.7	-8.6
Employee Benefits		-3.33	-12.87	-5.74	-5.57	-1.27	-2.58	-5.83	-8.84	7.64	-5.7
Tort Costs		-1.6	-1.8	-1.7	-2.3	0.8	-1.8	-2.3	-2.3	0.3	-1.6
Energy Costs		-0.7	1.9	1.2	0	1.9	3.9	4.2	-0.8	3.2	0.9
Pollution Abatement		-0.7	-3.3	-0.7	-3.4	-0.2	-2.7	-0.5	-3.4	-0.2	-1.8

Effective Cost Index	\$29.83	\$34.24	\$14.03	\$37.77	\$9.14	\$50.66	\$41.54	\$27.69	\$14.68	\$36.24	\$27.28
Foreign Cost Advantage		-15.3%	-26.1%	-6.2%	-26.3%	-9.4%	-15.2%	-20.3%	-38.4%	4.2%	-16.7%
U.S. Structural Cost Burden		18.1%	35.3%	6.6%	35.8%	10.4%	17.9%	25.5%	62.5%	-4.0%	20.0%

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## Foreword



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In the summer of 2008, on the heels of the greatest financial crisis since the Great Depression, the U.S. economy stumbled badly, eventually contracting more than 5 percent from its peak. Manufacturing, for almost a century the engine that has driven the American economy, fared much worse – contracting more than 20 percent from peak to trough. Such a collapse made recovery all the more difficult for the economy at large, because manufacturing – while less than 12 percent of GDP – remains one of the most influential economic sectors. No sector stimulates more direct and indirect economic activity; no sector invests more in research, development, and innovation; no sector comes close to providing manufacturing's level of exports; no sector can match the average total compensation provided to its workers.

The good news for policymakers was that, in the initial recovery phase, U.S. manufacturing experienced a dramatic rebound in business, spawned by a huge inventory swing and a boost in exports, providing enough steam to keep a struggling U.S. recovery from backsliding.

The bad news was that, even with the sharp rebound, by the close of 2011 the factory sector had only clawed halfway back to its December 2007 peak. Unfortunately, full recovery is made all the harder by a fundamental challenge: U.S. manufacturers face a set of structural disadvantages that erode U.S. competitiveness and offset many of the productivity gains achieved through innovation and the relentless pursuit of efficiencies.

What follows on these web pages is an analysis of the cost of production in the United States. The initial groundbreaking report documenting the underlying structural costs of U.S. manufacturers was released in 2003. Subsequent reports were issued in 2006 and 2008. This new, web-based Structural Cost Report will allow The Manufacturing Institute and MAPI to provide a real-time analysis, with updates throughout the year.

What we find in the middle of 2011 is that structural costs are slowly eating away at the ability of U.S. manufacturers to compete effectively. While manufacturers have many challenges in the current global environment, domestically imposed costs are undermining our ability to compete by adding at least 20 percent to the cost of doing business in the United States.

We arrived at this figure by beginning with a raw cost index benchmark based on wage compensation relative to total value added in manufacturing, comparing the United States and nine major trading partners including Canada, China, and Mexico. Then, we compared the policy decisions that affect the cost of business in each country including: corporate tax rates, employee benefits, tort litigation, regulatory compliance and energy.

The analysis demonstrates how even nominally more expensive locations such as Canada or the United Kingdom are, in fact, lower-cost locations for production when these expensive cost factors are weighed.

In an era when policymakers have acknowledged the need to build a more competitive environment for manufacturers here, these underlying cost pressures are highly counterproductive. If ever there were a wake-up call for U.S. policymakers about the costs they continue to impose on U.S. manufacturers, this is it.

There is a wide range of policy steps that federal and state governments can immediately take to support stronger U.S. manufacturing; see the NAM's manufacturing strategy at [www.nam.org/strategy](http://www.nam.org/strategy). We encourage elected officials to begin shaping a pro-manufacturing agenda for the near future.

The loss of a strong manufacturing base would have unfortunate consequences for the U.S. standard of living as well as our national security. We urge all Americans who are concerned about the future of our country to understand the cost burden that U.S. companies face and help foster a new appreciation for manufacturing among policymakers, the media, and the American public.

We commend the author, Jeremy Leonard, economic consultant to MAPI, for his creativity in distilling huge amounts of sometimes disparate data to complete this project.

