

PROFILES OF REGULATORY COSTS

Report to the U.S. Small Business Administration

by

Thomas D. Hopkins

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The findings and recommendations stated in this report are those of the author and do not necessarily represent the positions and policies of the U.S. Small Business Administration. The author gratefully acknowledges the substantial research assistance provided him by Alex Stricker and Steven Wilber.

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PROFILES OF REGULATORY COSTS

Executive Summary

Compliance with federal regulation imposes burdens on the private sector for which no good tracking system exists. This report presents profiles of the level and distribution of these regulatory compliance costs for the period 1977-2000. It does so by pulling together diverse strands of evidence and illustrating implications of alternative assumptions where the evidence is inconclusive. It is an exploratory effort to improve our understanding of who bears what burdens from regulation, responding to SBA's mandate to address small firms' aggregate costs of regulations. Ninety percent of all U.S. firms employ fewer than 20 employees, and only 0.3 percent have 500 or more employees, amply justifying a closer look at small firms' burdens. An analogous task on the benefits of regulation lies beyond this report's scope but must be undertaken before conclusions can be reached about which regulations have the strongest and weakest merit.

Using plausible cost allocation assumptions, the average small firm with under 20 employees appears to have spent some \$5,500 per employee to comply with federal regulations in 1992. By contrast, firms with 500 or more employees spent on average a much smaller \$3,000 per employee. In the services and trade sectors, 1992 regulatory costs per employee appeared to be in the \$4,000 range for firms with under 20 employees; such small firms faced about 85 percent higher costs per employee than did firms employing 500 or more. Manufacturing firms of all sizes had higher costs per employee than firms in other sectors, ranging from \$4,900 to \$10,600.

In the aggregate, regulatory compliance costs are now in the range of \$420-670 billion (in 1995 dollars). Total costs fell 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 and subsequently drift downwards to the six to nine percent range, depending on how costs are defined. Both the Administration and the Congress are pursuing regulatory reform initiatives this year that may reduce future compliance costs; while it is

too early to be able to quantify such savings, they would serve to reduce somewhat this report's costs for the 1996-2000 period.

The most costly burdens are created by process (largely tax paperwork) and environmental regulations. In 1995, process regulation is costing \$150-220 billion; spending on environmental regulation is \$130-170 billion. The only type of regulation with clearly falling costs is that aimed at prices and entry restriction (commonly termed economic regulation). During the fifteen year period 1977-92, there were dramatic changes in the relative importance of environmental regulation, whose share of total costs more than doubled. Economic regulations' share dropped by about half. The share of process regulatory costs rose, although less dramatically, while that of other social regulation was roughly constant.

Aggregate regulatory costs include those that fall directly on businesses and also those that initially impact households and state-local governments. Some sense of overall scale can be gained simply by expressing these aggregate costs on a per household basis. So stated, total 1995 regulatory costs are in the range of \$4,200-6,800. Regulatory costs per household in 1995 are a third to a half the size of federal budget receipts per household. The combined burden per household of federal taxes and regulation (in constant dollars) is about the same in 1995 as it was in 1977, having declined from 1977 to 1983 and then resumed rising.

The business community itself, as distinct from households and state-local governments, faces about \$290-420 billion total regulatory costs in 1995. This is an increase from the \$240-330 billion range of 1988. When the business share of regulatory costs is distributed across sectors, it appears that manufacturing firms are paying in 1995 about a third of all business regulatory costs. The rest of these costs are borne in roughly equal shares by trade, services, and all other enterprises. In constant dollars, manufacturing regulatory burden has climbed sharply since 1982, while other sectors have experienced little change. Process regulation in 1992 accounted for some forty percent of total business regulatory costs, while environmental regulation was the source of about a quarter of total business regulatory costs.

This report's estimates are tentative, due to data limitations as well as the uncertain effects of pending reforms. Nonetheless, the indicated burden patterns suggest that in both policy formation and data collection a greater emphasis on small business regulatory burdens is warranted.

I. Introduction and highlights

The federal government bears important regulatory responsibilities affecting virtually every segment of the economy. It carries out these responsibilities through some 60 federal agencies, each of which has statutory authority to develop, implement and enforce particular types of regulation. Regulatory authority is disbursed widely across the government, and its aggregate effects are not monitored as closely as are government tax and spending responsibilities. This report addresses one portion of regulations' aggregate effects, presenting estimates of compliance costs incurred annually in the private sector to comply with federal regulation for the period 1977-2000. Both the level and distribution of private sector spending are explored; direct, initial impacts are the focus, as Section III explains below.

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. This report thus focuses on just half of the policy equation, while acknowledging the need for the inherently more difficult work on regulatory benefits.

Unlike the situation with government tax and spending programs, no comprehensive cost accounting system exists for regulation. It generally is less easy to discern who bears how much cost from regulatory compliance than is true for other

governmental actions. The regulatory cost estimates that appear in this report lay no claim to precision; both conceptual and empirical challenges make precision unattainable. Rather, the report offers general profiles of the costs of our regulatory system, reflecting judgments about the scope of regulations covered as well as the distribution of their costs by firm size.

To preview some of the report's findings, Table 1 (taken from Appendix A's Table A-7a) and Figure 1 show, respectively, the level and change over time in regulatory costs that businesses face. Using assumptions explained in the sections that follow, the average small firm with under 20 employees spent some \$5,500 per employee to comply with federal regulations in 1992. By contrast, firms with 500 or more employees spent a much smaller \$3,000 per employee. All federal regulation

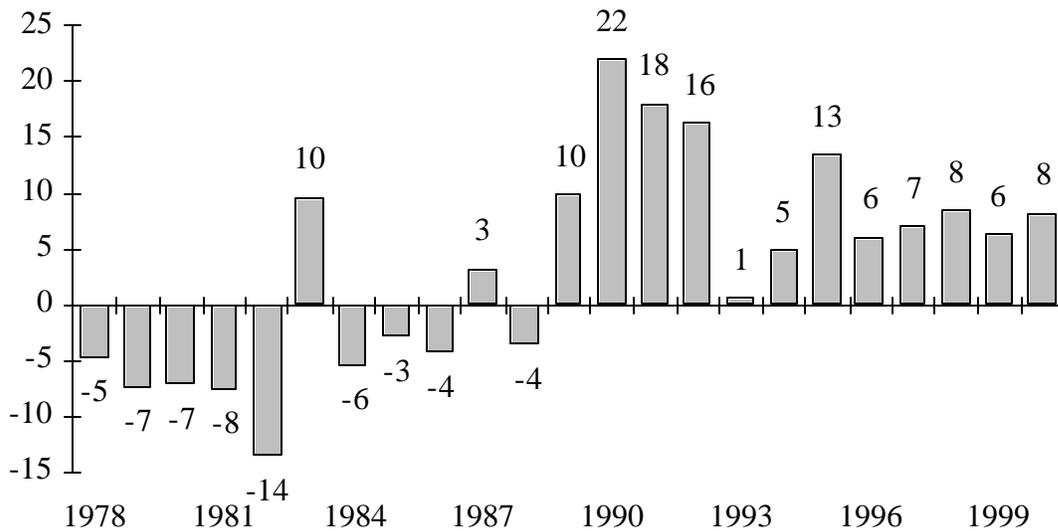
Table 1. Business Regulatory Costs, 1992

Type of regulation	Costs per employee for firms with		
	1-19 employees	20-499 employees	500+ employees
Environmental	\$1,246	\$1,194	\$671
Other social	658	630	354
Econ. efficiency	574	550	309
Econ. transfer	1,050	890	501
Process	2,017	1,931	1,086
All federal regs.	\$5,532	\$5,298	\$2,979

is included: environmental, other social (e.g., OSHA), economic (controls on prices and entry conditions, whose efficiency and transfer costs are distinguished in Section II), and process (mainly tax compliance paperwork).

Regulatory compliance costs facing all U.S. businesses rose by a total of at least \$10 billion annually in each of 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 being devised during 1995 by the Administration and the Congress.¹ It is too early to determine the quantitative effects of these new legislative and administrative reforms, which this report thus does not take into account. It is likely that such reforms will reduce those cost increases that are shown in Figure 1.

Figure 1. Business Regulatory Cost Changes, 1977-2000 (in billions of 1995 dollars)
[source: Table A-4 in Appendix A]



The report has four remaining sections. Section II describes the array of

¹ See, for example, "Rebuilding America For A New Era: President Clinton's Agenda for Small Business," June 1995, pp. 22-23. Numerous other legislative initiatives have been introduced by both parties in the U. S. Congress.

regulations that are included in the estimates. Section III explains the way in which the report allocates these regulatory costs across sectors of the economy. Section IV outlines the results and relates them to other existing research findings. Section V offers a summary and conclusions. The appendices provide detailed findings.

II. Scope of Regulatory Costs

The report defines regulation broadly, encompassing requirements having social and economic objectives and other burdens that arise as a by-product of the governmental process. Social regulations are mandates aimed at lessening environmental and other societal risks. Economic regulations are restrictions on rates and on business entry. Process regulations include tax compliance procedures and paperwork requirements not having a direct social or economic function; the cost of process regulation is largely the value of time that businesses must devote to paperwork.

The regulatory costs included in this report are over and above everything that shows up in the federal budget. Thus the total direct cost of government is the sum of two items: (1) those regulatory costs reported here, and (2) outlays from tax collections and borrowing reported in the federal budget. For example, the direct cost to the nation of a pollution control regulation consists of spending by the Environmental Protection Agency for monitoring and enforcement activities (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, as is true for example in

the case of paperwork burdens stemming from procurement rules, such costs are excluded from this report's estimates to avoid double-counting. The regulatory cost reported here for any particular category, say "other social regulation" (which would include OSHA worker safety requirements among others), is the total cost borne directly by business, state-local governments and individuals to comply with such risk reduction requirements. This falls well short of the total cost to the country of efforts to reduce these risks, because the federal government (OSHA in this case) spends taxpayer funds on such regulatory programs. Hence, this report focuses on what could be termed non-budgeted costs imposed by federal government operations.

Three fundamentally important regulatory effects are not captured in this report's estimates--benefits, indirect burdens, and burdens attributable to state-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 report makes 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 report. Finally, each of our fifty states has its own array of additional regulations superimposed on federal regulations, and this report 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 nor fully satisfactory way to sum up aggregate costs. This report uses as its starting point research sponsored by the U.S. Regulatory Information Service Center and completed in 1992.² The data from that study have been revised to incorporate subsequent evidence and restated in 1995 dollars; the extensive literature review contained in that study is not restated here, but rather incorporated by reference. The projections shown for the last half of this decade are particularly uncertain in light of substantial changes initiated by both the legislative and executive branches over the past year; these changes are not yet firm enough to be reflected in the data, as noted above. Two basic cases are presented to illustrate how sensitive the outcomes are to differing assumptions about what should be included and how it should be measured.³ The ways in which these cases differ, and revisions to the previously published 1992 cost estimates, are explained in the following discussion of each regulatory category used in this report.⁴

² 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," Report to Regulatory Information Service Center, Washington, DC, August 1992. Unless noted otherwise, the assumptions of this 1992 study are retained here.

³ See U.S. General Accounting Office, "Regulatory Reform: Information on Costs, Cost-Effectiveness, and Mandated Deadlines for Regulations," GAO/PEMD-95-18BR, March 1995.

⁴ 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," Occasional Paper 155, July 1995.

Social regulation

Most costs from social regulation are for environmental protection, which encompasses:

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

The 1992 study relied on data from EPA that show sharply rising levels throughout the 1977-2000 period of this study.⁵ A somewhat different pattern emerges from data published annually by the Department of Commerce's Bureau of Economic Analysis (BEA), showing larger compliance costs than EPA's data in the earlier years of this period (1977-89), but lower costs in later years (1989-2000).⁶ It is not clear which series is more likely correct, so both are used here.⁷ The EPA data form the core of Case A, while the BEA data underlie Case B.

The remaining portion of social regulation covers a broad array of programs and objectives, and data are less adequate here than for environmental regulation. This

⁵ U.S. Environmental Protection Agency, "Environmental Investments: The Cost of a Clean Environment," EPA 230-11-90-083, November 1990.

⁶ Rutledge, Gary L. 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, DC, 1994, pp. 57-61.

study makes no changes in the 1992 estimates. Coverage of “other social regulation” includes:

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

Economic regulation

The 1992 estimates of costs attributable to economic regulation reported separately both efficiency costs and transfer costs, pointing out that the latter are germane for some but not all uses of the data. A transfer cost does not represent a societal call on real resources, although it poses a cash-flow problem for the regulated entity. An efficiency cost is a use of real resources. The present study presents both in Case A but excludes all transfer costs in Case B.

One important component of economic regulation is international trade restrictions. A recent study by Hufbauer and Elliot lowers the burdens from those reported in 1992, and this report’s estimates have been reduced accordingly.⁸ The other components of economic regulation remain as estimated in 1992; these include:

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

⁸ Gary Clyde Hufbauer and Kimberly Ann Elliot, Measuring the Costs of Protection in the United States (Washington, DC: Institute for International Economics, 1994).

Process regulation

The basic data source for process regulation is the annual accounting of burden hours published by the Office of Management and Budget, and this report incorporates the most recent information available from OMB.⁹ As in the 1992 report, it is possible to show tax-related paperwork burden separately from other paperwork burden, because OMB reports Treasury Department burden separately from other agencies. It is not possible to further segment the data, however.

The 1992 study added two other subcategories of process regulation, costs of complying with health care regulatory cost control systems and costs of meeting federal mandates placed on state-local governments. The data supporting these two are not as firm as those from OMB. For this reason, Case B excludes both, while Case A includes both.

To recap, Case A is essentially the same as that used in the 1992 study underlying this report (with some updating and revisions). Case B is a lower cost profile reflecting the following changes from Case A:

- environmental cost data are from BEA rather than from EPA (the former are lower for recent years)
- only the efficiency costs of economic regulation are included (since some argue against counting transfer costs)
- process costs exclude mandates and health care, retaining only OMB-tracked paperwork

⁹ These data also are summarized in Angela Antonelli, “The U.S. Paperwork Reduction Act After Fifteen Years,” PUMA/REG(95)4, OECD, Paris, June 1995.

III. Incidence of 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 hits individual citizens, and some is aimed by the federal government at state and local governments. The task of sorting through what forms of regulation hit what size categories of which businesses at best can be accomplished by constructing profiles that appear reasonable intuitively and consistent with such data as exist. The approach taken in this report 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 aggregate costs of regulatory compliance are allocated across sectors and firm sizes showing plausible ranges. The report uses a three-part firm size classification, relying on SBA data on employees per enterprise (as distinct from establishment):

under 20 employees,
20-499 employees, and
500+ employees.

Data are presented separately for four sectors:

manufacturing,
wholesale/retail trade,
services, and
other, a residual containing all other enterprises.

The accompanying Table 2, created from SBA data, shows, for each of these twelve cells, the distribution of American industry in 1992 by number of:

firms,
employment,
annual payroll, and
annual receipts.¹⁰

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

For every regulatory category, the report separates the burden that falls initially on business from the residual burden on individuals and state-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.¹¹

In presenting results, the report focuses on the two cases outlined above, while indicating the sensitivity of results to alternative assumptions.

The same basic cost allocation assumptions are applied in each of the two cases; "others" below refers to individuals and state-local governments:

- environmental--business 65 percent, others 35 percent¹²
- other social--business 100 percent

¹⁰ Note that the actual number working in the private sector is some 12 million larger than the 93 million employees included in the table, which excludes about 9 million self-employed persons in non-agricultural industries and 3 million in agriculture (workers and self-employed).

¹¹ 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.

- economic (transfers & efficiency)--business 50 percent, others 50 percent
- process
 - mandates--business 0 percent, others 100 percent
 - health care--business 50 percent, others 50 percent
 - tax paperwork--business 2/3, others 1/3¹³
 - other paperwork--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 in Section IV. 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 report'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 social--40 percent to manufacturing, 20 percent to trade, 20 percent to services, and 20 percent to "other sectors"
- all other regulation (economic and process)--costs allocated across the four sectors in proportion to each's share of private sector jobs.

¹² EPA, *op.cit.*, p. 2-5 of Summary.

¹³ Arthur Hall, "The High Cost of Tax Compliance for U.S. Business," Tax Foundation Special Report, November 1993, No. 25, p. 1.

While these allocations are not inconsistent with research findings reviewed in Section IV, 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 each year 1977-2000. The business share is then disaggregated across sectors for the year 1992, the latest for which SBA employment data exist.

For both Case A and Case B, the disaggregated data are presented using two alternative assumptions about burden patterns. One entails simple averaging, so that tabular and graphical presentations show costs as sectoral averages per firm, per employee, and as a percentage of receipts. The second offers profiles in which costs per worker vary with firm size. Sector by sector, tables and charts show 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. (Then to show how sensitive the results are to this 30 percent assumption, the calculations are repeated, first using 20 percent, and then 10 percent, in lieu of the 30 percent figure.)

This approach can be illustrated using the service sector as an example. Table 2 above shows that the smallest firms, those with under 20 employees, have 7,082,000 workers, while the largest firms, with 500+ workers, have 12,840,000 workers. Once average per employee cost is derived for the entire 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

intermediate sized firms (10,774,000 in the case of services). This ensures that total costs of each sector are consistent with the rest of the report.

While these numbers are just 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 under 20 employees had 30 percent above average regulatory costs.¹⁴ Other studies into the firm size pattern of regulatory costs exist and are reviewed in Section IV of this report, although they offer no consensus, and the issues are contentious. More importantly, the applicability of these 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.¹⁵

IV. Principal Findings

The report, as noted above, presents two primary alternative profiles of regulatory costs, a higher cost Case A and a lower cost Case B. This section outlines the main findings, which are detailed in the tables and charts appearing in the two appendices, one for each case. This section gives equal attention to both cases, which lie within a reasonable range of likely outcomes. As is explained later in the section,

¹⁴ Thomas D. Hopkins, "A Survey of Regulatory Burdens," Report to the U.S. Small Business Administration, June 1995.

¹⁵ See U.S. General Accounting Office, "Workplace Regulation," GAO/HEHS-94-138, Vol. I, June 1994, p. 36, and SBA's The State of Small Business, 1983, pp. 169-170.

even this report's higher cost Case A provides more conservative estimates of regulatory costs than can be found elsewhere in the literature, so it should not be interpreted as an upper bound estimate. For this reason, the summary Tables 1 and 3 and also Figure 1 presented earlier in this report are drawn from Case A.

Levels of Regulatory Costs, 1977-2000

Aggregate compliance costs now total \$668 billion in Case A and \$416 billion in Case B; all data are in 1995 dollars. (See Tables A-1 and B-1 in Appendices A and B, respectively.) The pattern over time is similar in both cases: declining total costs from 1977 to about 1988, with increasing costs from 1988 to 2000, although the pattern is less clear-cut in Case B where a low-point was reached temporarily in 1982. (Figures A-1 and B-1)

The most costly types of regulation are process (largely tax paperwork) and environmental. (Figures A-2 and B-2) In 1995, process regulation is costing \$218 billion in Case A and \$153 in Case B; environmental regulation is costing \$168 billion in Case A and \$128 in Case B. (Tables A-1 and B-1) The only type of regulation with falling costs is economic regulation.

When expressed on a per household basis, total 1995 regulatory costs reached \$6,809 in Case A and \$4,237 in Case B. (Tables A-2 and B-2) This calculation involves dividing private sector aggregate compliance costs (business and personal) by the total number of households, merely to illustrate magnitudes were such costs all to be collected from individual households directly. In Case A, per household costs steadily declined from 1977 to 1988 and then began rising; 1988 also was the low point in Case

B, although the subsequent increase is slower. Regulatory costs per household in 1995 are one-half the size of federal budget receipts per household in Case A and 31 percent in Case B. In both cases, the combined burden per household of taxes and regulation is about the same in 1995 as it was in 1977, having declined from 1977 to 1983 and then resumed rising. (Figures A-3 and B-3)

During the fifteen year period 1977-92, there were dramatic changes in the relative importance of environmental regulation, whose share of total costs tripled in Case A and more than doubled in Case B. (Figures A-4 and B-4) Economic regulation's share dropped by about half in both cases. The share of process regulatory costs rose, although less dramatically, while that of other social regulation was roughly constant.

When total regulatory compliance costs are expressed relative to GDP, a decline occurred from 1977 to 1988 in both cases. (Figures A-5 and B-5) Costs then increased through 1992 and subsequently drift downwards, remaining just over nine percent in Case A and just under six percent in Case B. (Tables A-3 and B-3)

Allocation of regulatory costs

The business community in 1995 incurs \$415 billion total regulatory costs in Case A and \$287 billion in Case B. (Tables A-4 and B-4) This had increased from a 1988 level of \$329 billion in Case A and \$238 billion in Case B. While ultimately all regulatory burdens are passed along to individuals (as consumers, providers of labor and capital services, and payers of state-local taxes), Figures A-6 and B-6 show an initial sharing of regulatory burdens between businesses, on the one hand, and others (households and state-local governments) who face federal regulatory requirements.

