

DOES SIZE MATTER? AN ECONOMIC ANALYSIS OF SMALL BUSINESS EXEMPTIONS FROM REGULATION

by
C. Steven Bradford¹

“In the ant’s house the dew is a flood.”

-Persian Proverb²

The author examines whether exemptions for small businesses and small transactions that appear in many regulations are economically efficient. The cost of regulation has both variable and fixed components. As demonstrated by many empirical studies of regulatory compliance costs, the fixed costs of regulation, and some of the variable costs, are subject to economies of scale that benefit larger firms and larger transactions. Though it is harder to measure the benefits of regulation, the benefits of regulation generally vary in proportion to the size of the regulated firm or transaction. The author develops a mathematical model of how the costs and benefits of regulation vary with size and concludes that, no matter what assumptions one makes in constructing that model, it supports small business exemptions. However, when transactions costs, the cumulative effect of regulation, and other real-world issues are considered, the case for small business exemptions is more ambiguous.

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¹ Earl Dunlap Distinguished Professor of Law, University of Nebraska College of Law. An earlier version of this Article was presented at the 2001 Annual Meeting of the American Law and Economics Association. My thanks to the participants at that meeting for their helpful comments, questions, and suggestions. My thanks also to the participants in a faculty colloquium at the University of Nebraska College of Law, especially the late Norm Thorson and Steve Willborn, for their comments. Finally, my thanks to Jason Bradford for his comments on some of the quantitative analysis.

² THE INTERNATIONAL THESAURUS OF QUOTATIONS 597 (Rhoda Thomas Tripp ed., 1970).

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I. INTRODUCTION

Federal and state statutes and regulations contain numerous exemptions for small businesses or small transactions,³ and politicians and small business representatives frequently call for even more small business exemptions.⁴

³ See, e.g., 15 U.S.C. § 18a(a)(2) (2000) (Hart-Scott-Rodino premerger notification and waiting period requirements apply only if the acquired and acquiring companies exceed a certain size); 15 U.S.C. § 78l(g)(1)(B) (2000), as modified by 17 C.F.R. § 240.12g-1 (2003) (registration under the Securities Exchange Act of 1934 required for companies with total assets exceeding \$10 million and a class of equity securities held of record by 500 or more shareholders); 29 U.S.C. § 203(s)(1)(A) (2000) (excluding from the definition of "enterprise engaged in commerce or in the production of goods for commerce" and therefore, from enterprise coverage under the Fair Labor Standards Act, entities with a gross volume of business less than \$500,000); 17 C.F.R. § 230.504(b)(2) (2003) (exempting securities offerings from registration under the Securities Act of 1933 if, among other conditions, the amount of the offering does not exceed \$1 million).

⁴ See, e.g., *NFIB Cites EPA 'Betrayal' on Superfund Bill*, BIRMINGHAM BUS. J., 2000 WL 17294356 (Oct. 6, 2000) (National Federation of Independent Business calling for an exemption from Superfund liability for companies with 100 or fewer employees); Rebecca Rose, *New Threat to Workplace Bill*, THE WEST AUSTRALIAN, June 21, 2000, at 43, available at 2000 WL 23286044 (proposal to exempt small businesses from Australia's unfair dismissal laws); Claire Oldfield, *Tories Attack Labour on Bureaucracy*, LONDON SUNDAY TIMES (London), Dec. 26, 1999, at 2, available at 1999 WL 30050442 (Tories proposing to exempt small businesses from whole classes of regulation); Kent Hoover, *Businesses Seek*

Congress has been especially solicitous of small business. Two federal statutes, the Regulatory Flexibility Act⁵ and the Small Business Regulatory Enforcement Fairness Act of 1996,⁶ require regulatory agencies to consider exemptions or reduced standards for small businesses. A primary purpose of this legislation is “to make regulatory agencies sensitive to the impacts of their regulations on small business entities.”⁷

Regulators have responded with a variety of small business exemptions. Some exemptions are global, freeing businesses or transactions from an entire regulatory scheme, or most of a regulatory scheme.⁸ Other exemptions are narrower, limiting the application of only a single regulatory requirement.⁹ “Small size” is measured differently for different exemptions.¹⁰ Many exemptions are based on the size of the regulated firm—measured by its assets,¹¹ number of employees,¹² or some other measure.¹³ Other exemptions consider not the size of the firm, but the size of the regulated transaction.¹⁴ Yet, no matter how “small business” is defined, all of these exemptions share a common belief that small size justifies an exemption from regulation.

Break on Paperwork Violations, DALLAS BUS. J., 1999 WL 24313537 (Nov. 19, 1999) (discussing proposed legislation to exempt small businesses from penalties for first-time violations of federal paperwork requirements).

⁵ 5 U.S.C. §§ 601–612 (2000). *See generally* Doris S. Freedman et al., *The Regulatory Flexibility Act: Orienting Federal Regulation to Small Business*, 93 DICKINSON L. REV. 439 (1989) (discussing the requirements of the Regulatory Flexibility Act); Paul R. Verkuil, *A Critical Guide to the Regulatory Flexibility Act*, 1982 DUKE L.J. 213 (same).

⁶ 5 U.S.C. § 601. *See generally* Thomas O. Sargentich, *The Small Business Regulatory Enforcement Fairness Act*, 49 ADMIN. L. REV. 123 (1997) (discussing the requirements of the Small Business Regulatory Enforcement Fairness Act).

⁷ THOMAS O. MCGARITY, *REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY* 115 (1991).

⁸ *See, e.g.*, 42 U.S.C. § 12111(5)(A) (2000) (defining as “employers” covered by the Americans with Disabilities Act only persons with 15 or more employees).

⁹ *See, e.g.*, 29 U.S.C. § 1161(b) (2000) (exempting group health plans from the continuation coverage requirement of ERISA if the employers covered by the plan have fewer than 20 employees).

¹⁰ A 1981 survey found that the most commonly used size-based criteria were the number of employees, operating revenue, assets, and market share. UNITED STATES REGULATORY COUNCIL, *TIERING REGULATIONS; A PRACTICAL GUIDE* 4 (1981). But the survey found a wide variety of size-based variables being used, including for example, deposits, amount of goods produced, sales, income, number of accounts, number of transactions, number of shareholders, and amount of energy used and produced. *Id.* at 9.

¹¹ *See, e.g.*, 17 C.F.R. § 240.12g-1 (requiring companies with total assets exceeding \$10 million and meeting certain other requirements to comply with the reporting requirements of The Securities Exchange Act of 1934).

¹² *See, e.g.*, 42 U.S.C. § 12111(5)(A) (2003) (defining “employer” for purposes of the Americans with Disabilities Act to exclude companies with fewer than 15 employees).

¹³ *See, e.g.*, 15 U.S.C. § 80b-3 (2000) (excluding an adviser from the registration requirements of the Investment Advisers Act who, among other requirements, has fewer than 15 clients).

¹⁴ *See, e.g.*, 17 C.F.R. § 230.504(b)(2) (2003) (exempting securities offerings from registration under the Securities Act of 1933 if, among other requirements, the amount of the offering does not exceed \$1 million).

These ubiquitous small business exemptions¹⁵ have received surprisingly little attention from legal scholars and economists. Economic analyses of the efficiency of particular regulations are common,¹⁶ but these studies seldom focus on exemptions. Most early economic analyses of regulation “implicitly treat[ed] the regulated industry as a homogenous entity” and paid little attention to whether regulation had any differential effects on different firms in the industry.¹⁷ More recent analyses consider whether regulation is more costly for small businesses than for large businesses.¹⁸ But few scholars have attempted to use these empirical studies of the relative cost of regulation to examine the theoretical underpinnings of small business exemptions. Theoretical analyses of small business exemptions are uncommon. The few analyses of particular small business exemptions do not focus on economic theory, except in a very cursory way,¹⁹ and analyses of exemptions based on *transaction size*, rather than *firm size*, are extremely rare.²⁰

Reduced regulation of small businesses seems to have broad public support,²¹ but is that reduced regulation supported by economic analysis or purely a political plum?²² In this Article, I analyze the possible economic justification for small business exemptions from government regulation.²³ I accept the classical economic proposition that government regulation is justified only if the benefits produced by the regulation exceed its costs²⁴—in

¹⁵ For the sake of brevity, I will often refer to both types of exemptions—those based on the size of the regulated entity and those based on the size of the regulated transaction—as “small business” exemptions.

¹⁶ See, e.g., Steven A. Morrison et al., *Fundamental Flaws of Social Regulation: The Case of Airplane Noise*, 42 J.L. & ECON. 723 (1999) (cost-benefit analysis of the 1990 Airport Noise and Capacity Act); Robert W. Hahn & John A. Hird, *The Costs and Benefits of Regulation: Review and Synthesis*, 8 YALE J. ON REG. 233, 261-78 (1991) (summarizing studies of the costs and benefits of regulation).

¹⁷ David Harrison, Jr., *Regulation and Distribution*, in *ATTACKING REGULATORY PROBLEMS: AN AGENDA FOR RESEARCH IN THE 1980S* 185, 188 (Allen R. Ferguson ed., 1981).

¹⁸ See *infra* Part II C.

¹⁹ See, e.g., Marc Linder, *The Small-Business Exemption Under the Fair Labor Standards Act: The “Original” Accumulation of Capital and the Inversion of Industrial Policy*, 6 J.L. & POL’Y 403 (1998); Peggy H. Luh, *Pay or Don’t Play: Background Music and the Small Business Exemption of Copyright Law*, 16 LOY. L.A. ENT. L.J. 711 (1996).

²⁰ An exception is C. Steven Bradford, *Transaction Exemptions in the Securities Act of 1933: An Economic Analysis*, 45 EMORY L.J. 591, 611-22 (1996).

²¹ See Robert A. Peterson, et al., *Opinions about Government Regulation of Small Business*, 22 J. SMALL BUS. MGMT. 56, 59 (1984).

²² See CHARLES BROWN ET AL., *EMPLOYERS LARGE AND SMALL* 1-2, 65-87 (1990) (arguing that small businesses possess substantial political resources); Ann M. Reilly, *Small Business’ Big Clout*, DUN’S REVIEW, Mar. 1980, at 69 (discussing the growing political clout of small business on regulatory issues). But see MILTON Z. KAFOGLIS, *Mandated Costs: Impact on Small Business*, in *ECONOMIC EFFECTS OF GOVERNMENT-MANDATED COSTS* 111 (Robert F. Lanzillotti ed., 1978) (arguing that small businesses have not been politically effective on regulatory issues).

²³ Others have made non-economic arguments for supporting small firms. See, e.g., EDWARD GOODMAN, *THE IMPACT OF SIZE: A STUDY OF HUMAN AND ECONOMIC VALUES IN MODERN INDUSTRIAL SOCIETY* (1969). My paper is limited to economic arguments.

²⁴ I do not assume that only measurable economic costs and benefits should be included in the calculation. My examples and graphs show costs and benefits in dollars, but

other words, only if the regulation produces a net benefit.²⁵ To focus on the exemptions rather than the wisdom of a regulation as a whole, I make the heroic assumption, undoubtedly false in at least some cases, that each government regulation applied universally satisfies the net benefit criterion: applied to *all* firms and transactions, the benefit of each regulation exceeds its cost. The issue is then whether something unique about small transactions or small entities justifies their exemption from the generally beneficial regulation. Does the cost of regulation exceed the benefit for small transactions or small entities as a class? If so, they should be exempted even though the regulation in question produces a net benefit when applied to larger transactions or entities.

I develop a model of the costs and benefits of government regulation and conclude that because of fixed compliance costs and economies of scale,²⁶ size matters in government regulation. How to measure size depends on the type of regulation, but for typical government regulation, regulating entities or transactions below a certain size may be inefficient. However, the transaction costs associated with size-based exemptions must be considered in deciding whether a small business or small transaction exemption is justified, and once that is done, the conclusion is less categorical: small business exemptions may or may not be efficient in particular cases.

II. THE COST OF REGULATION

A. *An Introduction to the Theory*

Government regulation involves various costs. Some of those costs, such as the cost to produce a regulation, monitor compliance, and enforce the

only for ease of explanation. I also take no position on whether certain costs or benefits should be weighed more heavily than others. I merely assume that, whatever costs and benefits are included, and however one weighs them, regulation is justified only if one believes the benefits of the regulation exceed the costs. Only an ordinal comparison is required: is one particular state of the world (the regulated state) better than another (the unregulated state)?

