



THE COST OF GOVERNMENT REGULATION: BEYOND THE INITIAL IMPACT

Government regulation affects much of the economy. The purpose of regulation is to create social or economic benefits that would not occur naturally in a pure market economy, or to avoid hidden costs that the market economy does not fully reflect. Benefits of regulation may be real, as with the prevention of accident, injury, or disease, or the reduction of damage from pollution. Benefits may be subjective, as with policies that alter the distribution of wealth or income by means of price supports, subsidies, or transfer payments.

The benefits of regulation are not without costs. Regulation of drugs may prevent the introduction of products with harmful side effects, but it may also delay the release of lifesaving products. Inspection of food may prevent disease, and safety features on cars may prevent injury, but they also raise the price of food and transportation.

The benefits and the costs of regulation are generally hard to measure precisely. Whether a regulation provides a net benefit or a net cost is often difficult to determine. It is important to try, however, in order to help policy makers and the public make wise decisions as to whether and how much to regulate.

Hidden costs of regulation

Unfortunately, most of the cost of regulation is hidden. Much of the cost of government regulation is "off-budget", that is, it does not appear on federal, state, or local government books. As a result, government officials at all levels regard regulation as costing much less than it really does. They see the direct, on-budget costs of paying for the federal, state, and local agencies that are set up to administer the regulations, such as OSHA, the IRS, the EPA, the SEC, and the DMV. However, they do not see the costs imposed on the private sector by the government mandates. In fact, these private sector costs affect government budgets if they result in tax deductible business expenses, and if they reduce economic output and taxable incomes.

The costs of regulation imposed on the private sector (even if tax deductible) are a very real cost to society, and should be netted against the anticipated benefits of the regulations. Some costs are readily apparent, such as the investment cost to a utility of adding a scrubber to a smokestack, or the value of the time a taxpayer must spend preparing tax returns, or his cost of

hiring accountants to do the returns for him. There are also indirect economic costs associated with regulation.

Some of the indirect private sector costs of regulation are closely associated with the regulated industries. For example, the expense of smokestack scrubbers raises the cost of electricity, and consumers demand less at the higher price. Some resources that would otherwise be used to produce electricity are driven out of the industry into other, less valuable uses, producing a "dead-weight social loss" due to the skewing of production. These effects on the regulated industry are "partial equilibrium" effects, in that they do not include any additional consequences for the economy. In this case, for example, there are additional adverse effects on other industries that are consumers of the now higher-cost power. The additional consequences would include further distortions in the types of goods and services produced, as well as a reduction in total output if providers of labor and capital left the market altogether. These additional consequences are the "general equilibrium" effects of the regulation.

Indirect costs too often ignored

What is the source of these general equilibrium effects? Government regulations impose a variety of costs on producers and consumers. Regulation forces the private sector to produce a different mix of goods and services, and to produce them in a different manner, than it would otherwise do. As a result, regulation either requires more resources to produce the same output, or forces consumers to switch to products that are less highly valued than the ones given up.

These changes constitute an increase in the cost of production, or, what is the same thing, a reduction in the value of output and income. That is, people who offer labor and capital to the production process get less for doing so than in the absence of the regulation. The reduced incentive to work and save may cause workers, businessmen, and investors to make changes in what and how much they produce. They may choose to withdraw some of their labor from the market. They may choose to save and invest less, creating less capital than otherwise. Reduction of the supplies of labor and capital would cause a reduction in the output of goods and services, that is, a reduction in GDP and income.

There have been many efforts to categorize and quantify the direct costs of government regulation, and even to account for some of the partial equilibrium dead-weight losses due to the regulations. There have been fewer efforts to measure the indirect, economy-wide distortions due to regulation, especially those general equilibrium effects involving how much labor and capital might be discouraged from entering the market to engage in productive activity. This paper largely takes the estimates of direct costs of regulation as a given, and does not attempt to prove them to be too high, too low, or just right. Rather, this paper presents an estimate of the additional general equilibrium costs, in terms of lost output of market goods and services, that follow upon the direct costs, and which the partial equilibrium estimates tend to ignore. The paper should be viewed as a critique of the partial estimates for which people generally settle.

Note, too, that the costs measured here are those imposed on the private business sector of the economy by government regulation. Costs imposed on government by the regulations, or on individuals in terms of lost leisure, are not estimated.

Indirect benefits to be considered

This paper does not address the level of benefits of regulation calculated by government agencies or estimated in the economic literature. These are taken as given, and are outside the scope of this paper. However, one should acknowledge that there may also be indirect or general equilibrium effects of regulation that are not fully accounted for in the usual estimates of benefits. Such things are possible, but they too must be squared with what we know of market forces, and their existence may depend on market imperfections.

It might be argued, for example, that a reduction in the exposure of workers to unsafe situations may raise the risk-adjusted reward for working, and may increase the amount of labor offered to the market. Merely counting the reduction in medical costs from the prevention of job-related illness or injury will not necessarily capture such effects. While possible, this added benefit from regulation should exist only if the risk was not known in advance. If the risk were apparent, workers would have demanded a higher wage to compensate for the danger, in which case the employer would have had the appropriate incentive to reduce the danger, or, if that were impossible, to have caused the cost of compensating the workers for the risk to have appeared in the price of the product. If the danger were not known, why would a regulation have been imposed?

It may also be argued that government may discover efficiency enhancing rules and techniques that have escaped private sector attention, and that the regulation alerted firms to a way to reduce costs. Perhaps private businesses were aware of the possible savings, but were not sure of them, and were afraid to try the alternative methods for fear of incurring additional costs not borne by their competitors, until all were forced to move together. While possible, it is generally the case that there is more innovation in the private sector, which is driven by the profit motive, than in government agencies, in which pay does not change much with performance. In an intensely competitive market, there is usually at least one producer willing to risk a change to get an advantage over the competition.

