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The meaning of regulatory costs

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Abstract Regulatory costs are an essential aspect of the efficiency and quality of regulations. Moreover, they are a genuine loss of welfare which have a negative impact on national income. Surprisingly, regulatory costs are often neglected or misinterpreted in regulatory assessments, except—though only recently—for administrative compliance costs. One important reason is the lack of a clear and consistent definition as well as a practical and exhaustive typology of regulatory costs. This conceptual paper presents a cost taxonomy that takes into account all costs of regulation. We identify 16 direct and two indirect regulatory cost types. The former are costs borne by society in preparing and implementing regulations. For the government, they consist of information, decision-making, drawing-up, planning, administrative start-up, operational, monitoring, and enforcement costs. Citizens and businesses, on the other hand, incur rent-seeking, information, planning, three types of compliance, delay and enforcement costs. The indirect costs comprise the efficiency loss plus, in the event of poorly designed or market-based regulation, also transaction costs. The neglect of any of these costs may lead to the underestimation of costs in absolute or relative terms and thus to inefficient regulatory choices.

Keywords Regulatory costs · Transaction costs

JEL Classification K20

1 Introduction

The costs of regulation are a crucial element of the quality and efficiency of regulations (Radaelli 2004, Also: Kirkpatrick and Parker 2007). It may come thus as

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a surprise that regulatory costs are often treated in a very partial and incomplete manner, if not neglected (Renda 2006).[1] The reason is fourfold. Most importantly, the literature offers a confusingly long list of confusingly ill-termed definitions. No clear and complete regulatory cost taxonomy is available yet, which also makes impossible the comparison of evaluation studies that do take costs into account. Next, there is the limited use of quantitative techniques due to or perhaps causing a lack of necessary cost data. Thirdly, the distribution of regulatory costs over *all* taxpayers not only reduces the average burden, but apparently also the general interest in this aspect of regulation. Finally, the lack of convergence in cost analysis is explained by different political contexts (Radaelli 2005).

Effectiveness is a principal criterion to assess the quality of regulations (e.g., in improving road safety). If the regulatory goal is expressed in SMART terms,[2] the impact of the regulation can be readily assessed (e.g., a decrease in injury accidents). All regulations, even the most effective ones, entail costs that may outweigh its benefits (e.g., a speed limit of 20 km/h is highly effective, but hardly efficient). The quality of regulation should thus not be determined solely by its effectiveness, but rather by cost-effectiveness. In regulatory practice, attention is paid to certain types of costs such as compliance costs and, to a lesser extent, enforcement costs, but regulatory cost analysis is as yet very incomplete. The purpose of this paper is to develop a complete and practical taxonomy of costs caused by the production and execution of regulations.

Apart from incompleteness, the confusion over regulatory costs stems from the opposite concept namely transaction costs, which are commonly defined as the costs of using markets. By fostering or hampering market transactions, regulations may certainly affect transaction costs. The saving of transaction costs (e.g., lowering of negotiation costs in the market due to a legal standard of care) is, on the contrary, an essential benefit of regulation, albeit often unintended and secondary to the original policy goal (e.g., less accidents due to careless behaviour or defect products). Unfortunately, many scholars and practitioners (e.g., OECD) incorrectly refer to the transaction costs of laws and regulations. While it is unmistakably clear that regulations entail sometimes substantial costs, the use of a term (i.c. transaction costs) which refers to an opposite cause (i.c. costs of using free markets) is indeed confusing. In this paper, a clear distinction will be made between transaction and regulatory costs. The latter consists of two components: the direct and indirect regulatory costs.

As mentioned, regulation also yields benefits by solving such market failures as transaction costs, but also monopolies, collective goods, externalities or information asymmetries. The international practice of regulatory impact analysis (RIA) shows that the benefits of regulation are most often immeasurable and, therefore, just assumed by the political regulator. When the regulatory goal is set (e.g., reduction of traffic accidents), only effective regulatory options are selected and considered

[1] Compliance costs (administrative burden) and, to a lesser extent, enforcement costs are part of most standard RIAs. Commission of the European Communities (2007), Action Programme for Reducing Administrative Burdens in the European Union, Brussels: CEC, COM (2007) 23.