When the business share of regulatory costs is distributed across sectors following the assumptions specified in Section II of this report, the result in both Case A and Case B is that manufacturing firms are paying in 1995 about a third of all business regulatory costs. The rest of these costs are borne in roughly equal shares by trade, services, and all other enterprises. (Tables A-5 and B-5) In constant dollars, the manufacturing regulatory burden has climbed sharply since 1982, while other sectors have experienced little change. (Figures A-7 and B-7)

Process regulation in 1992 accounted for about the same percentage (37-40 percent) of total business regulatory costs in both Case A and Case B, while environmental regulation was the source of 22 percent of total business regulatory costs in Case A and 27 percent in Case B. (Figures A-8 and B-8)

Were the cost of business regulation directly proportional to a firm's total number of employees or its total receipts, each enterprise in 1992 paid a total regulatory bill of \$4,255 per employee or 2.7 percent of its receipts in Case A and \$2,876 per employee or 1.8 percent of its receipts in Case B. (Tables A-6 and B-6) This hides substantial variation across sectors. Manufacturing enterprises paid roughly twice as much per employee as did firms elsewhere. (Figures A-10 and B-10) However, as a percent of receipts, service sector enterprises had the highest regulatory costs (4.8 percent in Case A and 3.1 percent in Case B). (Figures A-11 and B-11)

Following the allocation assumptions of Section III, Tables 3 and 4 present cost profiles by firm size (for further detail, see Appendix Tables A-7 and B-7). In the trade and service sectors, the main Case A profile (Appendix Table A-7a) shows regulatory

costs per employee in 1992 of some \$4,000 for enterprises with fewer than 20 employees, falling somewhat for firms in the 20-499 employee range, and further to \$2,200 for firms with over 500 employees. The main Case B profile (Appendix Table B-7a) shows for the smaller and larger classes about \$2,600 and \$1,400, respectively. By contrast both cases show that manufacturing enterprises employing 20-499 faced higher per employee costs than either smaller or larger manufacturers. The cost range per employee across manufacturers of all sizes is \$3,600-10,600. (Figures A-12 and B-12) These results are a direct reflection of the allocation assumptions employed and merely illustrate plausible ranges.¹⁶ Alternative assumptions would produce different outcomes, and two such are shown in

Table 3. Case A Regulatory Costs per Employee, 1992 (from App. Table A-7a)

Sector	Cost per employee for firms with		
	1-19 employees	20-499 employees	500+ employees
Manufacturing	\$9,016	\$10,605	\$4,855
Trade	4,135	3,740	2,227
Services	3,985	3,558	2,146
Other	6,637	6,280	3,574
All enterprises	\$5,532	\$5,298	\$2,979

* * * *

¹⁶ As explained in Section III, the calculations yield, for each sector, per employee costs that are 30 percent above the sector's average for the smallest firm size class and 30 percent below for the largest size class. For the intermediate size class (20-499 employees), the per employee cost is about 20 percent above the average except in the manufacturing sector, where it is 50 percent above the average.

Table 4. Case B Regulatory Costs per Employee, 1992 (from App. Table B-7a)

Sector	Cost per employee for firms with		
	1-19 employees	20-499 employees	500+ employees
Manufacturing	\$6,726	\$7,912	\$3,622
Trade	2,673	2,417	1,439
Services	2,544	2,271	1,370
Other	4,210	3,984	2,267
All enterprises	\$3,739	\$3,581	\$2,013

Appendix Tables A-7b and B-7b (20 rather than 30 percent cost variation) and in Appendix Tables A-7c and B-7c (using 10 percent cost variation). The basic conclusions do not change appreciably.

The patterns and ranges shown in this report are roughly consistent with existing research, although comparisons are hampered by the fact that other studies completed to date are less comprehensive in scope and coverage. One general comment from Viscusi helps explain the overall pattern found here for 1977-2000:

“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.”¹⁷

The single most costly type of regulation--process regulation--is dominated by burden hours to comply with tax requirements. The Tax Foundation, using a higher hourly labor cost (\$37) than does this report (\$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 report (using a different calculation method, explained on page 10 above) shows in Table B-4 that businesses incurred \$109 billion in 1993 (and individuals another \$44 billion). When non-tax paperwork is included as in Table A-4, the business cost rises to \$134 billion (and another \$78 billion for individuals).

Slemrod and Blumenthal conclude that tax compliance costs amount to roughly five to seven percent of tax revenues for individual income taxation; by contrast, "collecting revenue from large enterprises is relatively efficient" in that large businesses experience a smaller relative burden.¹⁸ However this burden climbs dramatically for smaller businesses. Indeed, the Tax Foundation reports that smaller businesses face \$390 in compliance costs for every \$100 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."¹⁹ 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 annual sales to 0.13 percent for firms with \$500 million in sales (and down to 0.05 percent for firms with \$10 billion sales).²⁰ Again for comparison, this report finds tax-only compliance burdens of 0.7 percent of receipts for

¹⁷ 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.

¹⁸ Joel Slemrod and Marcia Blumenthal, "The Income Tax Compliance Cost of Big Business," Tax Foundation, November 1993, Washington, DC, p. 14.

¹⁹ Hall, op. cit., p. 1; data are presented by 13 size classes of annual sales.

²⁰ 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.

the average firm; size specific breakdowns are not available for receipts (Table B-6). 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."²¹

Environmental regulation also has been studied extensively. 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/local governments 25 percent.²² Jaffe reports that compliance with federal environmental regulation now averages 2 percent of total production costs in U.S. industry.²³ Using 1979-90 data, Gray and 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.²⁴ Robinson, using BEA data for all manufacturing, concludes that environmental regulation compliance costs as a percentage of value of shipments rose steadily 1977-86 (except for a slight dip in 1984) from 0.75 to 1.14 percent; he finds large variation across industries, with the top five 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

²¹ Slemrod and Blumenthal, op. cit., Executive Summary.

²² Paul Portney, "Beware of the Killer Clauses Inside the GOP's 'Contract'," Washington Post National Weekly Edition, January 23-29, 1995, p. 21; this report 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).

²³ Jaffe et al., op. cit., pp. 158-159

²⁴ Wayne B. Gray and Ronald J. Shadbegian, "Pollution Abatement Costs, Regulation, and Plant-Level Productivity," Working Paper 4994, National Bureau of Economic Research, Cambridge, MA, January 1995

apparel and printing).²⁵ Schmalensee reports that the seven industries that do 70 percent of all environmental regulatory compliance spending had \$6,000 in such costs per worker in 1990; by contrast the average for all manufacturing, mining and electric utilities was \$2,100 per employee and for all private, non farm industries was \$500.²⁶ Such averages hide substantial variability across industries. For example, the Environmental Protection Agency estimates compliance cost of simply one rule proposed in 1994 as 1.2-3.2 percent of total operating costs for small firms, and 1.0-2.3 percent for large, in several four-digit SIC industries (1541, 1542, 1611, 1622 and others in the 1700s).²⁷ For comparison, this report puts 1992 environmental regulatory costs in the 0.5-1.1 percent of receipts as a national average, with manufacturing bearing a higher 1.6-2.0 percent (see Tables A-6 and B-6).

For the category of other social regulation (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, 1974-86, and found rising compliance costs, as a percentage of value of shipments, 1977-80, and then a slow decline to 1986; in his peak year of 1980, no manufacturing industry faced more than

²⁵ 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

²⁶ Schmalensee, op.cit., p. 59

²⁷ U.S. Environmental Protection Agency, "Proposed rule for lead-based paint activities," September 2, 1994 Federal Register, p. 45904

0.2 percent levels, and costs were heaviest for primary metals, textile mills, and stone-clay-glass products.²⁸ His estimates, of course, take no account of OSHA safety regulation or of the other components of what this report refers to as “other social regulation,” such as compliance with US civil rights regulations. Weidenbaum reports the latter entail 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 has been rising twice as fast as wages and salaries.”²⁹

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 report 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.”³⁰ The change reflects Hufbauer & Elliot’s findings that between 1984 and 1990 there was a significant decline in the cost of protection in all sectors except textile and apparels³¹:

“... the aggregate cost of special protection are about the same in 1990 as in 1984 in nominal terms. As a percentage of US GNP, however, the costs to consumers dropped from 0.8 percent in 1984 to about 0.6 percent in 1990. ... The share of total US imports affected by trade barriers dropped from 21.5 percent of all imports in 1984 to only 10.4 percent in 1990.”

The remainder of economic regulation remains as posited in the 1992 study; while

²⁸ Robinson, op. cit., pp. 407-408

²⁹ Murray Weidenbaum, “The Discouraged Employer,” The Freeman, November 1994, pp. 615-619

³⁰ 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.”

³¹ Hufbauer and Elliot, op.cit., p. 14.

much deregulation occurred after 1977, a surprisingly large amount of such regulation still persists. For example, in the transportation area, much regulation still faces the railroad and maritime industries, as well as pipelines, buses and trucking.³²

Continuing regulation of long distance telephone service alone has been estimated to create efficiency costs of \$1.5-10 billion annually.³³ 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.³⁴ All businesses, small and large, would experience, as a result, reduced costs and improved quality in their telecommunications services.

This report embodies more conservative assumptions than those used by the Tax Foundation and by others such as the Heritage Foundation in estimating aggregate regulatory costs.³⁵ One other higher set of estimates appears in a June 1995 report prepared for the SBA (referenced in footnote 14 above), which concluded that, among the 2/3 of those surveyed firms reporting at least moderate regulatory burdens, the average firm spent 14 percent of its revenues for regulatory compliance, which

³² Thomas Gale Moore, "Clearing the Track: The Remaining Transportation Regulations," Regulation, 1995, No. 2, pp. 77-87.

³³ 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.

³⁴ Economic Report of the President, February 1995, p. 160.

³⁵ See Heritage Foundation Backgrounder, No. 905 and 926, July 10, 1992 and February 16, 1993, and other references to Tax Foundation.

represented \$17,000 per employee; firms with fewer than 50 employees generally reported costs above these averages. 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 report.

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.³⁶ Evans, using 1978-81 data on EPA and OSHA regulation of manufacturing and chemical industries, called into question whether such regulation has economies of scale unduly burdening smaller firms.³⁷ This finding essentially was consistent with, but more hedged than, his and Brock's earlier conclusion, using 1964-78 data, that found no signs of disproportionate burdens from

³⁶ 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.

³⁷ 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 SBA, July 1985.

such regulation.³⁸ Both do acknowledge such patterns, however, for some other regulation (particularly ERISA and banking requirements).

On the other hand, Cole and 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 larger firms.³⁹ They found firms with under 50 employees experiencing costs seven to ten times those of larger firms. Similarly, Morrison's study of 14 regulations in 150 three-digit industries, using cost data from regulatory agencies rather than from firms, showed median small firm (mid-sized firm) with 2.8 (1.4) times the average cost per employee experienced by the average large firm.⁴⁰

Firm size/burden patterns remain sharply in contention, with the notable exception of tax compliance as explained above.⁴¹ One review 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

³⁸ William A. Brock and David S. Evans, "Federal Regulation of Small Business," Report to SBA, May 1982.

³⁹ Roland J. Cole and Paul Sommers, "Cost of Compliance in Small and Moderate-sized Business," Report to SBA, February 1980.

⁴⁰ Todd A. Morrison, Jack Faucett Associates, "Economies of Scale in Regulatory Compliance: Evidence of the Differential Impacts of Regulation by Firm Size," Report to SBA, Dec. 1984, NTIS #PB85178861

⁴¹ For example, William A. Brock and David S. Evans, The Economics of Small Businesses: Their Role and Regulation in the U.S. Economy (New York: Holmes and Meier, 1986) are sharply critical of Cole and Summers 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).

placed on smaller businesses.⁴² This review by Brown et al. 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 sector firms and construction as well as manufacturing, regulators were less vigilant in inspecting and fining smaller businesses during the period 1981-85 than they were for larger businesses. Contrasting evidence comes from the area of retirement plan regulation. 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.⁴³

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

⁴² Charles Brown, James Hamilton and James Medoff, Employers Large and Small (Cambridge: Harvard University Press, 1990), p. 84.

⁴³ Arnold Brooks et al., "Cost and Impact of Federal Regulation on Small Versus Large Business Retirement Plans," Report to SBA, 1990.

⁴⁴ 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.

actually benefiting the largest firms.⁴⁵

V. Summary and conclusions

This report finds that regulatory compliance costs are large by any reckoning, and that 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 under 20 employees appears to have spent some \$5,500 per employee to comply with federal regulations in 1992. By contrast, firms with 500 or more employees spent on average a much smaller \$3,000 per employee. 1992 regulatory costs per employee appeared to be in the \$4,000 range 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 to \$10,600. These results correspond to the Case A charts appearing in the Appendix.

In the aggregate, regulatory compliance costs are now in the range of \$420-670 billion (in 1995 dollars). Total costs fell from 1977 to about 1988 and then increase in

Dean, "Pollution Regulation as a Barrier to the Formation of Small Manufacturing Establishments: A Longitudinal Analysis," September 1994 report to SBA.

⁴⁵ Lacy Glenn Thomas, "Regulation and firm size: FDA impacts on innovation," RAND Journal of Economics, Vol 21, No. 4, Winter 1990, pp. 497.

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 and subsequently drift downwards to the six to nine percent range, depending on regulatory coverage. Both the Administration and the Congress are pursuing regulatory reform initiatives this year that may reduce future compliance costs; while it is too early to be able to quantify such savings, they would serve to reduce somewhat this report's costs for the 1996-2000 period.

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 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 report 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 report 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 report's estimations. The first is that there are problems with both of the two primary sources of regulatory compliance cost data, ex post business surveys/audits and ex ante projections. 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 Robinson⁴⁶:

“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.”

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. Jaffe points out that it will become increasingly difficult to identify regulatory costs as we increase our reliance on performance rather than design standards.⁴⁷ Further, non-compliance continues to be a serious concern; over a third of a set of firms recently

⁴⁶ Robinson, op. cit., p. 405

⁴⁷ Jaffe et al., op. cit., pp. 158-159

surveyed in 15 industries reported that full compliance with most regulations is uncommon.⁴⁸

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 less costly 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 process regulation area.

* * * *

Appendix A contains Figures A-1 through A-12 and Tables A-1 through A-7 that track this report's "higher cost" profile, Case A. Analogous figures and tables then follow in Appendix B for the report's "lower cost" Case B. Tables A-7 and B-7 each have three variants as explained on page 14 above.

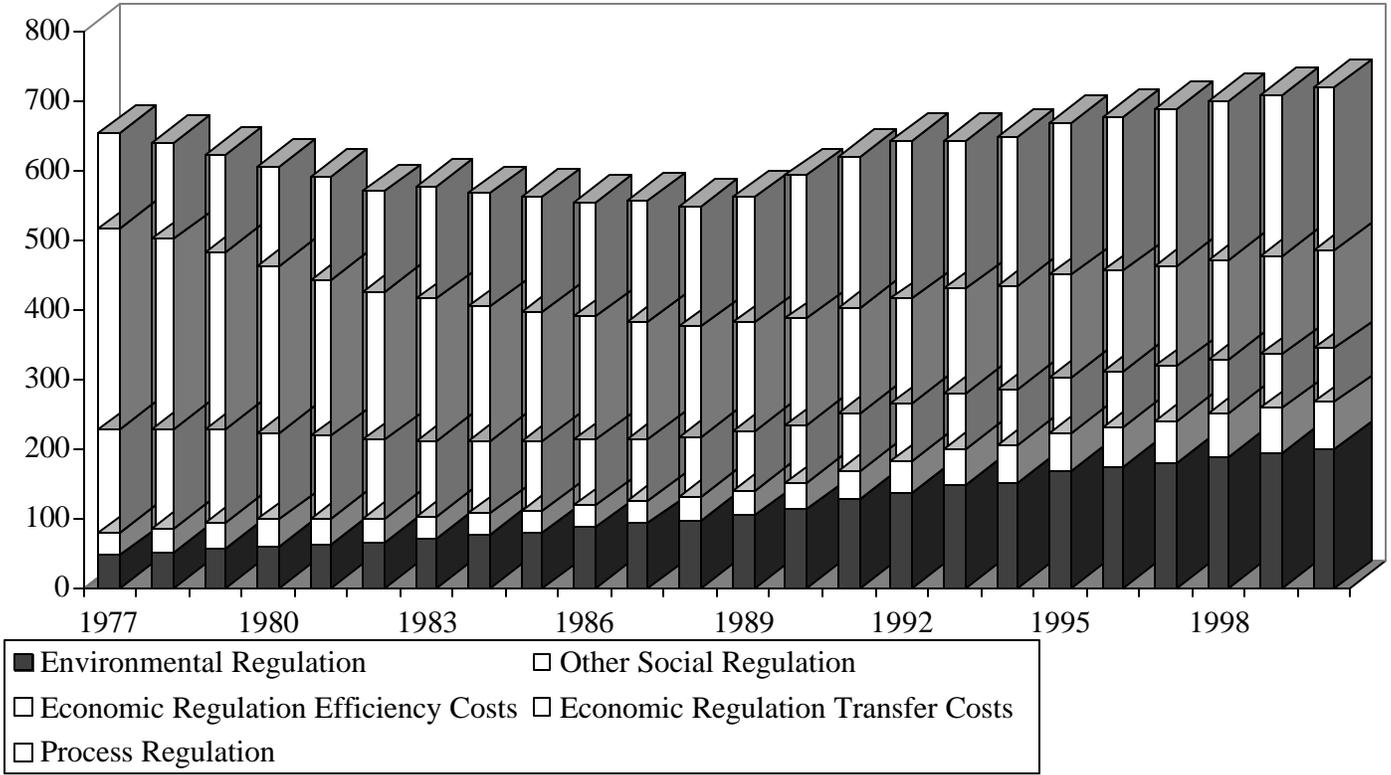
⁴⁸ Hopkins, 1995, op. cit., p. 73

Appendix A

Figures and tabular detail for Case A

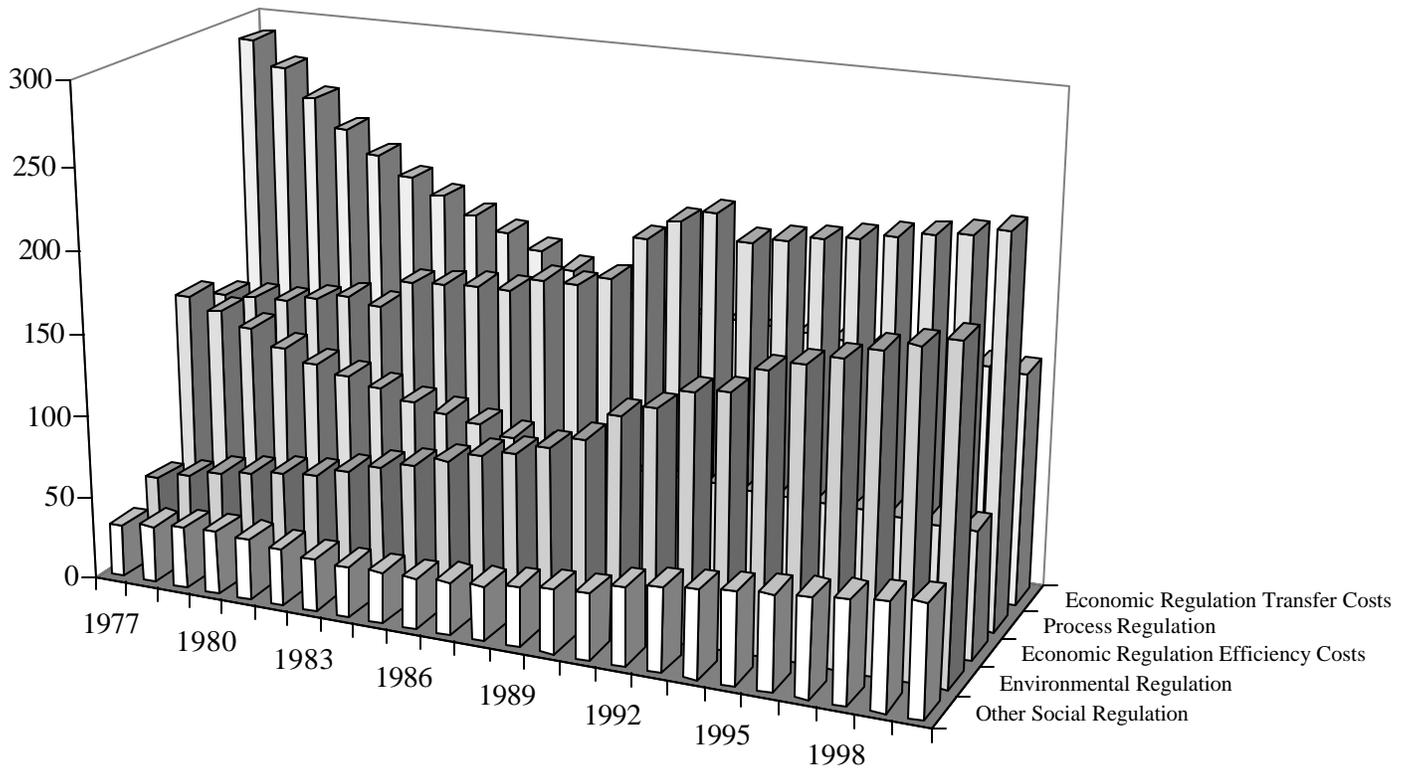
- Figure A-1. Regulatory costs, 1977-2000
 - Figure A-2. Regulatory costs by category, 1977-2000
 - Figure A-3. Federal receipts and regulatory costs per household, 1977-2000
 - Figure A-4. Percentage distribution of regulatory costs, 1977 and 1992
 - Figure A-5. Regulatory costs as percent of GDP, 1977-2000
 - Figure A-6. Business share of regulatory costs, 1977-2000
 - Figure A-7. Business regulatory costs by sector, 1977-2000
 - Figure A-8. Composition of regulatory costs by sector, 1992 (3 pages)
 - Figure A-9. Regulatory costs per firm by sector, 1992
 - Figure A-10. Regulatory costs per employee by sector, 1992
 - Figure A-11. Regulatory costs as percent of receipts, by sector, 1992
 - Figure A-12. Regulatory costs per employee by firm size, 1992
-
- Table A-1. Annualized regulatory costs, 1977-2000
 - Table A-2. Federal receipts and regulatory costs per household, 1977-2000
 - Table A-3. Regulatory costs as percent of GDP, 1977-2000
 - Table A-4. Business share of regulatory costs, 1977-2000 (2 pages)
 - Table A-5. Business regulatory costs by sector, 1977-2000 (3 pages)
 - Table A-6. Average sectoral regulatory costs, 1992 (2 pages)
 - Table A-7. Business regulatory costs per employee, 1992 (2 pages)