²⁵ More precisely, given a choice among regulatory alternatives, government regulation is economically efficient if, among all the possible alternatives, it produces the greatest net benefit. *See, e.g.*, EDITH STOKEY & RICHARD ZECKHAUSER, A PRIMER FOR POLICY ANALYSIS 134-58 (1978); EUGENE BARDACH & ROBERT A. KAGAN, GOING BY THE BOOK: THE PROBLEM OF REGULATORY UNREASONABLENESS 6-7 (1982). *See also* M.A. UTTON, THE ECONOMICS OF REGULATING INDUSTRY 16 (1986) (for any improvement to take place, the net benefits expected from government regulation must at least equal the sum of the enforcement costs and transaction costs); Allen R. Ferguson & Murray L. Weidenbaum, *The Problem of Balancing the Costs and Benefits of Regulation: Two Views*, in THE LIMITS OF GOVERNMENT REGULATION 153-54 (James F. Gatti ed., 1981) (a particular regulation or regulatory program is worthwhile only if the benefits are worth the cost).

²⁶ "There are scale economies in regulatory compliance if the average cost of complying with regulation—measured by the total cost of complying with regulations divided by firm size . . . decreases with firm size." WILLIAM A. BROCK & DAVID S. EVANS, THE ECONOMICS OF SMALL BUSINESSES: THEIR ROLE AND REGULATION IN THE U.S. ECONOMY 65 (1986).

regulation, are incurred directly by the government.²⁷ Some of the costs of regulation, primarily compliance costs, are incurred by regulated firms.²⁸ Some of the costs of regulation are incurred by unregulated third parties, either directly or more commonly, as part of the prices of the products and services produced by regulated firms.

The cost of government regulation almost always includes both variable and fixed components, with the variable costs being a function of the size of the regulated transaction.²⁹ Assume, for example, that the hypothetical Federal Footwear Agency mandates that all basketball shoes must have restricted jumping ability to keep basketball players from being injured when they land. Each shoe manufacturer will incur information costs to determine the requirements of the regulation and research and development costs to modify their shoes to comply. Those costs are fixed; they do not vary with the particular manufacturer's output of shoes. But the cost of the additional materials needed to modify the shoes is variable; it depends on the number of basketball shoes each manufacturer produces.

The total cost of any government regulation can be modeled as follows:

$$\text{Total Cost} = FC + f_c(\text{Size}),$$

where FC = Fixed costs and

f_c is a function of the size of the transaction regulated.

Figure 1³⁰ shows an example of what such a function might look like—how the total cost of a government regulation could vary with the size of the transaction. The intercept on the vertical axis is FC and the slope of the line is determined by the function f_c .

A cursory examination of this formula suggests that compliance with government regulation involves economies of scale: the compliance cost per

²⁷ These costs are passed on either to the general public in the form of taxes or to regulated firms or others through devices such as licensing or user fees.

²⁸ In essence, these regulatory costs are a form of taxation. Kenneth W. Clarkson et al., *Regulating Chrysler Out of Business?*, REG., Sept.–Oct. 1979, at 44, 3; Robert E. Berney & James A. Swanson, *The Regressive Impact of Governmental Regulations: Some Theoretical and Empirical Evidence*, AM. J. SMALL BUS., Jan.–Mar. 1982, at 16, 17.

²⁹ Fixed regulatory costs may be reduced by contracting with outside firms who specialize in regulatory compliance. One report notes, for example, the sale to small firms of standardized, "prototype" pension plans, which are cheaper than individually designed plans. See J. TRUTKO ET AL., U.S. SMALL BUS. ADMIN., COST AND IMPACT OF FEDERAL REGULATION OF SMALL VERSUS LARGE BUSINESS RETIREMENT PLANS: EXECUTIVE SUMMARY iv (1990). This can reduce the regulatory compliance cost because the outside contractor can spread the cost of developing the system over all of its clients. In effect, the regulated firm is purchasing the "scale" necessary for economies of scale. However, in most cases the cost remains fixed over at least some range. The cost is incurred by the outside contractor and therefore, the price it charges does not depend on whether the regulated firm has 50, 75, or 100 employees. See, e.g., B. Peter Pashigian, *A Theory of Prevention and Legal Defense with an Application to the Legal Costs of Companies*, 25 J.L. & ECON. 247, 261 (1982) (in a study of 500 of the 750 largest firms on the *Fortune* list, finding economies of scale in in-house and outside legal costs).

³⁰ All figures appear at the end of the Article.

unit of size decreases as the size of the transaction increases.³¹ If *Total Cost* = $FC + f_c(\text{Size})$, then the average cost per unit of size is:

$$\text{Average Cost} = FC/(\text{Size}) + f_c(\text{Size})/\text{Size}.$$

Since the fixed cost (FC) is a constant, the fixed cost component of average cost declines as the size of the transaction increases. If the variable cost is proportional to size, the average cost per unit of size declines.

B. Sources of Economies of Scale

Examples of economies of scale in regulation are abundant.³² Most of those examples involve fixed costs, but economies of scale may also exist with respect to some of the variable costs of regulation.

1. Capital Expenditures

The most obvious examples of regulatory economies of scale involve regulations that require businesses to incur capital expenditures. Many regulations, particularly environmental regulations, require firms to purchase capital-intensive technology to comply.³³ Consider, for example, a requirement that factories install scrubbers on their smokestacks to reduce emissions. The cost to install the scrubbers does not depend on the output of the particular factory.³⁴ No matter what level of emissions actually pass through the smokestack, the cost to install the scrubbers does not vary.³⁵

Fixed costs like this are not unique to environmental regulation. Any regulation that requires a firm to incur capital costs will result in economies of scale if the capital cost does not vary by output.³⁶ For example, if OSHA

³¹ This will not be the case for all government regulation, of course. Sometimes, government regulation has a greater impact on large businesses than on smaller firms. Thomas W. Ross, for example, notes that the impetus for the Robinson-Patman Act came from small businesses in reaction to chain stores, particularly grocery chain stores. Thomas W. Ross, *Winners and Losers Under the Robinson-Patman Act*, 27 J.L. & ECON. 243, 243-44 (1984). Ross found that passage of the Act had a comparatively negative impact on larger grocery store chains. *Id.* at 254-58. See also Steven A. Morrison & Robert J. Newman, *Hours of Operation Restrictions and Competition Among Retail Firms*, 21 ECON. INQUIRY 107, 114 (1983) (finding that chain stores gained market share when regulations restricting the hours during which stores could open for business were relaxed).

³² For more general discussions of economies of scale and their sources, see CLIFF PRATTEN, *THE COMPETITIVENESS OF SMALL FIRMS* 13-19 (1991); C.F. PRATTEN, *ECONOMIES OF SCALE IN MANUFACTURING INDUSTRY* 3-13 (University of Cambridge Department of Economics, Occasional Paper No. 28, 1971); Edward H. Chamberlin, *Proportionality, Divisibility, and Economies of Scale*, 62 Q.J. ECON. 229 (1948).

³³ Harrison, *supra* note 17, at 191.

³⁴ As with all fixed costs, this cost is fixed only over a certain range: the greater the output, the more smokestacks a single factory will have, and the more scrubbers needed. But, within the range of output requiring a single smokestack, the installation cost is fixed.

³⁵ The cost to maintain the scrubbers undoubtedly includes a variable cost. The greater the emissions passing through the smokestack, the greater the maintenance costs. However, a substantial part of the cost of the scrubber is fixed.

³⁶ Economies of scale with respect to capital costs can result in regulation having a greater impact on small businesses in other ways. Due to economies of scale in capital costs, small businesses tend to be more labor-intensive and less capital-intensive than larger firms.

requires firms to make portable toilets available to workers outdoors, that capital cost is, over at least some range of output,³⁷ fixed. The problem, as with most economies of scale, is one of indivisibility.³⁸ If OSHA requires one portable toilet for every 50 workers, it cannot require 1/50th of a toilet for a firm with one worker, 2/50th of a toilet for a firm with two workers, and so on. Indivisible capital resources like this “can only be used efficiently when the scale of activity is large enough to employ them fully.”³⁹

Expenses other than purchases of technology or equipment can also involve fixed costs. For example, government regulation prohibiting discrimination in hiring may force a firm to revise its job descriptions and job application forms.⁴⁰ The cost to rewrite those job descriptions and forms does not depend on how many people the company plans to hire. The cost to write a job description for “administrative assistant,” for example, is the same whether the firm hires ten administrative assistants a year or only one every ten years.

2. Information Costs

Information costs are possibly the most overlooked costs of government regulation. Firms must keep abreast of new or revised regulations, interpret them to determine whether they apply, and ascertain what the firm must do to comply. Federal laws and regulations are often complex—as one congressional witness complained, “written...by lawyers for lawyers.”⁴¹ Some agencies have published special handbooks for small businesses,⁴² but the cost to monitor and interpret regulatory changes can still be substantial.⁴³ There are economies of

Regulations increasing labor expenses thus have a greater impact on small firms even if variable labor costs are constant across all levels of production. Berney & Swanson, *supra* note 28, at 19.

³⁷ As measured by the number of workers.

³⁸ See BARRY A. STEIN, *SIZE, EFFICIENCY AND COMMUNITY ENTERPRISE 1* (1974).

³⁹ *Id.*

⁴⁰ See, e.g., *Entrepreneurship in America: Excessive Governmental Burdens on Small Business: Field Hearing Before the S. Comm. on Small Bus.*, 104th Cong. 76, (1995) [hereinafter *Entrepreneurship in America*] (testimony of Deedra White) (vice-president of a 90-employee jewelry company claiming to have spent \$4,000 to revise the firm’s application form and job descriptions in response to the ADA).

⁴¹ *The Impact of Federal Occupational Safety and Health Requirements on Small Business: Hearing Before the Subcomm. on Reg., Bus. Opportunities, and Energy of the House Comm. on Small Bus.*, 102d Cong. 38 (1992) (testimony of John B. Moran).

⁴² See, e.g., OFFICE OF POLICY, ECONOMICS, AND INNOVATION, ENVIRONMENTAL PROTECTION AGENCY, ENVIRONMENTAL ASSISTANCE SERVICES FOR SMALL BUSINESSES: A RESOURCE GUIDE (2000), available at <http://www.epa.gov/sbo/ea-resourceguide.pdf>; OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, U.S. DEPARTMENT OF LABOR, OSHA HANDBOOK FOR SMALL BUSINESSES (1996), available at <http://www.osha.gov/Publications/Osha2209.pdf>.

⁴³ See, e.g., *Entrepreneurship in America: supra* note 40, at 81 (statement of Deedra White) (jewelry company with 90 employees spends \$2,500 annually for publications, seminars, and attorneys’ fees to interpret regulations); *Small Business Perspectives on Mandates, Paperwork, and Regulation: Hearing Before the S. Comm. on Small Bus.*, 105th Cong. 66 (1997) (testimony of Bob Spence) (laundry and textile rental company with 350 employees planned to spend \$25,000-\$30,000 “just to make sure we are in compliance with 100 percent of the OSHA regulations.”); TRUTKO ET AL., *supra* note 29, at v-vi (small

scale in this process because the cost of interpreting a regulation does not depend on who is interpreting it.⁴⁴ As a result, small businesses are at a disadvantage in monitoring and interpreting regulations.⁴⁵

3. Reporting and Recordkeeping

Reporting and recordkeeping requirements are another major source of economies of scale.⁴⁶ Almost every federal regulation includes paperwork requirements,⁴⁷ and the enormous cost of those requirements is certainly no secret.⁴⁸ In 1997, the vice-president of a family-owned laundry and textile rental business with 350 employees claimed that it cost his company roughly \$210,000 a year just to comply with regulatory paperwork requirements.⁴⁹ Often, the cost to compile the necessary information and prepare the required reports, or at least a substantial part of that cost, is fixed; the number of reports

pension plan providers claimed that keeping up with and understanding changes in the law was the top problem with pension regulation).

⁴⁴ OFFICE OF ADVOCACY, U.S. SMALL BUSINESS ADMINISTRATION, REPORT ON THE CHANGING BURDEN OF REGULATION, PAPERWORK, AND TAX COMPLIANCE ON SMALL BUSINESS, reprinted in *The Cost of Federal Regulations on Small Business, Joint Hearing Before The S. Comm. on Small Bus. and the House Comm. on Small Bus.*, 104th Cong. 46 (1995):

A significant body of knowledge must be gained by a firm to determine whether a regulation applies to it, whether it is in compliance, or what action must be taken to be in compliance. For example, a firm must first learn that a form is required by rule, determine if the firm is required to submit that form, and then determine how to complete the form correctly. These fixed information-gathering costs are the same for all firms, whether large or small.

See also Pashigian, *supra* note 29, at 261 (finding economies of scale in both in-house and outside legal costs in a study of 500 of the top 750 *Fortune* companies); KAFOGLIS, *supra* note 22, at 117.

⁴⁵ *Entrepreneurship in America*, *supra* note 40, at 17-18 (statement of Mary Garza); *Impact of Federal Regulation on Small Business: Hearings Before the Subcomm. on Special Small Bus. Probs. of the House Comm. on Small Bus.*, 96th Cong. 2 (1979) [hereinafter *Impact of Federal Regulation on Small Business*] (statement of Andy Ireland); Jack Farris, *NFIB Debuts Legal Help on Businesses Issues*, 17 BIRMINGHAM BUS. J. 27 (May 5, 2000). But see ROLAND J. COLE & PAUL SOMMERS, U.S. SMALL BUS. ADMIN., COMPLYING WITH GOVERNMENT REQUIREMENTS: THE COSTS TO SMALL AND LARGER BUSINESSES (1981) (finding few significant differences in how adequate small and large firms believed their information about regulatory requirements to be).