[2] SMART stands for specific, measurable, achievable, relevant, time-bound. See: Drucker (1954)

for further analysis. Optimizing regulation thus becomes a cost-minimization problem, which is by no means an easy task due to the lack of a clear cost taxonomy. This paper aspires to fill this gap.

RIA objectifies and appeases the political regulation-making process. There is little room for interest groups or political wheeling-and-dealing, especially when RIA is made public from start till end. The RIA practice has also shown that compulsory regulation entails higher costs. Regulatory design is thus crucial in minimizing regulatory costs while maintaining the regulatory goal. In growing order of compulsion, the regulatory options include inaction, public communication,[3] civil law instruments,[4] economic instruments,[5] and compulsory regulation.[6] The regulatory instrument should be designed in a way that it minimizes the costs to society (whether it concerns monopoly power or road accidents).

The paper is organized as follows. The next paragraph gives an overview of the economic literature on transaction costs, in particular its many definitions. The third paragraph discusses the fifteen cost categories that make up the direct regulatory costs. The fourth paragraph analyses the two indirect costs of regulation. The final paragraph presents some policy conclusions.

2 Transaction costs: definition and OESO-classification

Transaction costs were introduced by Ronald Coase, first to explain the coming into existence of firms, (Coase 1937) later as an argument and test for efficient law-making. Along with achieving the public goal, efficient regulation is understood to save transaction costs. For example, strict product liability not only reduces the number of defect products and accidents, but also the information and search costs of customers. Nowadays, transaction cost analysis is part of mainstream economics and used to explain a plethora of institutional phenomena. Certainly, it has deepened our understanding of observed patterns of institutional choices and behavior (Rao 2003). Unfortunately, the comparison of studies is hampered by the different definitions used by different authors. A complete and consistent taxonomy of transaction costs is therefore a first and necessary step.

2.1 Definitions

As mentioned, transaction costs were introduced by Ronald Coase to explain the existence of firms instead of organizing economic activity through exchange transactions across the market (Coase 1960). The answer is that firms arise because there are substantial costs involved in using the market. At first, Coase was not very explicit about what he meant by these transaction costs. He described them as the

[3] For instance, public campaigns, education, labelling, audits, benchmarking, checklists.

[4] For instance, liability, contracts, management agreements, public enterprises.

[5] For instance, taxes, subsidies, tradable permits.

[6] For instance, licensing, quota.

cost of "discovering what the relevant prices are" (Coase 1937) or "negotiating and contracting costs".[7]

Arguably, transaction cost reasoning became most widely known by Oliver Williamson, who defined it as "the economic equivalent of friction in physical systems" (Williamson 1985). Kenneth Arrow has referred to transaction costs as "the costs of running the economic system" (Arrow 1969). Eggertson and Barzel associate transaction costs with the transfer, capture, and protection of exclusive property rights (Barzel 1997; Eggertson 1990). Coase himself later clarified that "to carry out a market transaction, it is necessary to discover who it is that one whishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading op to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed and so on" (Coase 1960, *o.c.*, 15.).

Gradually, definitions have broadened their scope, leading Challen to conclude that transaction costs include all costs associated with any allocation decision including the costs of uncertainty (Challen 2000). Also, Stavins has claimed that transaction costs are "ubiquitous" in market economies since parties must find one another to transfer, communicate and exchange information (Stavins 1995). At the extreme, Douglass North considers transaction costs as just part of production costs, thus expanding the neoclassical definition (North 1990). Demsetz concludes that transaction costs can be interpreted as "the costs of *any* activity undertaken to use the price system" (Demsetz 1997). It is thus concluded that "transaction costs" is nowadays a generic term referring to all costs of using the market.