Figure A-1. Regulatory Costs in Billions of 1995 Dollars, Case A



Source: Table A-1

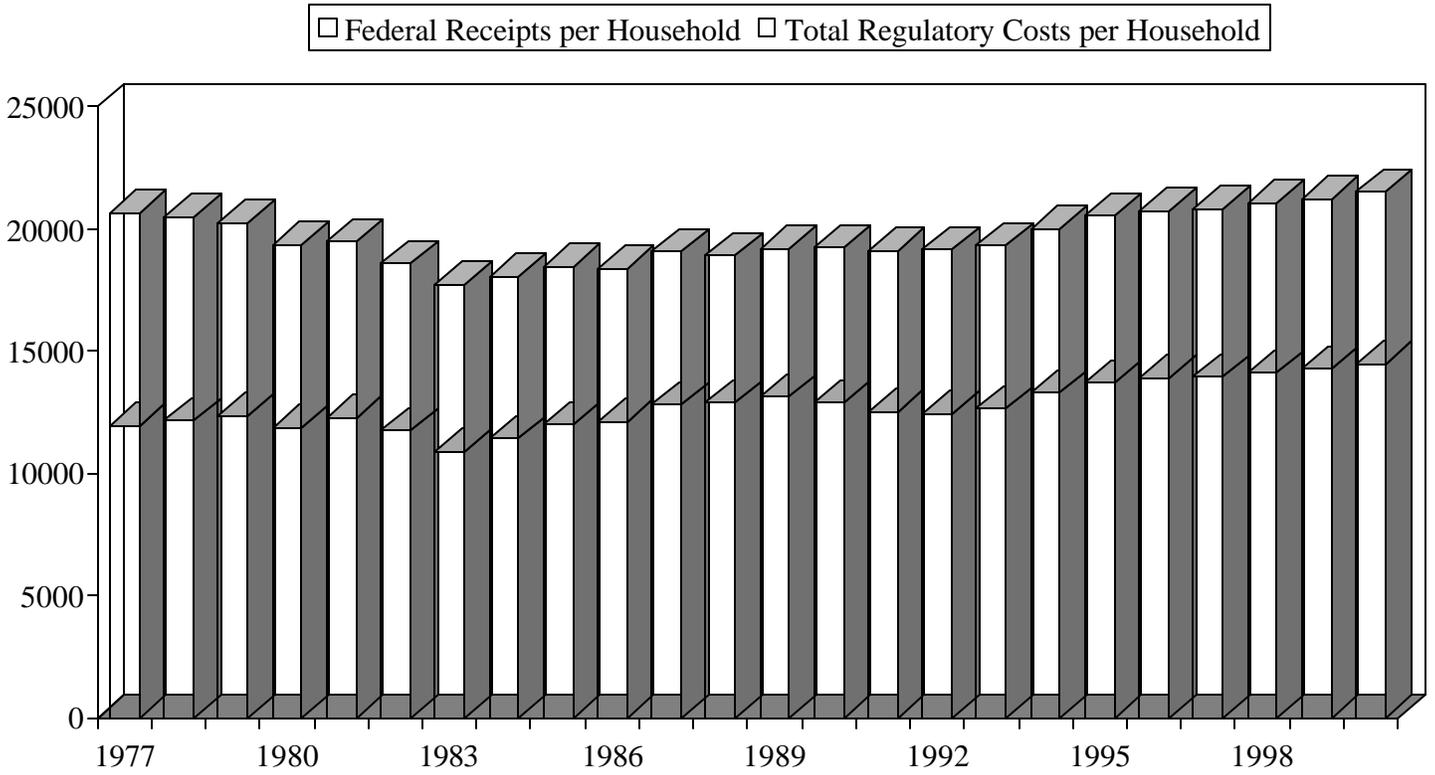
Figure A-2. Regulatory Costs by Category, in Billions of 1995 Dollars, Case A



Source: Table A-1

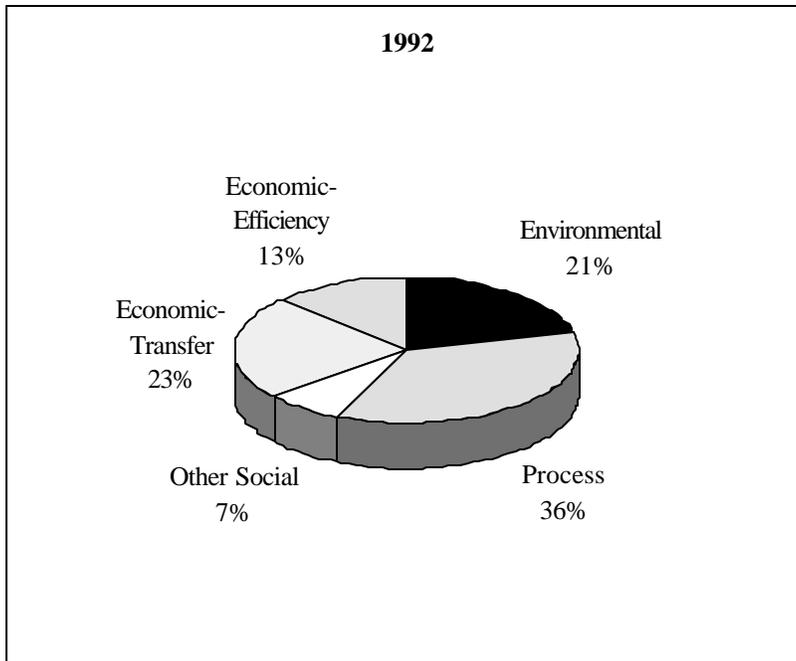
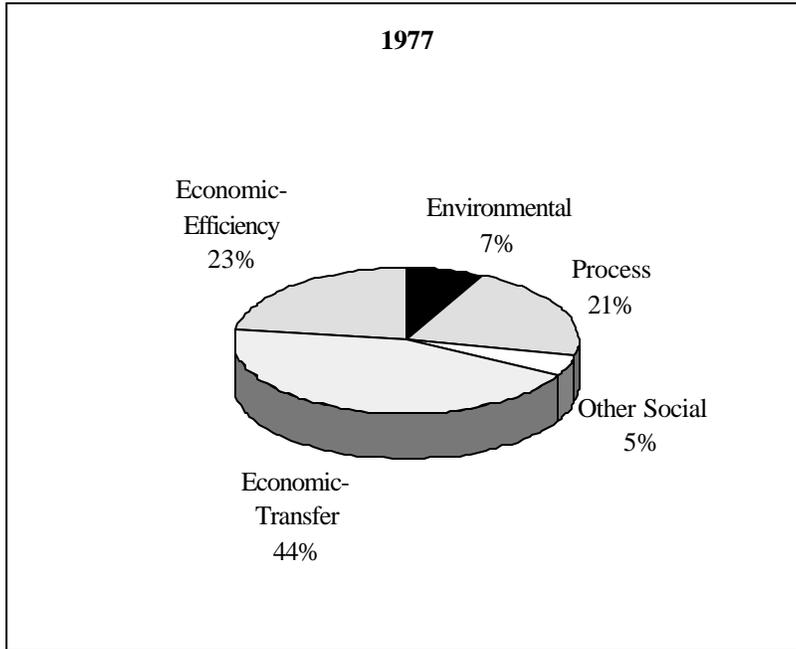
Figure A-3. Federal Receipts and Regulatory Costs Per Household in 1995 Dollars,

Case A



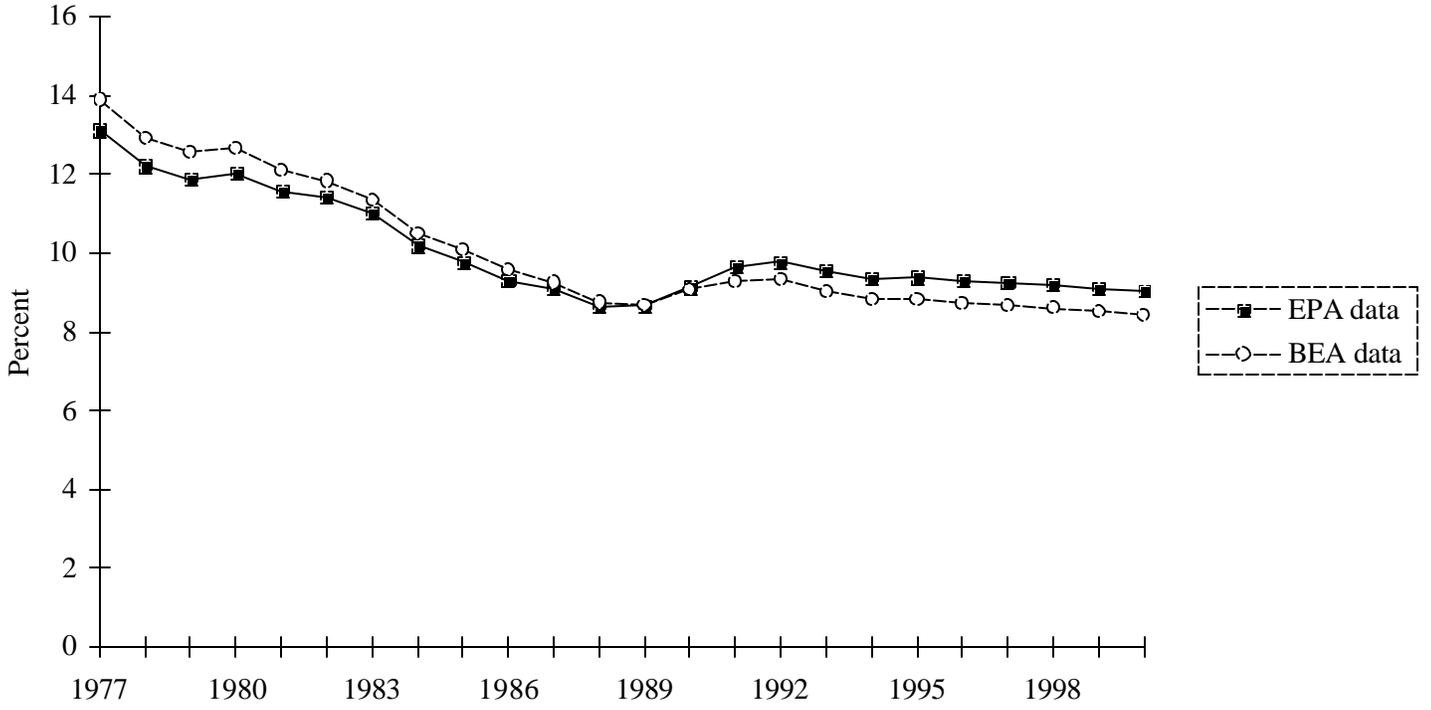
Source: Table A-2

Figure A-4. Percentage Distribution of Regulatory Costs, Case A



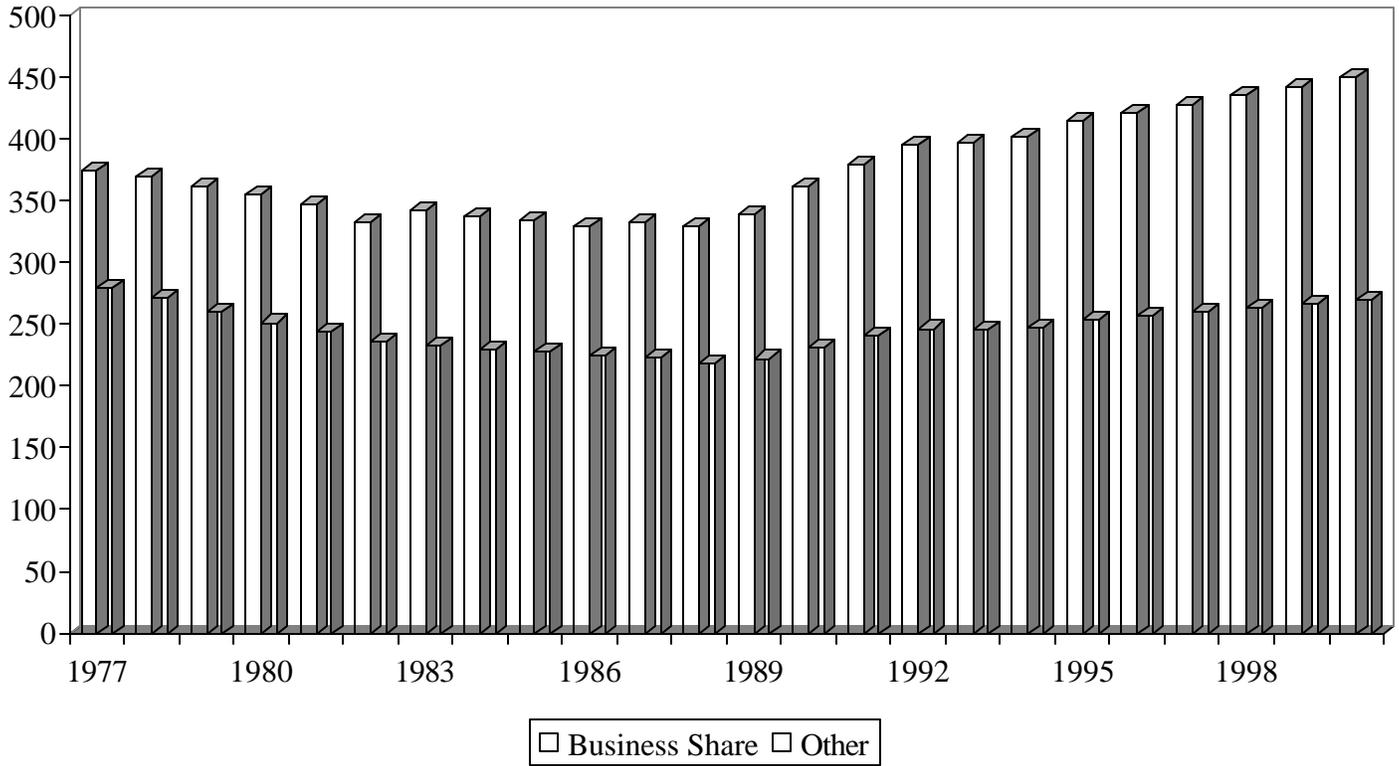
Source: Table A-1

Figure A-5. Regulatory Costs as Percent of GDP, Case A



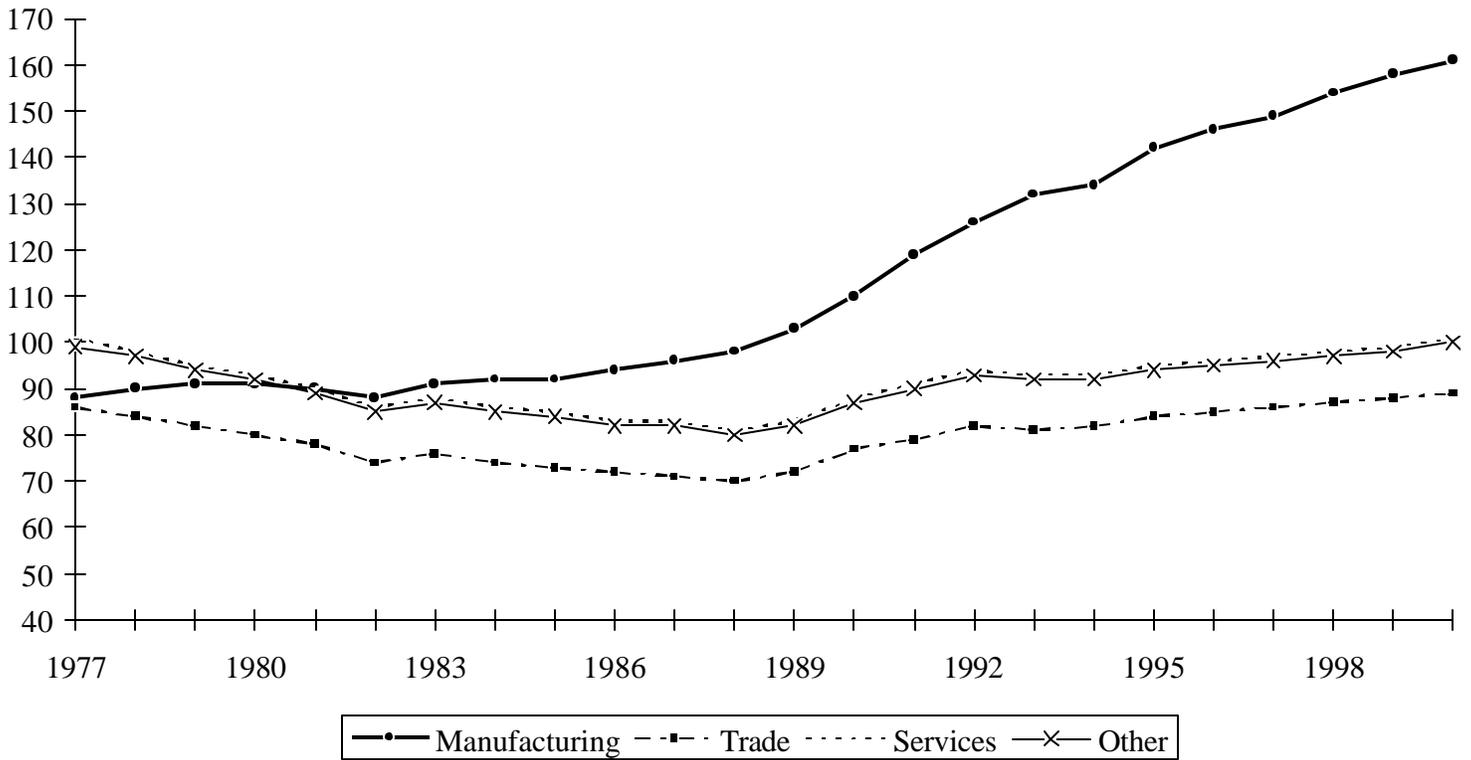
Source: Table A-3

Figure A-6. Business Share of Regulatory Costs in Billions of 1995 Dollars, Case A



Source: Table A-4

Figure A-7. Business Regulatory Costs by Sector, 1977-2000, Case A



Source: Table A-5

Figure A-8. Composition of Regulatory Costs by Sector, 1992, Case A

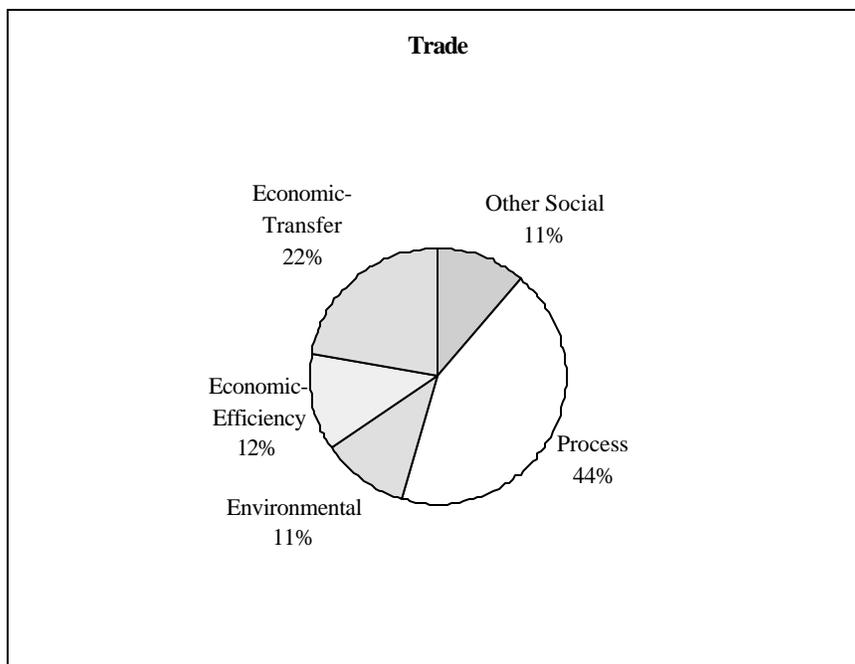
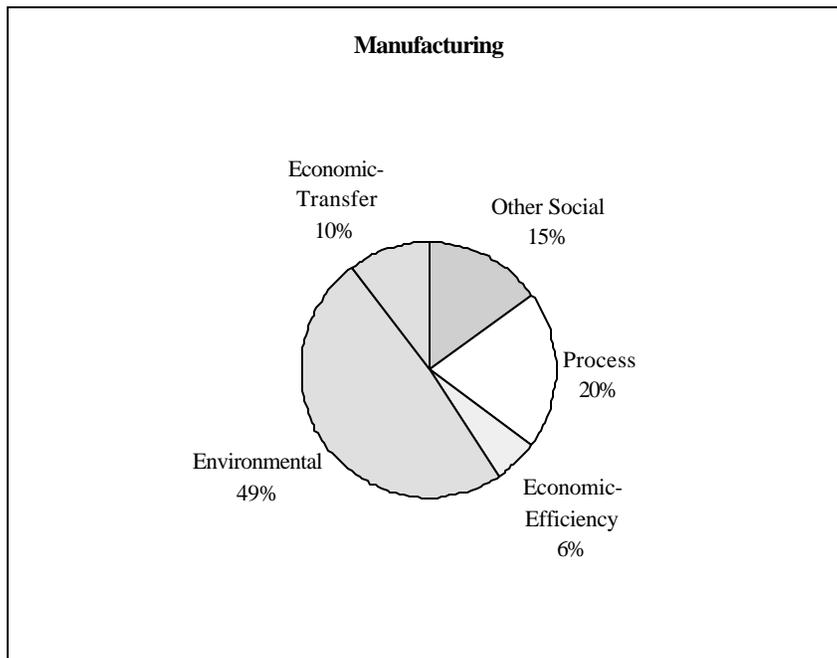


Figure A-8. Composition of Regulatory Costs by Sector, 1992, Case A (cont.)