⁴⁶ *Impact of Federal Regulation on Small Business*, *supra* note 45, at 124 (statement of Dr. Milton Kafoglis, Professor of Economics, Emory University); KAFOGLIS, *supra* note 22, at 117.

⁴⁷ "Virtually every federal agency issues a steady stream of recordkeeping and reporting requirements, most of them related to regulations. Indeed, it is difficult to separate the impact of paperwork requirements from that of regulations." RICHARD LESHNER, MELTDOWN ON MAIN STREET: WHY SMALL BUSINESS IS LEADING THE REVOLUTION AGAINST BIG GOVERNMENT 35 (1996).

⁴⁸ See generally *Federal Paperwork Requirements: Hearing Before the Subcomm. on Gov't Reg. and Paperwork of the S. Select Comm. on Small Bus.*, 96th Cong. 1 (1979) [hereinafter *Federal Paperwork Requirements*] (statement of John C. Culver) (containing several estimates of the impact of federal paperwork requirements).

⁴⁹ *Small Business Perspectives on Mandates, Paperwork, and Regulation*, *supra* note 43, at 61 (testimony of Bob Spence).

required and the time necessary to complete the reports does not vary with the size of the business.⁵⁰

Consider a simple government recordkeeping provision that requires employers to collect and file certain personal information on all new hires. Part of the cost to comply with that requirement is variable. The cost of the time to collect the information for each new employee is obviously a function of the number of employees hired (e.g., thirty minutes per new employee), as is the cost of the paper on which the information is printed (e.g., two sheets of paper per new employee). But some of the regulatory costs are fixed. The firm must learn exactly what the regulation requires, develop a form to collect the required information, train the firm's employees to collect the data, and develop a monitoring system to ensure that the company complies. Whether the company hires five or five hundred employees, those costs remain roughly the same.⁵¹

Consider another example:⁵² the requirement in the Securities Act of 1933⁵³ that a company selling securities file with the Securities and Exchange Commission (SEC) a disclosure document known as a registration statement,⁵⁴ and provide part of that registration statement, the prospectus, to investors.⁵⁵ Many of the costs to comply with that requirement do not depend on the dollar amount of the securities the company is selling (the size of the transaction). Companies must prepare essentially the same disclosure document, incurring many of the same accounting and legal costs, whether their offering is for \$1 or \$100 million.⁵⁶ Those accounting and legal costs are fixed. Other regulatory costs depend on the size of the offering. The larger the offering, the greater the number of offerees, at least on average, and thus the greater the cost to print the prospectus and distribute it to investors. The filing fee charged by the SEC also varies depending on the size of the offering.

Even a regulatory scheme that might on its face seem to involve only a variable cost—the minimum wage and overtime provisions of the Fair Labor Standards Act⁵⁷—can involve fixed costs. Obviously, the cost of the higher wages required by the Act is variable; it is a direct function of the number of employee hours. But even a statute like the Fair Labor Standards Act has a

⁵⁰ *Overregulation of Small Business: Hearing Before the Subcomm. on Gov't Reg. of the S. Select Comm. on Small Bus.*, 94th Cong. 30 (1976) [hereinafter *Overregulation of Small Business*] (statement of Donald S. Shoup).

⁵¹ As with most fixed costs, of course, these costs are fixed only over a limited size range.

⁵² For a more complete treatment of this example, see C. Steven Bradford, *Securities Regulation and Small Business: Rule 504 and the Case for an Unconditional Exemption*, 5 J. SMALL & EMERGING BUS. L. 1, 23-33 (2001); Bradford, *supra* note 20, at 614-22.

⁵³ 15 U.S.C. §§ 77a-77z-3 (2003).

⁵⁴ 15 U.S.C. § 77f (a) (2003).

⁵⁵ See generally 15 U.S.C. 77j (a) (2003).

⁵⁶ The SEC has moved in the direction suggested by this paper, developing several different registration forms, some of which are less burdensome and are available only to small business issuers. Compare SEC Form S-1, 17 C.F.R. § 239.11 (2003) to Form SB-1, 17 C.F.R. § 239.9 (2003).

⁵⁷ 29 U.S.C. §§ 201-219 (2000).

fixed cost component. To ensure that it pays employees the federally required compensation, an employer must establish a recordkeeping system to keep careful records of the hours each employee works and must train managers in the operation of that system. These costs are at least partially fixed.

4. *Economies of Scale in Variable Costs*

As a result of specialization of functions in large firms,⁵⁸ economies of scale can also arise with respect to the variable costs of regulation.⁵⁹ Consider, for example, the recordkeeping requirements associated with antidiscrimination laws. If the company has enough employees to justify it, it can hire a full-time coordinator whose only function is to collect and report this data. Smaller companies would not need a full-time specialist, so the reporting would be done by a less efficient generalist.⁶⁰ Economies of scale can also arise from other variable costs simply because resources cost more per unit in smaller amounts.⁶¹

C. *Empirical Studies of Compliance Costs*

An extensive body of empirical research examines the costs of complying with government regulations and, in particular, whether there are economies of scale in regulatory compliance. Many of those studies were funded by the United States Small Business Administration.⁶² I will only briefly discuss a few aspects of that research; a full review is beyond the scope of this Article.⁶³

This empirical research falls into three categories. Some of the studies are *ex ante*, done before the regulation in question was adopted. These studies rely

⁵⁸ STEIN, *supra* note 38, at 2.

⁵⁹ See Hendrik S. Houthakker, *Economics and Biology: Specialization and Speciation*, in THE RETURN TO INCREASING RETURNS 61, 62 (James M. Buchanan & Yong J. Yoon eds., 1994) (discussing why specialization of labor produces increasing returns to scale); E.A.G. ROBINSON, THE STRUCTURE OF COMPETITIVE INDUSTRY 14-17, 34-36 (1958) (same).

⁶⁰ "In a large business the compiling and submission of required reports is the specific job of certain individuals. In a small business it is often the owner-manager who must do it, at the expense of devoting his time and energies to making the business go." *Overregulation of Small Business*, *supra* note 50, at 30 (statement of Donald S. Shoup). See also *Federal Paperwork Requirements*, *supra* note 48, at 12 (statement of Wayne G. Granquist, Associate Director, Management and Regulatory Policy, Office of Management and Budget) (stating that small businesses have a particularly difficult time with government requirements for information due to the lack of specialization in personnel). See also JACK FAUCETT ASSOCIATES, U.S. SMALL BUS. ADMIN., ECONOMIES OF SCALE IN REGULATORY COMPLIANCE: EVIDENCE OF THE DIFFERENTIAL IMPACTS OF REGULATION BY FIRM SIZE 29, 29-32 (1984) (stating that recurring requirements of OSHA's occupational noise exposure regulations are more expensive for small businesses because of a lack of in-house specialization).

⁶¹ STEIN, *supra* note 38, at 2-3.

⁶² See, e.g., MICROECONOMIC APPLICATIONS, INC., U.S. SMALL BUS. ADMIN., IMPACTS OF FEDERAL REGULATIONS, PAPERWORK, AND TAX REQUIREMENTS ON SMALL BUSINESS (1998), available at <http://www.sba.gov/ADVO/research/rs186tot.pdf>; JACK FAUCETT ASSOCIATES, *supra* note 60.

⁶³ A survey of much of the literature appears in OFFICE OF ADVOCACY, *supra* note 44, at 33-82.

on costs estimated by the regulatory agency in the course of rulemaking.⁶⁴ These cost estimates may be inaccurate,⁶⁵ and proposed regulations are sometimes revised significantly after the costs are estimated. Moreover, the agency proposing the regulations may have a political incentive to underestimate costs.⁶⁶ Finally, agencies sometimes make the issue of scale economies disappear by assuming that costs are proportional to some measure of size such as labor or revenues.⁶⁷

The other two types of studies use ex post data, but they have their own problems. One type of ex post study uses cost data provided by regulated firms; these studies simply ask firms how much they spend to comply with a particular regulation or regulation generally.⁶⁸ The regulated firms have little incentive to incur the costs necessary to collect accurate information, and they have a strong political incentive to overestimate the cost of regulation.⁶⁹

Other ex post studies do not attempt to measure costs directly but compare the pre-regulation structure and performance of a regulated industry to its post-regulation structure and performance.⁷⁰ These studies consider data such as the

⁶⁴ See, e.g., MICROECONOMICS APPLICATIONS, INC., *supra* note 62, at 8 (containing analyses of many different regulations relying on agency-generated cost estimates).

⁶⁵ Such ex ante projections rely on informed guesses about how firms will comply with the regulatory requirements. See, e.g., THOMAS D. HOPKINS, CENTER FOR THE STUDY OF AMERICAN BUSINESS, REGULATORY COSTS IN PROFILE (1996), available at <http://wc.wustl.edu/csab/CSAB%20pubs-pdf%20files/Policy%20Studies/ps132%20hopkins.pdf>.

⁶⁶ BROCK & EVANS, *supra* note 26, at 104. See also Richard J. Pierce, Jr., *Small is Not Beautiful: The Case Against Special Regulatory Treatment of Small Firms*, 50 ADMIN. L. REV. 537, 561-62 (1998) (stating that agencies devote a disproportionate amount of enforcement resources to larger firms). That may be a valid complaint if the purpose is to measure businesses' actual compliance costs (although violating the law imposes a cost in the form of increased risk and that cost is not measured if only out-of-pocket costs are included). But if the purpose is to design an efficient regulation, an agency should compare the actual cost of complying with the standard to the benefit of the standard. An agency should not adopt a regulation whose cost exceeds its benefit merely because some firms will ignore the regulation.

⁶⁷ MICROECONOMIC APPLICATIONS, INC., *supra* note 62, at 8.

⁶⁸ See, e.g., TRUTKO ET AL., *supra* note 29, at vii; THOMAS D. HOPKINS, U.S. SMALL BUS. ADMIN., A SURVEY OF REGULATORY BURDENS 1 (1995); Kenneth W. Chilton & Murray L. Weidenbaum, *Government Regulation: The Small Business Burden*, J. SMALL BUS. MGMT., Jan. 1982, at 4; COLE & SOMMERS, *supra* note 45; ROLAND J. COLE & PAUL SOMMERS, U.S. SMALL BUS. ADMIN., COSTS OF COMPLIANCE IN SMALL AND MODERATE-SIZED BUSINESSES (1980).

⁶⁹ BROCK & EVANS, *supra* note 26, at 104; HOPKINS, *supra* note 65, at 20.

⁷⁰ See, e.g., Keith B. Leffler & Raymond Sauer, Jr., *The Effects of the Advertising Substantiation Program on Advertising Agencies*, in EMPIRICAL APPROACHES TO CONSUMER PROTECTION ECONOMICS 177, 177-95 (Pauline M. Ippolito & David T. Scheffman eds., 1984); Richard S. Higgins & Fred S. McChesney, *An Economic Analysis of the FTC's Ad Substantiation Program*, in EMPIRICAL APPROACHES TO CONSUMER PROTECTION ECONOMICS 197-211, (Pauline M. Ippolito & David T. Scheffman eds., 1984); George R. Neumann & Jon P. Nelson, *Safety Regulation and Firm Size: Effects of the Coal Mine Health and Safety Act of 1969*, 25 J.L. & ECON. 183 (1982); Peter Linneman, *The Effects of Consumer Safety Standards: The 1973 Mattress Flammability Standard*, 23 J.L. & ECON. 461 (1980); BOOZ-ALLEN & HAMILTON, INC., U.S. SMALL BUS. ADMIN., IMPACT OF ENVIRONMENTAL REGULATIONS ON SMALL BUSINESS (1982).

number of firms in the industry and their relative size and stock returns to determine how regulation has affected the industry. A major problem for these studies, of course, is distinguishing the effect of regulation from other economic effects on firms in the regulated industry.⁷¹ In addition, it is often difficult to obtain reliable data on smaller firms in an industry,⁷² so the effects of regulation may be measured across a relatively narrow range of firm sizes. Some of these studies also have statistical problems: missing tests of statistical significance,⁷³ or questionable statistical assumptions.⁷⁴

Regardless of the type of study, other problems complicate the analysis. First, this literature usually considers only the compliance costs incurred by regulated firms and does not include other regulatory costs such as the costs incurred by the regulatory agency to enforce the regulation, costs that may also vary with the size of the regulated firm or transaction.⁷⁵ Agency enforcement costs are probably significantly less than compliance costs,⁷⁶ but they are not trivial and should be included as one of the costs of regulation.