2.2 OECD-classification

Dahlman was the first to propose a classification of transaction costs, distinguishing between search and information costs, bargaining and decision-making costs, and monitoring and enforcement costs (Dahlman 1979) Milgrom and Roberts distinguish between two categories of transaction costs. The first type arises from information asymmetries and incompleteness of contracts among parties. The second type stems from imperfect commitments or opportunistic behavior of parties (Milgrom and Roberts 1992). Foster and Hahn point at the distinction to be made between direct financial costs (of engaging in trade), costs of regulatory delay and indirect costs (associated with the uncertainty of completing a trade) (Foster and Hahn 1993). Dudek and Wiener (1996) include not only search, negotiation, approval, monitoring and enforcement costs, but also insurance costs(Dudek and Wiener 1996).

According to Furubotn and Richter, transaction costs are pervasive at all levels and types of activity and comprise the costs of establishing, maintaining, adapting, regulating, monitoring and enforcing rules as well as executing transactions. They describe transaction costs as "the costs of resources utilized for the creation, maintenance, use, change, and so on of institutions and organizations […]. When considered in relation to existing property rights and contract rights, transaction

[7] *Ibidem*, 391.

Table 1 Furubotn and Richter transaction cost taxonomy

Transaction costs	Ex ante	Ex post
Market	Information costs	Negotiation costs
	Search costs	Contract costs
		Policing costs
Management	Set-up costs	Operational costs
Political	Lobbying costs	Monitoring costs
	Public support costs	Enforcement costs
	Enacting costs	Delay costs

Source based on Furutbotn and Richter (1997)

costs consist of the costs of defining and measuring resources or claims, plus the costs of utilizing and enforcing the rights specified. Applied to the transfer of existing property rights and the establishment or transfer of contract rights between individuals (or legal entities), transaction costs include the costs of information, negotiation, and enforcement" (Furutbotn and Richter 1997). Basically, the authors make a distinction between three types of transaction costs[8]: the costs of using the market (market transaction costs), the costs of exercising the right to give orders within the organization (managerial transaction costs), and the costs of running and adjusting a political system (political transaction costs). Each category has fixed transaction costs, *i.e.* set-up costs for institutional arrangements, and variable transaction costs dependent on the number of volume of transactions.

The main merit of Furubotn and Richter is their attempt to be exhaustive. Their taxonomy includes the costs of using the markets as introduced by Coase, the managerial costs put forward by Williamson and the institutional costs discussed by North (Coase 1960, *o.c.*; Williamson 1985, *o.c.*; North 1990, *o.c.*.). Furthermore, their classification (summarized in Table 1) takes into account costs *ex ante* (e.g., the search and information costs and the costs of negotiating and forming a contract or agreement) and *ex post* (e.g., the costs of monitoring and enforcing a contract or agreement). It is important to recognize that the two types of costs are usually interdependent. Any attempt to reduce the former may affect the latter.

The Furubotn-Richter taxonomy has, however, one serious drawback. In their effort to be complete, the very meaning and explanatory power of "transaction costs" is undermined since transaction costs are associated with the use of both markets *and* regulations. While Furubotn and Richter correctly point that regulation entails costs, the use of the term "transaction costs" is inapt since the reduction of (Coasean *market*) transaction costs is precisely one of the main (side-)effects of regulation (see supra). To avoid this methodological trap, the term regulatory cost is preferred, referring to the costs of interfering in, correcting or barring the use of markets.

In 2001, the OECD made a similar classification distinguishing between non-policy related transaction costs (in which parties incur costs of voluntary market transactions) and policy related transaction costs (stemming from the implementation of public policy) (OECD 2001). The former include the costs associated with

[8] *Ibidem*, 42.

gathering information, negotiating prices, ascertaining quality, establishing exclusion mechanisms, organizing collective actions and so on. The latter cover the costs incurred by government in gathering information, planning and designing policies, collecting revenues, distributing payments, and monitoring the outcome of policy measures.[9] While the use of the term "transaction costs" for both cost categories is unlucky and methodologically incorrect, the clear distinction made by the OECD between non-policy related and policy related costs was a clarifying step forward.