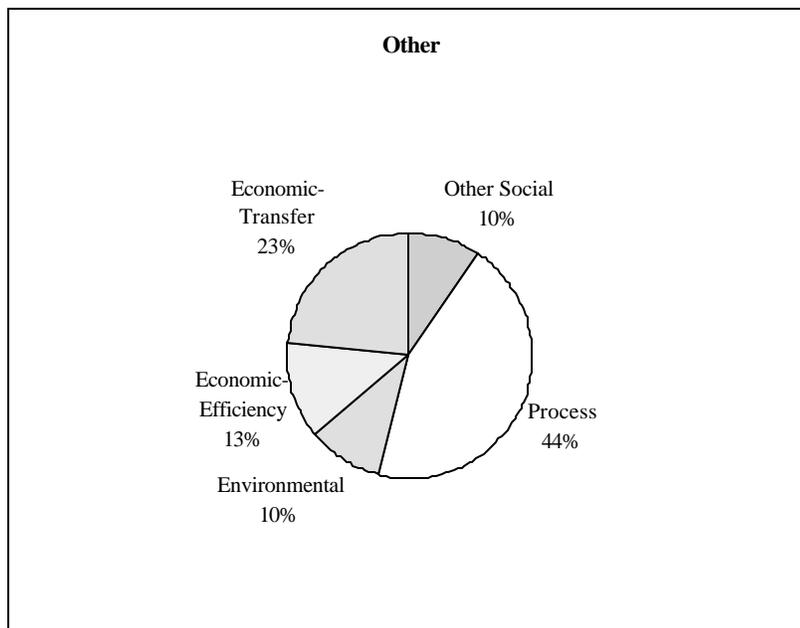
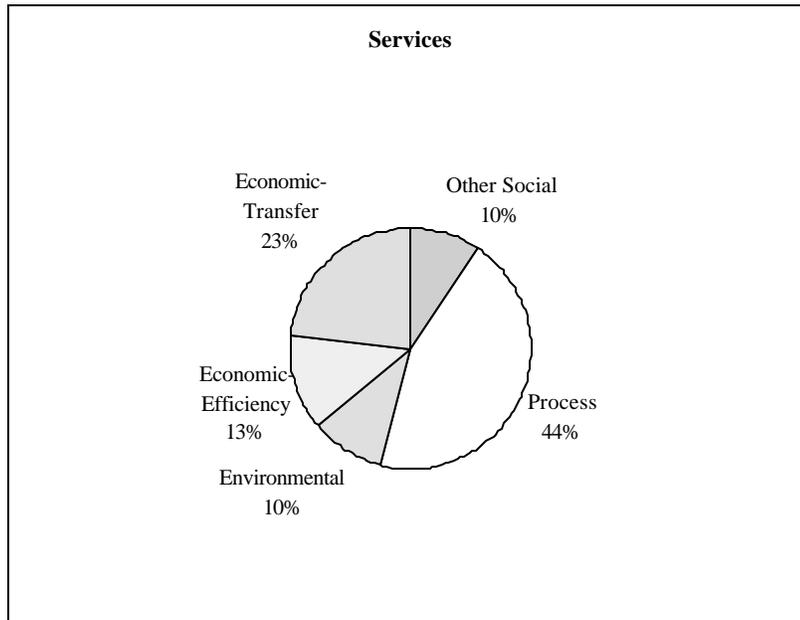
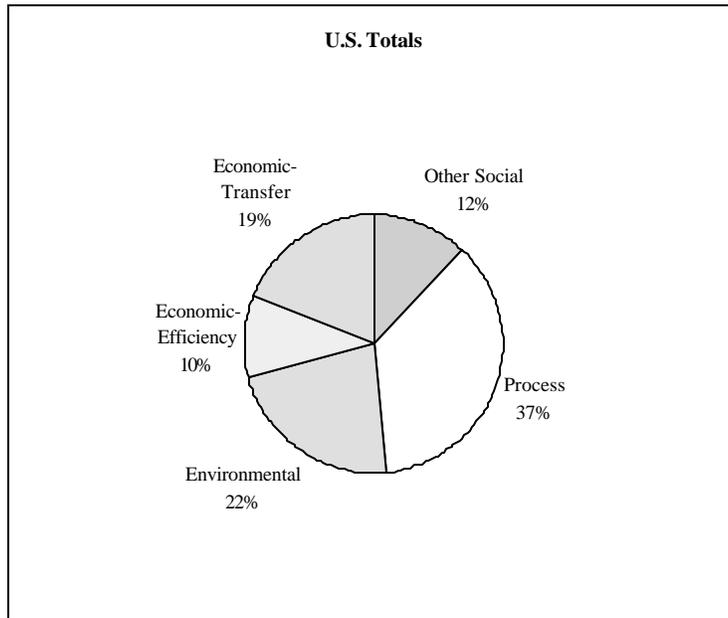
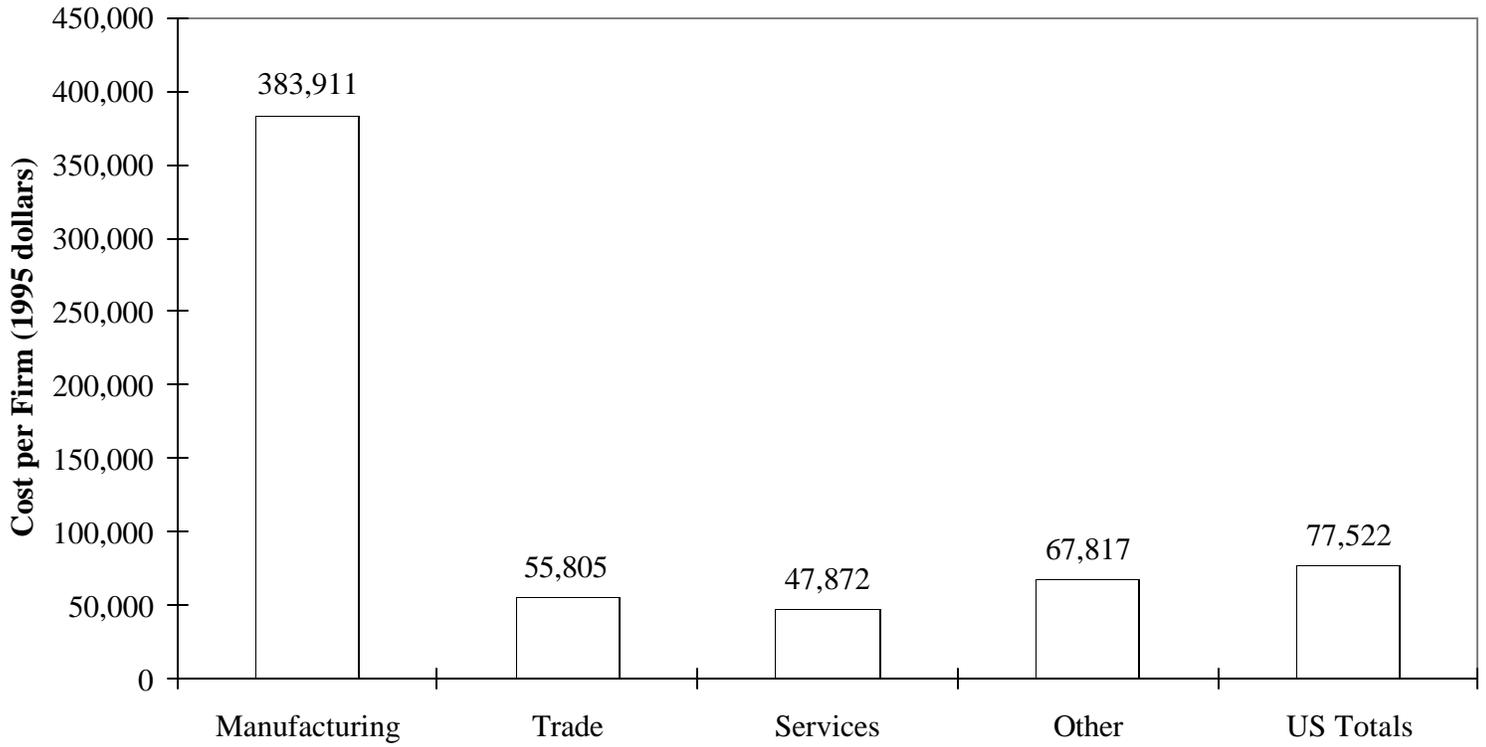


Figure A-8. Composition of Regulatory Costs by Sector, 1992, Case A (cont.)



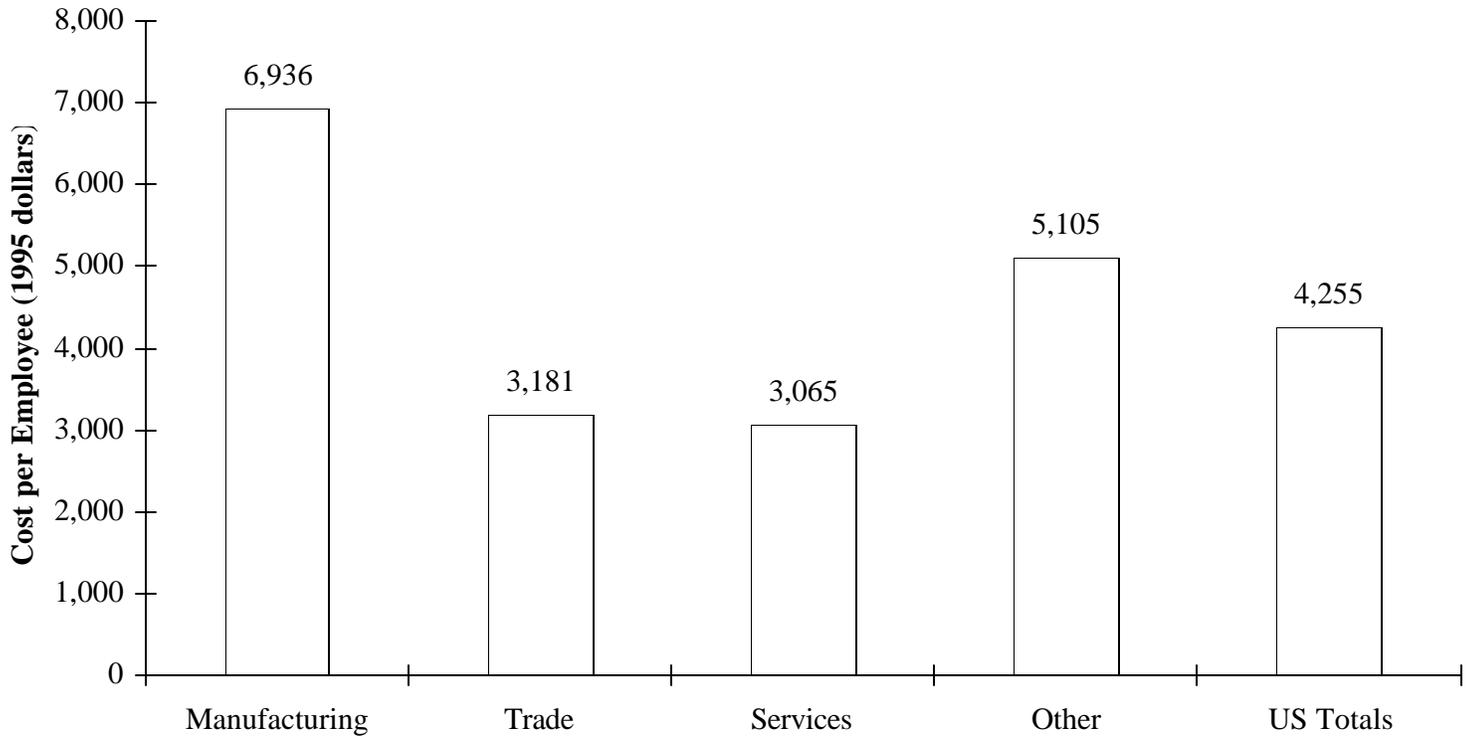
Source: Table A-5

Figure A-9. Regulatory Costs Per Firm by Sector, 1992, Case A



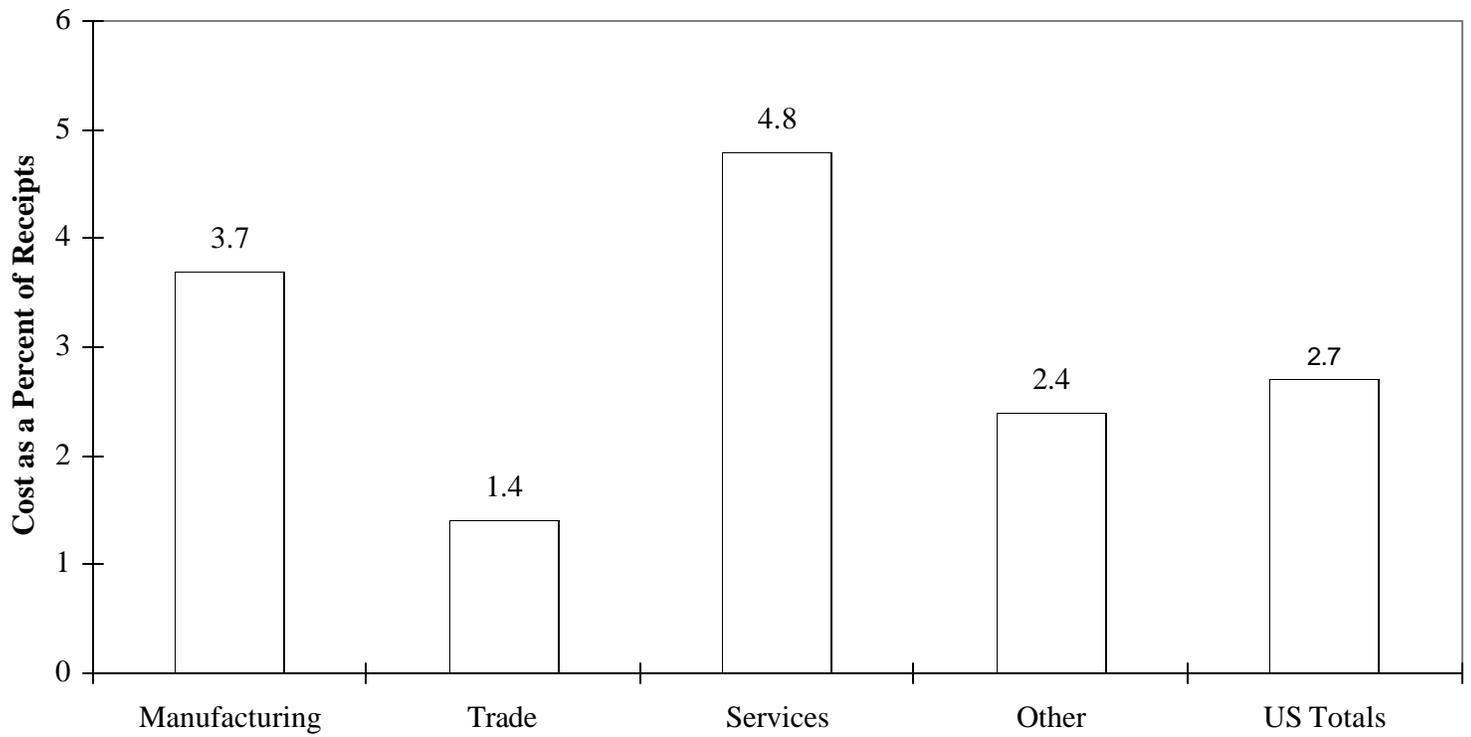
Source: Table A-6

Figure A-10. Regulatory Costs Per Employee by Sector, 1992, Case A



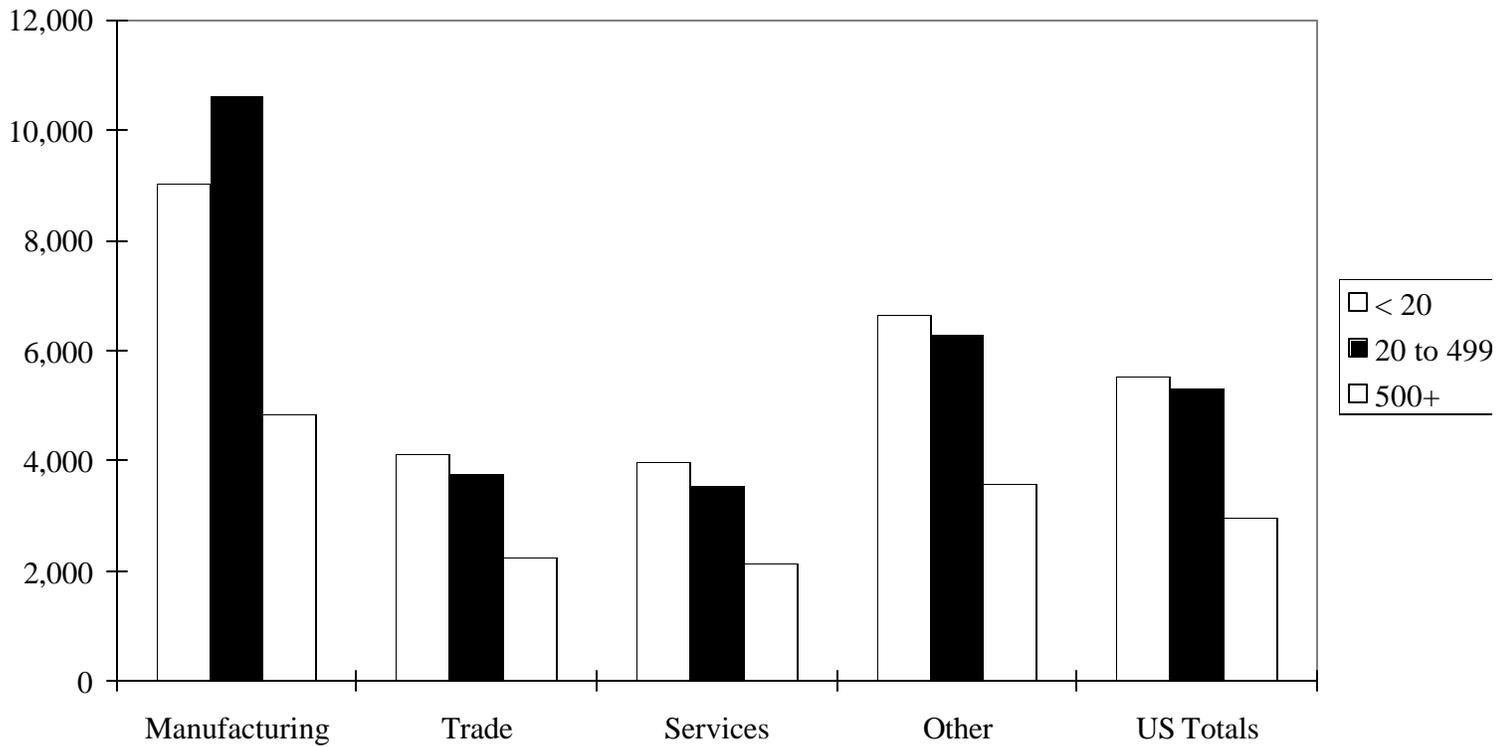
Source: Table A-6

Figure A-11. Regulatory Costs as Percent of Receipts by Sector, 1992, Case A



Source: Table A-6

Figure A-12. Regulatory Costs Per Employee by Firm Size, 1992 (in 1995 dollars), Case A



Source: Table A-7

Table A-1. Annualized Regulatory Costs in Billions of 1995 Dollars, Case A

Year	Environmental Regulation	Other Social Regulation	Economic Regulation Efficiency Costs	Economic Regulation Transfer Costs	Process Regulation	Total Regulatory Costs
1977	47	32	149	288	138	654
1978	52	35	142	273	139	640
1979	56	37	134	256	139	623
1980	60	39	125	239	143	605
1981	63	37	118	225	147	590
1982	65	35	113	213	144	570
1983	71	32	108	204	161	576
1984	76	31	103	194	163	567
1985	81	31	99	186	165	561
1986	87	31	95	177	165	555
1987	93	32	90	168	174	557
1988	98	34	86	158	173	548
1989	105	36	85	156	180	561
1990	112	39	83	153	206	593
1991	129	40	82	151	219	621
1992	137	47	82	150	226	642
1993	149	51	81	149	212	642
1994	152	53	80	148	215	649
1995	168	55	80	147	218	668
1996	174	58	79	145	221	677
1997	180	60	79	144	225	688
1998	188	62	78	143	229	700
1999	193	65	77	142	232	709
2000	199	68	77	141	236	721

Table A-2. Federal Receipts and Regulatory Costs Per Household in 1995 Dollars, Case

A

Year	Households (thousands)	Federal Receipts per Household	Total Regulatory Costs per Household	Combined Federal Burden per Household
1977	74,982	11,933	8,718	17,094
1978	76,914	12,151	8,320	17,182
1979	78,845	12,343	7,897	17,213
1980	80,776	11,848	7,495	16,490
1981	81,979	12,264	7,203	16,716
1982	83,181	11,737	6,850	15,944
1983	84,384	10,897	6,830	15,140
1984	85,586	11,429	6,625	15,612
1985	86,789	11,987	6,469	16,101
1986	88,458	12,098	6,269	16,111
1987	89,479	12,814	6,224	16,760
1988	91,066	12,867	6,020	16,721
1989	92,830	13,125	6,044	16,981
1990	93,347	12,891	6,353	17,015
1991	94,312	12,516	6,582	16,673
1992	95,392	12,425	6,728	16,702
1993	96,329	12,638	6,662	16,759
1994	97,243	13,309	6,670	17,443
1995	98,180	13,714	6,809	17,951
1996	99,082	13,894	6,831	18,153
1997	100,023	13,919	6,875	18,208
1998	100,974	14,117	6,932	18,435
1999	101,933	14,265	6,954	18,601
2000	102,901	14,481	7,005	18,844

Source of data on number of households: U.S. Bureau of the Census, *1994 Statistical Abstract of the United States*, p. 58, with author's extrapolated estimates for intervening years not included in the Abstract.