More importantly, many of these regulations include full or partial exemptions for small businesses or small transactions. This makes the comparison of costs incurred by large and small firms virtually meaningless because the large and small firms are not subject to the same requirements. What the studies actually measure is the difference between the cost for large firms to comply with the full regulation and the cost for small firms to comply with a diluted regulation or no regulation at all. It is not surprising that some studies find no economies of scale or even diseconomies of scale.⁷⁷ What is surprising is that significant economies of scale exist in some cases in spite of the diminished requirements for small businesses.⁷⁸

⁷¹ BROCK & EVANS, *supra* note 26, at 104.

⁷² *Id.*

⁷³ *Id.* at 107 (criticizing a Booz-Allen & Hamilton study of environmental regulations for not testing for statistical significance or reporting sufficient data to allow others to do so); *id.* at 123 (similar criticism of a 1981 Cole and Sommers study).

⁷⁴ *See id.* at 111-12 (criticizing a study of environmental regulation by Pashigian for assuming homoskedasticity); *id.* at 117-18 (criticizing the specification of Pashigian's regression model); *id.* at 121 (criticizing a 1978 Cole and Sommers article for not controlling for heteroskedasticity).

⁷⁵ *See generally* MICROECONOMIC APPLICATIONS, INC., *supra* note 62 (consisting of studies focusing on compliance costs); JACK FAUCETT ASSOCIATES, *supra* note 60 (same).

⁷⁶ *See* CLYDE WAYNE CREWS JR., TEN THOUSAND COMMANDMENTS: AN ANNUAL POLICYMAKER'S SNAPSHOT OF THE FEDERAL REGULATORY STATE 2 (2000), available at <http://www.cei.org/pdf/2291.pdf> (estimating total compliance costs of \$758 billion and agency enforcement costs of \$18.8 billion). *See also* W. MARK CRAIN & THOMAS D. HOPKINS, U.S. SMALL BUS. ADMIN., THE IMPACT OF REGULATORY COSTS ON SMALL FIRMS 6 (2001), available at <http://www.sba.gov/advo/research/rs207tot.pdf> (stating that spending by federal regulatory agencies on regulatory activities was \$18.9 billion in 2000).

⁷⁷ *See* MICROECONOMIC APPLICATIONS, INC., *supra* note 62, at iv (of 13 industry-regulation pairs showing no economies of scale, 4 involved complete or partial exemptions for small entities and 2 were cases where small entities could avoid regulatory costs through appropriate strategic decisions); BROCK & EVANS, *supra* note 26, at 136-39 (finding no widespread disparate impact of regulation on small business and suggesting *de jure* and *de facto* small business exemptions as a reason).

⁷⁸ *See, e.g.*, MICROECONOMIC APPLICATIONS, INC., *supra* note 62, at 264.

Given the limitations of these empirical studies, one should hesitate to rely on any single study to demonstrate economies of scale in regulatory compliance.⁷⁹ But the available studies involve several different types of data and several different methodologies, and most of those studies point in the direction that both common sense and economic theory predict. Cumulatively, these studies support three general, empirical conclusions:

(1) For many regulations, there are economies of scale in regulatory compliance. An inverse relationship exists between the size of a regulated firm and the per-unit cost of compliance.⁸⁰

(2) The economies of scale appear to be due primarily to fixed costs,⁸¹ but also, in some cases, to economies in the variable costs of regulatory compliance.⁸²

⁷⁹ For specific criticisms of many of the early studies of firm size and regulatory costs, see BROCK & EVANS, *supra* note 26, at 105-35.

⁸⁰ A recent study of two dozen regulations concluded that "most regulations do impose costs on small entities that are disproportionately high—sometimes proportionately very much larger. Most of the exceptions appear to be due either to regulatory flexibility measures or to flaws in the regulatory analysis." MICROECONOMIC APPLICATIONS, INC., *supra* note 62, at v.

Some of the studies supporting this conclusion examine firms' total regulatory costs. Crain and Hopkins, for example, estimated that the average firm with fewer than twenty employees spent \$6,975 *per employee* in 2000 to comply with all federal regulations, which was 60 % higher than the per-employee figures for larger firms. CRAIN & HOPKINS, *supra* note 76, at i. See also COLE & SOMMERS, *supra* note 45, at 113 (finding greater reported compliance costs per dollar of sales in small firms than in larger firms); COLE & SOMMERS, *supra* note 68, at 27 (finding greater reported compliance costs per dollar of revenue in smaller firms than in larger firms).

Other studies consider, on an individual basis, the costs of a number of different regulations. See MICROECONOMIC APPLICATIONS, INC., *supra* note 62 (including studies of a number of different regulations showing economies of scale in compliance costs); JACK FAUCETT ASSOCIATES, *supra* note 60, at 29 (same).

Finally, many of the studies find economies of scale as to one particular regulation or group of regulations. See, e.g., TRUTKO ET AL., *supra* note 29, at vii-xi (finding substantially higher set-up and administrative costs for regulated pension plans in a 25-participant firm than in a 200-participant firm); Gregory E. Elliehausen & Robert D. Kurtz, *Scale Economies in Compliance Costs for Federal Consumer Credit Regulations*, 1 J. FIN. SERVS. RES. 147 (1988) (finding large scale economies in complying with federal consumer credit regulations, but only at the lowest levels of lending); James R. Chelius & Robert S. Smith, *Firm Size and Regulatory Compliance Costs: The Case of Workers' Compensation Insurance*, 6 J. POLICY ANALYSIS & MGMT. 193; 201 (1987) (finding that the smallest firms have the highest workers' compensation costs per dollar of loss); Neil B. Murphy, *Economies of Scale in the Cost of Compliance with Consumer Credit Protection Laws: The Case of the Implementation of the Equal Credit Opportunity Act of 1974*, 10 J. BANK RES. 250 (1980) (finding substantial economies of scale in the cost of compliance with the Act).

⁸¹ See, e.g., MICROECONOMIC APPLICATIONS, INC., *supra* note 62 (most likely reason for economies of scale in the OSHA permit-required confined spaces standard is high fixed costs in equipment purchases); *id.* at 112 (economies of scale in EPA regulation of perchloroethylene in dry cleaning relate primarily to engineering costs and recordkeeping/reporting requirements).

⁸² See, e.g., JACK FAUCETT ASSOCIATES, *supra* note 60, at 29-32 (economies of scale in recurring requirements of OSHA's occupational noise exposure regulations); *id.* at 49, 51-54

(3) The economies of scale appear to persist over time. They are not short-run transition costs created by firms adjusting to new regulation.⁸³

Probably the most significant study *not* to find any substantial economies of scale in regulatory compliance was Brock and Evans's 1986 study of pollution abatement costs.⁸⁴ Even the results of this study are ambiguous, because their study shows that (1) industries subject to the greatest levels of enforcement experienced large increases in the average size of establishments, and (2) industries with relatively large increases in capital costs as a result of environmental regulation also experienced large increases in average establishment size.⁸⁵ In other words, larger businesses become more dominant in the most regulated industries. In addition, Brock and Evans themselves suggest that the lack of any disparate impact on small business is due to *de jure* or *de facto* exemptions for smaller businesses.⁸⁶ Thus, the Brock and Evans study does not strongly refute the general conclusions stated above.

III. THE BENEFITS OF REGULATION

It is much easier to measure the costs of regulation than to measure the benefits. "In most cases, benefit estimates of social regulations probably are best viewed as 'guesstimates.'"⁸⁷ However, even though we cannot measure the benefits exactly, one characteristic of these benefits is clear: the benefits of regulation are almost completely variable. The total benefit of regulation is a direct function of the amount of regulated conduct.

A few examples illustrate this point. The total benefit of applying antidiscrimination or minimum wage rules to a particular employer depends on the number of hours employees work. If the business employs no one, the rules are completely ineffective and produce no benefits.⁸⁸ Applying a minimum wage law to an employer with one-thousand full-time employees produces a greater gain than applying the same requirement to an employer with five full-time employees.

(economies of scale in operating and maintenance costs under EPA's interim primary drinking water regulations).

⁸³ See, e.g., Thomas J. Dean et al., *Environmental Regulation as a Barrier to the Formation of Small Manufacturing Establishments: A Longitudinal Examination*, 40 J. ENVTL. ECON. & MGMT. 56, 62-68 (2000) (stating that the entry-detering impact of environmental regulations on small firm formation persisted during the period studied).

⁸⁴ BROCK & EVANS, *supra* note 26, at 168-77.

⁸⁵ *Id.* at 175.

⁸⁶ *Id.* at 181.

⁸⁷ Hahn & Hird, *supra* note 16, at 254.

⁸⁸ Some legal scholars contend that protective legislation serves an expressive function that produces benefits independent of the enforcement of the legislation. See generally Symposium: *The Expressive Dimension of Governmental Action: Philosophical and Legal Perspectives*, 60 MD. L. REV. 465, 465-784 (2001). If these benefits really are independent of actual enforcement, exemptions should not affect them. The expressive function of the legislation should be the same whether or not particular firms are exempted. If, on the other hand, these so-called expressive benefits do vary with the actual extent of regulation, they are just another variable benefit to include in the calculation.

The total benefit of requiring a factory to install pollution controls depends on the output of the factory. The greater the output, the more pollution absent the controls, and therefore the greater the benefit produced by the controls. If the factory is closed and has no output at all, installing pollution controls will not produce any benefit.⁸⁹

The total benefit of requiring an employer to make accommodations for the handicapped also varies with the number of affected individuals. For example, a requirement that buildings have elevators to accommodate the disabled will usually produce a greater benefit in a building that ten thousand people enter each day than in a building that only two people enter.⁹⁰

The benefit of securities disclosure also varies with size. In the case of the offering-related disclosure of the Securities Act of 1933,⁹¹ the larger the offering, the more money investors could lose, and the more they benefit from accurate information about the offering. In the case of the continuous disclosure requirements of the Securities Exchange Act of 1934,⁹² the greater the dollar amount of outstanding securities, the greater the benefit of accurate information.

Almost all government regulation appears to produce benefits that vary with size. The relevant measure of size will vary from one regulation to another.⁹³ It may be the number of employees for wage and hour legislation, the dollar amount of a securities offering for securities regulation, or the output of a factory for environmental controls. But the conclusion is the same. The total benefit of government regulation is a direct function of some measure of the size of the regulated conduct:

$$\text{Total Benefit} = f_b(\text{Size}),$$

where f_b denotes some function of the size of the regulated transaction and $f_b(0) = 0$.⁹⁴

If the function is linear, a graph of this relationship would look something like Figure 2. The slope of the line is determined by the function f_b .

⁸⁹ The person installing the controls will benefit, but this benefit is offset by the foregone alternative use of the money paid to install the controls. *See, e.g.*, HENRY HAZLITT, *ECONOMICS IN ONE LESSON 23-24* (Arlington House Publishers 1979) (1946).

⁹⁰ This assumes that the selection of people entering the building is random. If the only two people entering the building are disabled, the benefit could be greater in the smaller building.

⁹¹ 15 U.S.C. §§ 77a-77z-3, *supra* note 53.

⁹² 15 U.S.C. §§ 78a-78mm (2003).

⁹³ *See infra* Part V.

⁹⁴ This assumes, of course, that the regulation has some effect on firms' behavior. Requiring firms to pay a minimum wage produces no benefit if the firms already pay more than the minimum wage. Limiting the pollutants a firm may discharge produces no benefit if all firms already operate within the limits. In those cases, the benefit of regulation is always zero, regardless of the size of the transaction.

IV. CREATING A MODEL FOR SMALL BUSINESS EXEMPTIONS: COMPARING COSTS AND BENEFITS

A. *The Basic Model of Regulatory Efficiency*

We now have a model of both the costs and the benefits of regulation. The total cost of regulation is the sum of its fixed cost plus the variable cost, which depends on the size of the transaction: $Total\ Cost = FC + f_c(Size)$. The total benefit of regulation is completely variable with the size of the transaction: $Total\ Benefit = f_b(Size)$. If, as argued *supra*, regulation is justified only when its benefit exceeds its cost, an exemption should be available for a particular size of transaction if:

$$FC + f_c(Size) > f_b(Size).^{95}$$

So far, I have not attempted to define the two functions in this formula. We know that both the total cost and the total benefit of regulation increase with size, but we do not know what either one of these relationships looks like. In fact, given the various types of regulation and the different types of costs and benefits, there is no reason to expect a single, uniform relationship between size and either total cost or total benefit. Fortunately, the case for a small transaction exemption does not depend on the particular nature of the cost and benefit functions. In Section B, I show that small business exemptions are efficient if those relationships are linear. In Section C, I assume nonlinear relationships and reach the same conclusion. The exact nature of the cost and benefit functions is irrelevant; for any plausible cost or benefit functions, an exemption based on size can be efficient.

B. *Linear Cost and Benefit Functions*

Assume that both the variable costs and the benefits of a regulation are directly proportional to the size of the regulated transaction. In other words, both functions in the cost-benefit equation, f_c and f_b , are linear. The variable cost and the total benefit are some constant multiples of the size of the transaction. Figure 3 illustrates such linear costs and benefits.