Since different costs are borne by different players at different moments in the (regulatory) policy process, a correct classification of "transaction costs" is necessary to ensure that all costs are taken into account and no double-counting takes place. Indeed, a complete and correct cost taxonomy can be of major importance for the improvement of (regulatory) public policy. Following the OECD, the policy-related transaction costs of regulation are short-termed as "regulatory costs". The Coasean non-policy related transaction costs of using markets are traditionally called "transaction costs".

3 Direct regulatory costs

When assessing regulatory costs, most evaluations focuse primarily on compliance costs, i.e. the costs which fall upon the legal subjects that choose to comply with the law. Important as they are, compliance costs are only one element of regulatory costs. Regulation causes two main types of costs: direct and indirect costs. The latter are discussed in the next paragraph. The former category consists of costs for government on the one hand and citizens and businesses on the other. Regulatory costs are incurred during two phases: the preparatory and the implementation phase.

3.1 Direct regulatory costs for government

3.1.1 Preparatory phase

The making of laws and regulations requires a lot of time and energy. The preparatory costs thus incurred are caused by necessary steps and activities such as gathering relevant and accurate information on the societal problem to be regulated, listing the regulatory policy options, discussing the options and reaching a collective decision, drawing up the regulation and finally starting to plan the implementation.

Hence, the following cost categories are further analyzed:

- information costs
- decision-making costs
- drawing-up costs
- planning costs

Drawing up a regulation supposedly requires some basic knowledge on the causes and scope of the societal problem or risk that needs regulatory fixing. Prior to

[9] Ibidem.

the regulation, information and data are thus gathered to justify the necessity of regulatory intervention, substantiate the regulatory decision and ensure that the chosen regulatory option is effective in targeting the relevant underlying causes. Information is thus needed on both the scope of the original problem and the effectiveness of the regulatory options. Gathering this type of information may give rise to financial expenditures (e.g., acquiring data) or opportunity costs (e.g., time lost by civil servants). For example, in dealing with environmental pollution (e.g., soil contamination), the government first needs to establish the health risks (e.g., geographical area, severity of illness, health costs). Next, it has to assess the different regulatory options (e.g., no regulatory initiative, ecological taxation, ecological subsidies, environmental liability, tradable emission rights). If the government chooses to levy an (ecological) tax, it needs information on the optimal tax base and rate. Clearly, information costs on such complicated matters may run up quite fast.

Once the regulatory subject and options are known, the actual decision-making process starts in which a lot of time and energy is spent in formal commission meetings as well as informal discussions. On the one hand, a compromise proposition needs to be crafted that meets with the approval of a majority within Parliament (or the regulatory agency). On the other hand, the government has to invest in raising public support since regulation that is not supported by the general public is likely to be ineffective or unenforceable. Decision-making costs thus include political negotiation costs as well as costs for public information campaigns. To avoid double counting, the campaigns launched after the promulgation are counted as enforcement costs (see infra). For example, if the government wishes to impose a ban (e.g., on smoking in public areas), a public information campaign preceding the ban that points out its rationale may be necessary to ensure public support and minimal levels of compliance.

Next, the outcome of the (political) decision-making process must result in the drawing up of the actual regulation. The costs of drafting the regulation's articles and, if required, of writing a RIA are denoted as drawing-up costs. RIA not only requires the description and justification of the chosen regulatory option (e.g., compulsory use of seat belt), but also the specification of the societal problem (e.g., fatal car accidents) and the regulatory policy goal (e.g., traffic safety). Drawing-up costs can be easily computed in terms of time and wage costs of the legal and other experts in- or outside the administration.

