

Center  
for the  
Study of  
American  
Business



*Regulatory Costs in Profile*

by Thomas D. Hopkins

Policy Study  
Number 132

August 1996



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**CENTER FOR THE STUDY OF AMERICAN BUSINESS**

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This booklet is one in a series designed to enhance the understanding of the private enterprise system and the key forces affecting it. The series provides a forum for considering vital current issues in public policy and for communicating these views to a wide audience in the business, government, and academic communities.

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## Introduction

Federal regulation affects virtually every segment of the U.S. economy. Some 60 federal agencies develop, implement, and enforce myriad regulations, resulting in hidden compliance costs of \$668 billion annually. This paper presents estimates of annual private-sector compliance costs with federal regulation for 1977 through 2000, focusing on differences in compliance costs among firms.

Spending at different-sized firms is not equal. As shown by Table 1, the average small firm with fewer than 20 employees spent more than \$5,500 per employee to comply with federal regulations in 1992. In contrast, firms with 500 or more employees spent less than \$3,000 per employee. All federal regulation is included: environmental and workplace risk reduction; e.g., Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA); price and entry controls (e.g., import restrictions); and paperwork (mostly tax-driven).

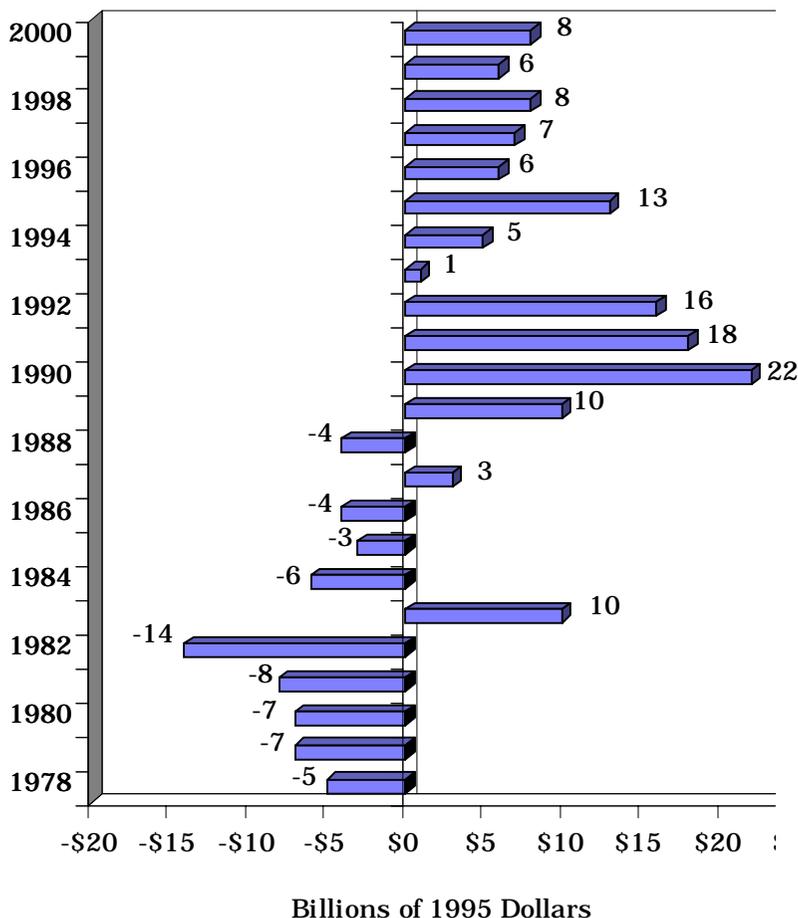
In addition (as shown in Figure 1), regulatory compliance costs facing all U.S. businesses rose by \$10 billion or more annually in the four years ending in 1992, following a decade in which such costs generally had been edging downward. More moderate annual increases are projected for the rest of this decade, even without factoring in those reforms now being debated by the administration and Congress. It is too early to determine the quantitative effects of post-1994 legislative and administrative reforms, which this paper thus does not take into account.

Better understanding of the scope and incidence of compliance costs should facilitate more rational debate about the role and effects of government and better targeting of efforts to improve government oversight. However, benefits assessments – a companion task well beyond the limits of this study – also must be undertaken before balanced judgments can be reached about the merits of any particular regulation.<sup>1</sup>

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Thomas D. Hopkins is an adjunct fellow of the Center for the Study of American Business at Washington University in St. Louis and the Arthur J. Gosnell Professor of Economics at Rochester Institute of Technology. This paper is an abridged and modified version of a report prepared for the Small Business Administration. The author gratefully acknowledges research assistance provided by Amy Crowley.

Figure 1  
**Business Regulatory Cost Changes, 1977-2000**



Source: Author's calculations.

A few caveats are necessary. Unlike the situation with government taxing and spending programs, no comprehensive cost accounting system exists for regulation. It generally is less easy to discern who bears how much costs from regulatory compliance than is true for other governmental actions. The regulatory cost estimates that appear in this paper lay no claim to precision; both conceptual and empirical challenges make precision unattainable. Rather, the paper offers general profiles of the costs of our regula-

Table 1  
**Regulatory Costs for Different Size Firms, 1992**

Type of Regulation	1-19 Employees	20-499 Employees	500+ Employees
Environmental and risk reduction	\$1,904	\$1,824	\$1,025
Price and entry controls	1,624	1,440	810
Paperwork	<u>2,017</u>	<u>1,931</u>	<u>1,086</u>
All federal regulation	\$5,545	\$5,195	\$2,921

*Source:* Author's calculations.

tory system, reflecting judgments about the scope of regulations covered as well as the distribution of their costs by firm size.

In moving beyond this preview, the paper describes the array and cost of regulations, explains how it allocates these regulatory costs across sectors of the economy, and discusses the resulting patterns of regulatory compliance burdens.<sup>2</sup>

### Scope of Regulatory Costs

The total direct cost of our federal government is the sum of two items: those regulatory costs reported here, and outlays from tax collections and borrowing reported in the budget of the U.S. government. That is, the regulatory costs presented in this paper are over and above everything that shows up in the federal budget. For example, the direct cost to the nation of a pollution control regulation consists of spending by the EPA for monitoring and enforcement (which does appear in the federal budget) and spending by business to install the necessary equipment and change the way it operates (which the federal budget does not show). To the extent that the government reimburses firms for some regulatory costs – for example, in the case of paperwork burdens stemming from procurement rules – such costs are excluded from this paper's regulatory estimates to avoid double-counting.