Let α represent the cost multiple: the variable cost of the regulation is simply α times the size of the transaction, however we measure size. Therefore α is the slope of the cost line in Figure 3. Let β represent the benefit multiple: the benefit of the regulation is simply β times the size of the transaction. β is the slope of the benefit line in Figure 3. Then, an exemption based on the size of the transaction is justified if:

$$FC + (\alpha * Size) > (\beta * Size)$$

We can solve this equation for the size of the transaction:

$$Size < FC/(\beta - \alpha)$$

⁹⁵ Exemptions are not costless and the transaction costs of exemptions must be considered in deciding whether an exemption is efficient. See *infra* Part VI. To simplify the discussion, I will assume for now that transaction costs are zero.

Any transaction smaller than the size indicated by the formula, which is the size at which the cost and benefit lines intersect in Figure 3, should be exempted from the particular regulation.⁹⁶

C Nonlinear Cost and Benefit Functions

There is no particular reason to believe the relationships between size and cost or size and benefit are always linear. In fact, there are plausible arguments that those relationships are not linear. In this section, I briefly consider the implications of nonlinear models, and show that the basic conclusion is unchanged: a small transaction exemption is still efficient.

1. Nonlinear benefits

a. Richard Pierce's Argument

Professor Richard Pierce has argued that small businesses are responsible for a disproportionate amount of the wrongs that regulation seeks to prevent.⁹⁷ Small businesses are often exempted from regulation, so it is not surprising that they are more likely to engage in activities that would be unlawful for larger businesses.⁹⁸ Pierce concedes this point but argues small businesses would be disproportionately responsible for such wrongs even in the absence of such exemptions.⁹⁹ If Pierce is correct, the relationship between the benefits of regulation and the size of the transaction would be nonlinear—the smaller the transaction, the greater the average benefit of regulation *per unit of size*. The relationship between size and the benefit of regulation would look something like the graph in Figure 4.¹⁰⁰ The average benefit of regulation per unit of size would be greater for small transactions than for larger ones because the harm regulation prevents is proportionately greater in small transactions. The *total* benefit of regulation still increases as the size of the transaction increases, but at a declining rate.

⁹⁶ The formula works only if the variable benefit of regulation (β) exceeds the variable cost (α), but this must be true given our assumption that the regulation is generally efficient. If $\alpha \geq \beta$, regulation is never economically efficient, regardless of the size of the transaction: No matter how large the transaction, the total benefit of the regulation will never exceed the total cost.

⁹⁷ See Pierce, *supra* note 66, at 561. See also Linder, *supra* note 19, at 414 (“[E]xempting the very employers who are most likely not to pay the minimum wage turns into a farce the carefully orchestrated debates over raising a minimum wage that will not apply to those who need it most.”).

⁹⁸ See Randy Becker & Vernon Henderson, *Effects of Air Quality Regulations on Polluting Industries*, 108 J. POL. ECON. 379, 415 (2000) (finding that air quality regulation promoted the “growth of small, relatively dirty (unregulated) plants.”).

⁹⁹ Pierce, *supra* note 66, at 561. Even absent exemptions, small firms may have a higher noncompliance rate. See, e.g., Linneman, *supra* note 70, at 474. But see COLE & SOMMERS, *supra* note 45, at 72 (reporting results consistent with small firms being more likely to comply with regulatory requirements).

¹⁰⁰ An equation consistent with Pierce's view could take many forms. A simple function that would produce a relationship like this is $Total\ Benefit = \beta(Size)^{1/2}$, where β is a constant. If we continue to assume a linear cost model, transactions up to the size where $FC + \alpha(Size) = \beta(Size)^{1/2}$ should be exempted.

No complicated mathematics is required to show that a small transaction exemption is still efficient. The benefit equation passes through the origin and, as the size of the transaction approaches zero, the total cost approaches FC (the fixed cost), some positive number. Thus, for a near-zero transaction size, the total cost clearly exceeds the total benefit. The total benefit of regulation must exceed the total cost at some point because of the assumption that the regulation is generally efficient. Therefore, the total benefit and total cost curves must intersect somewhere, as illustrated in Figure 5. Transactions less than that size should be exempted because the total cost of regulating them is greater than the total benefit.

Professor Pierce's argument against small business exemptions apparently fails to consider the *marginal* impact of regulating small businesses. "If a regulatory rule yields benefits that exceed its costs," Professor Pierce writes, "then it is a good rule. . . . If, by contrast, a regulatory rule costs more to implement than the value of its benefits, then we should not have the rule."¹⁰¹ Pierce neglects the possibility that, even if a globally applicable regulation produces a net benefit, a tailored rule exempting some small businesses might produce an even greater net benefit. The economic object of regulation is not a rule that produces a net benefit (any rule whose benefits exceed its costs), but to produce a rule that maximizes net benefit.

b. *The Extreme Populist View*

Some populists, such as Ralph Nader, take a position diametrically opposed to Pierce's. They argue that big business, not small business, is responsible for a disproportionate amount of society's ills.¹⁰² Under the populist view, most of the benefit of regulation would arise from its application to larger firms and transactions, because that segment is where most of the harm occurs. If big businesses are disproportionately responsible for the regulated problems, the average benefit of regulation per unit of size is greater for larger transactions: the total benefit of regulation increases at an increasing rate as the size of the transaction increases. If this view is correct, the relationship between the total benefit of regulation and the size of the transaction would look something like the graph in Figure 6.¹⁰³

A small business exemption is efficient under this view as well. As with the Pierce model, the total cost and total benefit curves must intersect at some positive transaction size, as shown in Figure 7. Ignoring transaction costs,

¹⁰¹ Pierce, *supra* note 66, at 551.

¹⁰² See RALPH NADER, ET AL., TAMING THE GIANT CORPORATION 15-32 (1976) (blaming a number of social ills, including industrial pollution, health problems, racial discrimination, invasions of privacy, and unsafe products, on big businesses); Mark Green, *The Corporation and the Community*, in CORPORATE POWER IN AMERICA 42, 42-64 (Ralph Nader & Mark J. Green eds., 1973) (arguing that big corporations reduce civic welfare, pollute more, engage in less philanthropy, and engage in more racial discrimination). See generally DAVID C. KORTEN, WHEN CORPORATIONS RULE THE WORLD 3 (2d ed. 2001) (arguing that large corporations are responsible for many of the world's problems).

¹⁰³ As with the Pierce view, any number of functions would be consistent with the populist view. A simple equation that fits this view is $Total\ Benefit = \beta(Size)^2$, where β is a constant. Assuming a linear cost model, transactions should be exempted up to the size where $FC + \alpha(Size) = \beta(Size)^2$.

transactions smaller than that size should be exempted, because for those smaller transactions, the total cost of regulation exceeds the total benefit.

2. *Nonlinear costs*

The relationship between the size of a transaction and the total *cost* of a regulation may also be nonlinear due to declining marginal cost over some range of size. In addition to economies of scale related to fixed costs, there are sometimes economies of scale related to variable costs.¹⁰⁴ The more frequently a regulated entity encounters a particular regulation, the smaller the cost per unit of output to comply with the regulation. Figure 8 shows a cost curve consistent with this possibility. As with nonlinear benefit curves, assuming that the cost curve is nonlinear does not affect the basic conclusion: a small transaction exemption of some size is still efficient. Assumptions of nonlinearity may affect the size of the transaction that it is efficient to exempt, but they do not affect the argument for *some* small business exemption.

D. *A Further Complication: Economies of Scale, But No Fixed Costs*

The previous discussion assumed that regulation involves at least some fixed costs, costs that do not vary with the size of the regulated transaction or firm. But what if a regulation involves no fixed costs, only variable costs? In that situation, no definite conclusion is possible. The efficiency of a small business exemption depends on the structure of the cost and benefit curves for the particular regulation.

Figure 9 illustrates this point. Curve B is a hypothetical benefit curve for a particular regulation; the benefits of regulation are directly proportional to the size of the transaction. Curves C₁ and C₂ are two possible cost curves, each of which involves economies of scale in variable costs.¹⁰⁵ For curve C₁, the total benefit of regulation always exceeds the total cost, no matter how small the transaction. The regulation always produces a net benefit, so a small business exemption would be inefficient. For curve C₂, the total cost of regulation exceeds the total benefit to the point where curve C₂ intersects with the benefit curve B. A small business exemption for transactions smaller than the size at that point could be efficient: for such smaller transactions, the cost of regulation exceeds the benefit.

Thus, if a regulation involves no fixed costs, no categorical conclusions can be reached concerning the efficiency of small business exemptions. However, regulation almost invariably involves fixed costs, so this theoretically possible but empirically doubtful state of affairs is of little concern.

E. *Tiering Regulation: Eliminating the Dualistic Choice*

So far, I have assumed a simple, dualistic choice between full application of a regulation to a particular firm or a complete exemption. That assumption is

¹⁰⁴ See *supra* text accompanying notes 58-61.

¹⁰⁵ Neither includes any fixed costs.

unrealistic. Different levels of regulation can be applied to different sizes of regulated firms—a graduated system of tiering that increases the amount of regulation as the size of the firm increases.¹⁰⁶ Consider, for example, hypothetical regulations requiring special accommodations for disabled persons in new buildings. Assume that the regulations require all new buildings to include easily accessible elevators, Braille signs, and flashing lights for alarms. Assume further that elevators are the most expensive requirement, flashing lights less expensive, and Braille signs the least expensive. Large buildings could be required to include all three accommodations, medium-sized buildings only the signs and flashing lights, and very small buildings only the signs. As another example, consider environmental laws restricting emissions. Most factories could be required to reduce their emissions of carbon monoxide to 2 parts per million (ppm), but the standard could be relaxed for smaller factories to, for example, 5 ppm. Various intermediate levels of regulation short of total exemption are possible for most government regulations.

Obviously, the costs and benefits of tiered regulation differ from the costs and benefits of “full” regulation. In the disabilities example, it costs less if elevators are not required, but the total benefit is also less. In the air pollution example, it costs less to reduce emissions if the standard is less restrictive, but the health benefits could be less as well. Since the costs and benefits are different for intermediate tiers of regulation, the net benefit of intermediate regulation will usually not be the same as the net benefit of full regulation.

Tiering, in effect, creates a variable exemption depending on the size of the regulated firms. But the possibility of tiering does not significantly affect the argument for a complete exemption from regulation at some size level. Each tier of regulation has cost and benefit functions of its own, and the costs are both fixed and variable. Whether the pollution emission standard is 2 ppm or 5 ppm, the factory must invest in equipment to control emissions, the cost of which does not entirely depend on the output of the factory. And the benefit of the regulation, at whatever level, is still a function of the size of the transaction.

The argument for a small business exemption from the lowest tier of regulation is the same as that already made. The basic cost-benefit model still applies, with the same conclusion: For any possible tier of regulation, there is a size below which the regulation is inefficient because it produces a negative net benefit. Tiered regulation may make regulation of some smaller transactions efficient, and thus lower the size cutoff for a full exemption, but there still is some size below which transactions should be *totally* exempted from regulation.

F. Another Complication: Reorganization or Dissolution¹⁰⁷

The compliance cost of regulation used to compare costs and benefits should be the *cheapest* means for a regulated firm to comply with the

¹⁰⁶ See generally UNITED STATES REGULATORY COUNCIL, *supra* note 10 (discussing the concept of regulatory tiering).

¹⁰⁷ My thanks to my late colleague Norm Thorson for raising the issue discussed in this section.

regulation. If two equally effective technologies are available to meet the regulatory standard and one is cheaper than the other, the cost of the cheaper technology should be used in cost-benefit calculations. If a business has a choice between spending \$1 million or \$500,000 to comply with a regulation, it is neither fair nor honest to say that compliance costs \$1 million.

This obvious point has less obvious consequences, because the basic idea extends beyond technological choices in a way that advocates of small business exemptions almost never consider. Some of the possible responses to regulation involve organizational structure: a regulated firm may dissolve, reorganize or expand its business in reaction to a regulatory requirement.¹⁰⁸ If the cost of dissolution or reorganization (including, in the case of dissolution, the lost value of the firm's foregone production) is less than the cost of compliance, *and* that cost is less than the benefit of applying the regulation to the firm, dissolution, or reorganization is the efficient solution.

A small business exemption is not justified merely because regulation will put small firms out of business. If the total benefit of regulating a firm exceeds the total compliance cost (and all other regulatory costs), an exemption is not efficient, even if the firm cannot incur the compliance cost and remain competitive. Since the total benefit of regulating the firm exceeds the total cost, the firm should not be exempted. Regulatory economics does not support the survival of small businesses if continuing to operate those businesses produces an economic loss.