Is correcting an externality really a cost?

Some specialists in the economic theory of social cost might object to calling every expense mandated by regulation a "cost". Regulation is often employed when the market does not fully account for some of the costs of producing certain goods. There are cases where part of the cost of a product is foisted onto third parties, as when pollution from an old style "unscrubbed" coal-fired generator soils objects and affects the health of people living near the plant. These "external" costs are not embedded in the price of the electricity, and are not charged to the

consumer. The regulation forces the producing company to "internalize" the hidden cost and pass it on to the consumer, supposedly resulting in a more optimal level of consumption of the offending product. How can the mere acknowledgement of an existing cost, or the shifting of it from one party to another, be considered to be an increase in cost?

It is certainly proper to count the reduction of such hidden costs to a more appropriate level as part of the benefit of the regulation (if one can measure it). The costs of compliance and the loss of the incremental utility from that portion of the good should be set against this benefit to see which is larger. That there is an existing cost being reduced does not mean that there is no cost to avoiding it.

Furthermore, such comparisons are tricky. Some of the external effects are highly subjective, relating more to aesthetics than actual damages. Even where real damage occurs, by the very nature of the externality, there is no market price to consult to determine the level of the external damage, and no precise measure of how the market will react to the corrective regulation or tax. Consequently, it is never clear if the correction offsets the actual damage that people feel or experience, or if it undershoots or overshoots.¹

Moreover, it is inherent in the nature of many areas of regulation, those dealing with either aesthetics, externalities, or public goods, that the benefits of the regulation accrue to people independently of their level of participation in the production of goods and services, that is, independently of how much they earn, providing no increased incentive to work or save. Meanwhile, the costs accrue to them with each unit they produce, or each purchase they make, which affects the value of each incremental dollar they earn and their incentive to earn it. In such a situation, even if the average benefit exceeds the average cost, and the regulation improves the quality of life, it may still discourage work, saving, and investment, and generate indirect or "general equilibrium" costs not usually factored into the analysis.

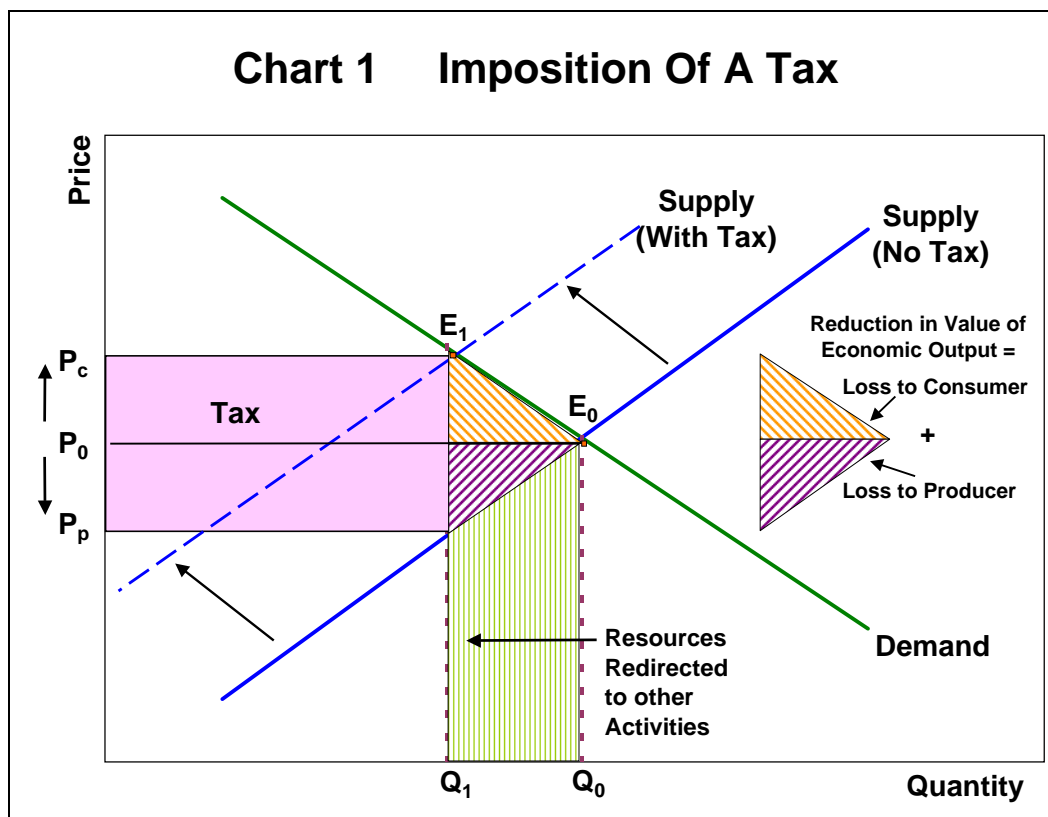
The conceptual framework

This paper borrows estimates of the direct, partial equilibrium costs of a variety of federal regulations from the economic literature. Such estimates are of the cost of regulation to the private sector, not government. Insofar as they fall on government, government may be assumed to raise taxes on the private sector to cover the added government expense.

¹ See four studies by Dr. Roy E. Cordato: "The Polluter Pays Principle: A Proper Guide for Environmental Policy," *IRET Studies in Social Cost, Regulation, and the Environment*, No. 6, April 2001, at <ftp://ftp.iret.org/pub/SCRE-6.PDF>; "Global Warming, Kyoto, and Tradeable Emissions Permits the Myths of Efficient Central Planning," *IRET Studies in Social Cost, Regulation, and the Environment*, No. 1, September, 1999, at <ftp://ftp.iret.org/pub/SCRE-1.PDF>; "Green Pricing Of Electricity: The Chimera Of Efficiency, The Reality Of Politics," *IRET Policy Bulletin*, No. 67, July 8, 1996, at <ftp://ftp.iret.org/pub/BLTN-67.PDF>; and "Social Cost, Public Policy, And Freedom Of Choice," *IRET Fiscal Issues*, No. 7, 1992.

