The Tide Is Turning

An Update on Structural Cost Pressures Facing U.S. Manufacturers

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by
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Foreword

by
*Emily S. DeRocco and Thomas J. Duesterberg**

Five years ago, The Manufacturing Institute and the Manufacturers Alliance/MAPI issued the first structural cost study, followed by an update in 2006. The fundamental rationale for closely monitoring this index remains valid: costs such as taxes, energy, and regulatory compliance are much higher in the United States than in other major industrial countries, putting U.S. manufacturers at a disadvantage. These external costs are out of the control of manufacturers and are mainly influenced by government action and/or inaction.

This report updates the two previous studies with the most current data. It diverges from its predecessors because progress is being made on the agenda to reform structural costs. ***The disadvantage that U.S. manufacturers face is 17.6 percent*** when compared with nine major industrial countries including Germany, Japan, Canada, Mexico, and China. This is still a substantial hurdle that cuts into the competitiveness of American businesses that operate in a global market. But it is an improvement from the 31.7 percent gap that we reported on in 2006.

The improved atmosphere could not come at a better time because the United States:

- Is the world's largest manufacturer;
- Accounts for more than a fifth of global manufacturing output; and
- Is currently growing ***largely because of the export strength of the manufacturing sector***.

In fact, strong manufacturing export performance has more than offset the losses to U.S. GDP because of the recession in the housing sector.

During the past year, total exports increased by over 10 percent—and nearly 70 percent since the recession year of 2001—and now account for a startling two-thirds of total growth of gross domestic product (GDP). Manufactured products constitute well over 90 percent of total goods exports. The U.S. dollar's return to the value it had in the mid-1990s, strong overseas economies in developed and developing countries alike, and high quality, innovative, and competitively priced products have led to this export boom.

Successfully dealing with severe structural cost pressures has helped reenergize the American export machine. While there is still much to be done to even the playing field internationally and ensure the future growth of the U.S. manufacturing goods export sector, this report documents the impact of three major trends that have improved the competitive posture of U.S. manufacturing in the last few years:

1. **High investments and productivity**. U.S. manufacturers continue to find ways to harness new technology, raise productivity, and innovate new products and processes, helping them to manage high structural costs.
2. **Favorable U.S. policy changes**. Considerable progress has been made recently in ***curbing tort costs*** through reforms at both

*Emily S. DeRocco is President of The Manufacturing Institute and Senior Vice President of the National Association of Manufacturers; Thomas J. Duesterberg is President and Chief Executive Officer of the Manufacturers Alliance/MAPI.

state and federal courts. ***Health care insurance premiums*** have moderated (rising by over 9 percent in 2005 and 6 percent in 2007), and most companies continue to find ways to limit such costs. Firms are also cutting the runaway growth of ***pension costs*** by changes such as moving away from costly defined benefit plans.

3. **Rising costs abroad**. Other industrial countries, as well as emerging economies, are seeing sizable ***wage increases*** (hourly pay in Mexico has leaped 55 percent in seven years), a ***rise in health care costs*** (in Canada and the United Kingdom, supplemental private insurance has become more popular, raising benefit costs), and there are ***escalating tort costs*** in some European countries. New OECD data show rising ***pollution control costs*** in China, thus narrowing the gap on regulatory costs *vis à vis* that country.

The global marketplace is never static, and this report shows that economic change is swift in other industrialized countries as well. These trends can benefit U.S. manufacturers as they are now, but fundamentally, the United States still suffers from structural costs that are too high for long-term competitiveness. ***Most importantly, this report shows two areas that remain major hurdles: corporate taxes and energy.***

The one area where virtually no progress has been made is in lowering corporate taxes. As this report shows so clearly, only Japan retains higher corporate tax rates than the United States, while the rest of the industrialized world has been cutting them significantly in recent years. This disparity has actually grown since our last report in 2006.

Energy remains a structural cost as well, primarily because it has so grievously slipped from a major net advantage for U.S. companies just ten years ago to a negative in this decade. While this report shows a slight cost advantage in 2008, we would drop it as a structural cost if the United States had a more sensible natural gas supply program to tap the vast resources of this fuel that is used so widely in manufacturing.

As we face relentless growth of competitors in China, India, Brazil, and Southeast Asia, we need to build on the successes outlined above and change anticompetitive policies that still adversely affect U.S. manufacturing. We now have concrete evidence that these actions do bear fruit, and, with the U.S. economy more dependent on manufacturing and its exports than ever before, it would be prudent for policy makers to seize the opportunity of the new Administration and the new Congress to act on structural costs early in 2009.

Finally, we want to recognize the vitally important contribution made to this and to our two previous reports in the "Structural Cost Study" series by author Jeremy Leonard. He was ably assisted by MAPI researcher Tim Whittaker, but most of the research and analytic work was done by Mr. Leonard. He pioneered the methodology for this series and has been persistent and creative in finding good data sources and using them to reveal the competitive situation faced by U.S. manufacturers in an ever-more-integrated global economy.

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Acknowledgements

While many people were involved in the development of this report, we want to give special thanks to Deloitte who has continued to support our efforts in documenting the structural cost pressures facing U.S. manufacturers. Their support helps underwrite this report, enabling us to print it in large quantities and distribute it widely to federal and state legislators, administration officials, and among manufacturers themselves. Deloitte continues to communicate and educate manufacturers who are composed of diverse businesses, but they are all impacted by structural costs in manufacturing and share our concern about the trends discussed in this report. We expect a wide audience for *The Escalating Cost Crisis* and specifically wish to thank—

- Craig Giffi, Vice Chairman and U.S. Consumer and Industrial Products Industry Leader, **Deloitte**, Cleveland, OH.

- Tim Hanley, Vice Chairman and U.S. Process and Industrial Products Industry Leader, **Deloitte**, Milwaukee, WI.

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The Tide Is Turning

An Update on Structural Cost Pressures Facing U.S. Manufacturers

by
Jeremy A. Leonard

Executive Summary

This study is the third in a series of path-breaking studies of manufacturing cost pressures that use an innovative, easy-to-understand methodology to assess the degree to which five classes of "structural" costs—those out of manufacturers' direct control—differ across countries. The consistency of the methodology allows comparisons over time and thus provides an index of how U.S. manufacturing cost competitiveness has evolved over the past five years relative to its nine trading partners.

Table 1 shows that the past two years have seen a substantial narrowing of several key structural cost drivers, lowering the aggregate U.S. manufacturing cost burden to 17.6 percent, a significant decline from the 2006 cost study and lower than that found in the initial cost study as well. The growth in the employer cost of employee benefits (in particular health insurance) is still high but has decelerated in the United States, as have the costs of tort litigation and pollution abatement. As will be explained in this report, this is due to a combination of U.S. policy changes (a testament to the sustained call for action in this regard over the past several years), actions by manufacturers to minimize such costs as best they can, and rising costs among our major international competitors.

Another important finding of this update shown in Table 1 is that the foreign raw cost advantage—essentially the trade-weighted difference of unit wage costs relative to the United States—has also narrowed considerably since the 2006 cost study, from 22 percent to 7.3 percent. This reflects both concerted efforts by U.S. manufacturers to increase productivity, as well as strong wage growth in emerging markets. Mexico's raw cost index is now nearly 75 percent of the U.S. level (due mainly to the fact that its wage growth has greatly exceeded productivity growth in recent years), and South Korea's, in fact, exceeds the U.S. level, suggesting it has completed its path to an industrialized economy.