Emily Stover DeRocco  
President  
The Manufacturing Institute

Stephen Gold  
President and CEO  
Manufacturers Alliance for Productivity and Innovation

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## Raw Cost Index


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Conceptually, the raw cost index for manufacturing is the ratio of wage compensation (which excludes benefit costs) to value-added in manufacturing. It is explained in detail in the 2003 cost study (page 9). This metric captures wage costs directly (abstracting from employee benefits) and raw materials and capital costs indirectly (because increases in these will reduce value added and push up the raw cost index). Because it is calculated in home currency rather than U.S. dollars, changes in exchange rates have no effect on it by design.

- U.S. manufacturers enjoyed a raw cost index (which represents production costs that are under the direct control of manufacturers) that is 9 percent lower the trade-weighted average of their 9 largest trading partners. In all previous cost studies, the U.S. RCI was higher than the trade-weighted average of the 9 countries.
- The U.S. RCI was significantly lower than in 6 of the 9 trading partners. Only Mexico, China and Taiwan had a lower RCI. The main reason is because U.S. manufacturers were much more nimble in downsizing their labor force in response to the 2008-09 recession. As a result, productivity growth continued to improve during the downturn, unlike in other countries where it is more difficult to shed workers.
- The gap with Mexico (36 percent) is not nearly as large as wage differentials might suggest, though it has widened somewhat since the 2008 cost study. This is due to Mexican productivity improvements outpacing wage growth in recent years
- The gap with China (60 percent) is largely unchanged from the 2008 cost study, but because there is no updated data for China, this number is unreliable. We do know that average manufacturing wages in Chinese urban areas have increased by more than 40 percent since the 2008 cost study, but we have no reliable data on productivity trends since then, making calculation of the RCI impossible. However, it is highly unlikely that productivity grew by 40 percent since the 2008 cost study, implying that the China-US RCI gap is likely smaller than the data imply

	United States	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France	Average of 9 partners
2003	\$24.30	\$27.57	\$8.11	\$16.92	\$5.34	\$29.60	\$28.30	\$23.96	\$16.41	\$26.50	\$19.30
2006	\$23.85	\$27.01	\$8.11	\$14.43	\$5.34	\$27.93	\$27.88	\$23.29	\$15.58	\$27.21	\$17.91
2008	\$29.83	\$35.61	\$23.37	\$25.81	\$12.41	\$32.96	\$44.43	\$31.45	\$22.13	\$35.49	\$27.63
2011	\$29.83	\$40.43	\$18.99	\$40.27	\$12.41	\$55.92	\$48.98	\$34.75	\$23.85	\$34.79	\$32.75
Percent Change 2003-2011	22.8%	46.6%	134.1%	138.0%	132.4%	88.9%	73.1%	45.0%	45.3%	31.3%	69.7%

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## Corporate Tax Rates



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The trade-weighted foreign corporate tax advantage reached 8.6 percentage points in the 2011 cost study (52 percent of the entire structural cost gap). The foreign advantage has increased steadily since the first cost study in 2003, when the gap was 5.6 percentage points.

- The U.S. is falling behind by standing still. While the federal and state combined rate has been unchanged, every other country in the study has lowered corporate tax rates at least once since 1997, and most countries have done so several times. The result is that the U.S. rate is now second-highest in the OECD to Japan.
- The increase in the foreign advantage since the 2008 tax study is due to rate reductions in Canada (36 percent to 31 percent), Germany (38.4 percent to 29.4 percent) and Taiwan (25 percent to 17 percent).
- While some contend that a high U.S. statutory rate masks a lower effective tax rate (due to advantageous depreciation schedules and deductions), careful work by Jack Mintz and Duanjie Chen shows that, even when these factors are taken into account, the effective tax rate on new business investment remains among the highest in the world.