Finally, the planning stage is reached, in which costs are incurred in preparing the implementation of the regulation (but not the actual implementation itself). Planning costs comprise the monetary value of the time and effort invested in financial and logistical planning (e.g., fiscal impact, staff selection and training, staff housing and transportation, ICT requirements). Only the opportunity costs of planning should be counted. The expenditures to set up the organization (e.g., buying computers) are not planning costs, but administrative start-up costs (see infra). For example, the introduction of a new tax (e.g., ecological tax) requires careful planning of the tax administration and collection method. The logistical plan will provide answers as to which tax officials are authorized, how many competent tax officials there are, how many and within which period tax officials will be hired and trained, what type and

how much hard- and software is required, and so on. In short, in order for the government, i.c. the administration, to be prepared for the successful introduction and implementation of new regulation, a sufficient amount of time and energy needs to be invested in the planning process, adding to the costs of regulation.

3.1.2 Implementation phase

In the next phase, the government is confronted with the considerable start-up and operational costs of administering the regulation. Furthermore, effective implementation also includes monitoring and enforcement. Hence, the following cost types will be analyzed:

- administrative costs
- monitoring costs
- enforcement costs

Putting the regulation into practice requires considerable investments and expenditures in people and infrastructure. In the start-up phase, the administrative costs are incurred over the purchase of hard- and software and the selection and training of officials. Only the non-recurrent expenses are taken into account as administrative start-up costs. The operational costs, on the contrary, comprise the recurrent and variable costs (dependent on the number of administrative actions). The latter category thus includes recurrent personnel costs, housing costs, transportation costs, material costs and so on.

The distinction between start-up and operational costs is not one of content, but solely of period and frequency (one-shot at the start or recurrent). Nevertheless, it is important to make the distinction because high start-up costs may prohibit the adoption of innovative regulation that is efficient and cost-effective in the long run (e.g., emission rights auctions) (Crals et al. 2006). Consequently, better known, path-dependent regulatory options might be chosen because the start-up costs are low or written off (e.g., ecological taxes under the guise of value-added taxes).

Monitoring and enforcement are the final crucial steps in the implementation phase. Regulation that is not or insufficiently enforced, risks to become impotent. Effective though not necessarily severe enforcement is, therefore, a necessary (but insufficient) condition for effective regulation. However, it should be reminded that monitoring and enforcement are costly, hence the need to weigh costs and find cost-effective methods (e.g., severity of punishment versus probability of getting caught). Monitoring costs include the costs of check-ups, inspections or data-analysis of observed behavior. Costs of enforcement comprise, for example, the inputs of the police and justice system. The volume of enforcement costs is heavily dependent on the concrete system. For example, administrative fines tend to be less costly than penal fines. Information campaigns may also lower the costs of harder enforcement methods.

3.2 Direct regulatory costs for private citizens and businesses

Legal subjects, *i.e.* private citizens and businesses spend considerable amounts of time and energy to comply with new and existing regulations. While some of the

cost types carry the same name (e.g., start-up costs), their content does differ in a private perspective. Citizens and businesses also incur costs in both the preparatory and implementation phase.

3.2.1 Preparatory phase

Citizens and businesses often allocate individual and collective resources to try and influence the outcome of the regulatory progress. Once the decision is taken, costs are incurred from information gathering and planning. In the preparatory phase, the following cost categories are analyzed:

- rent-seeking costs
- information costs
- planning costs

In the political decision-making process of new regulations, but even in the modification of existing ones, citizens and businesses try to exert pressure on the regulators. The resources invested (in terms of time and money) to push, mitigate or pull a specific regulatory outcome are called rent-seeking costs. In Europe, lobbying has a negative connotation and is often associated with bribery. Most lobbying, however, consists of providing information and arguments to try and convince the government or regulator. However, lobbying or rent-seeking costs may amount to the total of the benefits derived from the regulation for every lobbyist is likely to calculate the expected advantage and spend time and money until the marginal cost equals the marginal expected advantage. If all lobbyists follow that rationale, they will on the whole waste resources equal to the total social benefits of the regulation (regardless of the individual outcome of their lobbying efforts) (Van den Doel and van Velthoven 1993).