The past two years have seen a substantial narrowing of several key structural cost drivers, lowering the aggregate U.S. manufacturing cost burden to 17.6 percent.

Figure 1 summarizes how excess structural costs in the United States affect manufacturing cost competitiveness. It confirms what each previous cost study has shown: ***absent excess structural non-production costs documented in the 2003 cost study and this update, U.S. manufacturers would enjoy a cost advantage over most of their industrial competitors***. But wage growth in middle-income economies means that they are becoming cost-competitive with middle-income economies as well.

But when excess structural costs are added on, this advantage turns into a significant burden. The largest single contributor to this burden is the high corporate tax rate, which accounts for over half of the total structural cost burden. Not surprisingly, this is the one area of structural costs that has not been addressed by policy makers.

The report demonstrates that, while progress has clearly been made with regard to controlling structural costs, much more needs to be done. Even though the gap for employee benefits, tort litigation, and pollution abatement has narrowed

with respect to the previous cost studies, the stubborn fact remains that they are ***still higher than in other countries***. More significantly, the gap due to corporate tax rates has widened steadily since the 2003 study, reflecting the seeming indifference of policy makers to the corporate tax's corrosive effects on manufacturing competitiveness.

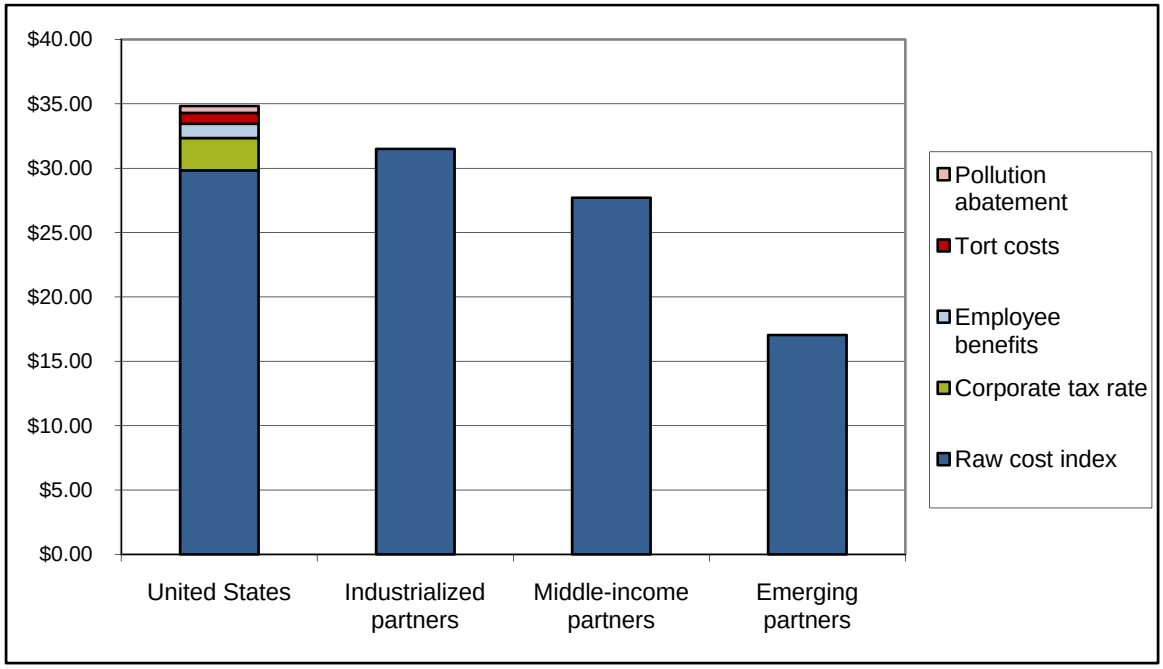
Table 1
Trade-weighted Structural Non-Production Cost Advantage of Nine Largest Trading Partners Relative to U.S. Manufacturers Since 2003 Cost Study
(percent of raw production costs)

	2003 Cost Study	2006 Cost Study	Updated Data
Corporate taxation	-5.6	-7.6	-7.8
Employee benefits	-5.5	-6.8	-3.6
Pollution abatement	-3.5	-5.2	-1.8
Natural gas prices	-0.5*	-0.7	0.9
Torts	-3.2	-3.7	-2.8
Total cost advantage of nine largest trading partners	**-18.3**	**-24.1**	**-15.1**
U.S. cost burden	**22.4**	**31.7**	**17.6**
Addendum: Foreign raw cost index advantage	-17.7	-22.0	-7.3

Source: Author's calculations based on data discussed in this report

Note: The trade weights have changed slightly since the previous cost studies, although these changes have a relatively small impact on the trade-weighted calculations throughout this report.

Figure 1
Excess Burden of Structural Non-Production Costs on U.S. Manufacturers Relative to Major Trading Partners, 2007
(U.S. dollars per hour worked)



Source: Author's calculations based on data discussed in this report

Note: Industrialized partners include Canada, France, Germany, Japan, and the United Kingdom. Middle-income partners include South Korea and Taiwan. Emerging partners include China and Mexico.

Introduction

In December 2003, the Manufacturers Alliance/MAPI and The Manufacturing Institute of the National Association of Manufacturers published a pathbreaking study of manufacturing cost pressures entitled *How Structural Costs Imposed on U.S. Manufacturers Harm Workers and Threaten Competitiveness*. Its innovative, easy-to-understand methodology allowed policy makers to assess the degree to which "structural" costs—those out of manufacturers' direct control—differ across countries, and showed a substantial U.S. disadvantage. The report focused on five classes of costs consistently identified by companies as burdensome: the corporate tax burden, employee benefits, tort litigation, regulatory compliance, and energy costs. On a trade-weighted basis, these structural costs were 22.4 percent higher in the United States relative to its largest trading partners

The methodology allows for periodic updates. A subsequent September 2006 report entitled *The Escalating Cost Crisis* found that structural costs in the United States were moving in the wrong direction. The "headline" cost disadvantage increased from 22.4 percent to 31.7 percent, reflecting deterioration in all classes of structural costs.

Much has changed since 2006, both in terms of the economic and policy environment and the availability of relevant data for this update. Several policy changes that attempt to address some of the pressures covered in the cost studies—notably with regard to health care and torts—have been put in place and have had sufficient time to show a positive impact. In addition, new information on pollution abatement expenditures in the United States suggests that ongoing efforts to streamline and simplify regulatory compliance in that area (as well as rapidly rising expenditures in China, Mexico, and Korea) may also be bearing fruit. As a result, the cost gap in the areas of tort litigation and regulatory compliance has narrowed considerably since the 2006 cost study, a testament to firms and organizations that have long advocated policy changes to address them. However, the single most important and damaging structural cost facing U.S. manufacturers—the high corporate tax burden—has yet to be addressed and has deteriorated even more since the previous cost study in 2006.

The single most important and damaging structural cost facing U.S. manufacturers—the high corporate tax burden—has yet to be addressed.