The more complicated case is where the cost to the firm of *complying* with the regulation, when added to other regulatory costs, exceeds the total benefit of the regulation. The total cost of the regulation appears to exceed its total benefit, justifying an exemption. But recall that the "cost" in the cost-benefit formula must be the firm's cheapest reaction to the regulation. The firm's cost to comply with the regulatory requirements is not necessarily the firm's least expensive response to the regulation; going out of business might be less costly than compliance. If so, the relevant cost to the firm is not the compliance cost, but the cost to dissolve the firm. If the total cost of the regulation, including the cost of dissolution, is less than the total benefit, the firm should not be exempted. It should be regulated and forced out of business.¹⁰⁹ If, on the other hand, the total cost of the regulation (including the cost of dissolution as the firm's cost, if that is cheaper than compliance) exceeds the total benefit, the firm should be exempted. The important question is not whether the firm will survive, but the relationship between the total cost and the total benefit of the regulation.

¹⁰⁸ The discussion in this section relates only to exemptions based on the size of the regulated firm, not to exemptions based on the size of the regulated transaction.

¹⁰⁹ Brock and Evans argue that tiering "preserves inefficient small businesses whose operation decreases social welfare." William A. Brock & David S. Evans, *The Economics of Regulatory Tiering*, 16 RAND J. ECON. 398, 406 (1985). This model accounts for that cost. See also Becker & Henderson, *supra* note 98, at 415 (finding that air quality regulation promotes the "growth of small, relatively dirty (unregulated) plants" and kept otherwise unprofitable grandfathered plants in business).

Compliance with the regulation and dissolution of the firm are not a firm's only possible responses to regulation. The regulated firm may also expand or reorganize. For example, assume there are five identical small firms and the cost for each firm to comply with a particular regulation is 100.¹¹⁰ If the benefit of applying the regulation to each firm is only 90, an exemption for these firms would seem to be justified. The cost, 100, exceeds the benefit, 90. But assume further that the total benefit of regulating a firm five times as large is 450, but due to economies of scale, the total compliance cost for a firm five times as large is only 350. If it would cost less than 100 to combine all five firms into a single, larger firm,¹¹¹ the small firms should not be exempted from the regulation. The least expensive method of responding to the regulation is a reorganization that produces a single, large firm. If, for example, the cost of reorganization is 50, the total cost of the regulation is 400 (350 + 50) compared to a benefit of 450. Application of the regulation to these firms produces a net benefit compared to the no-regulation baseline.¹¹²

V. THE MEASUREMENT OF SIZE

If small businesses are to be granted regulatory exemptions, how should size be measured? As discussed *supra*,¹¹³ existing small business exemptions do not use a single, consistent measure of size. Should exemptions be based on the size of the transaction, the size of the firm engaged in the transaction, or both? And, in either case, how should we measure the size of the transaction or the size of the firm?

The answer, facetious as it may seem, is that exemptions should be based on any measure of size that supports an exemption. Exemptions are efficient if they increase the net benefit of a regulation by eliminating applications of the regulation that result in a net loss. If the regulator can carve out a class of cases where regulation produces a net loss, it should do so, no matter how that class of cases is described. Just as a sculptor carves away everything that does not

¹¹⁰ To keep the example simple without affecting its validity, assume that this is the only cost of the regulation and ignore other regulatory costs such as enforcement and rule-making costs.

¹¹¹ This cost must, of course, include all bargaining costs and other transaction costs. It must also include any market costs related to loss of competition and potential competition.

¹¹² A study of OSHA standards for lead exposure in construction provides a possible illustration of this point. Generally, the study found no economies of scale—most compliance costs were “proportional to the number of workers, worker-days, or crews.” MICROECONOMIC APPLICATIONS, INC., *supra* note 62, at 81. Economies of scale were found in two construction industries, but as the study's authors pointed out:

it is somewhat striking that the two construction industries where per-employee costs are four or five times as high for small businesses as for large ones—floor laying and structural steel—are also the industries where average employment size for small establishments is very substantially below the efficient crew size assumed in the analysis.

Id.

¹¹³ See *supra* text accompanying notes 10-14.

look like his subject,¹¹⁴ the regulator must carve away everything that does not produce a net benefit.

The relevant dimension of size will usually be one along which the benefits of regulation increase, and that will vary from regulation to regulation. In the case of a minimum wage law, the appropriate measure of size is undoubtedly total employee work hours. The greater the number of employee hours, the greater the collective benefit to those employees of the minimum wage. In the case of securities registration requirements, the appropriate dimension is the dollar amount of the offering. The larger the offering, the greater the collective investment, and the greater the benefit of the disclosure required by the Securities Act.¹¹⁵ In the case of the regulation of pollution, the appropriate dimension is the amount of pollutants discharged. The greater the amount of pollution, the greater the benefit of preventing the discharge.

If it is difficult to measure the relevant dimension of size directly, a proxy may be efficient. For example, we may want to exempt from environmental regulation firms that discharge less than a certain amount of pollutants each year. If the amount of pollutants discharged by each firm is not easy to measure directly, we might instead choose a proxy that we can measure more easily. If the amount of pollutants discharged is strongly correlated with manufacturing output, and manufacturing output in turn is strongly correlated with sales, an exemption based on the amount of a firm's sales could be less costly to apply and exempt essentially the same firms.

The benefits of a particular regulation may vary along multiple dimensions of size. For example, for certain antitrust restrictions, the total benefit varies both with the size of the relevant market and with the size of the firms in that market. Regulating price-fixing by two firms that control 50 percent of a \$10 billion market will produce greater benefits, *ceteris paribus*, than regulating price-fixing by two firms that control 50 percent of a \$10,000 market. Regulating price-fixing by two firms that account for \$9.5 billion of the sales in a \$10 billion market will produce greater total benefits, *ceteris paribus*, than regulating price-fixing by two firms that only account for \$100,000 of the sales in the same \$10 billion market.

Where benefits vary significantly along multiple dimensions, a variety of size-based exemptions are available. Two separate exemptions might be efficient. For example, in the price-fixing example, one could exempt all price-fixing in any market with less than \$10,000 in sales and also exempt price-fixing in any market, no matter how large, by firms collectively controlling less than five percent of the market. A single exemption that combines the two dimensions of size is another possibility. Price-fixing by firms with less than five percent of the sales in a market with total sales of less than \$50,000 could

¹¹⁴ Vern Countryman once offered the following instructions for sculpting an elephant: "Obtain a large piece of stone. Take hammer and chisel and knock off everything that doesn't look like an elephant." Vern Countryman, *Executory Contracts in Bankruptcy: Part I.*, 57 MICH. L. REV. 439, 460 n.85 (1973).

¹¹⁵ 15 U.S.C. §§ 77a-77z-3 (2003).

be exempted.¹¹⁶ The goal is to choose the exemption or combination of exemptions that maximizes the net benefit of the regulation.

VI. THE TRANSACTION COSTS OF SMALL TRANSACTION EXEMPTIONS

If the total cost of applying a regulation to small firms or small transactions exceeds the total benefit, those firms or transactions should be exempted from the regulation *in the absence of any transaction costs associated with the exemption*. Thus, absent transaction costs, size-based exemptions can be efficient. But exemptions do have transaction costs, and those transaction costs complicate the analysis, making it less likely that any particular small business exemption is efficient.

I have written elsewhere about the transaction costs of regulatory exemptions;¹¹⁷ I will not repeat that discussion here. But, some of those transaction costs are relatively obvious. It is more costly for a regulator to create a regulation with exemptions, particularly with well-tailored exemptions that minimize error costs, than it is to create a regulation that applies across the board. Enforcement costs are also higher with exemptions because of the existence of firms not required to comply with the regulation; the regulator must police not only the regulation, but also the exemption. Exemptions also increase the information costs of regulated firms, which must determine whether or not they are exempt, and exemptions sometimes increase the information costs of unregulated third parties who may need to distinguish between regulated and unregulated firms. Exemptions also encourage wasteful strategic behavior by firms seeking to avoid regulation.¹¹⁸

These transaction costs must be considered in deciding whether small business exemptions are efficient. The original proposition, not considering transaction costs, was to exempt transactions if the total cost of regulation for those transactions exceeded the total benefit ($TC > TB$). In Figure 10, all transactions falling to the left of the vertical line would be exempted. The net gain resulting from exempting a particular class of firms is the amount by which the total cost of regulating firms of that size exceeds the total benefit ($TC - TB$).

Introducing transaction costs only slightly complicates this basic model. It is efficient to exempt smaller transactions or firms only if the gain from doing so ($TC - TB$) exceeds the transaction costs of the exemption. In other words, an exemption is efficient if $(TC - TB) > \text{Transaction Costs}$, or, to put the equation in a form that is easier to illustrate graphically, only if $TC > (TB + \text{Transaction Costs})$. Figure 11 illustrates this point. The size at which an exemption is

¹¹⁶ This example is used only as an illustration. It may be that no price-fixing should be exempted.

¹¹⁷ See C. Steven Bradford, *The Cost of Regulatory Exemptions* (Nov. 14, 2003) (unpublished manuscript, on file with Journal of Small & Emerging Business Law).

¹¹⁸ Brock and Evans argue, for example, that small business exemptions encourage larger businesses to become inefficiently small solely to utilize the exemptions. See Brock & Evans, *supra* note 109, at 406. The argument is actually more complicated than that, see Bradford, *supra* note 117, but their basic point is valid.

justified has shifted to the left. Once the transaction costs of an exemption are taken into account, the size below which it is efficient to exempt firms or transactions decreases. Fewer firms will be exempted and more will be regulated. If the transaction costs of an exemption are high relative to the costs and benefits of a particular regulation, it is possible that no size-based exemption is efficient—all firms should be regulated. Figure 12 illustrates that possibility. In Figure 12, the total cost of the regulation never exceeds the sum of the total benefit and the transaction costs of an exemption. It is not efficient to exempt any firms, no matter how small.

VII. DOES THE CUMULATIVE EFFECT OF REGULATION MATTER?

Politicians and others often complain about the *cumulative* effect of government regulation on small businesses—the accumulation of costs resulting from the application of many different types of regulation.¹¹⁹ As one analyst argues,

The problem is not so much with any specific regulation as it is with the overall phenomenon. . . . The cumulative impact of regulatory efforts is to depress economic activity, retard job creation, and stifle the entrepreneurial spirit. When regulations are issued with little regard for their marginal impact when added to existing requirements, their results can be particularly oppressive. Regulations are like straws that eventually break the camel's back.¹²⁰

If the cost of applying *any particular regulation* or regulatory scheme to small businesses exceeds the benefit (and that difference exceeds an exemption's transaction costs), small businesses should be exempted. Does it add anything to that basic conclusion to consider the cumulative impact of *many different regulations*? The answer is yes, but the analysis is more complicated than those complaining about the cumulative burden of regulation realize. Considering the cumulative effect of regulation could justify less regulation of small business, but it also could justify more.

¹¹⁹ See, e.g., Peter M. Berkery, Jr., *The Impact of Government Regulations on Small Business*, NAT'L PUB. ACCT., June 1992, at 14 (noting that, although the majority of government regulations serve valid purposes in isolation, "the cumulative burden of federal regulations can quickly overwhelm small business owners."); Harrison, *supra* note 17, at 191 (noting that "relatively minor competitive impacts from a single regulation may cascade into major changes when all regulatory initiatives are taken into account.").

For an attempt to consider the cost impact of all types of government regulation on small businesses, see ROLAND J. COLE & PHILIP D. TEGELER, *GOVERNMENT REQUIREMENTS OF SMALL BUSINESS* (1980). Jonathan Adler provides an interesting case study of the cumulative impact of regulation on the dry-cleaning industry. See Jonathan H. Adler, *Taken to the Cleaners: A Case Study of the Overregulation of American Small Business*, Cato Policy Analysis No. 200 (Dec. 22, 1993), at <http://www.cato.org/pubs/pas/pa-200.html>.

¹²⁰ Adler, *supra* note 119, at 30.

A. *The Transaction Cost Argument*

Considering regulations cumulatively affects the transaction costs associated with small business exemptions. Transaction costs may justify a global small business exemption from all regulation even though some individual regulations produce a net benefit when applied to smaller transactions. The converse is also true: transaction costs may justify the global application of all regulations to small businesses even though the application of some individual regulations produces a net loss.

Assume, for example, that there are only ten government regulatory programs, R_1 through R_{10} . The individual application of regulations R_1 through R_9 to small businesses—for example, those with ten or fewer employees—results in a net loss. But the application of regulation R_{10} to those same small businesses results in a small net benefit. Considering each of those regulations on a non-cumulative, individual basis, cost-benefit analysis tells us that this class of small businesses should be exempted from regulations R_1 through R_9 , but not from regulation R_{10} .