Source of data on government receipts: *Budget of the United States Government, Fiscal Year 1996*, Table S-2

Table A-3. Regulatory Costs as Percent of GDP, Case A

Year	BEA Data*		EPA Data**	
	Total Regulatory Cost in billions of 1995 dollars	TRC as Percent of GDP	Total Regulatory Cost in billions of 1995 dollars*	TRC as Percent of GDP
1977	693	13.9	654	13.1
1978	678	12.9	640	12.2
1979	659	12.6	623	11.9
1980	637	12.7	605	12.0
1981	617	12.1	590	11.6
1982	591	11.8	570	11.4
1983	593	11.3	576	11.0
1984	585	10.5	567	10.2
1985	580	10.1	561	9.8
1986	570	9.6	555	9.3
1987	566	9.3	557	9.1
1988	555	8.8	548	8.7
1989	563	8.7	561	8.7
1990	589	9.1	593	9.1
1991	597	9.3	621	9.7
1992	614	9.4	642	9.8
1993	606	9.0	642	9.6
1994	613	8.8	649	9.3
1995	629	8.8	668	9.4
1996	635	8.7	677	9.3
1997	645	8.7	688	9.2
1998	655	8.6	700	9.2
1999	663	8.5	709	9.1
2000	673	8.4	721	9.1

- * The Regulatory Cost figures computed using BEA estimates for the Environmental regulatory cost component.
- ** The Regulatory Cost figures computed using EPA estimates for the Environmental regulatory cost component.

Sources:

GDP - 1977 to 1993:

The Economic Report to the President, February 1995.

1994 to 2000:

The Federal Budget of the United States, Fiscal Year 1996, Volume 2 "Analytical Perspectives."

CPI - 1977 to 1993:

The Statistical Abstract of the United States, 1994.

1994 to 2000:

The Federal Budget of the United States, Fiscal Year 1996, Volume 2 "Analytical Perspectives."

Table A-4. Business Share of Regulatory Costs in Billions of 1995 Dollars, Case A

Year	Environmental Regulation			Other Social Regulation			Economic Regulation (Efficiency Costs)		
	Total	Business	Other	Total	Business	Other	Total	Business	Other
		Portion			Portion			Portion	
1977	47	31	16	32	32	0	149	75	75
1978	52	34	18	35	35	0	142	71	71
1979	56	36	20	37	37	0	134	67	67
1980	60	39	21	39	39	0	125	63	63
1981	63	41	22	37	37	0	118	59	59
1982	65	42	23	35	35	0	113	57	57
1983	71	46	25	32	32	0	108	54	54
1984	76	49	27	31	31	0	103	52	52
1985	81	53	28	31	31	0	99	50	50
1986	87	57	30	31	31	0	95	48	48
1987	93	60	33	32	32	0	90	45	45
1988	98	64	34	34	34	0	86	43	43
1989	105	68	37	36	36	0	85	43	43
1990	112	73	39	39	39	0	83	42	42
1991	129	84	45	40	40	0	82	41	41
1992	137	89	48	47	47	0	82	41	41
1993	149	97	52	51	51	0	81	41	41
1994	152	99	53	53	53	0	80	40	40
1995	168	109	59	55	55	0	80	40	40
1996	174	113	61	58	58	0	79	40	40
1997	180	117	63	60	60	0	79	40	40
1998	188	122	66	62	62	0	78	39	39
1999	193	125	68	65	65	0	77	39	39
2000	199	129	70	68	68	0	77	39	39

Table A-4. Business Share of Regulatory Costs in Billions of 1995 Dollars, Case A(cont.)

		Economic Regulation		Process Regulation			Total Regulatory Costs		
		(Transfer Costs)							
		Business			Business			Business	
Year	Total	Portion	Other	Total	Portion	Other	Total	Portion	Other
1977	288	144	144	138	93	45	654	374	280
1978	273	137	137	139	93	46	640	369	271
1979	256	128	128	139	93	46	622	362	261
1980	239	120	120	143	95	48	606	355	251
1981	225	113	113	147	97	50	591	347	244
1982	213	107	107	144	93	51	570	333	237
1983	204	102	102	161	108	53	576	343	233
1984	194	97	97	163	108	54	567	337	230
1985	186	93	93	165	108	57	562	334	227
1986	177	89	89	165	106	58	554	330	225
1987	168	84	84	174	111	62	557	333	224
1988	158	79	79	173	110	63	548	329	219
1989	156	78	78	180	115	65	562	339	222
1990	153	77	77	206	132	74	593	361	231
1991	151	76	76	219	139	79	620	379	241
1992	150	75	75	226	144	83	642	396	246
1993	149	75	75	212	134	78	642	396	246
1994	148	74	74	215	135	80	649	401	247
1995	147	74	74	218	137	82	669	415	254
1996	145	73	73	221	138	83	677	421	256
1997	144	72	72	225	140	85	688	428	260
1998	143	72	72	229	141	87	700	436	264
1999	142	71	71	232	142	89	709	442	266
2000	141	71	71	236	144	91	721	451	270

Numbers may not add due to rounding.

Table A-5. Business Regulatory Costs by Sector, 1977-2000 (Billions of 1995 Dollars)
Case A

Year	Environmental Regulation					Other Social Regulations				
	Manufacturing	Trade	Services	Other	Total	Manufacturing	Trade	Services	Other	Total
1977	21	3	3	3	30	13	6	6	6	32
1978	24	3	3	3	34	14	7	7	7	35
1979	26	4	4	4	37	15	7	7	7	37
1980	27	4	4	4	39	15	8	8	8	39
1981	29	4	4	4	41	15	7	7	7	37
1982	29	4	4	4	42	14	7	7	7	35
1983	32	5	5	5	46	13	6	6	6	32
1984	35	5	5	5	50	12	6	6	6	31
1985	36	5	5	5	52	12	6	6	6	31
1986	40	6	6	6	57	12	6	6	6	31
1987	42	6	6	6	60	13	6	6	6	32
1988	45	6	6	6	64	13	7	7	7	34
1989	48	7	7	7	68	14	7	7	7	36
1990	51	7	7	7	73	15	8	8	8	39
1991	59	8	8	8	84	16	8	8	8	40
1992	62	9	9	9	89	19	9	9	9	47
1993	68	10	10	10	97	20	10	10	10	51
1994	69	10	10	10	99	21	11	11	11	53
1995	76	11	11	11	109	22	11	11	11	55
1996	79	11	11	11	113	23	12	12	12	58
1997	82	12	12	12	117	24	12	12	12	60
1998	85	12	12	12	122	25	12	12	12	62
1999	88	13	13	13	126	26	13	13	13	65
2000	90	13	13	13	129	27	14	14	14	68

Table A-5. Business Regulatory Costs by Sector, 1977-2000 (Billions of 1995 Dollars)
Case A (cont.)

Year	Economic Regulation (Efficiency Costs)					Economic Regulation (Transfer Costs)				
	Manufacturing	Trade	Services	Other	Total	Manufacturing	Trade	Services	Other	Total
1977	13	18	22	22	75	25	35	42	42	144
1978	12	17	21	20	71	24	34	40	39	137
1979	12	16	20	19	67	22	31	37	37	128
1980	11	15	18	18	63	21	30	35	35	120
1981	10	15	17	17	59	20	28	33	33	113
1982	10	14	17	16	57	19	26	31	31	107
1983	9	13	16	16	54	18	25	30	29	102
1984	9	13	15	15	52	17	24	28	28	97
1985	9	12	15	14	50	16	23	27	27	93
1986	8	12	14	14	48	15	22	26	26	89
1987	8	11	13	13	45	15	21	25	24	84
1988	7	11	13	12	43	14	19	23	23	79
1989	7	11	13	12	43	14	19	23	22	78
1990	7	10	12	12	42	13	19	23	22	77
1991	7	10	12	12	41	13	19	22	22	76
1992	7	10	12	12	41	13	18	22	22	75
1993	7	10	12	12	41	13	18	22	22	75
1994	7	10	12	12	40	13	18	22	21	74
1995	7	10	12	12	40	13	18	22	21	74
1996	7	10	12	12	40	13	18	21	21	73
1997	7	10	12	12	40	12	18	21	21	72
1998	7	10	11	11	39	12	18	21	21	72
1999	7	10	11	11	39	12	17	21	20	71
2000	7	10	11	11	39	12	17	21	20	71

Table A-5. Business Regulatory Costs by Sector, 1977-2000 (Billions of 1995 Dollars)
Case A (cont.)

Year	Process Regulation					Total Business Regulation			
	Manufacturing	Trade	Services	Other	Total	Manufacturing	Trade	Services	Other
1977	16	23	27	27	93	88	86	101	99
1978	16	23	27	27	93	90	84	98	97
1979	16	23	27	27	93	91	82	95	94
1980	16	23	28	27	95	91	80	93	92
1981	17	24	28	28	97	90	78	90	89
1982	16	23	27	27	93	88	74	86	85
1983	19	27	32	31	108	91	76	88	87
1984	19	27	32	31	108	92	74	86	85
1985	19	27	32	31	108	92	73	85	84
1986	18	26	31	31	106	94	72	83	82
1987	19	27	32	32	111	96	71	83	82
1988	19	27	32	32	110	98	70	81	80
1989	20	28	34	33	115	103	72	83	82
1990	23	32	39	38	132	110	77	88	87
1991	24	34	41	40	139	119	79	91	90
1992	25	35	42	42	144	126	82	94	93
1993	23	33	39	39	134	132	81	93	92
1994	23	33	39	39	135	134	82	93	92
1995	24	34	40	39	137	142	84	95	94
1996	24	34	40	40	138	146	85	96	95
1997	24	34	41	40	140	149	86	97	96
1998	24	35	41	41	141	154	87	98	97
1999	25	35	42	41	142	158	88	99	98
2000	25	35	42	42	144	161	89	101	100

Numbers may not add due to rounding.

Table A-6. Average Sectoral Regulatory Costs, 1992 (in 1995 Dollars), Case A

Manufacturing				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a Percent of Receipts
Environmental	62	188,909	3,413	1.8
Other Social	19	57,891	1,046	0.6
Economic-Efficiency	7	21,328	385	0.2
Economic-Transfer	13	39,610	716	0.4
Process	25	76,173	1,376	0.7
Total Regulatory Cost	126	383,911	6,936	3.7

Trade				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a Percent of Receipts
Environmental	9	6,125	349	0.2
Other Social	9	6,125	349	0.2
Economic-Efficiency	10	6,806	388	0.2
Economic-Transfer	18	12,250	698	0.3
Process	35	23,819	1,358	0.6
Total Regulatory Cost	82	55,805	3,181	1.4

Services				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a Percent of Receipts
Environmental	9	4,584	293	0.5
Other Social	9	4,584	293	0.5
Economic-Efficiency	12	6,111	391	0.6
Economic-Transfer	22	11,204	717	1.1
Process	42	21,390	1,370	2.1
Total Regulatory Cost	94	47,872	3,065	4.8

Table A-6. Average Sectoral Regulatory Costs, 1992 (in 1995 Dollars), Case A (cont.)

Other				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a Percent of Receipts
Environmental	9	6,563	494	0.2
Other Social	9	6,563	494	0.2
Economic-Efficiency	12	8,751	659	0.3
Economic-Transfer	22	16,043	1,208	0.6
Process	42	30,627	2,306	1.1
Total Regulatory Cost	93	67,817	5,105	2.4

U.S. Totals				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a Percent of Receipts
Environmental	89	17,467	959	0.6
Other Social	47	9,224	506	0.3
Economic-Efficiency	41	8,047	442	0.3
Economic-Transfer	75	14,719	808	0.5
Process	144	28,261	1,551	1.0
Total Regulatory Cost	395	77,522	4,255	2.7

Numbers may not add due to rounding.

Table A-7a. Business Regulatory Costs per Employee, 1992 (in 1995 Dollars), Case A

Manufacturing

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	4,437	5,218	2,389
Other Social	1,360	1,599	732
Economic-Efficiency	501	589	270
Economic-Transfer	930	1,094	501
Process	1,789	2,104	963
Total Regulatory Cost	9,016	10,605	4,855

Trade

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	454	411	244
Other Social	454	411	244
Economic-Efficiency	504	456	272
Economic-Transfer	908	821	489
Process	1,765	1,596	950
Total Regulatory Cost	4,135	3,740	2,227

Services

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	382	341	205
Other Social	382	341	205
Economic-Efficiency	509	454	274
Economic-Transfer	933	833	502
Process	1,780	1,590	959
Total Regulatory Cost	3,985	3,558	2,146

Table A-7a. Business Regulatory Costs per Employee, 1992 (in 1995 Dollars), Case A
(cont.)

Other

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	642	608	346
Other Social	642	608	346
Economic-Efficiency	856	810	461
Economic-Transfer	1,570	1,486	845
Process	2,997	2,836	1,614
Total Regulatory Cost	6,637	6,280	3,574

U.S. Totals

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	1,246	1,194	671
Other Social	658	630	354
Economic-Efficiency	574	550	309
Economic-Transfer	1,050	1,006	566
Process	2,017	1,931	1,086
Total Regulatory Cost	5,532	5,298	2,979

Numbers may not add due to rounding.

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

Table A-7b. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case A

Manufacturing

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	4,095	4,617	2,730
Other Social	1,255	1,415	837
Economic-Efficiency	462	521	308
Economic-Transfer	859	968	572
Process	1,651	1,862	1,101
Total Regulatory Cost	8,323	9,382	5,549

Trade

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	419	390	279
Other Social	419	390	279
Economic-Efficiency	466	433	310
Economic-Transfer	838	780	559
Process	1,629	1,517	1,086
Total Regulatory Cost	3,817	3,554	2,545

Services

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	352	325	235
Other Social	352	325	235
Economic-Efficiency	470	433	313
Economic-Transfer	861	794	574
Process	1,644	1,516	1,096
Total Regulatory Cost	3,678	3,394	2,452

Table A-7b. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case A (cont.)

Other

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	593	570	395
Other Social	593	570	395
Economic-Efficiency	790	760	527
Economic-Transfer	1,449	1,393	966
Process	2,767	2,659	1,844
Total Regulatory Cost	6,126	5,889	4,084

U.S. Totals

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	1,151	1,115	767
Other Social	608	589	405
Economic-Efficiency	530	514	353
Economic-Transfer	970	940	646
Process	1,862	1,805	1,241
Total Regulatory Cost	5,106	4,950	3,404

Numbers may not add due to rounding.

* Assumes small firms experience per employee costs that are 20% higher than the average, and that the largest firms experience per employee costs that are just 80% of the average

Table A-7c. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case A

Manufacturing

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	3,754	4,015	3,072
Other Social	1,150	1,230	941
Economic-Efficiency	424	453	347
Economic-Transfer	787	842	644
Process	1,514	1,619	1,239
Total Regulatory Cost	7,629	8,159	6,242

Trade

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	384	370	314
Other Social	384	370	314
Economic-Efficiency	427	411	349
Economic-Transfer	768	739	628
Process	1,494	1,437	1,222
Total Regulatory Cost	3,499	3,368	2,863

Services

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	323	309	264
Other Social	323	309	264
Economic-Efficiency	430	412	352
Economic-Transfer	789	756	646
Process	1,507	1,443	1,233
Total Regulatory Cost	3,372	3,230	2,759

Table A-7c. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case A (cont.)

Other

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	543	532	445
Other Social	543	532	445
Economic-Efficiency	725	709	593
Economic-Transfer	1,328	1,300	1,087
Process	2,536	2,482	2,075
Total Regulatory Cost	5,616	5,497	4,595

U.S. Totals

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	1,055	1,037	863
Other Social	557	548	456
Economic-Efficiency	486	478	398
Economic-Transfer	889	874	727
Process	1,706	1,678	1,396
Total Regulatory Cost	4,681	4,603	3,830

Numbers may not add due to rounding.