The cost shown for any particular regulation is the total cost borne directly by business, state, or local governments, and individuals to comply with the federal requirements. This falls well short of the total cost to the country of regulatory efforts because the federal government spends taxpayer funds in carrying out regulatory programs. Hence, this paper focuses on what could be termed nonbudgeted costs imposed by federal government operations.<sup>3</sup>

Three fundamentally important regulatory effects are not captured in these estimates – benefits, indirect burdens, and burdens attributable to state and local government. Following in the tradition of the federal fiscal budget, which shows the costs of defense as well as all other government programs, while remaining silent on their benefits, this paper make no effort to indicate how closely the costs of regulations are matched by their benefits. Secondly, the initial burden of complying with a regulation is by no means the end of the burden story; many regulations also have indirect effects on innovation and productivity that may be quite substantial, but these effects lie beyond the scope of this paper. Finally, each of our 50 states has its own array of additional regulations superimposed on federal regulations, and this paper is aimed primarily at the latter, although in some instances, the sources of the regulations cannot be disentangled.

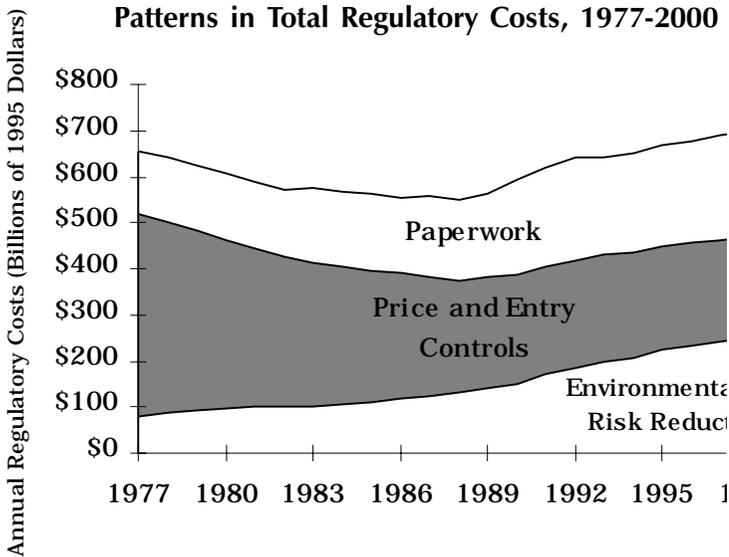
Since the government does not maintain a comprehensive, ongoing set of regulatory cost accounts, there is no easy way to sum up regulatory costs. The starting point for this paper's estimates is a 1992 research project sponsored by the U.S. Regulatory Information Service Center.<sup>4</sup> The data from that study have been revised to incorporate subsequent evidence and restated in 1995 dollars.

The paper defines regulation broadly to include three major groups of federal requirements. *Environmental and risk reduction* regulations are mandates aimed at lessening pollution and other societal risks. *Price and entry control* regulations are restrictions on rates and on business entry. *Paperwork* regulations include tax compliance procedures and paperwork requirements not having a direct social or economic function; the cost of paperwork regulation is largely the value of time that businesses and consumers must devote to paperwork. Table 2 gives annualized regulatory costs for these major groups. Figure 2 graphically portrays these costs over time.

## **Environmental and Risk Reduction Regulation**

Most costs from this type of regulation are for environmental protection, which encompasses:

Figure 2



Note: Regulatory Costs for 1995-2000 are estimates.

Source: Author's calculations.

- Air emission controls
- Water pollution controls
- Solid waste disposal regulation
- Handling and labeling of hazardous materials
- Noise regulation
- Superfund compliance
- Nuclear power safety

This study relies primarily on EPA data that show sharply rising costs throughout 1977-2000.<sup>5</sup> A slightly different pattern appears in data published by the Department of Commerce's Bureau of Economic Analysis (BEA), showing somewhat larger compliance costs than EPA's data in the earlier years of this period (1977-1989) and lower costs in later years (1989-2000).<sup>6</sup> It is not clear which series is more accurate.<sup>7</sup>

The rest of this category of regulation covers an array of programs and objectives for which data are less adequate than in the case of environmental regulation. They include:

- OSHA worker health (illness prevention) and safety (accident prevention)

Table 2

**Annualized Regulatory Costs (1995 dollars, in billions)**

Year	Environmental and Risk Reduction	Price and Entry Controls	Paperwork	Total Regulatory Costs
1977	\$80	\$437	\$138	\$654
1978	87	415	139	640
1979	94	390	139	623
1980	99	364	143	606
1981	100	343	147	590
1982	100	326	144	570
1983	103	312	161	576
1984	107	297	163	567
1985	112	285	165	561
1986	118	272	165	555
1987	125	258	174	557
1988	132	244	173	549
1989	141	241	180	561
1990	151	236	206	594
1991	169	233	219	621
1992	184	232	226	642
1993	200	230	212	642
1994	206	228	215	649
1995	223	227	218	668
1996	232	224	221	677
1997	240	223	225	688
1998	250	221	229	700
1999	258	219	232	709
2000	267	218	236	721

Source: Author's calculations.

- Retirement/pension benefits protections (ERISA)
- Family leave requirements
- Equal opportunity/affirmative action/ADA disability and accessibility
- Other product/service safety (CPSC, NHTSA); performance/warranties (FTC)
- Labeling/advertising standards

## Price and Entry Control Regulation

Governmental controls on labor markets and on product prices and availability once dominated all regulatory burdens. However, deregulatory efforts, particularly in energy and transportation, of the Carter and Reagan administrations shrank those burdens considerably. Nonetheless, they still represent roughly a third of total regulatory burden in the United States (and loom even larger in Western Europe). This category includes both a wealth transfer component (about two-thirds) and a resource usage component (the remaining third). The former can be termed a “pick-pocket” effect, while the latter is a “featherbedding” effect.