Once transaction costs are taken into account, the efficient result is less clear. A global exemption from all the regulations, R_1 through R_{10} , would reduce rule-making and enforcement costs, as well as information costs to small firms, which would not have to determine which regulations apply and which do not. If the transaction cost savings associated with a global exemption exceed the benefit foregone by not applying regulation R_{10} , a global exemption is efficient. A single small business exemption should cover all regulation, even if the application of some regulation individually produces a net benefit.¹²¹

The opposite situation is also possible. Assume that the individual application of regulations R_1 through R_9 to small businesses results in a net benefit and the application of regulation R_{10} results in a net loss. The savings in transaction costs from not having any exemptions may exceed the individual loss from the application of regulation R_{10} to small businesses. If so, there should be no exemption, even from regulation R_{10} .¹²²

B. *The Cumulative Costs and Benefits of Regulation*

Considering regulation on a cumulative basis also affects the costs and benefits of regulation, independent of any effect on the transaction costs of exemptions. However, the policy prescription arising from this cumulative effect is ambiguous, contrary to statements by those supporting small business

¹²¹ One problem is determining the business size cutoff for a global exemption from regulation. Different measures of size may be appropriate for different types of regulation, and the point at which costs exceed benefits will vary from one regulation to another. Crafting a global exemption would, therefore, be very difficult and would involve transaction costs of its own, but the goal is, as always, to maximize the net benefit of all the regulation.

¹²² This, of course, is merely a specific application of the general point made earlier: an exemption from a particular regulation is inefficient if its transaction costs exceed the net loss produced by application of the regulation.

exemptions. Consideration of the cumulative costs and benefits of all regulation may justify less regulation of small businesses, but it could also justify more regulation of small businesses. However, if the costs and benefits of each individual regulation are calculated on a marginal basis, as they should be, this cumulation problem (but not the transaction cost issue) disappears.

Both the cumulative costs of all regulation and the cumulative benefits of all regulation are less than the sums of the costs and benefits of each individual regulation. Since there is no theoretical reason to expect the reduction in costs, when considered cumulatively to be proportionate to the reduction in benefits, a paradox is possible, although unlikely. The cumulative benefit of all regulation (for a particular size of firm) could exceed the cumulative cost, even though the cost of each individual regulation exceeds its benefit. Conversely, the cumulative cost of all regulation for a particular size of firm could exceed the cumulative benefit, even though the benefit of each individual regulation exceeds its cost.

The cost component of this potential paradox is due to economies of scope.¹²³ Different regulations require similar tasks and there are economies when all of those tasks can be performed by the same people at the same time. For example, one of the costs of the Americans with Disabilities Act¹²⁴ is training a firm's hiring personnel, who must learn what hiring practices are disallowed by the Act. The Equal Employment Opportunity Act¹²⁵ imposes a similar cost, but with respect to women and minorities rather than the disabled. To the extent that personnel training for the two statutes can be combined, the overall training cost may be less than what it would cost to train people under each statute separately. Paperwork and labeling requirements may involve similar economies.

A similar effect occurs with respect to the benefits of regulation. Two related regulations aimed at the same problem might not produce cumulatively the sum of the benefits each regulation would produce individually. For example, assume that Regulation A requires plants to use cleaner fuel to reduce air pollution. The total benefit of Regulation A, by itself, is x . Regulation B requires plants to install scrubbers on their smokestacks. The total benefit of Regulation B, by itself, is y . The cumulative benefit of the two regulations together should be less than $x + y$. Cleaner fuel will provide fewer benefits if the company already has scrubbers, and scrubbers will provide fewer benefits if the company already uses cleaner fuel.

This cumulative effect on benefits is not necessarily limited to closely related regulations. For example, consider the possible interaction between toy safety regulation and securities law disclosure requirements. If securities law requires toy manufacturers to disclose potential liability and toy safety issues,

¹²³ The costs of individual regulations sometimes interact with each other in ways that should not affect cumulative costs. For example, the cost to install smokestack scrubbers may be greater if the firm has to pay a mandated minimum wage than if it does not, but that interaction does not affect the cumulative costs of those regulations. The cumulative cost of the two regulations is merely the sum of the cost of each regulation.

¹²⁴ 42 U.S.C. §§ 12101-213 (2003).

¹²⁵ 42 U.S.C. §§ 2000e-2000e-17 (2003).

the public relations impact of that disclosure may cause manufacturers to produce safer toys. If manufacturers produce safer toys because of the public relations impact of securities law disclosure, a regulation directly imposing toy safety requirements will produce fewer benefits than it would in the absence of securities law disclosure.

The problem of cumulating costs and benefits disappears, however, if those costs and benefits are measured accurately in the first place. The costs and benefits of any regulation should be measured on a marginal basis: given that Regulation A already exists, what are the additional costs and benefits of adding Regulation B? If that has been done properly in evaluating the regulations individually, any interaction among regulations should have been taken into account in the individual cost-benefit calculations and there is no cumulative effect. The cumulative costs and benefits of all regulation would be the sum of the individual marginal costs and benefits of each regulation.

VIII. THE DIFFERENCE BETWEEN REGULATORY COSTS AND OTHER ECONOMIES OF SCALE

Uniform application of regulatory requirements, without small business exemptions, gives a competitive advantage to larger firms, which have a lower per-unit compliance cost due to economies of scale.¹²⁶ This increases the size of firm that can survive,¹²⁷ and drives smaller, marginal firms out of business.¹²⁸ In addition, the increased costs to small firms resulting from economies of scale will raise barriers to entry and eliminate the potential competition on which we rely so heavily to keep prices in line.¹²⁹

¹²⁶ MCGARITY, *supra* note 7, at 115. See also James L. Huffman, *The Impact of Regulation on Small and Emerging Businesses*, 4 J. SMALL & EMERGING BUS. L. 307 (2000) (hypothesizing that increased regulation in the twentieth century significantly disadvantaged small businesses relative to big, established businesses); *Impact of Federal Regulation on Small Business*, *supra* note 45, at 3 (Statement of Rep. Andy Ireland). See also Bruce D. Phillips, *The Effect of Industry Deregulation on the Small Business Sector*, 20 BUS. ECON. 28, 28 (1985) (concluding that small firms dominated the creation of new businesses and new jobs when industries were deregulated).

¹²⁷ Robert A. Leone, *The Real Costs of Regulation*, HARV. BUS. REV., Nov.-Dec. 1977, at 57; *Impact of Federal Regulation on Small Business*, *supra* note 45, at 123 (statement of Dr. Milton Kafoglis).

¹²⁸ ROBERT A. LEONE & JOHN E. JACKSON, *The Political Economy of Federal Regulatory Activity: The Case of Water-Pollution Controls*, in STUDIES IN PUBLIC REGULATION 239 (Gary Fromm, ed., 1981). See also Neumann & Nelson, *supra* note 70, at 196 (finding that small mines' share of total output fell from 1.16% to 1.01% after passage of the Act); Linneman, *supra* note 70, at 476 (finding that smaller firms' sales and net income decreased after adoption of the 1973 mattress flammability standard).

¹²⁹ Russell W. Pittman, *Issues in Pollution Control: Interplant Cost Differences and Economies of Scale*, 57 LAND ECON. 1, 13 (1981); Robert A. Leone, *supra* note 127, at 62; *Impact of Federal Regulation on Small Business*, *supra* note 45, at 125 (statement of Dr. Milton Kafoglis). Dean and Brown, for instance, found a significant negative correlation between new firm entries into an industry and the industry's capital expenditures for pollution abatement, a proxy for the amount of pollution regulation of the industry. Thomas J. Dean & Robert L. Brown, *Pollution Regulation as a Barrier to New Firm Entry: Initial Evidence and Implications for Future Research*, 38 ACAD. OF MGMT. J. 288, 297 (1995). See

The differential impact of regulation on businesses of different sizes can, at least in theory, give larger businesses an incentive to support costly regulation.¹³⁰ Government regulation increases the costs of all regulated firms, but it can also drive marginal, smaller firms out of the industry and discourage new entrants, reducing supply and increasing the market price of the industry's product.¹³¹ The increased profits resulting from the price increase could possibly exceed the increased regulatory cost for the surviving firms, increasing their profits.¹³² However, the limited evidence on this point is mixed.¹³³

Viewing regulatory economies of scale as a competitive advantage to big businesses does, however, raise an interesting issue. Big businesses have many other advantages over small businesses resulting from economies of scale. Machinery, production processes, distribution, and numerous other business activities cost less per unit on a larger scale. Economists do not usually argue that the government should protect small businesses from the negative effects of these other economies of scale. Doing so would encourage businesses to be inefficiently small. So why should regulatory economies of scale be treated any differently from these "natural" economies of scale? If small businesses cannot efficiently comply with the cost of government regulation, as with any other cost of business, they can either grow to an efficient size or be driven out of business.

also BOOZ-ALLEN & HAMILTON, Inc., *supra* note 70, at 34-41 (finding, subsequent to EPA regulations, increases in industry concentration, decreases in small firms' shares of total sales, and fewer new entrants).

¹³⁰ See Michael T. Maloney & Robert E. McCormick, *A Positive Theory of Environmental Quality Regulation*, 25 J.L. & ECON. 99, 105 (1982). Moreover, this differential impact would affect the type of regulation different sizes of business would support. One would expect large businesses to favor regulations with higher fixed costs and lower variable costs and small businesses to favor regulations with lower fixed costs and higher variable costs. BROCK & EVANS, *supra* note 26, at 70.

¹³¹ See Lacy Glenn Thomas, *Regulation and Firm Size: FDA Impacts on Innovation*, 21 RAND J. ECON. 497, 498-99 (1990); Maloney & McCormick, *supra* note 130, at 105.

¹³² See generally George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3 (1971) (discussing the political economy of regulation and how industry can use government regulation to further its own purposes); Scott Barrett, *Environmental Regulation for Competitive Advantage*, BUS. STRATEGY REV. Spr. 1991, at 1 (discussing the competitive effects of environmental regulation).

¹³³ Compare John S. Hughes et al., *The Economic Consequences of the OSHA Cotton Dust Standards: An Analysis of Stock Price Behavior*, 29 J.L. & ECON. 29, 57 (1986) (noting that the evidence does not support "the conclusion that the cotton dust standards permitted large firms to gain in profitability at the expense of smaller cotton producers."); Thomas, *supra* note 131, at 513 (concluding that, at least in the 1960s, large firms actually benefited from FDA regulation because of reduced competition from smaller firms); Ann P. Bartel & Lacy Glenn Thomas, *Predation Through Regulation: The Wage and Profit Effects of the Occupational Safety and Health Administration and the Environmental Protection Agency*, 30 J.L. & ECON. 239, 257 (1987) (concluding that OSHA and EPA regulations benefited large firms in the Frost Belt at the expense of small firms in the Sun Belt); Richard S. Higgins & Fred S. McChesney, *supra* note 70, at 207-08 (finding a significant positive increase in the market value of the top advertising firms associated with the FTC's ad substantiation regulations).

The key to answering that question is to look at things from the standpoint of the regulator rather than the regulated firm. We want the regulator, like any other economic actor, to make choices that produce the greatest net benefit. If adopting a regulation with a small business exemption produces a greater net benefit than adopting the same regulation without a small business exemption, the regulation with the exemption is preferable. If not, the regulation without the exemption is preferable.

The effect of an exemption on the ability of small businesses to compete is secondary. Small business exemptions are not economically efficient, because they lower the costs of small businesses or protect them from competition. Small business exemptions are economically efficient only because, and if, they increase the net benefit of regulation.

IX. CONCLUSION

Small business exemptions can be economically efficient, even if a regulation applied globally produces a net benefit. They are a way of tailoring regulation to maximize its net benefit—by exempting those firms or transactions whose regulation results in a net loss. And, due to regulatory economies of scale, the costs of regulation will invariably exceed the benefits for some size of businesses. The fact that small business exemptions *may* be efficient does not mean, however, that they are always efficient. Exemptions have their own costs. Once those transaction costs are considered, the efficiency of small business exemptions depends very much on the particular regulation. The transaction costs of a small business exemption may outweigh the gains the exemption creates by freeing small firms from netloss regulation.

In short, small business exemptions are neither the panacea their proponents claim nor the political plum described by their opponents. Some small business exemptions may be efficient but some may not be.