The estimates in the literature include costs to individuals and costs to businesses. This paper regards the cost to businesses as having most of the subsequent effects on economic output. It ignores the secondary economic effects, if any, of the cost to individuals. For example, the time spent by taxpayers on weekends and evenings from February to April filling out federal tax forms is certainly a cost to them in terms of foregone leisure. It is unlikely, however, to cause them to alter the time they spend on the job or their rate of saving. (It may cause them to alter the sorts of assets they invest their saving in, if the tax treatment is incomprehensible or requires an accountant!)

The paper then treats the costs to the business sector as a reduction in the rewards to labor and capital in the private business sector economy. The reduction in reward to these factors of production is treated in much the same manner as a tax. A tax (or regulatory equivalent) increases the gross return that producers (suppliers of labor and capital) must receive to reach their desired after tax return or after-tax wage. It drives up the price they must charge to cover their tax payment or to cover the added costs imposed by the regulation. This can be represented in diagram form either by a "tax wedge," or by a shift in the supply curve of the taxed product or factor. (See Chart 1, illustrating the imposition of an excise tax "wedge" on a particular good or service.) In the case of a single product, the tax reduces the production of the product, and resources are redirected to other productive activities. The loss of value displayed in the triangular areas is the partial equilibrium loss from the tax.



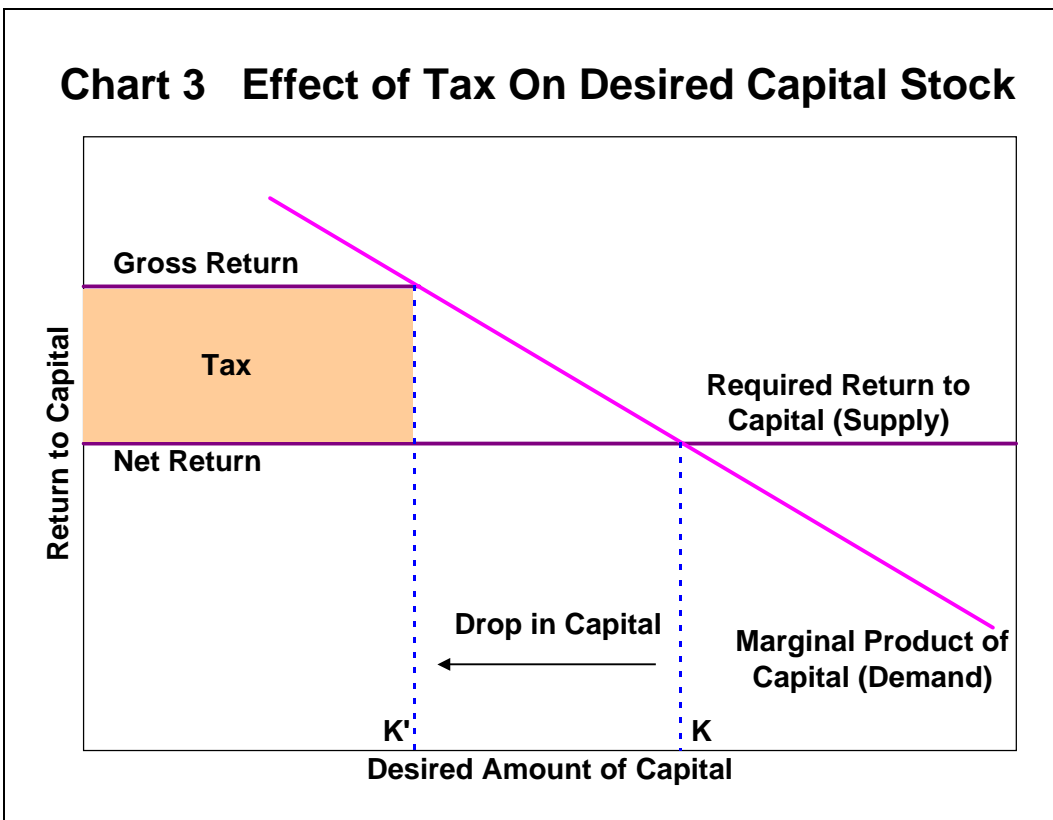
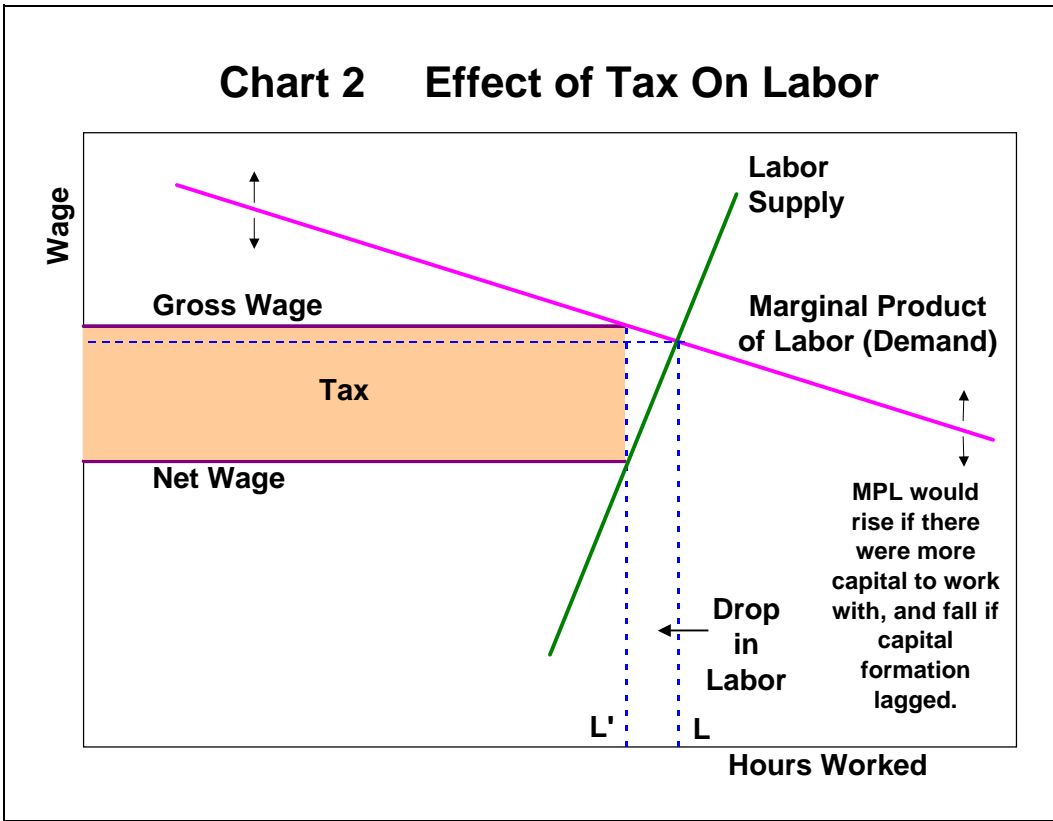
In the case of a more general tax, however, the resources may be chased into leisure or diverted from investment into consumption. This will lead to a reduction in total output that is not captured by the partial analysis, and which this paper seeks to estimate in a general equilibrium framework. The leisure, of course, is not valueless. It is the worker's second best alternative in the presence of the regulation. Still, these diversions of effort generate some additional dead-weight losses for the economy. Furthermore, policy makers need to consider the effect of the tax or regulation on market output because the income from generating and selling market output is the government's tax base.