* Assumes small firms experience per employee costs that are 10% higher than the average, and that the largest firms experience per employee costs that are just 90% of the average

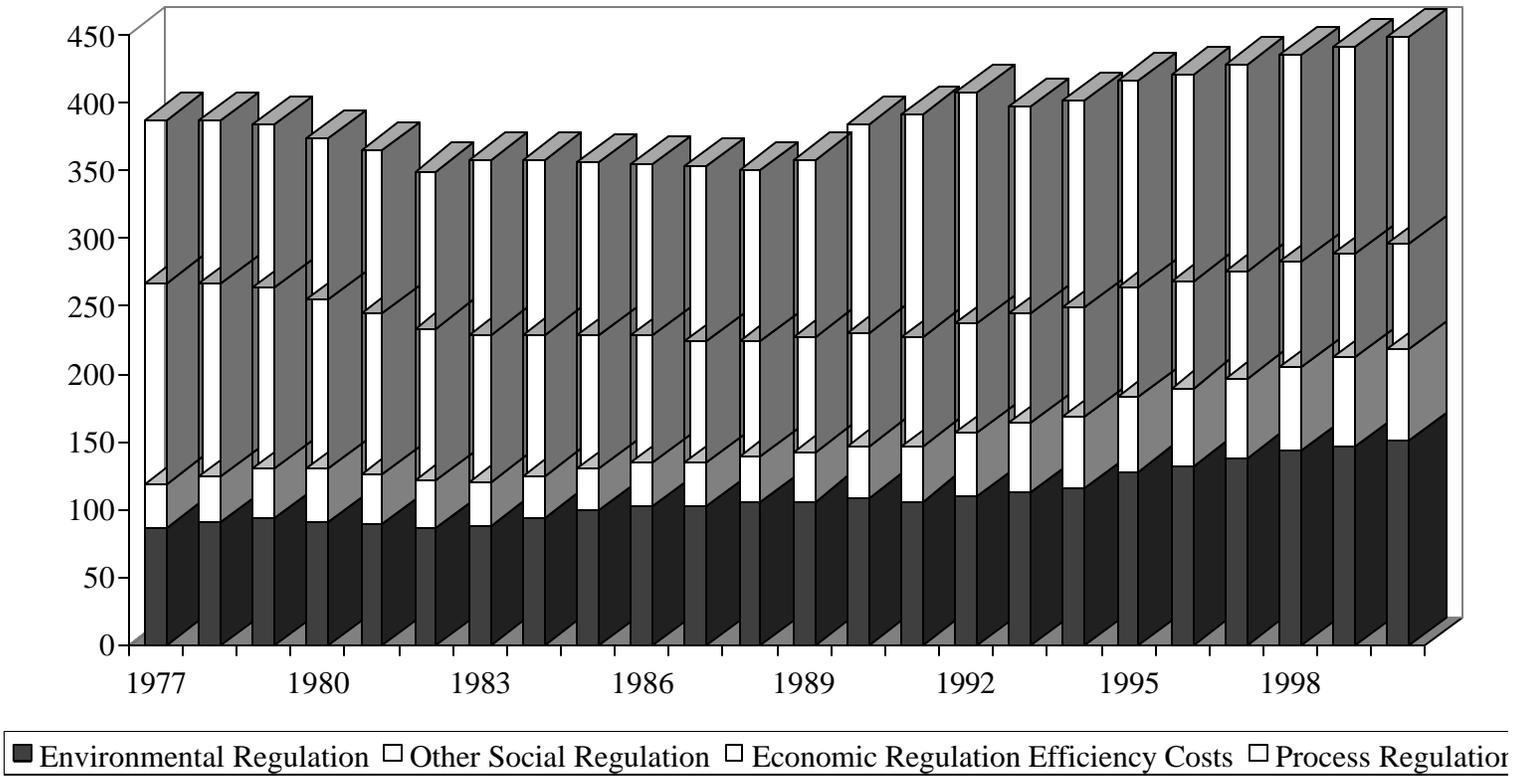
Appendix B

Figures and tabular detail for Case B

- Figure B-1. Regulatory costs, 1977-2000
- Figure B-2. Regulatory costs by category, 1977-2000
- Figure B-3. Federal receipts and regulatory costs per household, 1977-2000
- Figure B-4. Percentage distribution of regulatory costs, 1977 and 1992
- Figure B-5. Regulatory costs as percent of GDP, 1977-2000
- Figure B-6. Business share of regulatory costs, 1977-2000
- Figure B-7. Business regulatory costs by sector, 1977-2000
- Figure B-8. Composition of regulatory costs by sector, 1992 (3 pages)
- Figure B-9. Regulatory costs per firm by sector, 1992
- Figure B-10. Regulatory costs per employee by sector, 1992
- Figure B-11. Regulatory costs as percent of receipts, by sector, 1992
- Figure B-12. Regulatory costs per employee by firm size, 1992

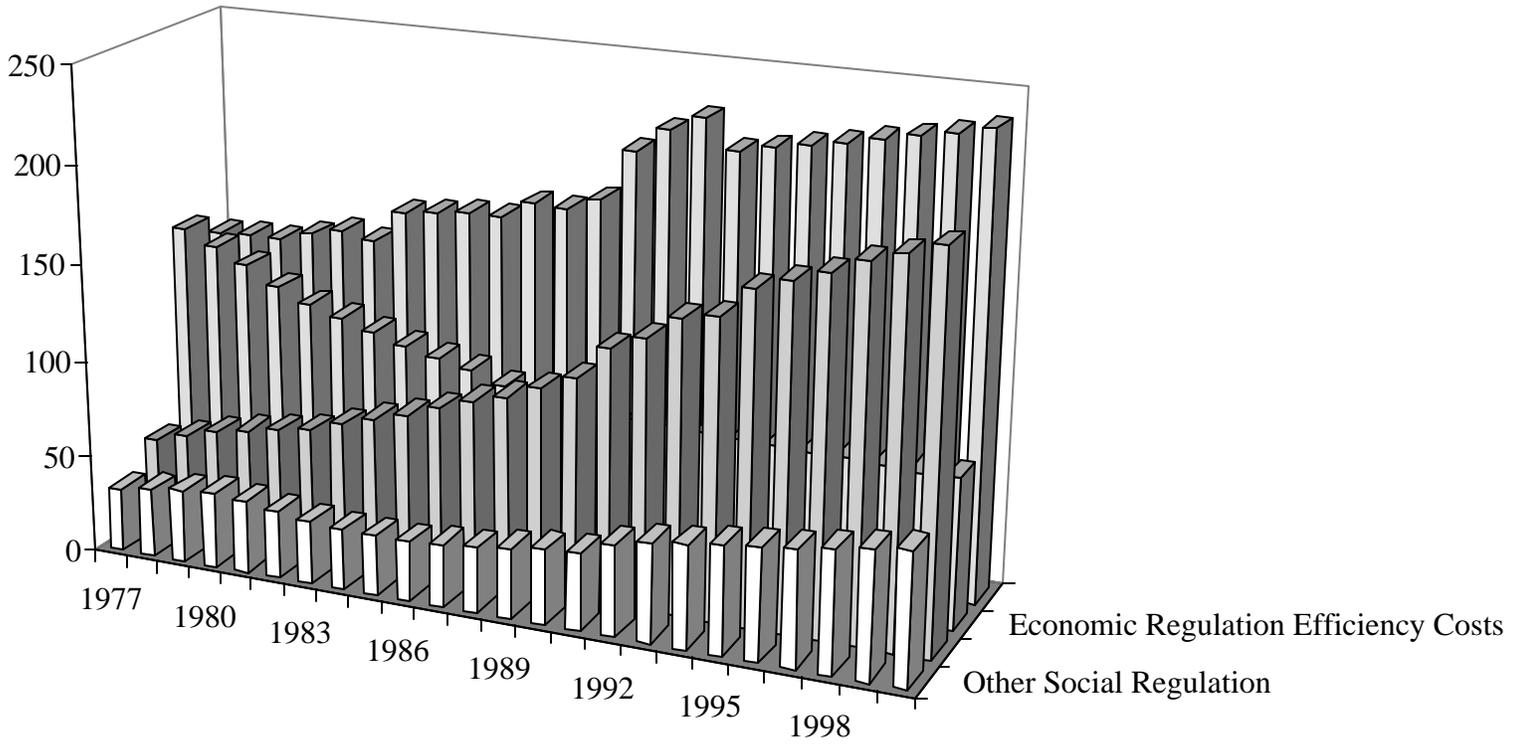
- Table B-1. Annualized regulatory costs, 1977-2000
- Table B-2. Federal receipts and regulatory costs per household, 1977-2000
- Table B-3. Regulatory costs as percent of GDP, 1977-2000
- Table B-4. Business share of regulatory costs, 1977-2000 (2 pages)
- Table B-5. Business regulatory costs by sector, 1977-2000 (3 pages)
- Table B-6. Average sectoral regulatory costs, 1992 (2 pages)
- Table B-7. Business regulatory costs per employee, 1992 (2 pages)

Figure B-1. Regulatory Costs in Billions of 1995 Dollars, Case B



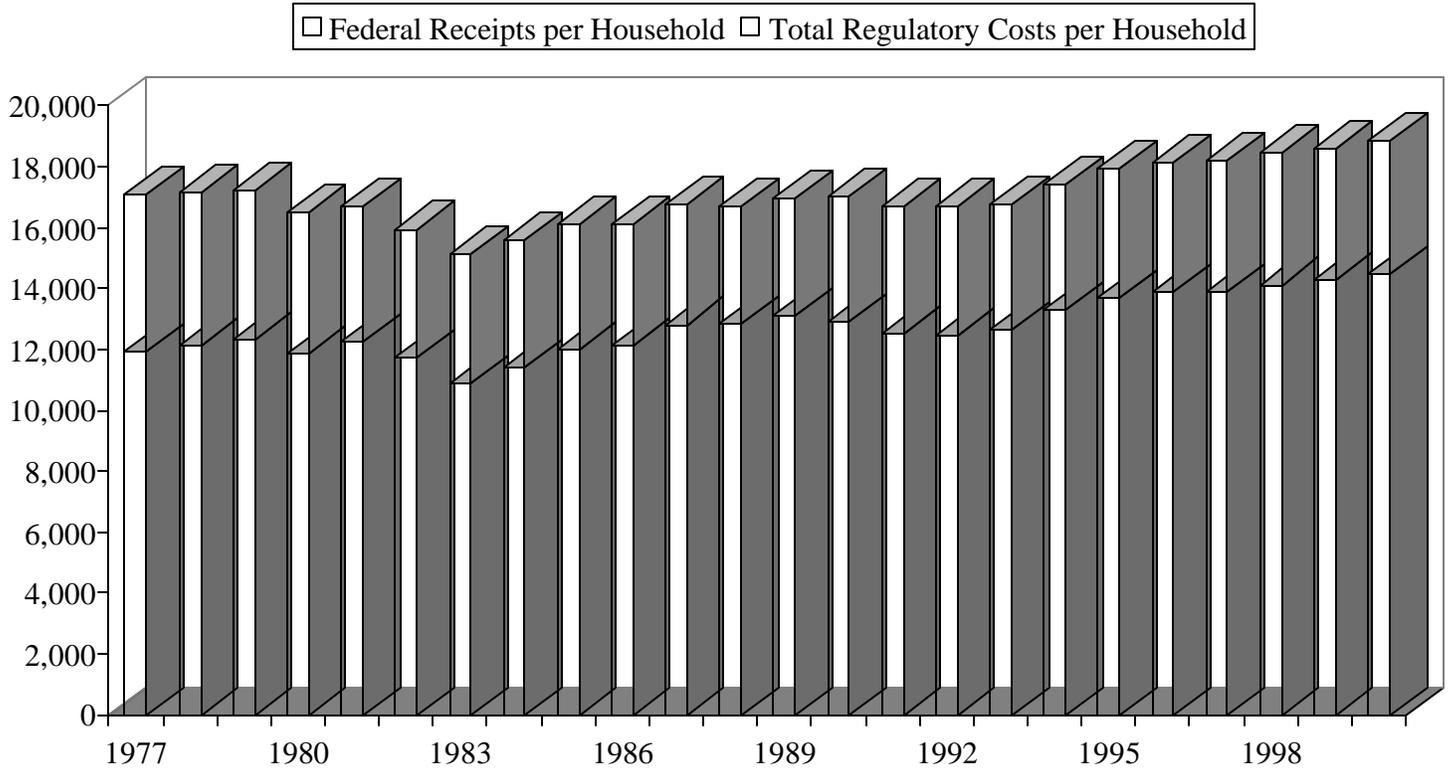
Source: Table B-1

Figure B-2. Regulatory Costs by Category, in Billions of 1995 Dollars, Case B



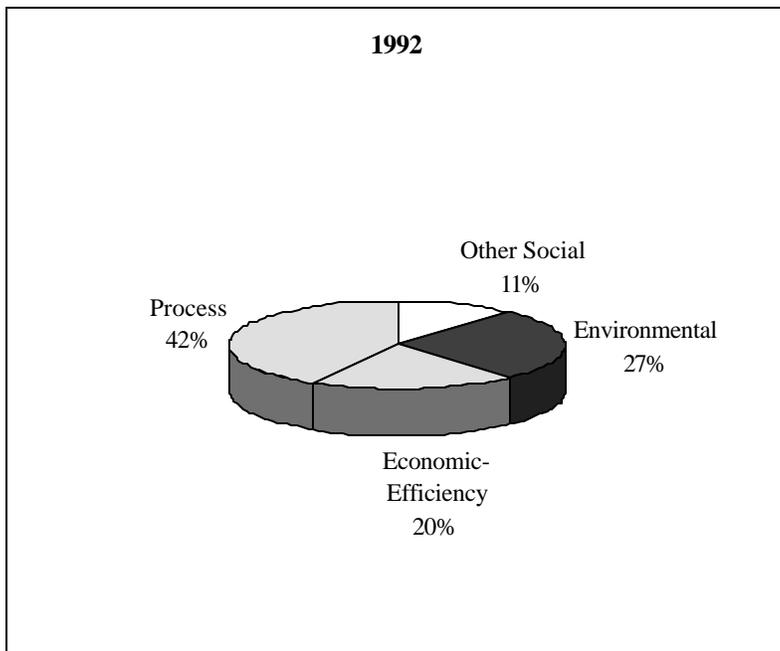
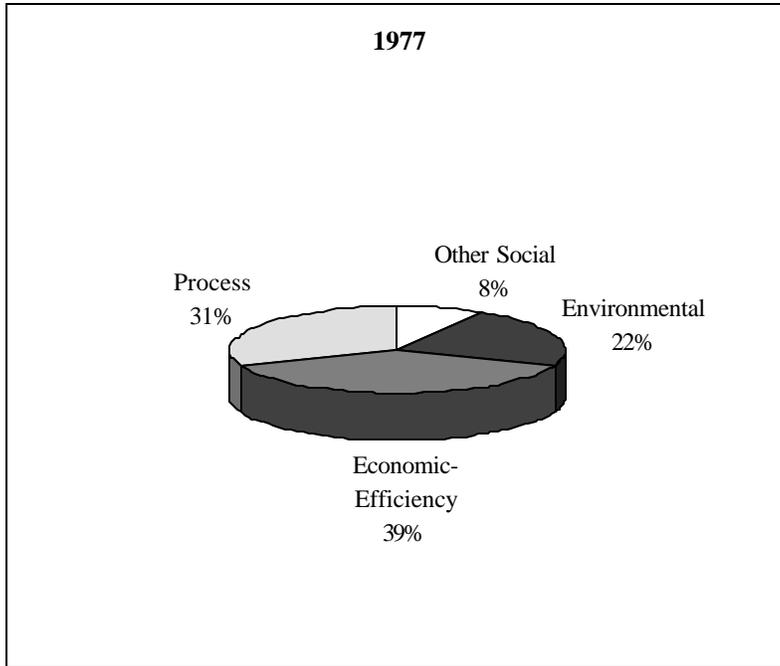
Source: Table B-1. See Figure A-2 for Complete Legend

Figure B-3. Federal Receipts and Regulatory Costs Per Household in 1995 Dollars, Case B



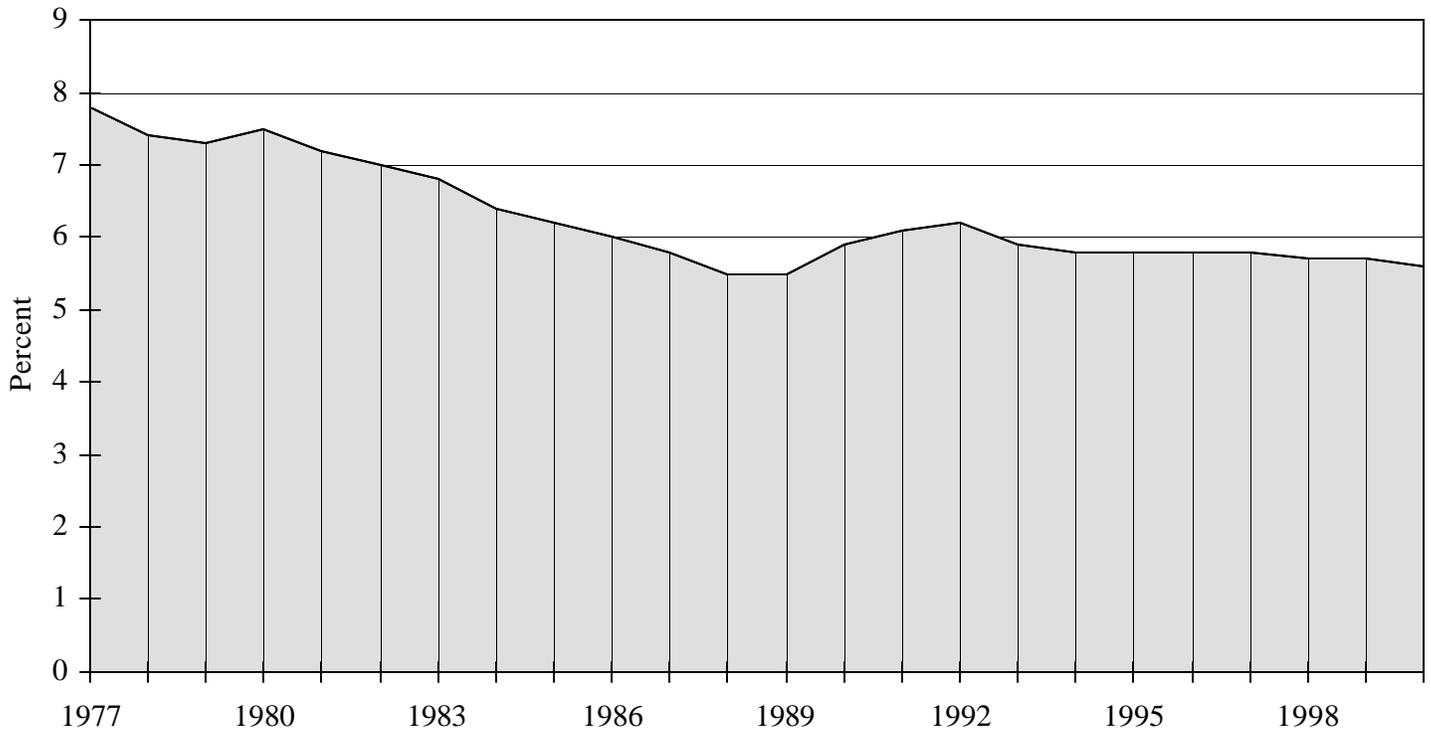
Source: Table B-2

Figure B-4. Percentage Distribution of Regulatory Costs, Case B



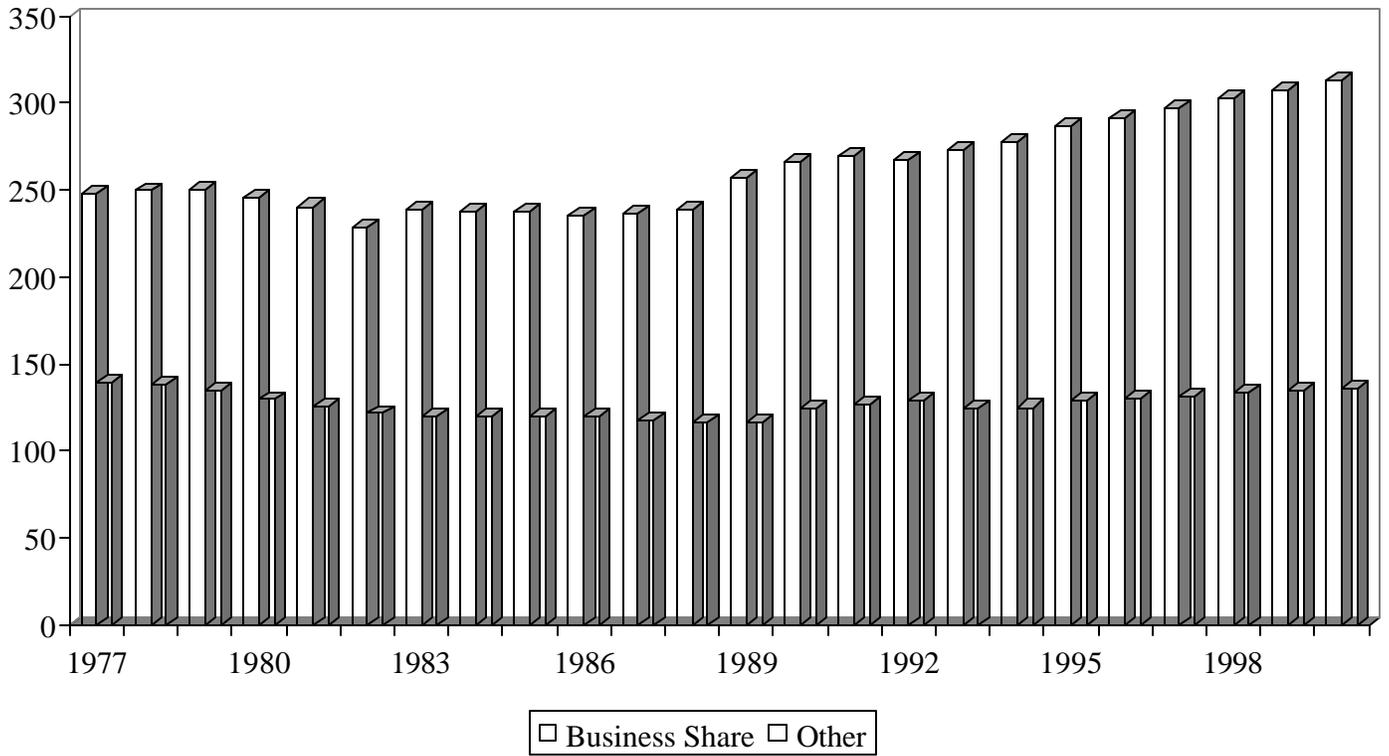
Source: Table B-1

Figure B-5. Regulatory Costs as Percent of GDP, Case B



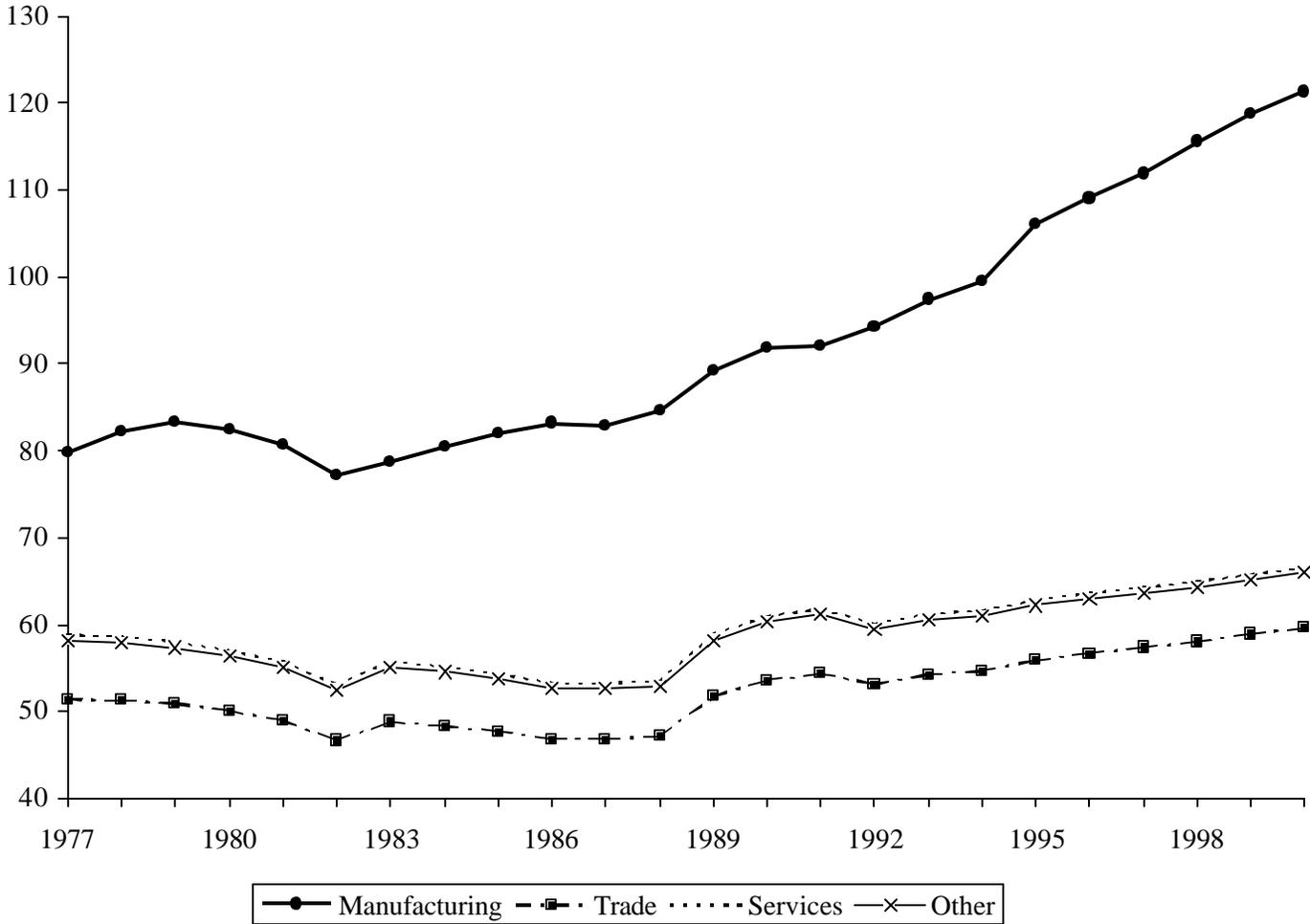
Source: Table B-3

Figure B-6. Business Share of Regulatory Costs in Billions of 1995 Dollars, Case B