Counter-intuitively, small interest groups tend to be more successful in influencing the regulatory decision-making process than larger ones. The reason is twofold: not only are they more effective in curbing free-riding behavior within their organization by means of social control, their net-incentive is higher since the costs of regulation are typically dispersed over and borne by society as a whole (Olson 1982). For example, it is easier for an industry (e.g., chocolate industry) to lobby in favor of lower minimal standards for the composition and quality of its products (e.g., replacing cacao butter by other vegetal fats) than for consumer organizations. The latter represent all citizens, encounter severe difficulties in collecting members' contributions (cf. free-riding behavior) and spread their efforts over all consumer products.

While rent-seeking costs are quite substantial, most citizens and businesses are confronted with the burden of preparing the implementation of new regulation which they willingly or otherwise choose to comply with. Gathering information on the specific stipulations and planning the implementation give rise to preparatory costs.

The implementation stipulations of regulation are not an easy subject matter for the average citizen and the average business (i.c. one-man business). They spend many hours analyzing the new or changed regulation. Citizens and businesses must

acquaint themselves with the regulation by finding, reading and interpreting the texts. More specifically, they have to find out which obligations apply to them. If they do this themselves, the opportunity costs have to be computed. Otherwise, the invoices of expert advisers are taken into account. For example, when the government decides to introduce a new tax (e.g., ecological tax), the companies will have to find the new regulation and analyze it to see whether they are taxable. This takes time from a (specialized) internal collaborator or can be outsourced to an external tax expert.

Planning costs are the costs which citizens and businesses make in planning the development of an organizational tool, system or department to implement the actual regulation, but not the implementation itself. For example, when regulation imposes a certain standard or technology (e.g., filter) to attain certain environmental goals (e.g., Kyoto), companies will allocate time and resources in carefully planning its adoption (e.g., the installation of which filter, where, when and by whom?). Only the (opportunity and/or financial) cost of the planning stage is taken into account. The actual purchases of material (e.g., filter) are considered a start-up cost.

3.2.2 Implementation phase

In RIA practice, the costs of implementation for citizens and companies are traditionally called compliance costs. They consist of the administrative burden, start-up costs and operational costs. To be complete, however, the enforcement costs borne by the citizens and companies have to be taken into account as well.

In short, the following cost types are discussed:

- compliance costs:
- administrative burden
- start-up costs
- operational costs
- delay costs
- enforcement costs

Regulation often imposes obligations on citizens and businesses to provide certain types of information to the regulator. Hence, they engage in activities to collect all types of data and to fill and send in all kinds of (electronic or paper) forms and documents as requested by the regulatory agency. The costs thus incurred are traditionally called the "administrative burden". It is important to note that it concerns activities which citizens and businesses would not have engaged in without the information obligation stemming from the regulation. Other spontaneous administrative and information-gathering activities such as management accounting are thus not taken into account. For example, if an environmental regulation stipulates that companies have to draw up an annual report on their emissions, this information obligation causes a substantial administrative burden requiring the monitoring, registration, analysis and reporting of emission data. The Standard Cost Model is now widely accepted and used to calculate the administrative burden (SCM Network: http://www.administrative-burdens.com/).

The start-up costs for citizens and businesses comprise all one-shot, price-increasing costs of compliance at the introduction of new or renewed regulation. It

may involve the purchase of technology (e.g., filter), training of personnel and so on. By contrast, the operational costs comprise all recurrent costs such as the purchase of material, salaries (e.g., an in-house environmental coordinator). In case of regulatory liability, the insurance premiums are also part of the operational compliance costs.