The pick-pocket effect is a transfer of spending power that absorbs no physical resources. For example, consumers pay higher prices to domestic producers as a result of textile import restrictions. The featherbedding effect is a mandate forcing producers to use more resources than they otherwise would in providing their products or services (recall the empty backhauls that in the 1970s plagued the trucking industry due to Interstate Commerce Commission regulation). While some contend that the pick-pocket effect should not be counted as a cost of regulation, it is sure to induce costly, self-aggrandizing behavior by defenders of the regulation in the form of lobbying and other “rent-seeking” activities. Thus it is included here.

One important component of price and entry control regulation is international trade restrictions. Recent research by Gary Clyde Hufbauer and Kimberly Ann Elliot for the Institute for International Economics lowers the burdens from those reported in the 1992 study, and this paper’s estimates have been reduced accordingly.<sup>8</sup> Other components include:

- Wage and hour standards (overtime, minimum wage, Davis-Bacon wages)
- Regulations on pricing and marketing of agricultural products/services
- Energy rate and conservation regulations
- Transportation price and entry restrictions

- Communication rate and entry regulation
- Financial, banking, insurance regulations

## **Paperwork Regulation**

The basic data source for paperwork regulation is the annual accounting of burden hours published by the Office of Management and Budget (OMB).<sup>9</sup> The category is dominated by taxpayer time required to comply with the intricacies of the tax code. It is possible to show tax-related paperwork burden separately from other paperwork demands because OMB reports Treasury Department burden separately from other agencies. It is not possible to further segment the data, however. Two other smaller segments of paperwork regulation include costs of complying with health-care regulatory cost control systems and costs of meeting federal mandates placed on state and local governments.

## **Incidence of Business Regulatory Costs**

American business is extraordinarily diverse in size and nature as well as in its exposure to regulatory burden. Moreover, not all regulation is imposed on business. Some directly hit individual citizens, and some are aimed by the federal government at state and local governments. The task of sorting through what forms of regulation hit which size categories of businesses can be accomplished by constructing profiles that appear reasonably intuitively and consistent with such data as exist. The approach taken here is to develop certain decision rules of cost allocation based on judgments about evidence that could be marshaled across the economy and regulatory programs. The costs of regulatory compliance are spread across sectors and firm sizes showing plausible ranges. The paper uses a three-part firm size classification, relying on Small Business Administration (SBA) data on employees per enterprise (as distinct from establishment): under 20 employees, 20-499 employees, and 500+ employees.

To place these size classes in perspective (using SBA data for 1992), about 90 percent of all U.S. enterprises employ fewer than 20 employees and only 0.3 percent employ over 500. On the other hand, some 47 percent of all employment is in enterprises with 500+ employees, and only 20 percent is in enterprises with fewer than 20 employees. Data are presented separately for four sectors:

- manufacturing
- wholesale/retail trade
- services

- other, a residual containing all other enterprises

To the extent feasible, the paper expresses compliance costs on a per-employee basis and on a per-revenue-dollar basis across these sector/size classes. However, data limitations make the results illustrative rather than conclusive.

For every regulatory category, the paper separates the burden that falls initially on business from the residual burden on individuals and state and local governments. No attempt is made to trace the subsequent shifting of this burden across individuals in their various economic roles (consumers, workers, investors); tax-incidence theory is inconclusive, and regulatory incidence even more complex.<sup>10</sup>

The basic cost allocation assumptions used to isolate business regulatory burden are shown below:

- Environmental and risk reduction: for environmental, business 65 percent and others (individuals and state and local governments) 35 percent;<sup>11</sup> for other risk reduction (e.g., OSHA), business 100 percent
- Price and entry controls: business 50 percent, others 50 percent
- Paperwork:
  - ♦ Mandates: business 0 percent, others 100 percent
  - ♦ Health care: business 50 percent, others 50 percent
  - ♦ Tax: business 66 percent, others 33 percent<sup>12</sup>
  - ♦ Other: business 100 percent

These percentages are well supported by other research in the cases of the two dominant regulatory categories – environmental and tax compliance, representing about two-thirds of all regulatory costs. (This research is discussed below.) In the absence of information for the remaining one-third, the percentages shown above simply represent judgments based on available anecdotal evidence. Because these categories are relatively small, changes in these judgments would not have great effects on the paper’s overall findings. Clearly, however, this is an area where further research should be undertaken.

Similarly, in the absence of more adequate empirical information, a judgmental approach is used to allocate the business segment of costs across sectors:

- Environmental: 70 percent manufacturing; 10 percent trade, 10 percent services, and 10 percent to “other sectors”
- Other risk reduction: 40 percent to manufacturing, 20 percent to trade, 20 percent to services, and 20 percent to “other sectors”

- All other regulation (price/entry and paperwork): costs allocated across the four sectors in proportion to each's share of private-sector jobs

While these allocations are not inconsistent with research findings reviewed below, they lack solid empirical grounding and can only be taken as tentative; this is another area very much in need of further research.

The share of regulatory compliance burden on business and on others is shown for 1977 through 2000. The business share is then allocated across sectors for the year 1992, the latest for which SBA employment data exist. The data on individual sectors are presented as profiles in which costs per worker vary with firm size. The paper indicates what smaller firms must be spending if they are 30 percent above the sector's average and what larger firms must be spending if they are 30 percent below. That is, after average per employee cost is derived for a sector, it is multiplied by 1.3 to get the smallest firms' costs and by 0.7 to get the largest firms' costs. The per-employee cost for firms of intermediate size (20-499) is computed as a residual – sectoral costs not accounted for by the other two size classes, divided by the number employed in intermediated sized companies. This ensures that total costs of each sector are consistent with the rest of the paper.

While these percentages are essentially illustrative, they are consistent with a recent survey of enterprises in 15 diverse industries: among those enterprises facing at least moderate regulatory burdens per employee, firms employing fewer than 20 workers had 30 percent above average regulatory costs.<sup>13</sup> Other studies into the firm-size pattern of regulatory costs exist and are reviewed later in this paper, although they offer no consensus, and the issues are contentious. More importantly, the applicability of existing studies is slim because most predate the late 1980s regulatory cost surge and apply to only limited segments of regulation. Of course, many regulatory requirements are tiered or provide leniency for smaller businesses, but such practices are by no means universal and in particular do not apply to most tax regulation.<sup>14</sup>

## **Patterns and Profiles**

This section of the paper presents the total regulatory cost picture, allocates these costs across business sectors, and compares this allocation with results from other studies.