FIGURE 1

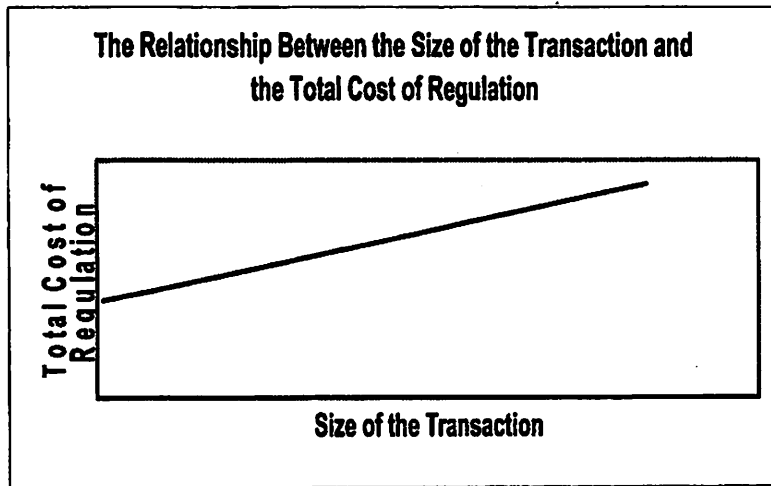


FIGURE 2

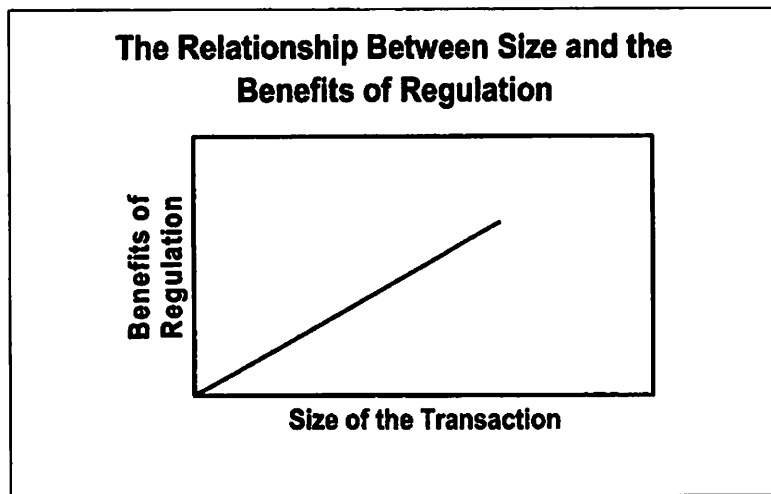


FIGURE 3

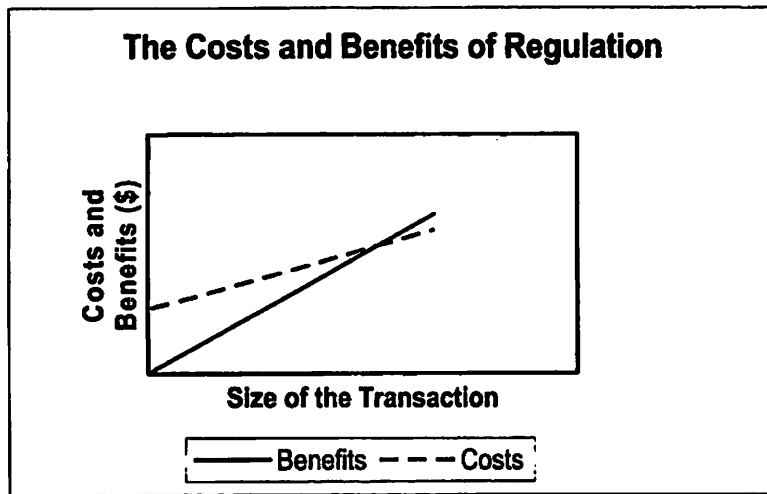


FIGURE 4

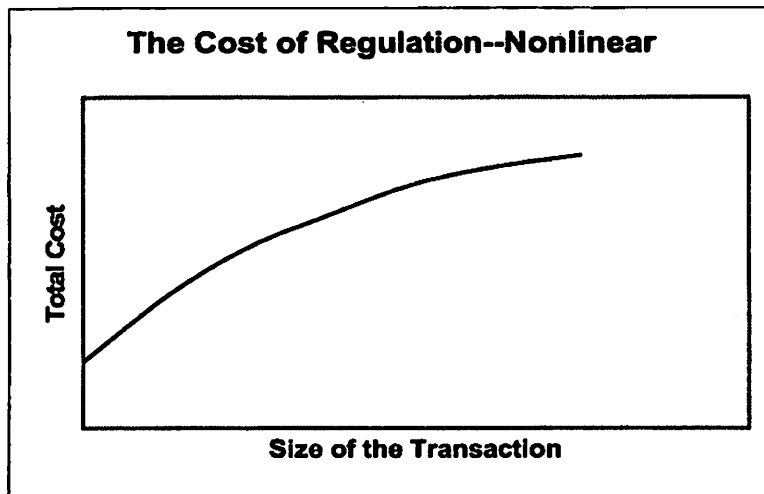


FIGURE 5

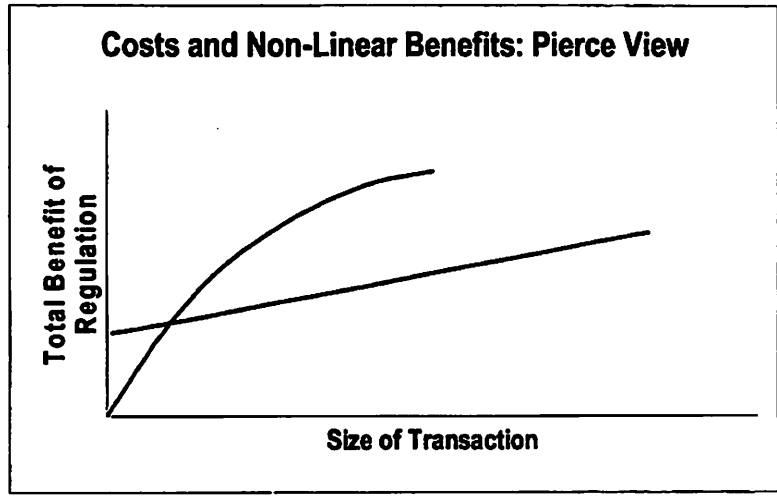


FIGURE 6

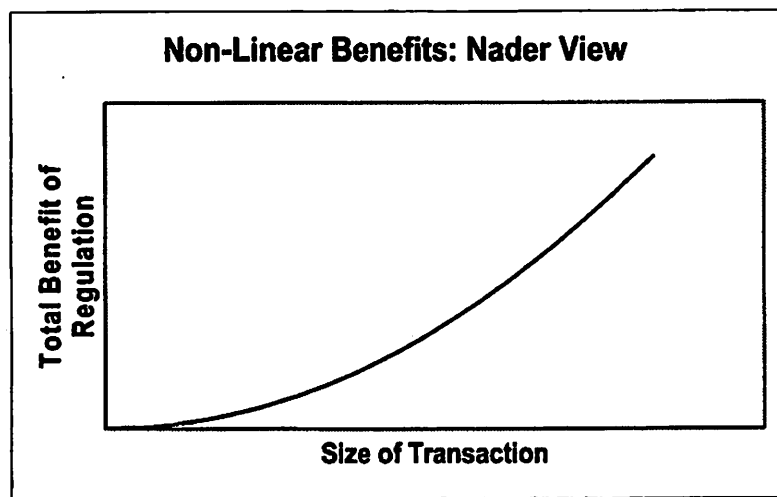


FIGURE 7

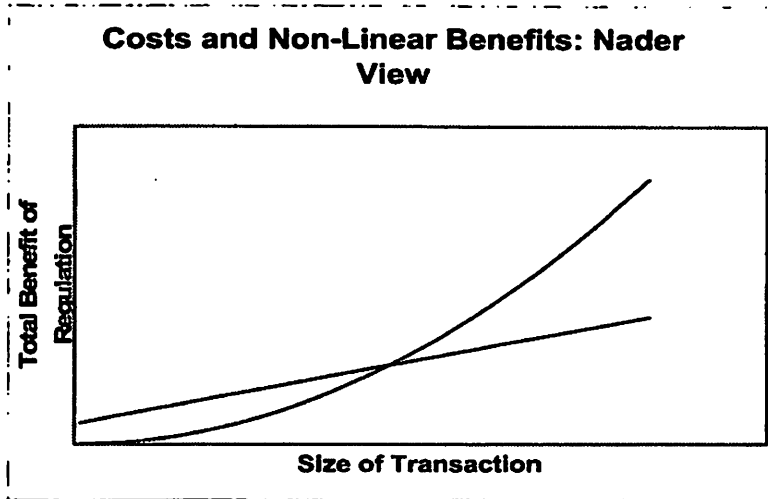


FIGURE 8

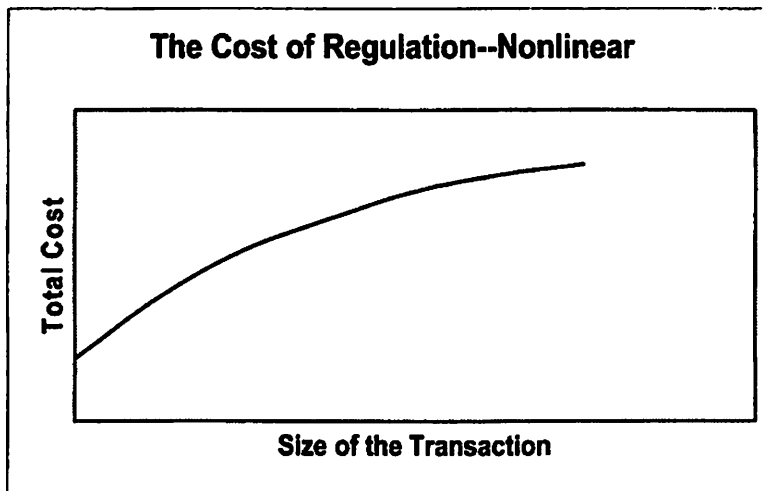


FIGURE 9

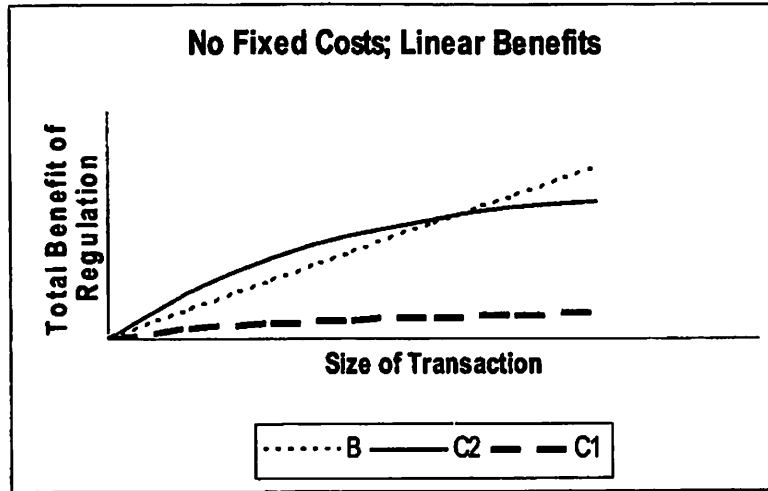


FIGURE 10

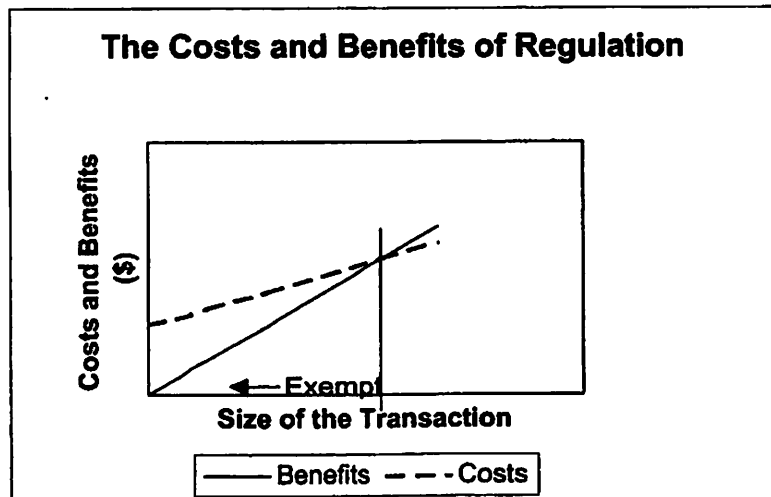


FIGURE 11

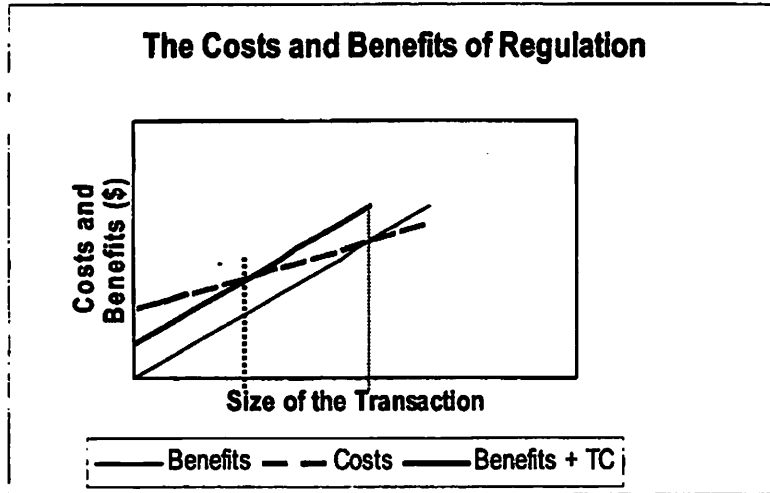


FIGURE 12