Table 2
Effect of Key "Overhead Costs" on Raw Cost Index of Nine Largest U.S. Trading Partners, 2007
(U.S. dollars)

	United States	Average of nine partners	Canada	Mexico	Japan	China	Germany	United Kingdom	Korea	Taiwan	France
Raw cost index	29.83	27.63	35.61	23.37	25.81	12.41	32.96	44.43	31.45	22.13	35.49
Corporate tax rate	--	-7.8	-3.9	-12	0.7	-15	-1.6	-10	-12.6	-15	-6.7
Employee benefits	--	-3.6	-2.2	-11.1	-4.1	-3.9	1.1	-0.6	-4.9	-9.3	10.1
Tort costs	--	-2.8	-2.9	N/A	-3.1	N/A	-0.5	N/A	N/A	N/A	-1.1
Natural gas costs	--	0.9	-0.1	0.4	1.5	N/A	1.7	3.3	4.3	-1.2	1.6
Pollution abatement	--	-1.8	-0.7	-3.3	-0.7	N/A	-0.2	-2.7	-0.5	N/A	-0.2
Effective cost index	29.83	23.50	32.11	16.55	24.37	9.25	33.11	38.60	26.14	15.02	36.81

Source: Author's calculations based on data in subsequent tables and figures

Note: Data for tort costs and regulatory compliance costs are limited to the industrialized partners. Conservative assumptions have been made in estimating the missing values, as described in later sections. Thus, the absence of these data likely understates the overall cost advantage of U.S. trading partners.

Overview of Competitive Landscape Facing U.S. Manufacturers

When the original cost study was published in late 2003, the U.S. manufacturing sector was just emerging from a double-dip recession that began in June 2000. That recession was the longest in post-World War II history and the deepest in two decades. The sluggish recovery and lack of job creation heightened concerns about offshoring and the long-term health of U.S. manufacturers, and high operating costs were among the causes.

Since then, the manufacturing sector has fared reasonably well. Production has increased by almost 15 percent since 2001, and productivity has surged by more than 30 percent. The excess of productivity growth over production resulted in an employment decline of 17 percent over that period.

In terms of international competitiveness, the dollar has depreciated in value considerably since the first cost study, which has helped manufacturers with regard to selling in overseas markets (see the Appendix for an analysis of recent exchange rate movements on competitiveness). Exports of manufactured goods have increased by 68 percent since 2001, after having remained essentially stagnant for the prior five years. However, imports grew more rapidly, widening the trade deficit for manufactured goods. More importantly, a growing proportion of these imports are coming from China and other emerging economies with large advantages in manufacturing cost structures. Last year China surpassed Canada as the largest supplier of U.S. imported goods ($321 billion versus $313 billion).[1] Since 2000, China's share of total U.S. imports has doubled (from 8.2 percent to 16.5 percent). The U.S. trade deficit in goods reached an all-time high of $838 billion in 2006, but has narrowed slightly in the past two years.

Last year China surpassed Canada as the largest supplier of U.S. imported goods.

These numbers paint a picture of U.S. manufacturers struggling—and to a large extent succeeding—in an economic environment characterized by (until recently) a strong dollar, increasing competition from low-cost importers, and moderate economic growth at home and abroad.

Recent Trends in the "Raw Cost Index" of Manufacturers

The "raw cost index" (RCI) developed in the 2003 cost study measures wage compensation as a share of value added, and hence measures the total wage cost required to produce $1 worth of net output (see the text box on page 5 for a brief description of the methodology). Table 3 on page 5 shows how the RCI has evolved in the United States and its nine largest trading partners since the first cost study in 2003.

The table shows considerable changes relative to previous years. On a trade-weighted basis, the RCI in the United States' nine largest trading partners was only 7.3 percent below that of the United States, considerably smaller than in the previous cost studies. The RCI in the United States has held essentially steady since 2002, but there have been important movements in other countries.[2]

It is important to recall that the RCI methodology is based on home currencies rather than U.S. dollars, and thus abstracts from changes in exchange rates. The recent broad depreciation of the U.S. dollar (particularly against the Canadian dollar) has probably narrowed the RCI gap even further. Appendix 1 discusses the impact of exchange rate movements on cost competitiveness and suggests that the broad decline in the U.S. dollar may have improved the raw cost competitiveness of American manufacturers on the order of 10 percent.

The most important observation is the rapid increase in the RCI in emerging-market economies. In Mexico, the RCI doubled from 2002 to 2006. While this may seem impossible, it

[1] In terms of total trade flows (imports and exports), Canada is still the United States' most important trading partner with 18 percent of the total, followed by China at 12.4 percent.

[2] Changing trade weights since the original cost study also have an effect on the average foreign raw cost index, with the most important trends being the increasing importance of China at the expense of Japan. If the current trade-weighted raw cost index were calculated based on the weights in the 2003 cost study, the foreign advantage would narrow to 4.5 percent.

Table 3
Raw Cost Index of Manufacturers in the United States and Its Nine Largest Trading Partners

	2003 Cost Study		2006 Cost Study		Current Data	
	Level	Percent difference from U.S.	Level	Percent difference from U.S.	Level	Percent difference from U.S.
United States	$0.48	—	$0.47	—	$0.48	—
Canada	$0.57	20.3	$0.56	20.1	$0.57	19.4
Mexico	$0.18	-62.7	$0.18	-62.0	$0.37	-21.7
Japan	$0.35	-26.3	$0.30	-36.0	$0.41	-13.5
China	$0.13	-72.3	$0.13	-71.8	$0.20	-58.4
Germany	$0.55	16.3	$0.52	11.8	$0.53	10.5
United Kingdom	$0.59	23.9	$0.58	24.4	$0.71	48.9
South Korea	$0.42	-12.6	$0.40	-13.4	$0.50	5.4
Taiwan	$0.37	-22.7	$0.35	-25.2	$0.35	-25.8
France	$0.45	-5.6	$0.46	-1.3	$0.57	19.0
Trade-weighted average of above countries		**-17.7**		**-22.0**		**-7.3**

Sources: 2003 cost study, 2006 cost study, U.S. Bureau of Labor Statistics, and author's calculations

Notes: (1) Following the methodology of the 2003 cost study, the raw cost index is expressed in U.S. dollars at constant exchange rates. Thus, the effect of the recent depreciation of the dollar is not reflected in these figures. (2) Data for China are based on Ceglowski and Golub, who find that the raw cost index for large-scale urban manufacturing in China is 41.7 percent of the U.S. level.

Overview of Raw Cost Index Methodology

The original cost study began by calculating the "raw cost index" as the fundamental summary measure of the production cost structure in a country's manufacturing sector. It is defined as total wage and salary compensation scaled to manufacturing value added and, thus, shows how much wages and salaries must be paid to produce $1 worth of output. By scaling wage costs to value added (as opposed to hours worked) the raw cost index takes into account international differences in labor productivity.

By a similar line of reasoning, differences in capital intensity are also accounted for in unit labor costs. Heavy capital intensity implies that workers can produce more in one hour of work, thereby improving labor productivity and reducing unit labor costs. Thus, factors that affect capital intensity (such as real interest rates, tax policies, and debt and equities markets) are indirectly captured in unit labor costs. Finally, differences in the cost of raw materials are incorporated into unit labor costs. The costs of raw materials and intermediate goods are subtracted from sales when calculating net value added (it has no effect on total sales). It follows that an increase in raw materials cost reduces value added, thus increasing implied unit labor costs.

illustrates a common pattern in economies in the later phases of industrial development: After a period of falling unit labor costs driven by capital investment, wages eventually start to increase faster than productivity, which perforce leads to rising unit labor costs. In Mexico, hourly direct pay has increased by 55 percent since 2000, but productivity by only 27 percent.