Source: Table B-4

Figure B-7. Business Regulatory Costs, by Sector, 1977-2000, Case B



Source: Table B-5

Figure B-8. Composition of Regulatory Costs by Sector, 1992, Case B

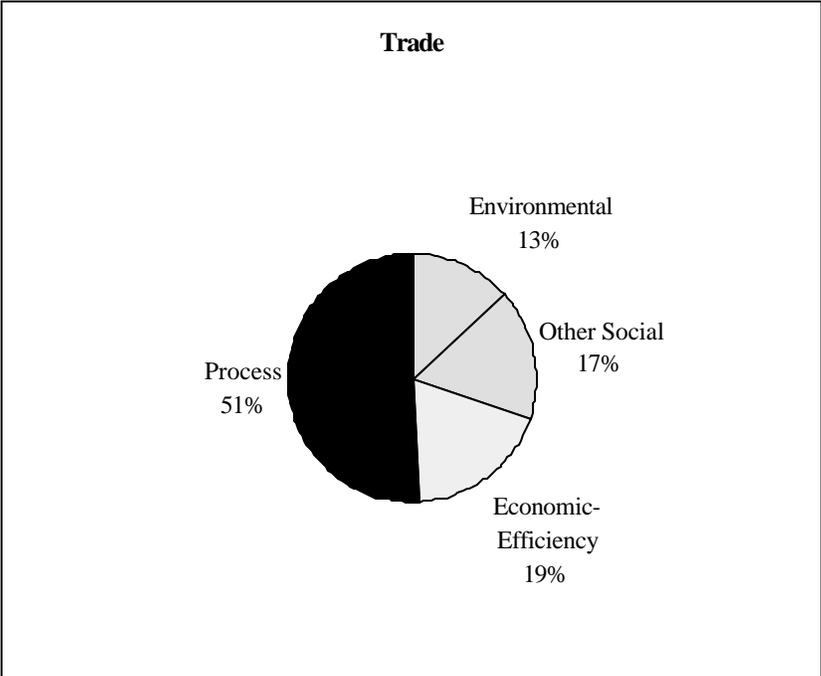
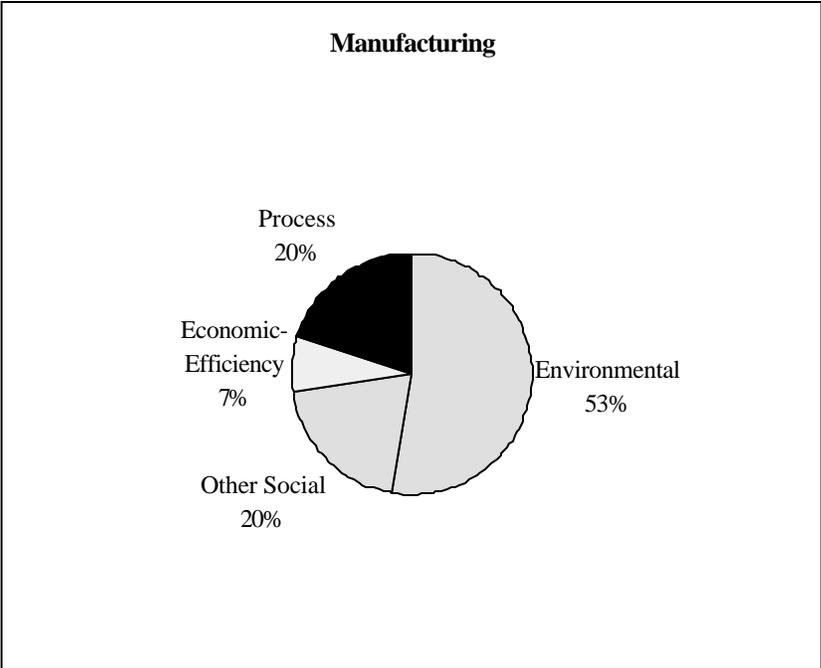


Figure B-8. Composition of Regulatory Costs by Sector, 1992, Case B (cont.)

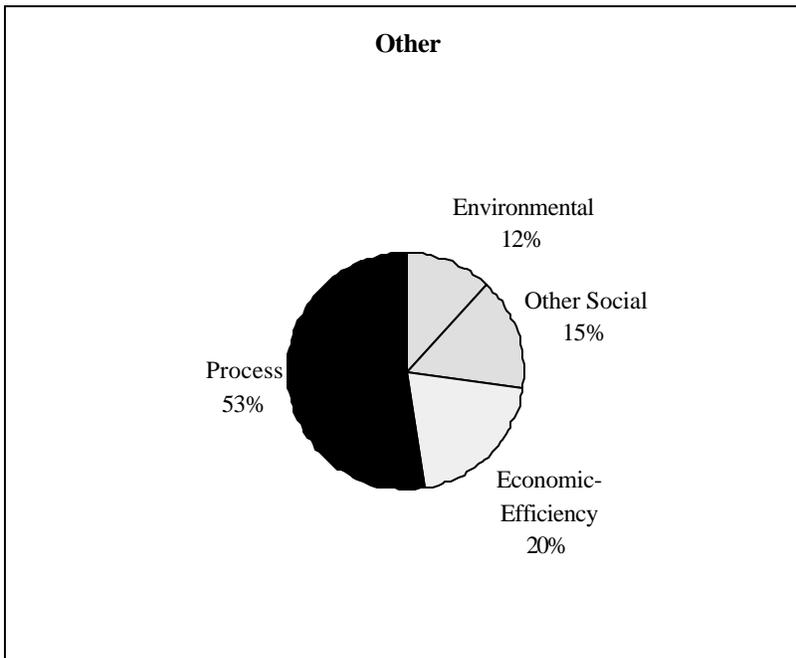
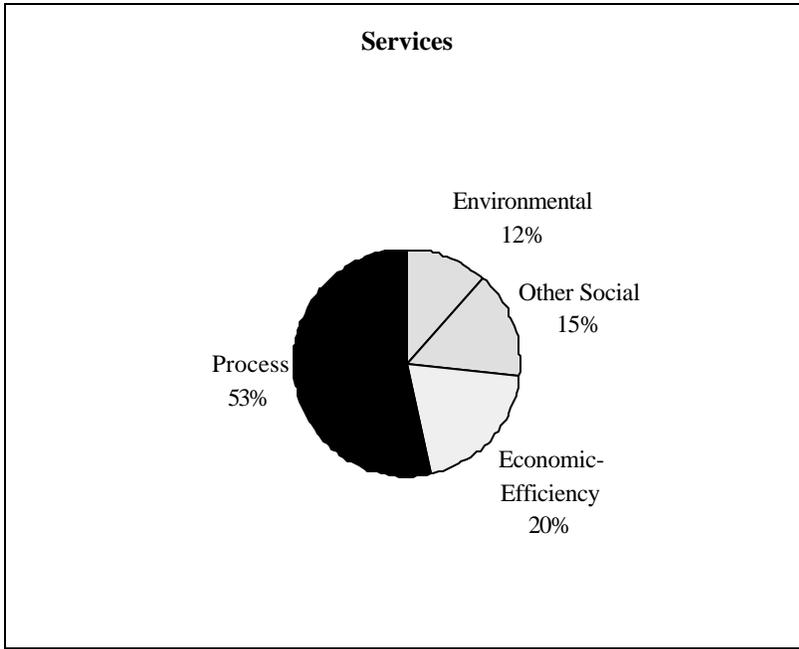
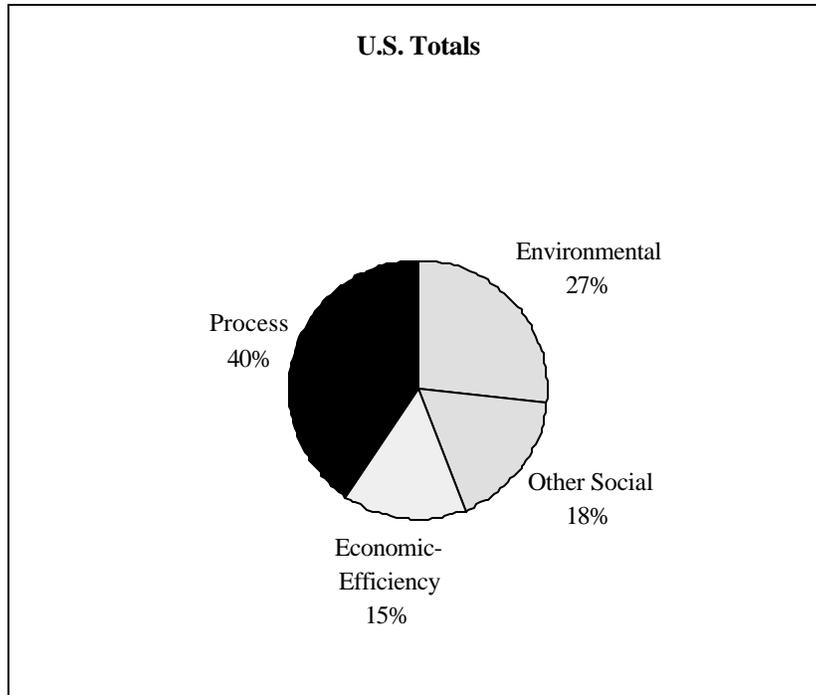
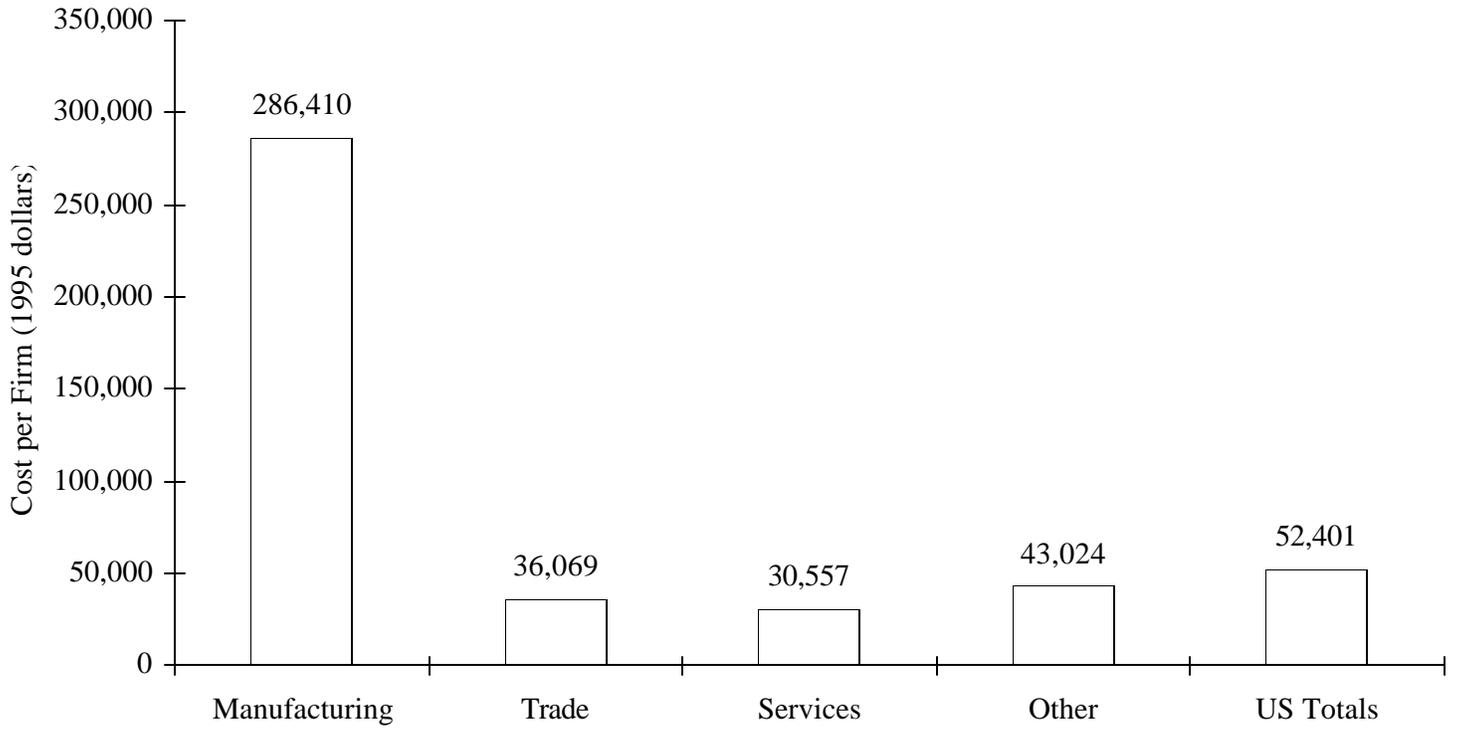


Figure B-8. Composition of Regulatory Costs by Sector, 1992, Case B (cont.)