The reduced demand for any taxed product translates into lower payments to the labor or suppliers of capital involved in the production, or into higher prices paid by the consumers of the products. Note that these are generally the same people. Workers and savers are consumers, and consumers have to have income from working or saving (or from transfers received from workers and savers). So the taxes must fall on the population via one route or another.

This analysis adopts the convention that the initial after-tax costs of regulation (adjusted for the taxes saved when businesses are able to deduct the mandated expenses) fall on the suppliers of the labor and capital services employed in the regulated industry. The factors require an increase in their wage or rate of return if they are to realize the same after-tax, after-regulatory-cost return to their labor and capital as before the regulation. That is, the regulation creates an adverse shift in the supply curves of labor and capital. The reactions of labor and capital to the initial shock create general equilibrium or ripple effects throughout the economy.

The shift in the supply curve of labor due to the regulatory "tax" is shown in Chart 2. Labor is assumed to respond to the reduced value of its wages by working somewhat less (the drop in hours worked from L to L'), which increases the gross wage to cover a portion of the loss. However, the supply of labor is fairly inelastic (that is, the amount of labor supplied is only somewhat sensitive to the wage rate - as illustrated by a fairly steep line representing labor supply). The elasticity initially chosen was 0.3, near the higher end of the elasticities often cited in the literature, meaning that a 10 percent increase in the hourly wage would increase hours worked by only 3 percent. Consequently, most of the regulatory tax burden on labor is absorbed by the workers, and only a fraction of the cost is passed on employers and, ultimately, consumers. The quantity of labor supplied falls by a modest amount. (Additional calculations were performed using a lower elasticity of 0.1, in which case even more of the cost of the tax or regulation falls on labor.)

The impact on capital of the regulatory "tax" is shown in Chart 3. The quantity of capital located in the United States is very sensitive to the after-tax return. Its supply (the horizontal line) is highly elastic, for several reasons. Savers who finance capital investments have ready alternatives to saving; they may choose to consume instead, or they may shift their lending abroad. Investors may choose to locate plant, equipment, structures, or inventory in the United States or abroad. The supply of capital goods is elastic over time, as buildings and machines



may be reproduced in large quantities with little increase in the marginal cost of an added unit. The result, historically, is that the after-tax risk-adjusted rate of return to capital has remained close to a level of just below 3 percent, and has returned quickly to that level after shocks, whether the shocks were caused by changes in technology, taxes, or regulation.²

The demand for capital is represented by the sloped line. It is the marginal product of capital, or what each incremental unit of capital can add to production, expressed as a fractional rate of return on the capital stock. Because the supply of capital is highly elastic, the introduction or increase of a tax or regulatory "wedge" must result in a decline in the size of the capital stock until its marginal product is driven up by the full amount of the tax. Consequently, the change in the capital stock in the presence of a tax may be quite large, certainly much larger than the corresponding change in the quantity of labor.

Once the initial impact of the direct costs is translated into required shifts in the supply functions of labor and capital, a new level of production, i.e., GDP, and national income can be computed using any standard production function. The production model reveals the change in output, income, employment, and wages resulting from the additional general equilibrium effects of the regulations. A basic Cobb-Douglas production function was used for this exercise, based on private sector GDP for 2002.

Estimates of the direct cost of regulation

W. Mark Crain and Thomas D. Hopkins have drawn together estimates by several researchers to compile the total cost to the private sector of federal regulation of the private sector.³ They present estimates of the cost in the year 2000, the growth of that cost over the 1995-2000 period, and its impact on individuals and on businesses of various sizes. They estimated that the total cost of federal regulation was \$843 billion in 2000, of which \$497 billion fell on business, the rest on individuals. Their costs do not include the on-budget costs of running the federal regulatory agencies, which they calculate are about 2 percent of the off-budget costs imposed on the private sector, or about \$18.9 billion in 2000.