Recent examination of trends in China reveals that it too has seen wage growth well in excess of labor productivity growth. A recent paper constructed a measure of unit labor costs for large-scale urban manufacturing in China from 1980 to 2002.[3] It shows that unit labor costs in China have, in fact, been higher in the past—more than 70 percent of the U.S. level in the early 1980s—and steadily declined through 2000 due to investment-driven productivity improvements and depreciation of the yuan prior to its peg to the dollar in 1992. However, unit labor costs edged up in 2002, suggesting that

[3] Janet Ceglowski and Stephen Golub, "Just How Low Are China's Labour Costs?" *The World Economy*, volume 30, number 4, April 2007, pp. 597-617.

China may follow in Mexico's footsteps in the coming years with respect to the RCI.

The same pattern can be seen in Korea, where the RCI is now higher than in the United States. Hourly direct pay has increased 72 percent since 2000, while productivity growth has "lagged" at 54 percent (though still faster than the United States and its entire major mature industrialized trading partners). By these and other measures, South Korea has completed its transition to a full-fledged "mature industrial democracy."

Low labor costs in emerging markets are not eternal, as experience in South Korea and Mexico attests.

This exemplifies a pattern that emerging markets follow almost without exception: in the initial stages of industrialization, wages are relatively low due to surplus labor availability (such as peasants and farmers). But as the industrial sector grows, this surplus labor pool becomes smaller and eventually becomes fully absorbed into industrial employment, at which point wages begin rising rapidly. South Korea reached this point in the mid-1970s, in the midst of aggressive expansion of heavy industries such as steel, automotive products, and shipbuilding. In 1975, manufacturing compensation was the equivalent of just over 30 cents per hour, only one-fifteenth that in the United States. But the industrial sector grew from 14 percent of the economy in the 1960s to 30 percent in the late 1980s, drawing workers from the farming sector and eventually putting strong upward pressure on wages. By 2006, hourly cash compensation for manufacturing production workers in South Korea had risen ***one hundred-fold*** to reach 60 percent of the U.S. level. Because South Korean workers are not as productive as their U.S. counterparts, this has brought them to parity in terms of the raw cost index.

A five percentage point cut in the corporate tax rate would create 500,000 manufacturing jobs over the next decade.

Thus, low labor costs are not eternal in emerging markets, and the data show that Mexico may be entering a phase of accelerating wage growth as well. In China, the availability of surplus labor is much larger than in other countries, but the same trend toward rising labor compensation is also evident.

In Canada, Japan, and Western Europe, the RCI has increased across the board since the last cost study (significantly so in the case of France, Japan, and the United Kingdom), while the United States held its ground. This illustrates the relative success of U.S. manufacturers in keeping their production costs in check and confirms an important conclusion that has been true since the first cost study: ***absent excess structural non-production costs documented in the 2003 cost study and this update, U.S. manufacturers would enjoy a cost advantage over most of their industrial competitors, and the gap is now narrowing considerably in emerging markets as well.***

Updated Analysis of Structural Cost Drivers

Tax Burden

High corporate tax rates continue to be the single most significant drag on manufacturing cost competitiveness. As noted in a recent detailed analysis of the issue, the United States has been falling behind by standing in place.[4] The rate cuts in 1986 brought the United States below the Organization for Economic Cooperation and Development (OECD) average at that time. But, since then, the U.S. federal-state rate has been essentially unchanged at 39 percent, while other countries have been aggressively cutting their rates (Figure 1). On a trade-weighted basis, the U.S. rate is 7.8 percentage points higher than its nine largest trading partners, a slight deterioration from the 7.6 percentage points in the 2006 cost study (Table 4). This represents over one-third of the total structural cost gap. The deterioration reflects very small rate cuts in Mexico and Germany, as well as changing trade patterns which place more weight on low-tax nations like China at the expense of high-tax nations like Japan.

[4] Jeremy Leonard, *A Closer Look at the U.S. Corporate Tax Burden: Economic Effects of Fundamental Reform*, Manufacturers Alliance/MAPI, September 2008.

Table 4
Statutory Corporate Tax Rates in the United States and Its Nine Largest Trading Partners

	2003 Cost Study		2006 Cost Study		Current Data	
	Rate	Percentage point difference from U.S.	Rate	Percentage point difference from U.S.	Rate	Percentage point difference from U.S.
United States	40.0	--	40.0	--	40.0	--
Canada	36.6	-3.4	36.1	-3.9	36.1	-3.9
Mexico	34.0	-6.0	29.0	-11.0	28.0	-12.0
Japan	42.0	2.0	40.7	0.7	40.7	0.7
China	25.0	-15.0	25.0	-15.0	25.0	-15.0
Germany	39.6	-0.4	38.3	-1.7	38.4	-1.6
United Kingdom	30.0	-10.0	30.0	-10.0	30.0	-10.0
South Korea	29.7	-10.3	27.5	-12.5	27.4	-12.6
Taiwan	25.0	-15.0	25.0	-15.0	25.0	-15.0
France	34.3	-5.7	33.3	-6.7	33.3	-6.7
Trade-weighted average of above countries		**-5.6**		**-7.6**		**-7.8**

Sources: KPMG Corporate Tax Survey and author's calculations

There is wide agreement among economists and policy makers that corporate income taxes distort business decisionmaking, discourage capital investment, and cause firms to invest billions of dollars in tax planning, compliance, and dispute resolution that could otherwise be put to more productive uses. Empirical evidence suggests that the efficiency losses and compliance costs associated with the U.S. corporate tax could be as large as the amount of revenue collected, and some analysts believe that a rate cut would, in fact, raise corporate tax revenues. Economic simulations indicate that cutting the U.S. statutory corporate tax rate by five percentage points would increase manufacturing output by $156 billion over ten years and create 500,000 manufacturing jobs.[5]

The burden of any tax is a function of not only the tax rate, but also the base of income that is taxable, which is in turn affected by rules governing depreciation, treatment of inventories and reserves, as well as the myriad of provisions that govern what expenses can be deducted. Contrary to popular belief, the U.S. corporate tax base is not significantly narrower than those of other countries. In fact, when effective tax rates are examined, the gap between the United States and its nine largest trading partners widens to more than 9 percentage points.[6]

Of all the cost drivers analyzed here, high tax rates are by far the easiest for policy makers to adjust and control, and it is likely heartening to see that corporate tax reform will be a top issue for the next President's Administration.