## Levels of Regulatory Costs, 1977-2000

Compliance costs for 1995 total \$668 billion. In constant dollars, these costs fell from 1977 through about 1988 and then increase thereafter. In essence, the cost savings from economic deregulation had for a decade more than offset the rising costs of environmental and risk-reduction regulation, but such deregulation stalled in the mid-80s. From 1977 to 1992, there were dramatic changes in the importance of environmental regulation, whose share of total costs tripled. Price/entry regulation's share dropped by about half. The share of paperwork regulatory costs rose, although less dramatically.

Each of the three regulatory groups – environmental/risk reduction (often termed social regulation), price/entry (economic regulation), and paperwork (process regulation) – now accounts for roughly a third of total compliance spending, a dramatic change since 1977 (see Figure 3). Tax-related paperwork and pollution control are the two most costly components of regulatory burden. The price and entry regulation have falling costs.

If all regulatory costs were shared equally and collected directly from individuals, every U.S. household in 1995 would have been billed nearly \$7,000 in addition to taxes. (See Figure 4.) Public debate about the cost of government usually focuses on taxes, while ignoring regulatory burdens. Yet regulatory spending is fully half as large as federal taxes. The combined burden per household of taxes and regulation (in constant dollars) was about the same in 1995 as it was in 1977, having declined from 1977 to 1983 and then resumed rising.

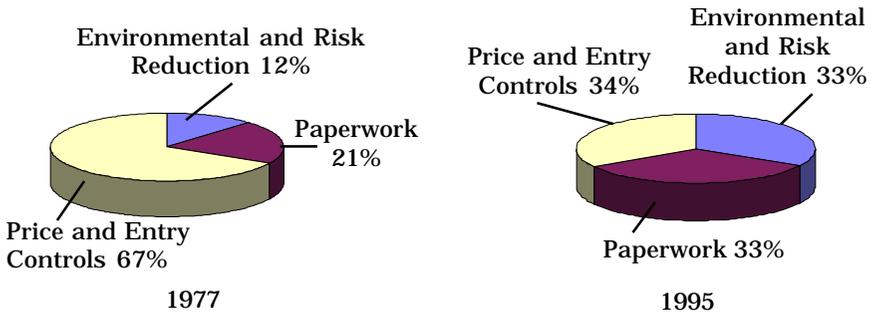
When total regulatory compliance costs are expressed relative to gross domestic product, a decline occurred from 1977 to 1988. Costs then increased through 1992 and subsequently have been hovering in the 9 percent range. Sufficient economic growth has occurred to soften the apparent burden of regulatory spending.

## Allocation of Regulatory Costs

Ultimately all regulatory burdens are borne by individuals in their varied roles as consumers, taxpayers, workers and investors. Initially, however, much regulatory spending must be financed by businesses. Using the allocation approach explained on page nine, the business community in 1995 spent \$415 billion to comply with federal regulation, a sharp increase since the \$329 billion spent in 1988. About a third of this cost fell on manufacturing firms; the remainder was paid in roughly equal shares by three sectors (trade,

Figure 3

### Percentage Distribution of Regulatory Costs



Source: Author's calculations.

services, and all other enterprises). In constant dollars, the manufacturing regulatory burden has climbed sharply since 1982, while other sectors have experienced little change.

Were the cost of business regulation directly proportional to a firm's total number of employees or its total receipts, each enterprise would have paid in 1992 (the latest year with adequate data) a total regulatory bill of \$4,255 per employee or 2.7 percent of its receipts. As shown by Table 3, manufacturing enterprises would have paid roughly twice as much per employee as firms in other sectors. Service sector enterprises would have had the highest regulatory costs as a percentage of receipts at 4.8 percent.

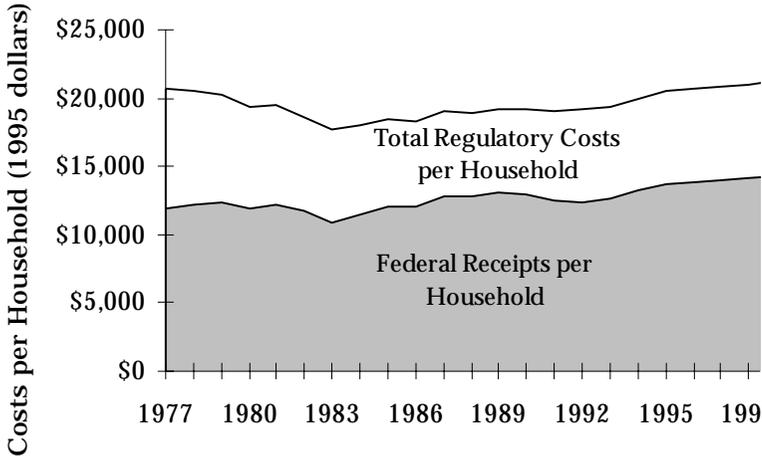
Yet it is not likely that costs per employee are uniform across different sized firms, and the allocation approach described earlier allows creation of burden-size profiles. (See Figure 5.) In the trade and service sectors, the profile shows regulatory costs per employee in 1992 of some \$4,000 for enterprises with fewer than 20 employees, falling somewhat for firms with 20-499 employees, and further to \$2,200 for firms with more than 500 workers. By contrast, manufacturing enterprises employing 20-499 workers faced higher per-employee costs than either smaller or larger manufacturers. The cost range per employee across manufacturers of all sizes is \$4,900-\$10,600. These results are a direct reflection of the allocation assumptions employed and merely illustrate plausible ranges.

### Comparisons with Other Studies

The patterns and ranges shown in this paper are roughly consistent with existing research, although comparisons are hampered

Figure 4

### The Full Federal Burden: Federal Tax Revenues and Regulatory Costs per Household, 1977-2000



Note: Costs for 1995-2000 are estimates.