### Corporate Tax Rates (Foreign Advantage)

	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France	Average of 9 partners
2003	3.4	6.0	-2.0	15.0	0.4	10.0	10.3	15.0	5.7	5.6
2006	3.9	11.0	-0.7	15.0	1.7	10.0	12.5	15.0	6.7	7.6
2008	3.9	12.0	-0.7	15.0	1.6	10.0	12.6	15.0	6.7	7.8
2011	9.0	10.0	-0.7	15.0	10.6	12.0	15.8	23.0	6.7	8.6
Increased Foreign Advantage 2003-2011	5.6	4.0	1.3	0.0	10.2	2.0	5.5	8.0	1.0	3.0

### Statutory corporate tax rates

Source: KPMG

Note: For China, a hybrid rate for domestic firms and companies in special economic zones is used

	U.S.	Canada	Mexico	Japan	China	Germany	U.K.	Korea	Taiwan	France
1997	40%	44.6%	34%	51.6%	33%	57.4%	31%	30.8%	25%	36.6%
2010	40%	31%	30%	40.7%	25%	29.41%	28%	24.2%	17%	33.3%





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The trade-weighted foreign employee benefit advantage reached 5.7 percentage points in the 2011 cost study (34 percent of the entire structural cost gap). The foreign advantage has increased steadily since the first cost study in 2003, when the gap was 5.6 percentage points.

- Only French manufacturers devote a higher percentage of compensation to employee benefits than their US counterparts (31.2 percent vs. 23.6 percent).
- In many competitor nations (Mexico, Japan, Germany, France and the U.K.), employer-paid fringe benefits have remained a fairly stable share of compensation since the first cost study. However, in the United States that share has steadily crept higher from 20.8 percent in 2001 to 23.6 percent in 2009, with most of the increase occurring since the 2008 cost study. The main contributors to this growth are the health and pension benefit components.
- Most other nations finance the bulk of health care services from general revenues, with firms providing supplemental insurance. As corporate tax rates have come down, the direct cost to business of financing health care services has declined, offsetting any increases in supplemental insurance premiums.

### Employee Benefits (Foreign Advantage)

	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France	Average of 9 partners
2003	4.8	9.4	9.4	12.6	-3.6	5.1	-9.0	11.5	-10.7	5.5
2006	4.8	12.1	5.9	14.9	0.1	4.4	-1.2	10.9	-8.3	6.8
2008	2.2	11.1	4.1	3.9	-1.1	0.6	4.9	9.3	-10.1	3.6
2011	3.3	12.9	5.7	5.6	1.3	2.6	5.8	8.8	-7.6	5.7
Increased Foreign Advantage 2003-2011	-1.5	3.5	-3.7	-7.0	4.9	-2.5	14.8	-2.7	3.1	0.2

### Employer Costs of Employee Compensation, United States

Source: Bureau of Labor Statistics

Note: Does not include payroll taxes for Social Security and Medicare

	Employer-provided Health Care		Employer-provided Pensions	
	Dollars per Hour	Share of Compensation	Dollars per Hour	Share of Compensation
2001	\$1.75	7.2%	\$0.75	3.1%
2002	\$1.99	7.8%	\$0.77	3.0%
2003	\$2.18	8.2%	\$0.96	3.6%

2004	\$2.40	8.5%	\$1.56	5.6%
2005	\$2.60	8.8%	\$1.65	5.6%
2006	\$2.71	8.9%	\$1.50	4.9%
2007	\$2.84	9.2%	\$1.30	4.2%
2008	\$2.92	9.2%	\$1.31	4.1%
2009	\$3.03	9.5%	\$1.17	3.7%
2011	\$3.21	9.7%	\$1.57	4.8%
Percent Change 2001-2011	83.4%		109.3%	

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The trade-weighted foreign tort cost advantage was 1.6 percentage points in the 2011 cost study (just under 10 percent of the entire structural cost gap).

- Due to the fact that a rigorous international comparison of costs has not been done since the first cost study, the results assume that tort costs in other countries have not changed significantly in the 2000s. A thorough literature review of tort developments in Europe and elsewhere in the industrialized world undertaken prior to each cost study update broadly supports making this assumption, but it remains an assumption.
- Unlike taxes and employee benefits, this foreign advantage has narrowed steadily since the 2006 cost study. Commercial tort costs in the United States have decreased by 12 percent from their 2004 peak of \$173.5 billion. In the context of growing manufacturing output, the share of manufacturing value-added devoted to litigating tort claims fell to 2.9 percent in the 2011 cost study, compared to a peak estimated at nearly 5 percent.
- This decline can in large part be credited to the Class Action Fairness Act, enacted in 2005, which reduced financial incentives for filing large class action suits and cracked down on "jurisdiction-shopping" for plaintiff-friendly court districts (see details in 2006 cost study p. 12 and 2008 cost study pp. 9-11).
- Nevertheless, the fact remains that the U.S. tort system is fundamentally different from most systems elsewhere in the industrialized world in that each party pays its own legal costs. In almost all other countries, plaintiffs must pay all or part of the defendant's legal costs in case of judgment in the defendant's favor. Because of the strong disincentives for groundless lawsuits in such systems, it is unlikely that the foreign advantage will disappear entirely without more fundamental changes to the incentive structure in the current U.S. system.