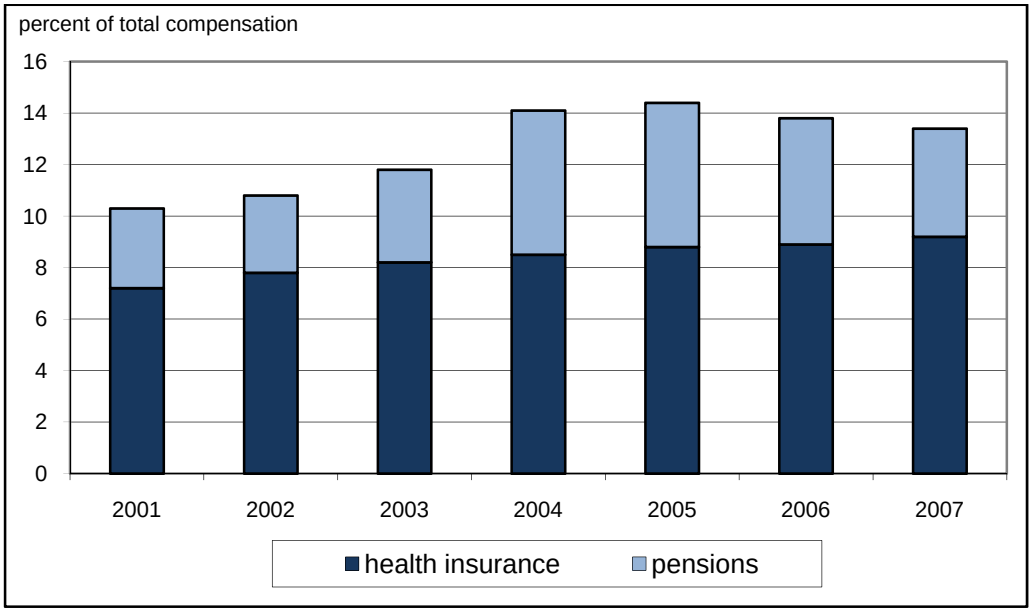
Employee Benefits

Health care costs, and to a lesser extent pension costs, continue to be of concern to manufacturers. These two employee benefits increased sharply as a share of total compensation from 2001 to 2005, but have receded somewhat since (Figure 2). This reduction (in relative terms) in benefit costs is due entirely to a deceleration in the cost of employer-provided pension plans, driven by two distinct factors. First, as described in *The Escalating Cost Crisis*, a "perfect storm" of declining long-term interest rates, large declines in equities markets, and low profits in the early 2000s led to a crisis in defined-benefit pension plans, and, in 2004, companies began boosting contributions to shore them up. The

[5] *Ibid.*

[6] *Ibid.*

Figure 2
Employer Costs of Employee Benefits for U.S. Manufacturers, 2001-2007



Source: U.S. Department of Labor, Bureau of Labor Statistics

subsequent increase in equity values through 2007 and (to a lesser extent) long-term interest rates have relieved short-term cost pressures. Irrespective of short-term trends, the impending retirement of Baby Boomers will keep financial pressure on defined-benefit plans.

Second, companies are moving away from defined-benefit plans in favor of less-expensive defined-contribution plans. Data compiled by the Bureau of Labor Statistics show that the percentage of full-time employees in medium and large companies participating in defined-benefit plans declined steadily from 80 percent in 1985 to 36 percent in 2000, while participation in defined-contribution plans increased from 41 percent to nearly 60 percent. Because benefits are a function of the market value of contributions rather than a percentage of a worker's salary, firms' financial exposure to changes in interest rates and equity values is much smaller with defined-benefit plans than with defined-contribution plans.

Health care costs, on the other hand, continue their steady upward path, growing from 7.2 percent of manufacturing compensation in 2001 to 9.2 percent in 2007. The same basic dynamics at play in the previous cost studies continue: price increases for health care services and insurance premiums well in excess of overall inflation, heavy use of health care services, and a disproportionate reliance on employer financing compared to other countries. However, there has been some moderation in all three areas.

Insurance premium inflation has moderated considerably since publication of *The Escalating Cost Crisis* in 2006. According to the Kaiser Family Foundation's most recent survey of employer health benefits, the cost of insurance premiums increased by 6.1 percent in 2007, compared to 9.2 percent in 2005, and 7.7 percent in 2006. The sharpest declines in premium inflation were for preferred provider organizations (PPOs) and point-of-service (POS) plans (which typically have smaller networks of health care providers than PPOs but offer the ability to use providers outside the POS network at additional cost).

In addition, the use of high-deductible health plans (HDHPs) has increased slowly but steadily since the passage of the Medicare Modernization

Act in December 2003, which provided tax incentives for their use.[7] The Kaiser survey shows that 10 percent of all firms offered some type of HDHP in 2007, up from 4 percent in 2005. The proportion doubles for firms with more than 1,000 employees.

HDHPs are designed to increase the individual's financial contribution of routine medical care in return for full coverage of major unexpected health problems above the annual deductible. By making employees bear more of the of the actual costs of the health services they use, HDHPs are designed to foster more informed health care usage, spur competition among health care providers, and ultimately control costs while at the same time maintaining the quality of care and providing protection against catastrophic illness.

Some firms have been forced to take more drastic action to curb health care benefit costs. Small firms are more and more likely to drop health care coverage altogether: the proportion of small businesses offering health benefits dropped from 68 percent in 2001 to 59 percent in 2007.

In an international perspective, the cost advantage of the United States' major trading partners has narrowed from 6.8 percentage points to 3.6 percentage points relative to the 2006 cost study (Table 5). Partly due to the factors discussed above, U.S. manufacturers have managed to reduce slightly the share of compensation devoted to social insurance and labor taxes in the past two years (from 22.9 percent to 21.9 percent), though the share remains higher than in the original cost study.

But it is developments in other countries that are driving the narrowing foreign advantage. Canada and the United Kingdom, both of whose publicly funded health systems have come under increasing financial stress, have seen firms compensate by offering supplemental private insurance. These have driven up overall benefit costs significantly since the first cost study. Pharmaceutical costs, one of the main drivers of escalating insurance costs have also been more rapid in Canada over the past two years, which has also contributed to the narrowing cost gap.

Another significant change concerns data for China. At the time of the original cost study, there was very little research on the importance of employee benefits in total Chinese compensation, and the estimate included only health benefits. The current estimate includes all required social insurance payments to the government and is, consequently, consistent with the other countries shown in Table 5.[8]

Tort Litigation

Considerable progress has been made in containing the costs associated with commercial tort litigation in the past several years. The U.S. tort system is unique in the industrialized world in that each party is responsible for all of its legal costs. This fact, combined with large potential costs for punitive damages and compensatory awards, means that plaintiffs have strong financial incentives to use (or abuse) the tort system for frivolous or unfounded lawsuits. In addition, class-action lawsuits can inflate damages awarded, even if the majority of affected individuals never claim their share. In nearly all other countries, plaintiffs are required to pay for all or part of the defendant's legal costs if the judgement is in the defendant's favor.

The Escalating Cost Crisis identified several legislative developments, however, that had the potential to keep growth of tort costs in check. The Class Action Fairness Act, signed by President Bush in February 2005, modifies the formula by which plaintiffs' attorneys are compensated. Prior to the Act, they received a percentage of the total award rendered in the judgment, irrespective of the amount actually claimed by those included in the class action. Now, they are paid based on awards actually claimed. Perhaps more importantly, class actions that involve individuals from many states must be heard in federal, rather than state, courts. This puts a stop to one of the most costly practices in tort litigation—filing class action lawsuits

[7] First, it provided tax preferences for funds set aside to pay for out-of-pocket medical expenses in Health Savings Accounts (as well as the interest earned on those accounts), conditional on the employee enrolling in a high-deductible health plan (HDHP). These plans must have a deductible of at least $1,000.

[8] The estimate is based on information and data in Judith Banister, "Manufacturing Earnings and Compensation in China," *Monthly Labor Review*, August 2005. If the data for health care alone were used (as in previous cost studies), the trade-weighted gap would widen to 5.5 percentage points.