Source: Author's calculations.

by the fact that other studies completed to date are less comprehensive in scope and coverage. One general comment from economist W. Kip Viscusi helps explain the overall pattern found here for 1977 to 2000:

By the mid-1980s, the regulatory reform effort had ended. . . . Regulatory agencies proposed regulations with greater costs than ever before. OMB became less influential in altering the structure of regulation, and regulatory enforcement became more vigorous than before the onset of deregulation.<sup>15</sup>

The single most costly type of regulation — paperwork regulation — is dominated by burden hours to comply with tax requirements. The Tax Foundation, using a higher hourly labor cost (\$37) than does this paper (\$26), put the 1993 cost of tax compliance at \$123 billion for businesses and \$60 billion for individuals, for a total of \$183 billion. For comparison, this paper's independently derived tax compliance estimates are, respectively, \$109 billion and \$44 billion.

In a 1993 study for the Tax Foundation, Joel Slemrod and Marcia Blumenthal concluded that tax compliance costs amount to roughly 5 to 7 percent of tax revenues for individual income tax-

Table 3

**Business Regulatory Costs per Employee, 1992  
(in 1995 dollars)**

Type/Firm Size	Type of Regulation			Total Costs
	Environment and Risk Reduction	Price and Entry Controls	Paperwork	
<b>Manufacturing</b>				
<20	\$5,796	\$1,431	\$1,789	\$9,016
20 to 499	6,818	1,683	2,104	10,605
500+	3,121	772	963	4,856
<b>Trade</b>				
<20	908	1,412	1,765	4,085
20 to 499	821	1,277	1,596	3,695
500+	489	760	950	2,200
<b>Services</b>				
<20	763	1,441	1,780	3,985
20 to 499	681	1,287	1,590	3,558
500+	411	776	959	2,146
<b>Other</b>				
<20	1,285	2,426	2,997	6,708
20 to 499	1,216	2,296	2,836	6,348
500+	692	1,306	1,614	3,612
<b>U.S. Totals</b>				
<20	1,905	1,625	2,017	5,546
20 to 499	1,824	1,556	1,931	5,311
500+	1,025	875	1,086	2,986

Numbers may not add due to rounding.

Assumes small firms experience per employee costs that are 30 percent higher than the average, and that the largest firms experience per employee costs that are just 70 percent of the average.

Source: Author's calculations.

Figure 5

**Regulatory Costs per Employee by Firm Size,  
1992 (1995 Dollars)**



Source: Author's calculations.

tion. By contrast, “collecting revenue from large enterprises is relatively efficient” in that large businesses experience a smaller relative burden.<sup>16</sup> However, this burden climbs dramatically for smaller businesses. Indeed, the Tax Foundation reports that smaller businesses face \$390 in compliance costs for every \$100 in actual tax payments. “Corporations with annual sales of less than \$1 million face a compliance cost burden relative to sales about 10 times greater than corporations with annual sales of more than \$10 billion,” the foundation reports.<sup>17</sup> The smaller the firm, the larger the Tax Foundation’s ratio, ranging from 0.50 percent of sales for firms with less than \$50 million in annual sales to 0.13 percent for firms with \$500 million in sales (and down to 0.05 percent for firms with \$10 billion in sales).<sup>18</sup> Again for comparison, this paper finds tax-only compliance burdens of 0.7 percent of receipts for the average firm. Slemrod and Blumenthal observe that “as companies get larger, their total cost of tax compliance increases, but it increases at a rate less than proportional to the increase in company size.”<sup>19</sup>

Environmental regulation also has been studied extensively. Resources for the Future economist Paul Portney reports EPA estimates that compliance costs in 1994 reached \$140 billion, of which the federal government paid 15 percent, corporations 60 percent and state and local governments 25 percent.<sup>20</sup> Economist Adam

Jaffe reports that compliance with federal environmental regulation now averages 2 percent of total production costs in U.S. industry.<sup>21</sup> Using 1979-90 data, economists Wayne Gray and Ronald Shadbegian found an average pollution abatement spending by paper mills of 1.5 percent of value of shipments, steel mills 1.2 percent, and oil refineries 0.8 percent.<sup>22</sup> Economist James Robinson, using BEA data for all manufacturing, concludes that environmental regulation compliance costs as a percentage of value of shipments rose steadily from 1977 to 1986 (except for a slight dip in 1984) from 0.75 to 1.14 percent. He also finds large variation across industries, with the top 5 percent of industries spending 4.5 percent in 1986, while at the other extreme, some spent less than 0.2 percent throughout the period (such as apparel and printing).<sup>23</sup>

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*Direct costs of meeting employment mandates imposed by the federal government have been rising twice as fast as wages and salaries.*

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Economist Richard Schmalensee reports that the seven industries with 70 percent of all environmental regulatory compliance spending had \$6,000 in such costs per worker in 1990; in contrast the average for all manufacturing, mining, and electric utilities was \$2,100 per employee and for all private, nonfarm industries was \$500.<sup>24</sup> The Environmental Protection Agency estimates compliance cost of the lead-based rule proposed in 1994 alone as 1.2 to 3.2 percent of total operating costs for small firms, and 1 to 2.3 percent for large, in the particular industry segments affected.<sup>25</sup> For comparison, this paper puts 1992 environmental regulatory costs at 0.6 percent of receipts as a national average, and 1.8 percent for manufacturing firms.

For risk reduction regulation unrelated to pollution control (e.g., worker health and safety, auto and other product safety, etc.), no comprehensive data exist. Robinson gathered cost data for just eight major OSHA health regulations from 1974 through 1986 and found rising compliance costs, as a percentage of value of shipments from 1977 through 1980 and then a slow decline to 1986. In his peak year of 1980, no manufacturing industry faced more than 0.2 percent levels, and costs were heaviest for primary metals, textile mills, and stone-clay-glass products.<sup>26</sup> His estimates, of course, take no account of OSHA safety regulation or of other com-

ponents, such as compliance with U.S. civil rights regulations. Economist Murray Weidenbaum reports the latter entails annual direct compliance expenditures by business of \$5.8 billion; more broadly, he concludes that “direct costs of meeting employment mandates imposed by the federal government have been rising twice as fast as wages and salaries.”<sup>27</sup>