It should be noted that there is a danger of double-counting if the government shifts its costs by charging a fee to the citizens and businesses (e.g., for a license). These costs risk to be counted as direct regulatory costs for the government as well as operational compliance costs of citizens and businesses. The administrative burden in paying the fee (e.g., money transfer) should be counted though.

Delay costs stem from waiting for a regulatory decision (e.g., a license). In the meanwhile, citizens and businesses may forego interesting opportunities and/or run into cash-flow problems. The former should be measured by the value of the project lost, the latter by the interests paid on commercial loans or the interests foregone in case of self-financing.

Finally, citizens and businesses incur costs as a result of regulatory enforcement. More specifically, there are internal monitoring costs to check whether the regulatory stipulations are lived up to (e.g., internal audit) and opportunity costs during enforcement activities (e.g., time consumed during inspections by regulatory agents).

Measuring and calculating regulatory costs is in itself very time-consuming and costly. Therefore, it is recommended to concentrate on the major cost types. The time spent on estimating the regulatory costs should be proportional to the impact of the regulation. Table 2 provides a complete overview of all direct regulatory costs.

Table 2 Direct regulatory costs

Cost bearer	Regulatory phase	Cost type
Government	Preparatory	Information costs
		Decision-making costs
		Drawing-up costs
		Planning costs
	Implementation	Administrative costs
		Operational costs
		Start-up costs
		Monitoring costs
		Enforcement costs
Citizens and businesses	Preparatory	Rent-seeking costs
		Information costs
		Planning costs
	Implementation	Compliance costs
		Administrative burdens
		Start-up costs
		Operational costs
		Delay costs
		Enforcement costs

4 Indirect regulatory costs

4.1 Definition

Direct regulatory costs are a loss of time and/or financial means, which the government and the citizens and businesses could have allocated to other, more valuable goals. By adding to the costs of production, they increase market prices which, in turn, reduce output and employment. These additional welfare losses are the indirect regulatory costs. The economic cost of shrinking markets is known as "efficiency loss". Sometimes, regulations may be designed so poorly that they increase the transaction costs which they are intended to reduce.

4.2 Efficiency loss

It should be emphasized that regulatory costs are real costs that give rise to financial outlays (e.g., purchase of material or hiring of experts) or opportunity costs (e.g., less returns due to reduced time for sales activities). This way, the effect of "policy-related" costs is similar to normal production costs (cf. Douglass North). Either the extra (regulatory) costs lead to higher consumer prices, or they eat away the profits of businesses, depending on the price elasticities of demand and supply. Either way, an increase in costs leads to a decrease in supply because some consumers or some companies are pushed out of the market. It affects so-called "marginal" consumers and producers who operate at the margin of the market and for whom the extra (regulatory) costs are the last drop that makes the cup run over. By consequence, they leave the market. The net-value of goods and services lost this way is called the efficiency loss. The economic impact of regulatory costs is thus similar to a cost-increasing tax, though one important distinction is that the proceeds of a tax levied over the remaining output can be used for public purposes while the regulatory costs are simply lost. It should be noted that not only the regulatory costs for businesses kick in here, but also those of government since the latter are largely passed on to businesses via fees or general taxation.

The extent of the efficiency loss is dependent on the volume of the trade lost and the discrepancy between consumer valuation and producer costs, which in turn depend on the price elasticities. If these data are available, the efficiency loss can be easily calculated as half the total output lost times the regulatory cost per output unit. If not, it can be approximated by estimating the number of companies that will leave the market under the pressure of rising (regulatory) costs.[10] To that end, the overall strength as well as the international competitiveness of the businesses in the regulated industry are analyzed. If regulation leads to the creation of an oligopoly, price-setting behavior will create additional efficiency losses.

[10] Or the number of consumers who will divert away from the more costly product.

4.2.1 Corporate strength

The efficiency loss is determined by the extent to which citizens and businesses can or cannot absorb the extra expenses or lost revenues. Companies with high (marginal) costs that barely survive at the end of the market may drop out. Whether this actually happens, depends on their corporate strength, which in turn is largely determined by firm size and market structure.