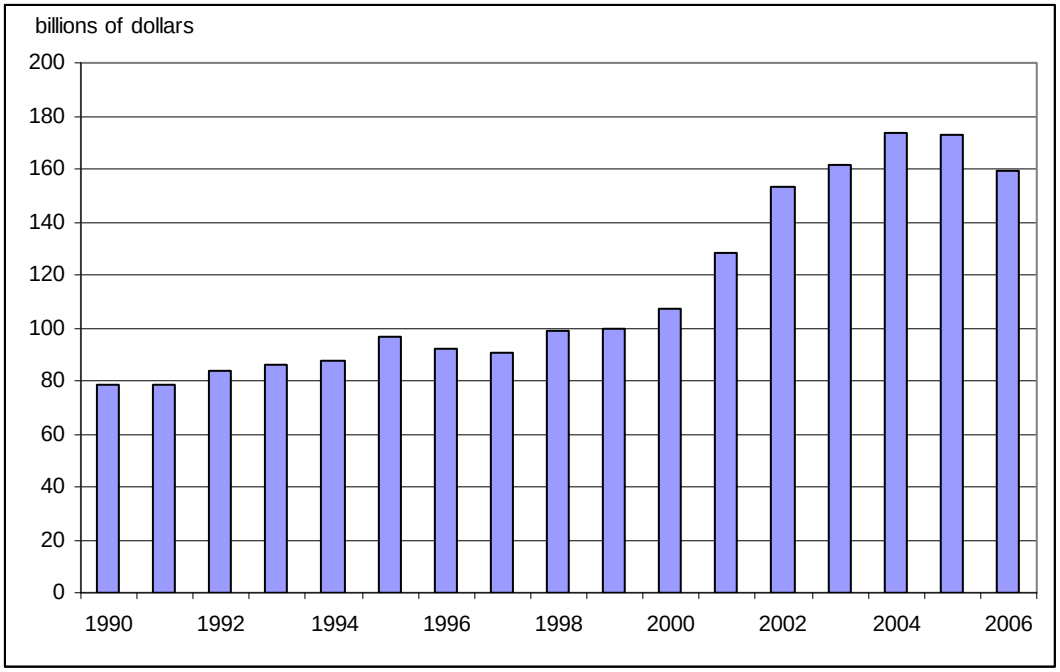
Table 5
Social Insurance Expenditures and Other Labor Taxes for Manufacturers in the United States and Its Nine Largest Trading Partners

	2003 Cost Study		2006 Cost Study		Current Data	
	Percent of compensation	Percentage point difference from U.S.	Percent of compensation	Percentage point difference from U.S.	Percent of compensation	Percentage point difference from U.S.
United States	20.6	--	22.9	--	21.9	--
Canada	15.8	-4.8	18.1	-4.8	19.7	-2.2
Mexico	11.2	-9.4	10.8	-12.1	10.8	-11.1
Japan	11.2	-9.4	17.0	-5.9	17.8	-4.1
China	8.0	-12.6	8.0	-14.9	18.0	-3.9
Germany	24.2	3.6	22.8	-0.1	23.0	1.1
United Kingdom	15.5	-5.1	18.5	-4.4	21.3	-0.6
South Korea	29.6	9.0	24.1	1.2	17.0	-4.9
Taiwan	9.1	-11.5	12.0	-10.9	12.6	-9.3
France	31.3	10.7	31.2	8.3	32.0	10.1
Trade-weighted average of above countries		**-5.5**		**-6.8**		**-3.6**

Sources: U.S. Department of Labor, Bureau of Labor Statistics, and Judith Banister, "Manufacturing Earnings and Compensation in China," *Monthly Labor Review,* August 2005

Note: Current data for China includes a broader set of benefits than in previous cost studies, and thus is not strictly comparable to previous years.

Figure 3
U.S. Commercial Tort Costs, 1990-2006



Source: Tillinghast-Towers Perrin

in plaintiff-friendly states, even when few or none of the class action members actually live in those jurisdictions.

Additionally, many federal and state court districts have cracked down on abusive lawsuits, many of which have been shown to be fraudulent. Some federal judges in particular have reined in the use of faulty science in medical compensation cases, and state courts have limited some of the worst abuses.

Updated data on the costs of commercial tort liability (which includes medical malpractice) produced by Tillinghast-Towers Perrin suggest that these changes are having their intended effect. After having increased rapidly since 1997, U.S. commercial tort costs leveled off in 2005 and fell by nearly 8 percent in 2006 (Figure 3). One factor driving the cost reversal is a leveling off of asbestos claims. Tillinghast reports that asbestos-related awards increased by only $1.9 billion in 2006, compared to $7 billion in both 2005 and 2004.[9] In addition, growth in medical malpractice claims has slowed somewhat relative to the early 2000s.

After having increased rapidly since 1997, U.S. commercial tort costs leveled off in 2005 and declined by 8 percent in 2006.

But the main change has been in the commercial lawsuits that are ***not*** related to asbestos and medical malpractice product liability, which account for more than two-thirds of total business tort costs. These largely consist of product liability claims, but also include commercial automobile accidents and other types of commercial liability, and Tillinghast reports that there has been a significant drop in claims in 2006.

Against this backdrop, anecdotal evidence suggests that some European countries are taking small steps to import aspects of the U.S. tort system into their own judicial structures. For example, the French government passed a law in 2006 that enabled its citizens to pursue class-action litigation, but the law is extremely limited in scope, does not allow attorney contingency fees, and caps damages at €2000. A 2004 Tillinghast survey commissioned by GE Insurance Solutions identified "escalating tort costs" and "increased litigiousness" as the top concerns of European insurers.[10]

Tillinghast has not published a comprehensive international comparison of tort costs since 1999.[11] That widely cited data was used as the basis of analysis in the first cost study, which estimated that U.S. tort costs borne by manufacturers (expressed as a percentage of manufacturing value-added) were on average 3.2 percentage points higher than its major trading partners. The second cost study used information from a subsequent analysis estimate of tort costs in the United States, Germany, and Japan and concluded that the cost disadvantage had widened to as much as 3.7 percentage points. However, a recalculation of the U.S. burden based on the more recent Tillinghast U.S. commercial tort data discussed above (under the assumption that burdens in other countries have not changed significantly) reduces the gap to 2.9 percentage points—still considerable, but lower than that identified in the original cost study.

Pollution Abatement

Regulatory compliance was an area of serious concern identified in the original 2003 cost study, and a series of careful empirical studies indicated that compliance costs for business regulations exceeded $160 billion annually for manufacturers by 2004—equivalent to a 12 percent value-added tax.[12]

[9] Key to controlling asbestos-related tort costs (as well as ensuring that awards go to individuals who have actually suffered asbestos-induced medical problems), is to set up a carefully managed trust fund along the lines of the Fairness in Asbestos Injury Resolution (FAIR) Act, which died in the 109th Congress.

[10] "EU Tort Trends: A Growing Concern for European Insurers; GE Insurance Solutions Survey Confirms Gravity of Issue," *Business Wire*, September 13, 2004.

[11] Tillinghast-Towers Perrin, "U.S. Tort Costs: 2000, Trends and Findings on the Costs of the U.S. Tort System," February 2002. The 2005 update had some information for Germany and France, but not other major U.S. trading partners.

[12] W. Mark Crain, "The Impact of Regulatory Costs on Small Firms," paper prepared for the Small Business Administration Office of Advocacy, September 2005, and W. Mark Crain and Thomas D. Hopkins, "The Impact of Regulatory Costs on Small Firms," Office of Advocacy, Small Business Administration, October 2001.