Economic regulation is unique in that costs here are declining rather than rising. As noted above, the one segment of economic regulation for which this paper changes the 1992 study’s assumptions is international trade regulation, where, as the President’s Council of Economic Advisers points out, “costs extend beyond consumers, to higher costs for other industries that use the protected products as inputs.”<sup>28</sup> The change reflects Hufbauer and Elliot’s findings that between 1984 and 1990 there was a significant decline in the cost of protection in all sectors except textiles and apparels:

The aggregate costs of special protection are about the same in 1990 as in 1984 in nominal terms. As a percentage of U.S. GNP, however, the costs to consumers dropped from 0.8 percent in 1984 to about 0.6 percent in 1990. . . . The share of total U.S. imports affected by trade barriers dropped from 21.5 percent of all imports in 1984 to only 10.4 percent in 1990.<sup>29</sup>

The remainder of economic regulation remains as posited in the 1992 study; while much deregulation occurred after 1977, a surprisingly large amount of such regulation still persists. For example, in the transportation area, notwithstanding the December 31, 1995 termination of the venerable Interstate Commerce Commission, regulation still faces the railroad and maritime industries, as well as pipelines, buses and trucking, now the province of the new Surface Transportation Board.<sup>30</sup> Continuing regulation of long-distance telephone service alone has been estimated to create efficiency costs of \$1.5 billion to \$10 billion annually.<sup>31</sup> The Council of Economic Advisers finds that further reform of the nation’s telecommunications regulations “could add over \$100 billion (in discounted present value) to GDP over the next decade” by inducing innovation and greater competition.<sup>32</sup> All businesses, small and large, would experience, as a result, reduced costs and improved quality in their telecommunications services.

This paper embodies more conservative assumptions than those used by the Tax Foundation and by others such as the Heritage Foundation in estimating aggregate regulatory costs.<sup>33</sup> One other higher set of estimates appears in a June 1995 report prepared for the Small Business Administration, which concluded that,

among the two-thirds of surveyed firms reporting at least moderate regulatory burdens, the average firm spent 14 percent of its revenues for regulatory compliance, which represented \$17,000 per employee; firms with fewer than 50 employees generally reported costs above these averages.<sup>34</sup> That survey was not intended to be representative of the entire economy, collecting data only from enterprises with under 1,000 employees and limiting its queries for the third of sampled firms reporting only minor burdens. Thus it is not strictly comparable to this more broadly based paper.

The Small Business Administration has sponsored considerable additional research into regulatory cost incidence, but most of it relies on data from years preceding the regulatory surge of the late 1980s. One basic premise subjected to considerable empirical investigation is that, since regulatory costs have some components that are fixed and some that vary in proportion to firm size, larger firms may encounter smaller average costs.<sup>35</sup> However, economist David Evans, using 1978-1981 data on EPA and OSHA regulation of manufacturing and chemical industries, did not find that such regulation has economies of scale benefiting larger firms and thus unduly burdening smaller firms.<sup>36</sup> This was consistent with an earlier study by Evans and Brock using 1964-78 data, that found no signs of disproportionate burdens from such regulation.<sup>37</sup> Both studies do acknowledge such patterns, however, for some other regulation (particularly ERISA and banking requirements).

On the other hand, economists Roland Cole and Paul Sommers, using a mailed survey to firms in nine industries in two states, concluded that burdens clearly were heavier on smaller firms on average, although burdens varied more across small firms than across large ones.<sup>38</sup> They found firms with under 50 employees had costs seven to 10 times those of larger firms. Similarly, economist Todd Morrison's study of 14 regulations in 150 three-digit industries, using cost data from regulatory agencies rather than from firms, showed the median small firm (mid-sized firm) with 2.8 (1.4) times the average cost per employee compared to the average large firm.<sup>39</sup>

Firm size/burden patterns remain sharply in contention, with the notable exception of tax compliance as explained previously.<sup>40</sup> A review by economist Charles Brown et al. of non-tax related burden patterns that largely is supportive of Brock and Evans contends that exemptions and differential enforcement practices cushion the regulatory burden placed on smaller businesses.<sup>41</sup> That review concludes this cushion more than offsets any economies of scale enjoyed by larger firms in adjusting to the fixed cost aspects of regulation, with some notable exceptions such as banking regulation.

Brown's conclusion rests in part on a finding that in service, construction, and manufacturing firms, regulators were less vigilant in inspecting and fining smaller businesses from 1981 to 1985 than they were for larger businesses. Contrasting evidence comes from retirement plan regulation. Economist Arnold Brooks et al. found that it is considerably more costly (by a factor of three or four) for small businesses to set up and administer pension benefit plans (on a per participant basis) than is true for intermediate-sized businesses.<sup>42</sup>

Regulatory burdens take more forms than explicit compliance costs, of course, although their measurement is beyond the reach of this paper. Robert Brown and Thomas Dean find, for example, that environmental regulation acts as a net deterrent to new entry by small firms.<sup>43</sup> This contradicts Evans' 1985 conclusion and may reflect the sharp increase in burdens since 1985. Similarly, economist Lacy Thomas concludes that FDA regulation causes sharp reductions in productivity and innovation among smaller pharmaceutical firms, while actually benefiting the largest firms.<sup>44</sup>

## Conclusions

Regulation is a powerful but poorly measured shifter of resources. It causes consumers and businesses to spend a good deal of their money in ways they do not freely choose, and the consequences of this coerced spending are a mixed blessing. Smaller firms are especially burdened despite a variety of efforts over the years to provide exemptions keyed to business size. The average small firm with fewer than 20 employees appears to have spent some \$5,500 per employee to comply with federal regulations in 1992. In contrast, firms with 500 or more employees spent, on average, a much smaller \$3,000 per employee. For 1992, regulatory costs per employee appeared to be about \$4,000 for trade and service sector firms with fewer than 20 employees; such small firms faced about 85 percent higher costs per employee than did firms employing 500 or more. Manufacturing firms employing 20-499 faced higher per employee costs than either smaller or larger manufacturers, and manufacturing firms of all sizes had higher costs per employee than firms in other sectors, ranging from \$4,900 or \$10,600.