Crain and Hopkins break the regulatory costs into four general areas: environmental, economic, workplace, and tax compliance. The costs are also sorted into two types, efficiency costs and transfer costs. All of the environmental and tax compliance costs, and about one-third

² Series furnished by Gary Robbins, of the Heritage Foundation and Fiscal Associates, from a forthcoming study for the Heritage Foundation. See also Stephen J. Entin, "Tax Incidence, Tax Burden, And Tax Shifting: Who Really Pays The Tax?" *IRET Policy Bulletin*, No. 88, September 10, 2004, available on the Internet at [ftp://ftp.iret.org/pub/BLTN-88.PDF](http://ftp.iret.org/pub/BLTN-88.PDF)

³ W. Marl Crain and Thomas D. Hopkins, *The Impact of Regulatory Costs on Small Firms*, a report for The Office of Advocacy, U.S. Small Business Administration, RFP No. SBAHQ-00-R-0027, accessed on the Internet at <http://www.sba.gov/advo/researchrs207tot.pdf>.

of the economic and workplace costs, are "efficiency" costs, costs that involve the loss of resources. About two-thirds of the economic and workplace costs are "transfer costs" that shift resources from one group to another within the economy.

In their words, "An efficiency cost reflects the value of the resources foregone in direct response to restrictions on firm entry, output and pricing decisions, or cost-minimizing production techniques. In other words, what is the value of the product or service that is lost as a result of an economic regulation?" Regulations that reduce output by placing some resources "off limits", or that raise the cost of production by requiring less efficient production techniques to ensure safety or avoid "negative externalities" such as pollution, or that force the hiring of additional personnel to comply with the government rules (e.g. accountants and tax preparers) are examples of efficiency costs. In 2000, efficiency costs alone (excluding the transfer costs) were \$495 billion, of which \$295 billion fell on businesses.

Transfer costs are of a different nature. According to Crain and Hopkins, "A transfer cost, as the name implies, refers to the redistribution of income or wealth in direct response to a regulation." They give as an example the U.S. sugar quota, which raises the cost of sugar to U.S. consumers of sugar, candy, and soft drinks, and the companies that make them, while benefitting domestic growers and sugar manufacturers.

The extent to which income transfers constitute a net cost to the country is somewhat problematic, and is debated in the literature. Economists are generally skeptical about counting the entire amount transferred in such a manner as a real cost to society, since one person's loss is another's gain. An economist would be willing to allow that, in the case of a quota, there would be some efficiency loss due to the diversion of resources into the production of higher cost domestic sugar, when those same resources might be more efficiently used to produce other goods which could be traded for more efficiently produced foreign sugar. This would only encompass a portion of the total transfer cost, however.

Crain and Hopkins report that advocates of counting transfer costs in the total cost of regulation make another kind of argument:

[I]n brief, the main argument for counting transfers as a cost is that it approximates the real resources that will be devoted to acquiring, maintaining, or eliminating the responsible regulation. For example, if U.S. domestic sugar producers benefit, say, by \$5 billion annually from import protection, they will devote a commensurate amount of resources to maintaining this protection. Likewise, candy makers and soft drink manufacturers will devote real resources toward its repeal; these resources might include lobbying, legal, and other public relations activities. The real resources used in activities to acquire and maintain, or to prevent and eliminate economic regulation are diverted from other, productive economic activities... and thereby create a real resource burden on the economy.

This author would note that rent seekers may indeed spend up to a dollar to obtain an additional dollar of government transfer. Pushing a lobbying effort until the marginal cost equals the marginal benefit does not mean that all of the rent extracted from the government is paid to the lobbyists and politicians, however. Only the marginal dollar is completely lost in that manner. The infra-marginal rent is kept by the favored group, and is probably the bulk of the transfer. The author nonetheless agrees that the fraction of the transfer paid to lobbyists and politicians for their rent-creating work is wasteful, and, if one assumes that the persons engaged in such work are capable of doing other, more useful tasks, then there is some net waste in transfers.

In light of the controversy over transfer costs, Crain and Hopkins present the following estimates of the cost of regulation that include transfer and efficiency costs together, and efficiency costs alone (Table 1)⁴.

Table 1. Total Cost of Federal Regulations: By Type and Allocation Between Business and Others (in billions of 2000 dollars)			
Method A: Efficiency and Transfer Costs			
		Business Portion	Others
	Total Costs	Amount	Amount
All Federal Regulations	\$843	\$497	\$346
Environmental	\$197	\$128	\$69
Economic	\$435	\$217	\$217
Workplace	\$82	\$82	\$ -
Tax Compliance	\$129	\$70	\$59
Method B: Efficiency Costs Only			
		Business Portion	Others
	Total Costs	Amount	Amount
All Federal Regulations	\$495	\$295	\$201
Environmental	\$197	\$128	\$69
Economic	\$145	\$72	\$72
Workplace	\$24	\$24	\$ -
Tax Compliance	\$129	\$70	\$59

⁴ Crain and Hopkins, *op. cit.*, p. 25, Table 8.

In a subsequent paper⁵, Clyde Wayne Crews, Jr., estimated that the total of these off-budget regulatory costs had risen to \$860 billion by 2002, a roughly 2 percent increase over the \$843 billion reported by Crain and Hopkins. That increase of 2 percent is assumed for the work done here, and is applied across the various Crain and Hopkins categories of regulatory costs for 2002 to obtain the results in Table 2. It implies a rise in the cost of regulation for business to \$507 billion.