### Tort Costs (Foreign Advantage)

	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France	Average of 9 partners
2003	3.1	N/A	3.3	N/A	0.7	3.4	N/A	N/A	1.3	3.2
2006	3.2	4.4	3.2	4.4	2.5	3.5	4.4	4.4	3.5	3.7
2008	2.9	3.2	3.1	3.2	0.5	3.2	3.2	3.2	1.1	2.9
2011	1.6	1.8	1.7	2.3	-0.8	1.8	2.3	2.3	-0.3	1.6
Increased Foreign Advantage 2006-2011	-1.6	-2.5	-1.5	-2.0	-3.3	-1.6	-2.0	-2.0	-3.7	-2.1



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Energy costs were the only structural cost examined for which the United States had an advantage over its 9 largest trading partners on a trade-weighted average basis (0.9 percentage points).

- While costs of many industrial energy sources are significantly lower in the United States than elsewhere, the fact that energy costs account for a very small proportion of overall manufacturing costs (averaging less than 2 percent of manufacturing shipments, compared to 15 percent for labor costs and 50 percent for raw materials and intermediate goods – see 2008 cost study, p. 14) means that the effect on total costs is muted. For instance, the price of natural gas in the United States was \$207 per million kCal, less than half the price in Japan and France and less than one-third the price in Taiwan and Korea, but these large gaps do not lead to large differences in the context of total structural costs.
- Nonetheless, as previous cost studies have noted, the vast potential for oil and gas development in the United States should allow us to improve this cost advantage at least incrementally (as well as pursue the broader goal of reducing dependence on foreign sources) provided that restrictions on exploration and drilling are relaxed.

### Energy Costs (Foreign Advantage)

	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France	Average of 9 partners
2003	6.0	2.3	-12.5	2.3	-0.6	-2.1	-4.1	-15.3	4.2	0.5
2006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.7
2008	0.1	-0.4	-1.5	N/A	-1.7	-3.3	-4.3	1.2	-1.6	-0.9
2011	0.7	-1.9	-1.2	0	-1.9	-3.9	-4.2	0.8	-3.2	-0.9
Increased Foreign Advantage 2003-2011	-5.3	-4.2	11.3	-2.3	-1.3	-1.8	-0.1	16.1	-7.4	-1.4

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The trade-weighted foreign pollution abatement cost advantage was 1.8 percentage points in the 2011 cost study (10 percent of the entire structural cost gap). Due to a lack of updated data standardized by the OECD, this is unchanged from the 2008 cost study.

- The United States, unlike most other OECD countries, does not undertake regular surveys of pollution abatement costs. The last such survey was completed in 2005 and reported on in the 2008 cost study.
- Furthermore, most nations that do collect such data are moving (at the OECD's suggestion) to a broader concept of "environmental protection" that encompasses a broader set of activities than reducing pollutants, making comparisons since the 2008 cost study essentially meaningless.

### Pollution Abatement Costs (Foreign Advantage)

	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France	Average of 9 partners
2003	2.8	N/A	2.3	N/A	2.4	3.0	N/A	N/A	1.5	3.5
2006	2.8	6.1	2.3	6.1	2.4	3.0	3.3	6.1	1.5	5.2
2008	0.7	3.3	0.7	3.4	0.2	2.7	0.5	3.4	0.2	1.8
2011	0.7	3.3	0.7	3.4	0.2	2.7	0.5	3.4	0.2	1.8
Increased Foreign Advantage 2006-2011	-2.1	-2.8	-1.6	-2.7	-2.2	-0.3	-2.8	-2.7	-1.3	-3.4

Cost of Regulatory Compliance for U.S. Manufacturers  
Source: W. Mark Crain, Nicole V. Crain and Thomas Hopkins

	Number of Firms	Cost per Firm	Total Cost	Value-Added	Regulatory "Tax"
1997	N/A	N/A	\$147.0B	\$1,277.3B	11.5%
2004	296,121	\$548,077	\$162.3B	\$1,482.7B	10.9%
2009	278,703	\$688,194	\$191.8B	\$1,717.5B	11.2%