In the aggregate, regulatory compliance costs are now in the \$670 billion range. Total costs fell (in constant dollars) from 1977 to about 1988 and then increase in absolute terms from 1988 to 2000. When total costs are expressed relative to GDP, a decline also occurred from 1977 to 1988. Costs as a percentage of GDP

then increased through 1992, subsequently stabilizing around 9 percent.

The feasibility of isolating the effect that federal regulation has on small business is seriously hampered by the present state of governmental accounting systems. Notwithstanding the substantial burdens created by federal regulation, no comprehensive system exists for a regular, annual accounting of such costs. Indeed, while the influential Federal Accounting Standards Board (FASAB) acknowledges the importance of these “directed resource flows” as it terms them, the FASAB July 1995 draft recommendations stop short of advocating remedies to this complex problem. Thus the decidedly primitive allocation assumptions underlying this paper represent, regrettably, the state of the art. Given the substantial magnitudes involved, there seems little excuse for the “hands-off” approach taken by government statisticians and accountants. Simply because a cost does not correspond to a tax collection should not spare the government from a responsibility to document the costs it is imposing on business.

The estimates and projections that appear in this paper should not be interpreted as a claim to new and precisely correct figures. Rather, they should be seen as a challenge to the regulatory status quo. Surely, more sophisticated cost estimates about both aggregate levels and incidence can and should be made available to the public and to decision-makers to foster better informed public policy.

Several caveats warrant emphasis here, underscoring the exploratory nature of this paper’s estimations. The first is that there are problems with both of the two primary sources of regulatory compliance cost data, business surveys or audits conducted after regulations are in place (ex post), and projections made before regulations are adopted (ex ante). The latter have been used widely on a regulation-specific basis by federal agencies ever since President Carter signed Executive Order 12044 in 1978, and the former are produced annually by the Department of Commerce and others. A problem common to both techniques is highlighted by Robinson:

When forced to reduce their pollution discharges, establishments may purchase new equipment that is more efficient as well as less polluting. It is inappropriate to assign the full cost of these capital expenditures to EPA regulation.<sup>45</sup>

As to ex post surveys, there is a natural temptation on the part of a regulated entity to overstate its burden, and in any event sorting out these effects is both complex and devoid of payback to the firm. As to ex ante projections, the numbers rely on informed

guesses by regulators on how (and how many) regulated firms will in fact comply. Adam Jaffe points out that it will become increasingly difficult to identify regulatory costs as we increase our reliance on performance rather than design standards.<sup>46</sup> Further non-compliance continues to be a serious concern; more than a third of firms recently surveyed in 15 industries reported that full compliance with most regulations is uncommon.<sup>47</sup>

One problem plaguing ex ante projections is that some particular regulatory costs decline over time, partly because what was initially forced becomes generally accepted so that elimination of the regulation would not yield any savings. This is true of much auto and aviation safety regulation, and probably also of some EPA and OSHA standards; it is not true of economic or much process regulation. Additionally, costs may decline as firms learn how to comply in a more efficient fashion.

These challenges facing research into regulatory costs are substantial, but the scale and scope of such costs are sufficient to justify increasing the priority accorded them by policymakers and researchers. Better data are needed on the incidence of regulatory costs, and that data should be used more extensively in tiering regulatory requirements to avoid undue burdens on small business, particularly in the relatively neglected paperwork regulation area.

## Notes

1. For a cogent elaboration of this point, see Kenneth J. Arrow, et al., "Is there a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?" *Science*, Vol. 272, April 12, 1996, pp. 21-22.
2. Additional data is available in Thomas D. Hopkins, "Profiles of Regulatory Costs," Report to U.S. Small Business Administration, No. PB96-128038 (Springfield, Va.: National Technical Information Service), November 1995. The SBA does not necessarily concur with this paper's findings.
3. This approach differs from that used by the Center for the Study of American Business at Washington University, which excludes process regulation and focuses on those costs that appear in the federal budget. See Melinda Warren and Barry Jones, *Reinventing the Regulatory System: No Downsizing in Administration Plan*, (St. Louis, Mo.: Washington University, Center for the Study of American Business, July 1995).
4. Thomas D. Hopkins, "Costs of Federal Regulation," *Journal of Regulation and Social Costs*, Vol. 2, No. 1, March 1992, pp. 5-31, and "Costs of Regulation: Filling the Gaps" (Washington, D.C.: Regulatory Information Service Center, August 1992). Unless noted otherwise, the assumptions of this 1992 study are retained here. For an assessment of this approach, see U.S. General Accounting Office, "Regulatory Reform: Information on Costs, Cost-Effectiveness, and Mandated Deadlines for Regulations," GAO/PEMD-95-18BR, March 1995.
5. U.S. Environmental Protection Agency, "Environmental Investments: The Cost of a Clean Environment," EPA 230-11-90-083, November 1990.
6. Gary L. Rutledge and Christine R. Vogan, "Pollution Abatement and Control Expenditures, 1993," *Survey of Current Business*, May 1995, pp. 36-45, and comparable previous articles published annually [here referenced as BEA data].
7. For a discussion of these differences, see Adam B. Jaffe, et al., "Environmental Regulation and the Competitiveness of U.S. Manufacturing," *Journal of Economic Literature*, March 1995, pp. 140-142, and Richard Schmalensee, "The Costs of Environmental Protection," in *Balancing Economic Growth & Environmental Goals*, American Council for Capital Formation, Washington, D.C., 1994, pp. 57-61.
8. Gary Clyde Hufbauer and Kimberly Ann Elliot, *Measuring the Costs of Protection in the United States* (Washington, D.C.: Institute for International Economics, 1994).