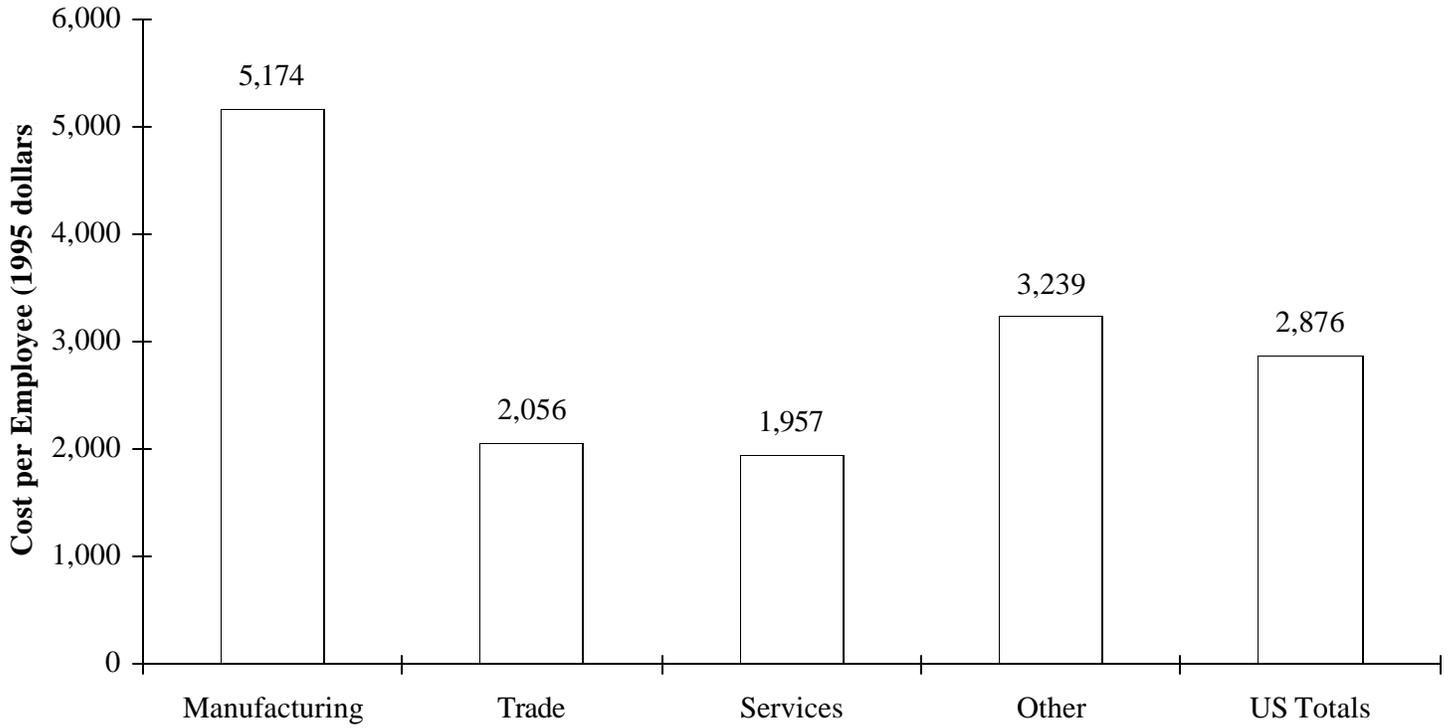
Source: Table B-5

Figure B-9. Regulatory Costs Per Firm by Sector, 1992, Case B



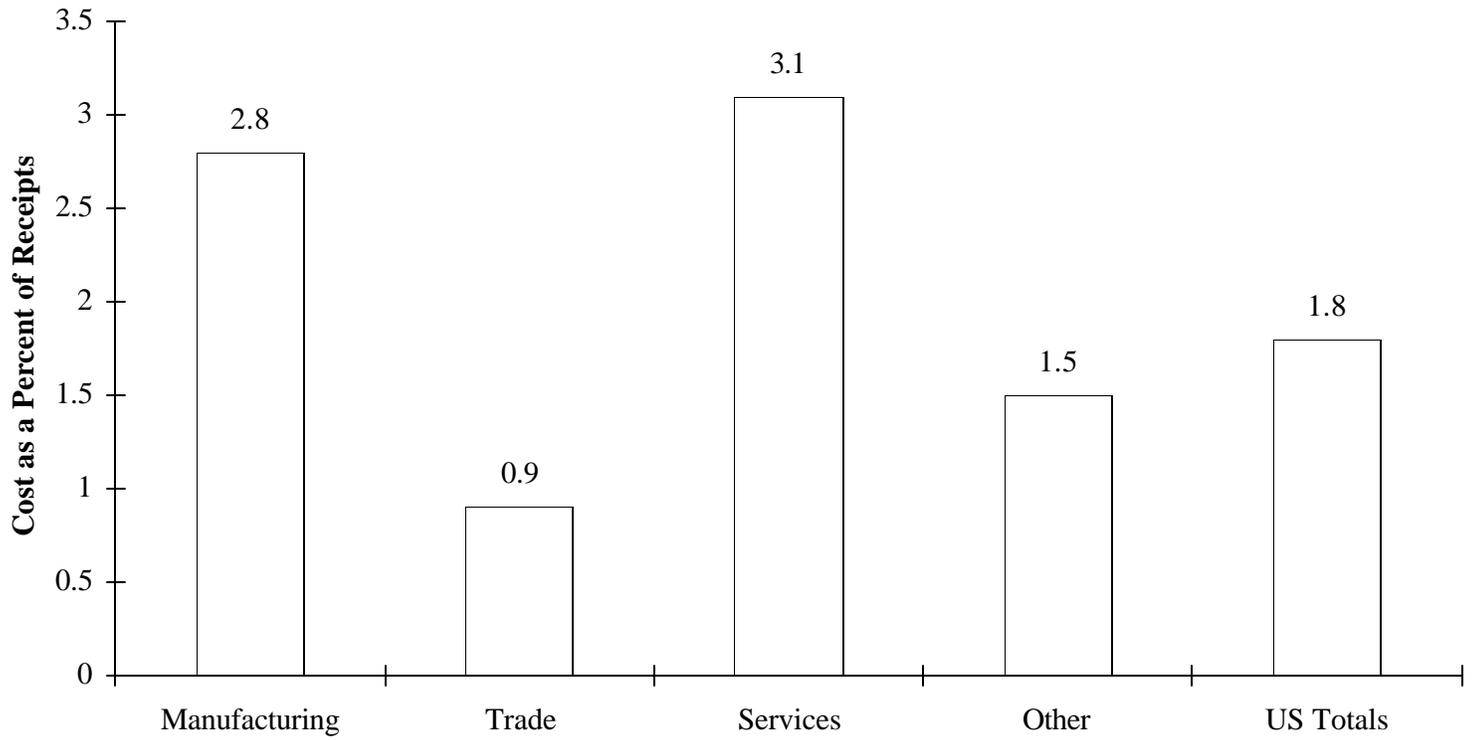
Source: Table B-6

Figure B-10. Regulatory Costs Per Employee by Sector, 1992, Case B



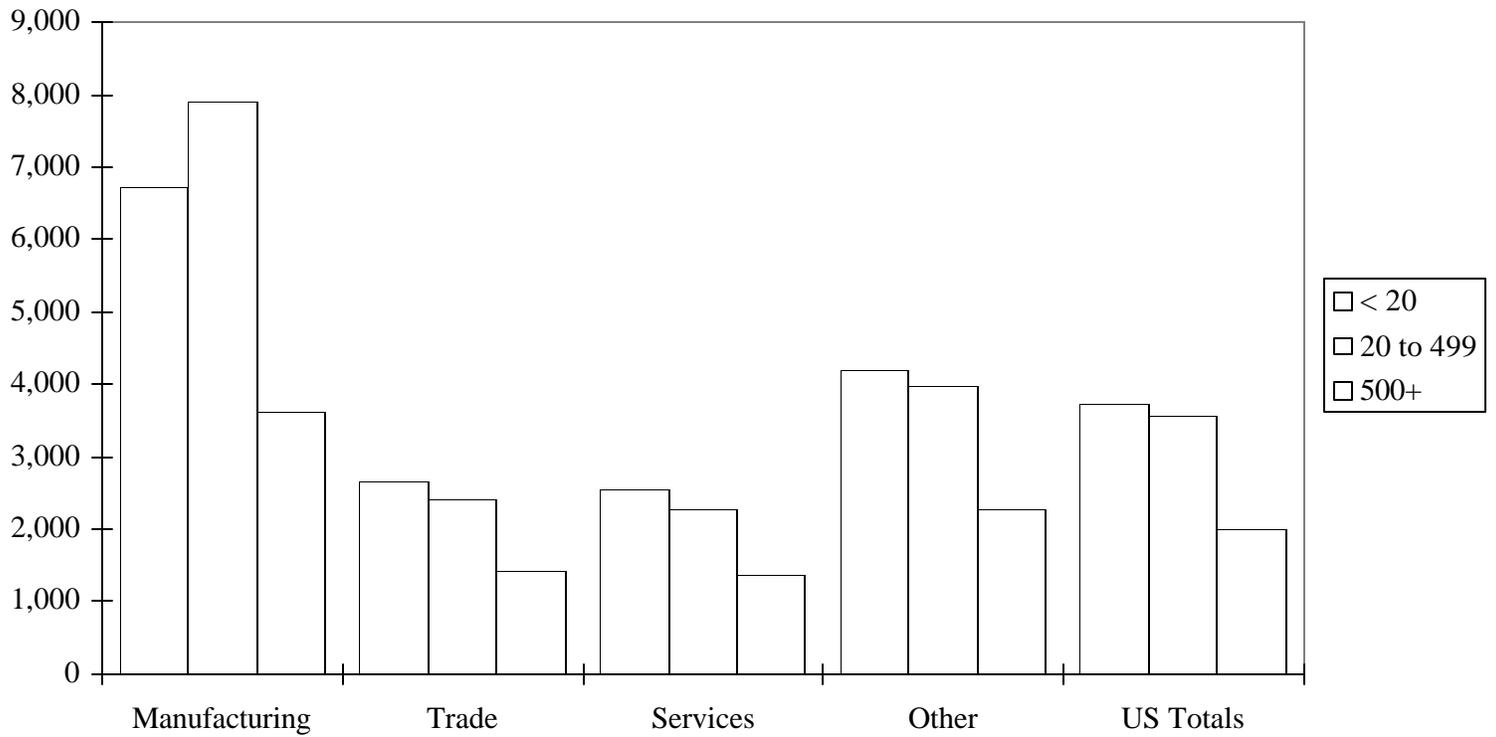
Source: Table B-6

Figure B-11. Regulatory Costs as Percent of Receipts by Sector, 1992, Case B



Source: Table B-6

Figure B-12. Regulatory Costs Per Employee by Firm Size, 1992 (in 1995 Dollars), Case B



Source: Table B-7

Table B-1. Annualized Regulatory Costs in Billions of 1995 Dollars, Case B

Year	Environmental Regulation	Other Social Regulation	Economic Regulation Efficiency Costs	Process Regulation	Total Regulatory Costs
1977	86	32	149	120	387
1978	90	35	142	120	387
1979	93	37	134	120	384
1980	91	39	125	120	375
1981	89	37	118	121	365
1982	86	35	113	116	350
1983	88	32	108	130	358
1984	94	31	103	130	358
1985	99	31	99	128	357
1986	103	31	95	126	355
1987	102	32	90	129	353
1988	105	34	86	126	351
1989	106	36	85	131	358
1990	108	39	83	155	385
1991	106	40	82	164	392
1992	109	47	82	170	408
1993	113	51	81	152	397
1994	116	53	80	153	402
1995	128	55	80	153	416
1996	132	58	79	153	422
1997	137	60	79	153	429
1998	143	62	78	153	436
1999	147	65	77	153	442
2000	151	68	77	153	449

Table B-2. Federal Receipts and Regulatory Costs Per Household in 1995 Dollars, Case B

Year	Households (thousands)	Federal Receipts per Household	Total Regulatory Costs per Household	Combined Federal Burden per Household
1977	74,982	11,933	5,161	17,094
1978	76,914	12,151	5,032	17,182
1979	78,845	12,343	4,870	17,213
1980	80,776	11,848	4,642	16,490
1981	81,979	12,264	4,452	16,716
1982	83,181	11,737	4,208	15,944
1983	84,384	10,897	4,243	15,140
1984	85,586	11,429	4,183	15,612
1985	86,789	11,987	4,113	16,101
1986	88,458	12,098	4,013	16,111
1987	89,479	12,814	3,945	16,760
1988	91,066	12,867	3,854	16,721
1989	92,830	13,125	3,857	16,981
1990	93,347	12,891	4,124	17,015
1991	94,312	12,516	4,156	16,673
1992	95,392	12,425	4,277	16,702
1993	96,329	12,638	4,121	16,759
1994	97,243	13,309	4,134	17,443
1995	98,180	13,714	4,237	17,951
1996	99,082	13,894	4,259	18,153
1997	100,023	13,919	4,289	18,208
1998	100,974	14,117	4,318	18,435
1999	101,933	14,265	4,336	18,601
2000	102,901	14,481	4,363	18,844

Source of data on number of households: U.S. Bureau of the Census, *1994 Statistical Abstract of the United States*, p. 58, with author's extrapolated estimates for intervening years not included in the Abstract.

Source of data on government receipts: *Budget of the United States Government, Fiscal Year 1996*, Table S-2, adjusted to 1995 dollars using the Consumer Price Index.

Table B-3. Regulatory Costs as Percent of GDP, Case B

Year	Regulatory	
	Costs in billions of 1995 dollars	as Percent of GDP
1977	387	7.8
1978	387	7.4
1979	384	7.3
1980	375	7.5
1981	365	7.2
1982	350	7.0
1983	358	6.8
1984	358	6.4
1985	357	6.2
1986	355	6.0
1987	353	5.8
1988	351	5.5
1989	358	5.5
1990	385	5.9
1991	392	6.1
1992	408	6.2
1993	397	5.9
1994	402	5.8
1995	416	5.8
1996	422	5.8
1997	429	5.8
1998	436	5.7
1999	442	5.7
2000	449	5.6

Sources:

GDP - 1977 to 1993: *Economic Report of the President, February 1995.*

1994 to 2000: *Budget of the United States, Fiscal Year 1996,*
Volume 2 "Analytical Perspectives."

CPI - 1977 to 1993: *Statistical Abstract of the United States, 1994.*

1994 to 2000: *Budget of the United States, Fiscal Year 1996,*
Volume 2 "Analytical Perspectives."

Table B-4. Business Share of Regulatory Costs in Billions of 1995 Dollars, Case B

Year	Environmental Regulation			Other Social Regulations			Economic Regulation(Efficiency Costs)		
	Total	Business Portion	Other	Total	Business Portion	Other	Total	Business Portion	Other
1977	86	56	30	32	32	0	149	75	75
1978	90	59	32	35	35	0	142	71	71
1979	93	60	33	37	37	0	134	67	67
1980	91	59	32	39	39	0	125	63	63
1981	89	58	31	37	37	0	118	59	59
1982	86	56	30	35	35	0	113	57	57
1983	88	57	31	32	32	0	108	54	54
1984	94	61	33	31	31	0	103	52	52
1985	99	64	35	31	31	0	99	50	50
1986	103	67	36	31	31	0	95	48	48
1987	102	66	36	32	32	0	90	45	45
1988	105	68	37	34	34	0	86	43	43
1989	106	69	37	36	36	0	85	43	43
1990	108	70	38	39	39	0	83	42	42
1991	106	69	37	40	40	0	82	41	41
1992	109	71	38	47	47	0	82	41	41
1993	113	73	40	51	51	0	81	41	41
1994	116	75	41	53	53	0	80	40	40
1995	128	83	45	55	55	0	80	40	40
1996	132	86	46	58	58	0	79	40	40
1997	137	89	48	60	60	0	79	40	40
1998	143	93	50	62	62	0	78	39	39
1999	147	96	51	65	65	0	77	39	39
2000	151	98	53	68	68	0	77	39	39

Table B-4. Business Share of Regulatory Costs in Billions of 1995 Dollars, Case B (cont.)

Year	Environmental Regulation			Other Social Regulations			Economic Regulation(Efficiency Costs)		
	Total	Business Portion	Other	Total	Business Portion	Other	Total	Business Portion	Other
1977	86	56	30	32	32	0	149	75	75
1978	90	59	32	35	35	0	142	71	71
1979	93	60	33	37	37	0	134	67	67
1980	91	59	32	39	39	0	125	63	63
1981	89	58	31	37	37	0	118	59	59
1982	86	56	30	35	35	0	113	57	57
1983	88	57	31	32	32	0	108	54	54
1984	94	61	33	31	31	0	103	52	52
1985	99	64	35	31	31	0	99	50	50
1986	103	67	36	31	31	0	95	48	48
1987	102	66	36	32	32	0	90	45	45
1988	105	68	37	34	34	0	86	43	43
1989	106	69	37	36	36	0	85	43	43
1990	108	70	38	39	39	0	83	42	42
1991	106	69	37	40	40	0	82	41	41
1992	109	71	38	47	47	0	82	41	41
1993	113	73	40	51	51	0	81	41	41
1994	116	75	41	53	53	0	80	40	40
1995	128	83	45	55	55	0	80	40	40
1996	132	86	46	58	58	0	79	40	40
1997	137	89	48	60	60	0	79	40	40
1998	143	93	50	62	62	0	78	39	39
1999	147	96	51	65	65	0	77	39	39
2000	151	98	53	68	68	0	77	39	39

Numbers may not add due to rounding.

Table B-5. Business regulatory costs by sector, 1977-2000 (Billions of 1995 Dollars), Case B

Year	Environmental Regulation					Other Social Regulations				
	Manufacturing	Trade	Services	Other	Total	Manufacturing	Trade	Services	Other	Total
1977	39	6	6	6	56	13	6	6	6	32
1978	41	6	6	6	59	14	7	7	7	35
1979	42	6	6	6	60	15	7	7	7	37
1980	41	6	6	6	59	15	8	8	8	39
1981	41	6	6	6	58	15	7	7	7	37
1982	39	6	6	6	56	14	7	7	7	35
1983	40	6	6	6	57	13	6	6	6	32
1984	43	6	6	6	61	12	6	6	6	31
1985	45	6	6	6	64	12	6	6	6	31
1986	47	7	7	7	67	12	6	6	6	31
1987	46	7	7	7	66	13	6	6	6	32
1988	48	7	7	7	68	13	7	7	7	34
1989	48	7	7	7	69	14	7	7	7	36
1990	49	7	7	7	70	15	8	8	8	39
1991	48	7	7	7	69	16	8	8	8	40
1992	50	7	7	7	71	19	9	9	9	47
1993	51	7	7	7	73	20	10	10	10	51
1994	53	8	8	8	75	21	11	11	11	53
1995	58	8	8	8	83	22	11	11	11	55
1996	60	9	9	9	86	23	12	12	12	58
1997	62	9	9	9	89	24	12	12	12	60
1998	65	9	9	9	93	25	12	12	12	62
1999	67	10	10	10	96	26	13	13	13	65
2000	69	10	10	10	98	27	14	14	14	68

Table B-5. Business regulatory costs by sector, 1977-2000 (Billions of 1995 Dollars), Case B (cont.)

Year	Economic Regulation (Efficiency Costs)					Process Regulation				
	Manufacturing	Trade	Services	Other	Total	Manufacturing	Trade	Services	Other	Total
1977	13	18	22	22	75	15	21	25	25	85
1978	12	17	21	20	71	15	21	25	25	85
1979	12	16	20	19	67	15	21	25	25	85
1980	11	15	18	18	63	15	21	25	25	85
1981	10	15	17	17	59	15	21	25	25	86
1982	10	14	17	16	57	14	20	24	24	82
1983	9	13	16	16	54	17	23	28	27	95
1984	9	13	15	15	52	16	23	28	27	95
1985	9	12	15	14	50	16	23	27	27	93
1986	8	12	14	14	48	16	22	26	26	90
1987	8	11	13	13	45	16	23	27	27	92
1988	7	11	13	12	43	16	23	27	27	94
1989	7	11	13	12	43	19	27	32	32	110
1990	7	10	12	12	42	20	29	34	33	116
1991	7	10	12	12	41	21	29	35	34	120
1992	7	10	12	12	41	19	27	32	31	108
1993	7	10	12	12	41	19	27	32	31	109
1994	7	10	12	12	40	19	27	32	31	109
1995	7	10	12	12	40	19	27	32	31	109
1996	7	10	12	12	40	19	27	32	31	109
1997	7	10	12	12	40	19	27	32	31	109
1998	7	10	11	11	39	19	27	32	31	109
1999	7	10	11	11	39	19	27	32	31	109
2000	7	10	11	11	39	19	27	32	31	109

Table B-5. Business regulatory costs by sector, 1977-2000 (Billions of 1995 Dollars), Case B (cont.)

Year	Total Business Regulation				Total
	Manufacturing	Trade	Services	Other	
1977	80	51	59	58	248
1978	82	51	59	58	250
1979	83	51	58	57	250
1980	82	50	57	56	246
1981	81	49	56	55	240
1982	77	47	53	53	229
1983	79	49	56	55	239
1984	80	48	55	55	238
1985	82	48	54	54	238
1986	83	47	53	53	235
1987	83	47	53	53	236
1988	85	47	53	53	238
1989	89	52	59	58	258
1990	92	54	61	60	266
1991	92	54	62	61	269
1992	94	53	60	59	267
1993	97	54	61	61	274
1994	99	55	62	61	277
1995	106	56	63	62	287
1996	109	57	64	63	292
1997	112	57	64	64	297
1998	116	58	65	64	303
1999	119	59	66	65	308
2000	121	60	67	66	313

Numbers may not add due to rounding.

Table B-6. Average Sectoral Regulatory Costs, 1992 (in 1995 Dollars), Case B

Manufacturing				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a percent of Receipts
Environmental	50	152,346	2,752	1.5
Other Social	19	57,891	1,046	0.6
Economic-Efficiency Process	7	21,328	385	0.2
	19	57,891	1,046	0.6
Total Regulatory Cost	94	286,410	5,174	2.8
Trade				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a percent of Receipts
Environmental	7	4,764	272	0.1
Other Social	9	6,125	349	0.2
Economic-Efficiency Process	10	6,806	388	0.2
	27	18,375	1,047	0.5
Total Regulatory Cost	53	36,069	2,056	0.9
Services				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a percent of Receipts
Environmental	7	3,565	228	0.4
Other Social	9	4,584	293	0.5
Economic-Efficiency Process	12	6,111	391	0.6
	32	16,297	1,044	1.6
Total Regulatory Cost	60	30,557	1,957	3.1

Table B-6. Average Sectoral Regulatory Costs, 1992 (in 1995 Dollars), Case B (cont.)

Other				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a percent of Receipts
Environmental	7	5,104	384	0.2
Other Social	9	6,563	494	0.2
Economic-Efficiency Process	12 31	8,751 22,606	659 1,702	0.3 0.8
Total Regulatory Cost	59	43,024	3,239	1.5

U.S. Totals				
Type of Regulation	Total Cost (in billions)	Cost per Firm	Cost per Employee	Cost as a Percent of Receipts
Environmental	71	13,934	765	0.5
Other Social	47	9,224	506	0.3
Economic-Efficiency Process	41 108	8,047 21,196	442 1,163	0.3 0.7
Total Regulatory Cost	267	52,401	2,876	1.8

Numbers may not add due to rounding.

Table B-7a. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case B

Manufacturing

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	3,578	4,208	1,927
Other Social	1,360	1,599	732
Economic-Efficiency	501	589	270
Process	1,360	1,599	732
Total Regulatory Cost	6,726	7,912	3,622

Trade

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	353	319	190
Other Social	454	411	244
Economic-Efficiency	504	456	272
Process	1,362	1,232	733
Total Regulatory Cost	2,673	2,417	1,439

Services

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	297	265	160
Other Social	382	341	205
Economic-Efficiency	509	454	274
Process	1,357	1,211	730
Total Regulatory Cost	2,544	2,271	1,370

Table B-7a. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case B
(cont.)

Other			
Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	500	473	269
Other Social	642	608	346
Economic-Efficiency	856	810	461
Process	2,212	2,093	1,191
Total Regulatory Cost	4,210	3,984	2,267

U.S. Totals			
Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	994	952	535
Other Social	658	630	354
Economic-Efficiency	574	550	309
Process	1,513	1,449	814
Total Regulatory Cost	3,739	3,581	2,013

Numbers may not add due to rounding.

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

Table B-7b. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case B

Manufacturing

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	3,303	3,723	2,202
Other Social	1,255	1,415	837
Economic- Efficiency	462	521	308
Process	1,255	1,415	837
Total Regulatory Cost	6,209	6,999	4,139

Trade

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	326	303	217
Other Social	419	390	279
Economic- Efficiency	466	433	310
Process	1,257	1,170	838
Total Regulatory Cost	2,467	2,297	1,645

Services

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	274	253	183
Other Social	352	325	235
Economic- Efficiency	470	433	313
Process	1,252	1,155	835
Total Regulatory Cost	2,348	2,166	1,565

Table B-7b. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case B (cont.)

Other			
Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	461	443	307
Other Social	593	570	395
Economic-Efficiency	790	760	527
Process	2,042	1,963	1,361
Total Regulatory Cost	3,886	3,736	2,591

U.S. Totals			
Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	918	890	612
Other Social	608	589	405
Economic-Efficiency	530	514	353
Process	1,396	1,354	931
Total Regulatory Cost	3,452	3,346	2,301

Numbers may not add due to rounding.

* Assumes small firms experience per employee costs that are 20% higher than the average, and that the largest firms experience per employee costs that are just 80% of the average.

Table B-7c. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case B

Manufacturing

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	3,027	3,238	2,477
Other Social	1,150	1,230	941
Economic-Efficiency	424	453	347
Process	1,150	1,230	941
Total Regulatory Cost	5,692	6,087	4,657

Trade

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	299	287	244
Other Social	384	370	314
Economic-Efficiency	427	411	349
Process	1,152	1,109	943
Total Regulatory Cost	2,262	2,177	1,850

Services

Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	251	240	205
Other Social	323	309	264
Economic-Efficiency	430	412	352
Process	1,148	1,099	939
Total Regulatory Cost	2,152	2,061	1,761

Table B-7c. Business Regulatory Costs Per Employee, 1992 (in 1995 Dollars), Case B (cont.)

Other			
Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	423	414	346
Other Social	543	532	445
Economic-Efficiency	725	709	593
Process	1,872	1,832	1,532
Total Regulatory Cost	3,563	3,487	2,915

U.S. Totals			
Type of Regulation	Cost per Employee by Firm Size*		
	< 20	20 to 499	500+
Environmental	841	827	688
Other Social	557	548	456
Economic-Efficiency	486	478	398
Process	1,280	1,258	1,047
Total Regulatory Cost	3,164	3,111	2,589

Numbers may not add due to rounding.

* Assumes small firms experience per employee costs that are 10% higher than the average, and that the largest firms experience per employee costs that are just 90% of the average

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