Table 2. Total Cost of Federal Regulations, Grossed Up to 2002 Levels: By Type, Business Portion, and Allocation to Capital or Labor (Dollar Amounts in Billions)					
Method A: Efficiency and Transfer Costs					
	Total Costs	Business Portion Amount	Capital Share	Capital Amount	Labor Amount
All Federal Regulations	\$860	\$507	0.600	\$304	\$203
Environmental	\$201	\$131	1.000	\$131	\$0
Economic	\$444	\$221	0.333	\$74	\$147
Workplace	\$84	\$84	0.333	\$28	\$56
Tax Compliance	\$132	\$71	1.000	\$71	\$0
Method B: Efficiency Costs Only					
All Federal Regulations	\$505	\$301	0.780	\$235	\$66
Environmental	\$201	\$131	1.000	\$131	\$0
Economic	\$148	\$73	0.333	\$24	\$0
Workplace	\$24	\$24	0.333	\$8	\$16
Tax Compliance	\$132	\$71	1.000	\$71	\$0

The initial 2002 costs of the regulations on business are then divided into costs more likely to fall on capital and those more closely associated with the use of labor. Environmental costs are assumed to be costs to the business for being able to operate, and are attributed to capital. Tax calculation, planning, and compliance are more complicated for business income than for

⁵ Clyde Wayne Crews, Jr., *Ten Thousand Commandments, An Annual Snapshot of the Federal Regulatory State*, 2003 Edition, CATO Institute, Washington, D.C., p. 5.

processing employees' withholding, so the bulk of that category is assumed to fall on capital. For want of any data to the contrary, economic costs, which reduce the scale of output, and workplace costs, which reduce the efficiency of labor as well as requiring equipment and building modifications, are assumed to be shared by capital and labor in proportion to their share in private sector income and output (one-third and two-thirds, respectively).

Most direct outlays by businesses to comply with regulations are deductible business expenses. (Those elements of these initial costs that constitute subsequent dead-weight losses, which are unobserved reductions in the value of output, would have been taxable GDP had the output occurred.) Consequently, this analysis reduces the initial costs of the regulation to the private sector by the weighted federal and state marginal tax rate on corporate and non-corporate businesses in 2002, or just over 55 percent.⁶ The remaining after-tax cost of regulation on capital and labor is assumed to affect investment, saving, work, and employment decisions. That is, the after-tax cost of the regulation is what triggers the various behavioral responses by the private sector.

The remainder of the pre-tax regulatory cost does not disappear, however. It shows up as a reduction in government tax revenues. The reduced revenues result either in fewer government goods, or a move by government to raise taxes to maintain government spending, and in either case represent lost resources. Government may not fully appreciate that it "pays" a bit over half of the cost of regulation when the costs it imposes are deducted by businesses as expenses.

Table 3. Cost of Federal Regulation of Business in 2002, Allocated to Capital and Labor, After Tax Deductibility			
	Pre-tax Cost	After-Tax Cost, 2002 Marginal Tax Rates	After-Tax Cost, 2004 Marginal Tax Rates
Transfer and Efficiency Costs			
Total Business	\$507	\$228	\$274
Capital	\$304	\$137	\$164
Labor	\$203	\$92	\$110
Efficiency Costs Only			
Total Business	\$301	\$136	\$163
Capital	\$235	\$106	\$127
Labor	\$66	\$30	\$36

⁶ The marginal tax rates used in this analysis were obtained from the marginal tax rate calculator being developed by the Heritage Foundation Macro-economic working group.

The regulatory costs in the literature are estimated in the context of the actual, regulation-impacted level of economic activity. In the absence of the regulation, GDP would be higher. The analysis takes as a measure of the general equilibrium costs the missing, higher amount of GDP, and its associated employment and income, that would exist if the regulation "tax" had not been imposed (which is also how much the GDP would increase over time if the regulation tax were removed).

The initial step in the exercise is to express the estimated cost of regulation as a percent of the average wage and as a reduction in the percentage rate of return on capital. The resulting outward shifts in the supply schedules of labor and capital due to the removal of the regulation tax (increases in the amounts of labor and capital offered to the market at any given wage or rate of return) are paired with a straightforward Cobb-Douglas production function to calculate an initial impact on private sector GDP. The numbers employed are for the GDP of 2002.

As GDP changes, so do the incomes of workers, savers, and investors. Because of the progressive nature of the income tax, the initial increase in the level of wages and earnings of capital will raise the marginal tax rates faced by the factors, which imparts an additional shock to incentives, and helps to bring the expansion to a halt. This effect is modeled as a smaller backward shift in the quantities of labor and capital offered. These "second order" changes in factor supplies are also run through the production function, giving another shift in output, income, and marginal tax rates. The process is repeated until the results converge to the ultimate change in GDP, income, and tax rates.

The GDP, employment, investment and income effects of removing the regulatory burden were calculated first using 2002 tax rates, and then using 2004 tax rates to illustrate what the benefits of reduced regulation might be going forward under the current tax regime. The marginal tax rates on capital and labor income affect how much the supplies of capital and labor must shift to restore after-tax rates of return and to reestablish equilibrium in the labor market.

Results

Take as the base case that of efficiency costs and 2002 tax rates. The production model predicts that, without the efficiency costs of regulation, GDP, total wages, and total earnings of capital would be 1.8 percent higher. That represents an increase of \$156 billion dollars in GDP in 2002. Of that amount, two-thirds would accrue to labor before taxes, or \$104 billion. One third would accrue to capital before taxes and depreciation, or \$52 billion. The average annual wage would be \$891 higher, a 1.77 percent increase, and the level of employment would be higher by 41,000 full-time equivalent jobs, a 0.036 percent increase. The higher GDP would increase federal, state, and local revenue by an estimated \$59 billion, taking about 38 percent of the increase in private GDP at the margin.