9. These data also are summarized by Angela Antonelli, "The U.S. Paperwork Reduction Act After Fifteen Years," PUMA/REG(95)4 (Paris: OECD, June 1995).
10. Neither the state of incidence theory nor the data available permit identifying what portion of regulatory costs result in reduced profits and what can be passed along in the form of higher prices and/or lower wages.
11. U.S. Environmental Protection Agency, "Environmental Investments: The Cost of a Clean Environment – A Summary," EPA 230-12-90-084, December 1990, p. 2-5.
12. Arthur Hall, "The High Cost of Tax Compliance for U.S. Business," Tax Foundation Special Report, November 1993, No. 25, p. 1.
13. Thomas D. Hopkins and Diversified Research, Inc., "A Survey of Regulatory Burdens – Report to the U.S. Small Business Administration," No. PB95-263190 (Springfield, VA: National Technical Information Service, June 1995).
14. See U.S. General Accounting Office, "Workplace Regulation," GAO/HEHS-94-138, Vol. I, June 1994, p. 36, and U.S. Small Business Administration, *The State of Small Business*, 1983, pp. 169-170.
15. W. Kip Viscusi, "The Misspecified Agenda: The 1980s Reforms of Health, Safety, and Environmental Regulation," in Martin Feldstein (editor), *American Economic Policy in the 1980s* (Chicago: University of Chicago Press, 1994), pp. 501-502.
16. Joel Slemrod and Marcia Blumenthal, "The Income Tax Compliance Cost of Big Business," Tax Foundation, November 1993, Washington, D.C., p. 14.
17. Hall, "High Costs of Tax Compliance," p. 1; data are presented by 13 size classes of annual sales.
18. For reference, the average 1992 receipts of firms in this report's three size classes are \$520,000, \$7,900,000, and \$511,000,000.
19. Slemrod and Blumenthal, "Income Tax Compliance Cost," Executive Summary.
20. Paul Portney, "Beware of the Killer Clauses Inside the GOP's 'Contract'," *Washington Post National Weekly Edition*, January 23-29, 1995, p. 21; this paper deletes the federal spending component from its totals, and assigns 65 percent of the remainder to business and 35 percent to others (mainly, state/local governments).
21. Jaffe, et al., "Environmental Regulation," pp. 158-59.
22. Wayne B. Gray and Ronald J. Shadbegian, "Pollution Abatement

- Costs, Regulation, and Plant-Level Productivity," Working Paper 4994 (Cambridge, Ma.: National Bureau of Economic Research, January 1995).
23. James C. Robinson, "The Impact of Environmental and Occupational Regulation on Productivity of U.S. Manufacturing," *Yale Journal on Regulation*, Vol. 12, No. 2, Summer 1995, pp. 406, 408-409, and Figure III.C.1.
  24. Schmalensee, "Costs of Environmental Protection," p. 59.
  25. U.S. Environmental Protection Agency, "Proposed Rule for Lead-based Paint Activities," September 2, 1994, *Federal Register*, p. 45904.
  26. Robinson, "Impact of Environmental and Occupational Regulation," pp. 407-408.
  27. Murray Weidenbaum, "The Discouraged Employer," *The Freeman*, November 1994, pp. 615-619.
  28. *Economic Report of the President*, February 1995, p. 252; the CEA puts "total costs to consumers of U.S. tariff and nontariff barriers as high as \$70 billion per year."
  29. Hufbauer and Elliot, *Measuring the Costs of Protection*, p. 14.
  30. Thomas Gale Moore, "Clearing the Track: The Remaining Transportation Regulations," *Regulation*, 1995, No. 2, pp. 77-87.
  31. David L. Kaserman and John W. Mayo, "Cross-Subsidies in Telecommunications: Roadblocks on the Road to More Intelligent Telephone Pricing," *Yale Journal on Regulation*, Winter 1994, Vol. 11, No. 1, p. 121.
  32. *Economic Report of the President*, February 1995, p. 160.
  33. See Heritage Foundation, *Backgrounder*, No. 905, July 10, 1992, and No. 926, February 16, 1993, and other references to the Tax Foundation.
  34. Hopkins and Diversified Research, "A Survey of Regulatory Burdens."
  35. For the underlying logic of this premise, see Robert E. Berney and James Swansom, "The Regressive Impact of Government Regulations: Some Theoretical and Empirical Evidence," *American Journal of Small Business*, Vol. 6, No. 3, January-March 1982, pp. 16-27.
  36. David S. Evans, "An Analysis of the Differential Impact of EPA and OSHA Regulations Across Firm and Establishment Size in the Manufacturing Industries," Report to U.S. Small Business Administration, July 1985.
  37. William A. Brock and David S. Evans, "Federal Regulation of Small Business," Report to U.S. Small Business Administration, May 1982.
  38. Roland J. Cole and Paul Sommers, "Cost of Compliance in Small and Moderate-sized Business," Report to U.S. Small Business Administration, February 1980.

39. Todd A. Morrison, Jack Faucett Associates, "Economies of Scale in Regulatory Compliance: Evidence of the Differential Impacts of Regulation by Firm Size," Report to U.S. Small Business Administration, December 1984, NTIS PB85-178861.
40. For example, William A. Brock and David S. Evans, *The Economies of Small Businesses: Their Role and Regulation in the U.S. Economy* (New York: Holmes and Meier, 1986) are sharply critical of Cole and Sommers' conclusions, and Evans' 1985 report challenges Morrison's results. A similar dispute, again based on data predating the late 1980s surge in regulatory costs, arose between Evans and B. Peter Pashigian in the *Journal of Law and Economics* (April 1984 and April 1986 issues).
41. Charles Brown, James Hamilton, and James Medoff, *Employers Large and Small* (Cambridge: Harvard University Press, 1990), p. 84.
42. Arnold Brooks, et al., "Cost and Impact of Federal Regulation on Small Versus Large Business Retirement Plans," Report to U.S. Small Business Administration, 1990.
43. Robert L. Brown and Thomas J. Dean, "Pollution Regulation as a Barrier to New Firm Entry: Initial Evidence and Implications for Future Research," *Academy of Management Journal*, Vol. 38, No. 1, February 1995, pp. 288-303. Also see Thomas J. Dean, "Pollution Regulation as a Barrier to the Formation of Small Manufacturing Establishments: A Longitudinal Analysis," September 1994, report to U.S. Small Business Administration.
44. Lacy Glenn Thomas, "Regulation and firm size: FDA impacts on innovation," *RAND Journal of Economics*, Vol. 21, No. 4, Winter 1990, pp. 497.
45. Robinson, "Impact of Environmental and Occupational Regulation," p. 405.
46. Jaffe, et al., "Environmental Regulation and the Competitiveness of U.S. Manufacturing," pp. 158-159.
47. Hopkins, "Survey of Regulatory Burdens," 1995, op. cit., p. 73.

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