Table 6
U.S. Federal Budget Outlays for Regulatory Compliance Activities, 2000-2008

	Millions of Dollars			Average Annual Growth Rate (percent)	
	2000	2005	2008	2000-2005	2005-2008
Social regulation					
Consumer safety	3,633	5,390	5,787	7.9	1.4
Homeland security	7,874	17,019	21,204	15.4	4.4
Transportation	1,476	1,954	2,809	5.6	7.3
Workplace safety	1,421	1,698	1,865	3.6	1.9
Environment	6,060	6,581	6,864	1.6	0.8
Energy	607	733	982	3.8	5.8
Economic regulation					
Finance and banking	1,965	2,032	2,591	0.7	4.9
Industry-specific regulation	744	986	1,105	5.6	2.3
General business	1,674	2,887	3,407	10.9	3.3
TOTAL	**25,454**	**39,280**	**46,614**	**8.7**	**3.4**

Sources: Jerry Brito and Melinda Warren, "Growth in Regulation Slows: An Analysis of the U.S. Budget for Fiscal Years 2007 and 2008," Mercatus Center and Weidenbaum Center, June 2007

Note: 2008 data reflect the President's request to Congress as presented in the FY 2008 *Budget of the United States Government*.

Though information on overall regulatory compliance costs has not been updated since the 2006 cost study, information on federal expenditures for regulatory enforcement provides a useful, if indirect, barometer of changes in the burden of compliance, reflecting both the number of statutes to be enforced and the level of enforcement and verification. Table 6 shows that annual growth in federal regulatory spending has decelerated in recent years relative to the early 2000s (3.4 percent versus 8.7 percent), with particularly sharp slowdown in consumer safety and general business regulations, which primarily includes activities associated with the Patent and Trademark Office, Federal Trade Commission, and Securities and Exchange Commission.

The one class of regulatory compliance for which reasonably reliable international data exists is pollution abatement and control (PAC). The OECD's Working Group on Environmental Information and Outlooks takes primary data on PAC expenditures published by member nations and attempts to harmonize them in terms of coverage and definitions to allow broad-brush international comparisons.

Table 7 summarizes the results of the OECD's update compared to the original cost study. The first point to highlight is that the burden in the United States has come down considerably relative to data in the 2003 study. Unlike many other countries, the United States discontinued annual surveys of PAC expenditure in 1994, meaning that the U.S. data from the original cost study was almost a decade out of date. A 1999 PAC survey was published in 2002, but its methodology and coverage departed too far from the OECD's definitions of pollution abatement to be used for international comparisons.[13]

A more recent PAC survey published in 2008, however, has a methodology and coverage that is much closer to the surveys that were discontinued in 1994 and shows that manufacturing expenditures on pollution abatement and control actually declined by about 7 percent in dollar terms relative to the 1994 survey.[14]

[13] Organization for Economic Cooperation and Development, "Pollution Abatement and Control Expenditure in OECD Countries," March 2007, p. 48.

[14] U.S. Bureau of the Census, "Pollution Abatement Costs and Expenditures: 2005," *Current Industrial Reports*, April 2008; "Pollution Abatement Costs and Expenditures: 1994," *Current Industrial Reports*, May 1996.

Table 7
Industrial Pollution Abatement and Control Expenditures in the United States and Its Nine Largest Trading Partners

	2003 Cost Study		2006 Cost Study		Current Data	
	Percent of value-added	Percentage point difference from U.S.	Percent of value-added	Percentage point difference from U.S.	Percent of value-added	Percentage point difference from U.S.
United States	7.6	**—**	N/A	N/A	6.2	—
Canada	4.8	**-2.8**	N/A	N/A	5.5	-0.7
Mexico	3.1	**-4.5**	N/A	N/A	2.9	-3.3
Japan	5.3	**-2.3**	N/A	N/A	5.5	-0.7
China	1.6	**-6.1**	N/A	N/A	2.8	-3.4
Germany	5.2	**-2.4**	N/A	N/A	6.0	-0.2
United Kingdom	4.7	**-3.0**	N/A	N/A	3.5	-2.7
South Korea	4.3	**-3.3**	N/A	N/A	5.6	-0.5
Taiwan	1.6	**-6.1**	N/A	N/A	2.8	-3.4
France	6.1	**-1.5**	N/A	N/A	6.0	-0.2
Trade-weighted average of above countries		**-3.5**		**-5.2***		**-1.8**

Sources: 2003 cost study; OECD, "Pollution Abatement and Control Expenditure in OECD Countries," March 2007, and OECD, *Environmental Performance Reviews: China*, 2007

* Due to lack of relevant updated data, the 2006 cost study did not estimate U.S. differences with individual countries. The "trade-weighted average" is based on assumptions that are described in the study.

Notes: The OECD data is reported as total pollution abatement expenditures expressed as a percentage of GDP. Based on assumptions about the proportion of those expenditures allocable to industry described in the original cost study, the raw data have been converted to industrial PAC expenditures as a share of manufacturing value-added.

Another change in data availability for China has a significant impact on the foreign cost advantage. In the original cost study, reliable estimates for China and Taiwan were unavailable, and it was simply assumed (somewhat arbitrarily) that their pollution burden was one-half of the lowest value of other trading partners. Since publication of the second cost study (for which no updated country-by-country data existed), the OECD has produced an estimate of China's PAC expenditure based on the methodology used for OECD nations, allowing construction of a manufacturing estimate grounded on empirical evidence rather than conjecture.

With regard to industrialized partners, changes since the first cost study are relatively small, although flat expenditures in the United Kingdom combined with an expanding manufacturing sector resulted in a substantial decline in PAC as a percentage of value-added. South Korea, on the other hand, saw PAC spending growth of over 70 percent since the original cost study.

As a result of all of these factors, the overall foreign cost advantage with regard to pollution abatement has narrowed considerably relative to the original cost study, suggesting that efforts by both governments and private businesses to improve the cost-effectiveness of compliance tools and dispense with regulations that have outlived their original purpose may be bearing fruit. Nonetheless, we must not lose sight of the fact that the data indicate that U.S. manufacturers

The overall foreign cost advantage with regard to pollution abatement has narrowed considerably.

continue to bear a higher pollution abatement burden than ***every single one*** of its major trading partners.

Energy Costs

Skyrocketing energy costs have become an increasingly difficult problem for manufacturers, who account for nearly one-third of total U.S. consumption. However, in the context of international comparisons of manufacturing costs, it is important to put the current crisis in some perspective.

First of all, with a few notable exceptions, energy costs are a relatively small proportion of total manufacturing costs. For U.S. manufacturing as a whole, purchased fuel and electricity amounted to 1.8 percent of total shipments in 2006 (compared to 15 percent for labor compensation and 50 percent for raw materials and intermediate goods), and most major industry groups spend less than 1 percent of sales on energy. The main exceptions are the basic chemicals, pulp and paper, primary metals, and non-metallic mineral products, where energy costs are, on average, greater than 5 percent of sales (reaching as much as 25 percent for aluminum refining and lime/gypsum manufacturing and 14 percent for industrial gas production).

Second, high energy prices are causing headaches for manufacturers the world over. Some energy sources, like crude oil and (increasingly) natural gas are priced in world markets, so any international differences in end-user cost simply reflect variation in refining and transportation costs.