These general equilibrium costs of \$156 billion are a bit over half the size of the \$301 in initial direct costs that triggered the economic reactions. This implies that the cost of regulation

Table 4. Economic Gains from Removal of 2002 Regulatory "Tax": Efficiency Case; 2002 Tax Rates; Labor Supply Elasticity = 0.3 (Dollar figures in Billions, Except Annual Wage)				
	2002 Values, Actual	Values, Absent Regulation Tax	Change in Value	Percent Change
GDP	\$8,600	\$8,756	\$156	1.81%
Labor income (gross)	\$5,734	\$5,837	\$104	1.81%
Employment (millions, full time equivalent)	113.977	114.018	41,000	.04%
Average Wage (dollars per year per worker)	\$50,304	\$51,195	\$891	1.77%
Capital returns (gross)	\$2,867	\$2,919	\$52	1.81%
Capital Stock	\$14,210	\$14,984	\$774	5.45%
Government Revenue	\$2,737	\$2,796	\$59	2.2%
Federal	\$1,796	\$1,839	\$43	2.4%
State and local	\$941	\$957	\$16	2.0%

of the private business sector is \$457 billion, or about 50 percent higher than the direct estimates indicate.

The total cost to government, including the difference of \$165 billion between pre-tax and post-tax initial impact on the private sector due to tax deductibility of regulatory costs, is \$224 billion in foregone revenues. Virtually all of that cost is hidden from Congress and the state legislatures when they consider regulatory proposals.

If transfer costs of regulation are taken to be real

If one assumes that the transfer costs of regulation as calculated by some public policy researchers are real economic costs, then the direct and general equilibrium costs of regulation are even larger.

The sum of the initial, direct transfer and efficiency costs was calculated to be \$507 billion before tax deductions, and \$228 billion after tax deductions, or about 70 percent greater than those involving the efficiency costs only. Consequently, the gains calculated from removing those costs would be about 70 percent greater than using the efficiency cost estimates only. The model predicts that GDP, gross labor income, and gross capital returns would be 2.8 percent, or \$239 billion higher, without the 2002 regulatory burden. Government revenues would be \$92 billion higher. The total cost to the economy would be \$746 billion, and the total cost to government would be \$371 billion, including the cost of the tax deductions.

**Table 5. Economic Gains from Removal of 2002 Regulatory "Tax":
Transfer and Efficiency Case; 2002 Tax Rates;
Labor Supply Elasticity = 0.3 (Dollar Figures in Billions, Except Annual Wage)**

	2002 Values, Actual	Values, Absent Regulation Tax	Change in Value	Percent Change
GDP	\$8,600	\$8,840	\$239	2.78%
Labor income (gross)	\$5,734	\$5,893	\$160	2.78%
Employment (millions, full time equivalent)	113.977	114.540	563,000	.49%
Average Wage (dollars per year per worker)	\$50,304	\$51,451	\$1,142	2.27%
Capital returns (gross)	\$2,867	\$2,947	\$80	2.78%
Capital Stock	\$14,210	\$15,278	\$1,069	7.52%
Government Revenue	2,737	2,829	\$92	3.4%
Federal	\$1,796	\$1,862	\$67	3.7%
State and local	\$941	\$966	\$25	2.7%

If 2004 tax law rates are assumed

Recent tax law changes have reduced marginal tax rates on labor and capital income and reduced the double taxation inherent in the corporate income tax. To see what has this done to the cost of regulation since 2002, the analysis was repeated applying 2004 tax rates and other parameters to 2002 income. (The 2004 rates were those set by the 2003 Tax Act, excluding the reduction in the tax rate on manufacturing in the 2004 legislation repealing the ETI).

The lower 2004 tax rates increase the share of the initial cost of regulation borne by the private sector by just over 20.2 percent, from \$136 billion after-tax to \$163 billion after-tax in the efficiency cost case (see Table 3 above), because there is less tax saved by the deductibility of these costs. Consequently, removing the regulation tax would have a greater positive effect on the economy under 2004 law.

In addition, the lower and flatter tax rates allow the economy to expand or contract somewhat further in the event of a supply shock, because marginal tax rates are not so quick to rise or fall to choke off an expansion or dampen a contraction as incomes change. Table 6 shows a 2.19 percent increase in GDP from removing the efficiency regulations under 2004 tax law. That increase is about 21.3 percent greater than the increase in GDP shown in Table 4 under 2002 tax law. The difference between the 20.2 percent rise in the initial cost and the 21.3 percent increase in the GDP cost between the two cases reflects the added growth made possible

by the flatter tax rate structure in 2004 if the regulation tax were lifted. A similar comparison is made for the transfer and efficiency case, 2004 law, in Table 7.

Table 6. Economic Gains from Removal of 2002 Regulatory "Tax": Efficiency Case; 2004 Tax Rates; Labor Supply Elasticity = 0.3 (Dollar Figures in Billions, Except Annual Wage)				
	2002 Values, Actual	Values, Absent Regulation Tax	Change in Value	Percent Change
GDP	\$8,600	\$8,789	\$189	2.19%
Labor income (gross)	\$5,734	\$5,892	\$126	2.19%
Employment (millions, full time equivalent)	113.977	114.047	70,000	.06%
Average Wage (dollars per year per worker)	\$50,304	\$51,376	\$1,070	2.13%
Capital returns (gross)	\$2,867	\$2,930	\$63	2.19%
Capital Stock	\$14,210	\$15,146	\$937	6.59%
Government Revenue	2,623	2,692	\$68	2.6%
Federal	\$1,682	\$1,728	\$46	2.7%
State and local	\$941	\$963	\$22	2.3%

Assuming a lower labor supply elasticity

Some economists believe that the supply elasticity of labor is so low as to be nearly zero. They conclude that high marginal tax rates on labor and capital do relatively little to depress employment and GDP, and they are skeptical that tax rate reductions and fundamental tax reform would provide much of a boost to output. The theoretical and empirical support for this assertion is shaky. In particular, this view is at odds with the findings of the latest Nobel laureate in economics, Edward Prescott. Prescott has studied the decline in the hours worked by European workers relative to American workers in recent decades. Once comparable in terms of hours worked, Europeans now work a much shorter work week than Americans. Prescott attributes the drop to the rising marginal tax rates imposed on European workers over the period.⁷

⁷ Edward C. Prescott, "Are Europeans Lazy? No, Just Overtaxed," *Wall Street Journal Online, Opinion Journal*, October 24, 2004, at <http://www.opinionjournal.com/extra/?id=110005800>. For a further discussion of the labor supply issue, see Stephen J. Entin, "Tax Incidence, Tax Burden, And Tax Shifting: Who Really Pays The Tax?" *op. cit.*

**Table 7. Economic Gains from Removal of 2002 Regulatory "Tax":
Transfer and Efficiency Case; 2004 Tax Rates;
Labor Supply Elasticity = 0.3 (Dollar Figures in Billions, Except Annual Wage)**

	2002 Values, Actual	Values, Absent Regulation Tax	Change in Value	Percent Change
GDP	\$8,600	\$8,891	\$291	3.38%
Labor income (gross)	\$5,734	\$5,927	\$194	3.38%
Employment (millions, full time equivalent)	113.977	114.700	723,000	.63%
Average Wage (dollars per year per worker)	\$50,304	\$51,677	\$1,367	2.72%
Capital returns (gross)	\$2,867	\$2,964	\$97	3.38%
Capital Stock	\$14,210	\$15,503	\$1,293	9.10%
Government Revenue	2,623	2,730	\$106	4.0%
Federal	\$1,682	\$1,754	\$72	4.3%
State and local	\$941	\$975	\$34	3.6%

To test whether the elasticity of labor supply makes much difference to the results, the calculations were repeated using a markedly lower labor supply elasticity of 0.1 instead of 0.3. The resulting change in the GDP was scarcely lower, 1.79 percent versus 1.81 percent (efficiency case, 2002 tax law), than that found using the higher labor supply elasticity. This result indicates that the effect of the regulatory burden on capital is the major source of regulatory damage to the economy, and that regulation creates significant economic damage even if the labor supply elasticity is very low. The results are similar for 2004 law. (See Tables 8 and 9.)

Conclusion

Federal regulation imposes large costs on the economy. These costs have been estimated at several hundred billion dollars a year when calculated as the immediate costs of compliance and the disruption of the affected industries. There are additional costs, however, that Congress generally fails to take into account. These added costs are the result of the reactions of workers and savers to the lower returns and higher prices forced on them by the regulatory burden, which reduces economic output per unit of capital and per hour worked, and so reduces the real rate of return to capital and the real wage. As suppliers of labor and capital respond to these disincentives by withdrawing their services from the market, the resulting reduction in GDP and income constitutes a further "general equilibrium" cost of regulation. These added costs are on the order of 2 percent to 3 percent of GDP, depending on the method chosen for calculating the initial burden, and are roughly half the size of the initial, direct costs. The reduction in capital formation is particularly damaging, as it reduces the capital labor ratio and cuts the average

Table 8. Economic Gains from Removal of 2002 Regulatory "Tax": Efficiency Case; 2002 Tax Rates; Labor Supply Elasticity = 0.1 (Dollar Figures in Billions, Except Annual Wage)				
	2002 Values, Actual	Values, Absent Regulation Tax	Change in Value	Percent Change
GDP	\$8,600	\$8,755	\$154	1.79%
Labor income (gross)	\$5,734	\$5,836	\$103	1.79%
Employment (millions, full time equivalent)	113.977	113.992	15,000	.01%
Average Wage (dollars per year per worker)	\$50,304	\$51,200	\$894	1.78%
Capital returns (gross)	\$2,867	\$2,918	\$51	1.79%
Capital Stock	\$14,210	\$14,984	\$774	5.45%
Government Revenue	2,737	2,796	\$59	2.2%
Federal	\$1,796	\$1,839	\$43	2.4%
State and local	\$941	\$957	\$16	1.7%

Table 9. Economic Gains from Removal of 2002 Regulatory "Tax": Efficiency Case; 2004 Tax Rates; Labor Supply Elasticity = 0.1 (Dollar Figures in Billions, Except Annual Wage)				
	2002 Values, Actual	Values, Absent Regulation Tax	Change in Value	Percent Change
GDP	\$8,600	\$8,786	\$186	2.16%
Labor income (gross)	\$5,734	\$5,858	\$124	2.16%
Employment (millions, full time equivalent)	113.977	114.002	25,000	.02%
Average Wage (dollars per year per worker)	\$50,304	\$51,382	\$1,074	2.14%
Capital returns (gross)	\$2,867	\$2,929	\$62	2.16%
Capital Stock	\$14,210	\$15,146	\$936	6.59%
Government Revenue	2,623	2,708	\$84	3.2%
Federal	\$1,682	\$1,743	\$60	3.6%
State and local	\$941	\$965	\$24	2.6%

annual wage by roughly \$1,000. These economic repercussions are therefore a significant added reason not to over-regulate.

The initial costs of regulation are borne in part by federal, state, and local governments in the form of higher business deductions for the cost of the capital modifications and labor required to comply with the initial regulation, and the loss of tax revenue due to the subsequent reduction in GDP and taxable incomes due to the reduction in incentives to work, save, and invest. In fact, over half of the direct cost of regulation and nearly 40 percent of the subsequent loss of economic output fall on one or another layer of government in the form of lower tax revenues. The recent reduction in tax rates on labor and capital, especially the latter, have raised the cost of regulation by increasing the potential amount of GDP that could be realized if the regulatory burden were lifted. Even if policy makers are not moved by the damage to households and businesses, the cost to government should be enough to convince them of the urgency of regulatory reform. At the very least, they should become more cautious in enacting new regulations, and to make some effort to streamline and reduce the cost of compliance with the regulations already in force.

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