This report goes beyond the methodology of the original cost study to examine the impact of changes in prices of the three primary sources of energy purchased and used by industry: natural gas, electricity, and petroleum-based fuels. Using industry end-use price data from the International Energy Agency, a composite index of manufacturing energy prices was constructed based on the percentage breakdown of consumption of each of the three energy types in each country. The results of that exercise are shown in Table 8.

It is clear from the first three columns that, even in the context of sharp rises in the price of crude oil and natural gas, industry end-use energy prices in the United States are lower than most of its trading partners, particularly Japan, South Korea, and Taiwan. However, Asian manufacturers consume much less natural gas than their European and North American counterparts (largely due to geographic distance from sources of supply), and rely more heavily on petroleum-based fuels. This reliance has worked to Japan and Taiwan's advantage recently, where end-user fuel oil prices are lower than in the United States.

In terms of aggregate energy consumption, the United States enjoys a small trade-weighted cost advantage (+0.9 percentage points) over its nine largest trading partners, which is a small improvement from the previous estimates.[15] However, as previous cost studies noted, it is important to realize that a decade ago the United States enjoyed energy prices on the order of 30 percent lower on average than its major trading partners, implying a cost advantage of more than double that of today. Natural gas, in particular, would in fact be much less expensive in the United States were it not for policy decisions that have limited development of domestic reserves and Clean Air Act mandates that have increased demand for this relatively clean-burning fuel.

Conclusion

The report demonstrates that, while progress has clearly been made with regard to controlling structural costs, much more needs to be done. Even though the gap for employee benefits, tort litigation, and pollution abatement has narrowed with respect to the previous cost studies, the stubborn fact remains that they are still higher than in other countries. Even with improvement over the past five years, structural costs facing U.S. manufacturers remain 17.6 percent higher than our major competitors on a trade-weighted basis.

More significantly, the gap due to corporate tax rates has widened steadily since the 2003 study, reflecting the seeming indifference of policy makers to the corporate tax's corrosive effects on manufacturing competitiveness. The U.S. statutory corporate tax rate is on average 7.8 percentage points higher than those of our major

[15] Based on slightly different methodologies, the 2003 cost study revealed a trade-weighted gap of –0.5 percentage points for natural gas, which widened slightly to –0.7 percentage points in the 2006 cost study.

Table 8
End-User Industry Energy Costs in the United States and Its Nine Largest Trading Partners, 2007 (Index U.S. = 100)

	Natural gas	Petroleum-based fuels	Electricity	Composite energy cost index	Cost difference from U.S.
United States	100.0	100.0	100.0	100.0	—
Canada	88.8	106.6	100.0	98.0	-0.1
Mexico	119.2	60.9	166.7	105.4	0.4
Japan	149.5	93.4	200.0	122.8	1.5
China	N/A	N/A	N/A	N/A	N/A
Germany	100.0	124.3	150.0	124.7	1.7
United Kingdom	114.3	126.1	216.7	149.7	3.3
South Korea	189.3	179.8	116.7	164.5	4.3
Taiwan	163.3	69.1	100.0	81.5	-1.2
France	142.2	126.9	100.0	123.4	1.6
Trade-weighted average of above countries					**0.9**

Sources: International Energy Agency and author's calculations.

Note: In order to maintain consistency with other structural costs, the difference from the United States is adjusted for the fact that energy costs are a fairly small proportion of total manufacturing costs. The data represent the raw percentage difference multiplied by 6.7 percent, which is the share of energy costs in U.S. manufacturing value added.

trading partners, accounting for nearly half of the total U.S. structural cost disadvantage and demands attention from policy makers.

The depreciation of the U.S. dollar has also helped improve the competitive posture of U.S. manufacturers, but it should not serve as an excuse to reduce further efforts to contain structural costs. The falling dollar poses risks of its own, and is not a long-term solution to competitive pressures. Further leveling the playing field with regard to structural costs will allow U.S. manufacturers to compete and win in the global economy irrespective of the vagaries of currency exchange rates.

APPENDIX

The Impact of Recent Exchange Rate Movements on U.S. Manufacturing Competitiveness

Movements in the value of the U.S. dollar affect manufacturing costs in two ways. The first and most important is an indirect price effect: a depreciation of the dollar lowers the price of U.S. exports expressed in the foreign currencies. Depending on pricing strategies for foreign markets, this will either result in stronger product demand (assuming this implied price decrease is passed through to consumers) or higher revenue per unit of production (assuming the price in foreign currency is unchanged). Both of these have the effect of increasing cash flow.

The second (and much smaller) is a direct effect: for raw materials (and any other input, for that matter) that are priced in U.S. dollars, a depreciation of the dollar reduces raw materials costs of foreign manufacturers relative to the United States, while a dollar appreciation increases foreign raw materials costs. Because raw materials generally account for a small fraction of total production costs, this effect is not analyzed here.

Several economic studies have calculated "pass-through elasticities" for import prices, which essentially measures how much of an appreciation of the U.S. dollar actually "gets passed through" as an import price decline. An empirical analysis by two economists at the Federal Reserve Bank of New York finds that the United States has one of the lowest pass-through rates of the OECD countries: 25 percent of currency fluctuations are passed through over the short term (3 months) and 40 percent over the long term (3 years).[*]

Information about pass-through rates in other countries can give an idea about how movements in the U.S. dollar affect exports to other countries. Pass-though rates for our major industrial trading partners are higher than for the United States, which implies that currency fluctuations have a more pronounced effect on U.S. manufacturing competitiveness than elsewhere. For example, Canada (for which the United States accounts for 80 percent of its imports) has a long-run pass through rate of 0.73 for manufactured goods, meaning that each 10 percent appreciation in the U.S. dollar will cause Canadian import prices (and, indirectly, U.S. export production costs relative to Canada) to increase by 7.3 percent. A 10 percent depreciation in the U.S. dollar would have the opposite effect.

The table below shows how changes in exchange rates since 2003 have affected aggregate U.S. manufacturing competitiveness and reveal a trade-weighted depreciation of the U.S. dollar of 15.9 percent relative to our nine largest trading partners, which translates into a 10.4 percent cost improvement once pass-through rates are taken into account.

Effect of Exchange Rate Movements on U.S. Manufacturers' Competitiveness Relative to Its Nine Largest Trading Partners, 2003-2008

	Change in value of U.S. dollar relative to foreign currency	Import pass-through rate	Trade-weighted effect on manufacturing costs
Canada	-27.7	0.73	-20.2
Mexico	-5.3	0.50	-2.7
Japan	-7.8	0.85	-6.7
China	-17.4	0.50	-8.7
Germany	-16.2	0.50	-8.1
United Kingdom	-17.7	0.53	-9.4
Korea	-14.7	0.50	-7.4
Taiwan	-11.6	0.50	-5.8
France	-16.2	1.06	-17.1
Trade-weighted average of above countries	**-15.9**	**0.63**	**-10.4**

Sources: José Manuel Campa and Linda Goldberg, "Exchange Rate Pass-Through into Import Prices," *Review of Economic Statistics*, volume 87, number 4, November 2005, pp. 679-690, U.S. Federal Reserve Board, and author's calculations

Note: Pass-through rates are generally thought to be lower in non-industrialized countries. Based on this belief, pass-through rates for Mexico, China, Korea and Taiwan are assumed to be equal to the minimum pass-though rate of industrialized partners.

[*] José Manuel Campa and Linda Goldberg, "Exchange Rate Pass-Through into Import Prices," *Review of Economic Statistics*, volume 87, number 4, November 2005, pp. 679-690.

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