The size of a business is a first indicator of corporate strength. On average, larger companies will find it easier to cope with the extra regulatory tasks than small and medium-sized enterprises. In other words, the larger a company, the higher the likelihood that it can absorb the extra fixed costs since they can be spread over a higher volume thus mitigating the extra regulatory cost per unit. Variables that give an indication are employment, investments, turn-over and added-value. Which of these elements should be taken into consideration, depends on the regulation. If it has a primary impact on personnel, then employment and labor costs will have to be analyzed. If the regulation affects investments, then corporate investment levels policies will have to be weighted. In any case, the profitability and solvency of businesses have to be looked into to assess the corporate strength to absorb extra regulatory costs.

The capacity to set prices is a second indicator of corporate strength. The former is determined by market structure, most notably the number of market players. It is commonly known that the likelihood of oligopolistic price setting increases with less players. While disadvantageous for consumers, it does strengthen businesses to carry the burden of regulatory costs. In competitive markets, price-setting is much sharper, which implies that small cost increases may threaten the survival of businesses.

4.2.2 International competitiveness

When the same regulations are applied to both domestic and foreign companies, it is not relevant for consumers whether domestic or foreign output is disappearing. However, if the costs of regulations differ because different national rules are applied (e.g., services market), then the international competitiveness might get undermined. The risk that efficient companies are crowded out by inefficient ones (but with lower regulatory costs) is not inconceivable. This is harmful not only for businesses, but also for consumers. If the regulation leads to extra costs as well as quality improvements (e.g., of services), then the overall effect on the international competitiveness is less straightforward. Evidently, regulation also has beneficial effects, which are not the subject of this paper.

4.2.3 Market structure

If regulation reduces the number of market participants, shields them from competition or puts up a barrier against new entrants, then an additional efficiency loss is created. Oligopolistic price-setting is characterized by a higher mark-up upon the production and regulatory costs. The impact of regulation can be estimated by

analysing the relevance of market barriers or the market shares of major players in homogenous product markets.

4.3 Market transaction costs

As mentioned, the saving of market transaction costs is an important benefit, if not the very essence of non-market institutional arrangements like companies or regulations. For example, setting a regulatory standard is likely to reduce information, search and negotiation costs in trying to foreclose a market transaction. However, badly designed or poorly enforced regulations might, on the contrary, give rise to transaction costs. For example, a low or overcomplicated standard might lead to non-compliance attracting low-quality players to the market thus increasing the costs of transacting. The transaction costs of regulation are thus understood as the extra costs of transacting in the market (i.e. information, search, negotiation, contracting and policing costs) due to bad or poor-quality regulation. Moreover, new or changing regulations may generate, at any point in time, inconsistencies as well as uncertainty over future regulatory changes which, in turn, are likely to lead to increasing transaction costs (Meyer 2001). Finally, regulation is creating transaction costs when the market system is used as a regulatory mechanism (e.g., tradable emission rights).

5 Conclusion

This paper identifies 16 direct and two major indirect cost types of regulation (see Table 3). The former consists of costs borne by the government, citizens and business in preparing and implementing the regulatory stipulations. The latter comprise the efficiency loss and, in the event of poorly designed regulation or regulation via the market, any transaction costs. Regulatory costs are a genuine loss of welfare, which—all other conditions being equal—have a negative impact on the national income. Regulation can thus only be efficient if its benefits are sufficiently high to outweigh these costs. Making these efficient regulatory choices first requires that all costs are exhaustively taken into account.

Unfortunately, many theoretical and practical studies on the costs of regulation only take a look at compliance costs, more specifically the administrative burden, and enforcement costs. The aim of this paper was to develop a complete cost taxonomy in order to improve regulatory policies. It should be recognized though that the computation of regulatory costs is a time-, labor- and data-intensive task. Hence, the proportionality principle needs to be applied here as well. However, this can not imply that only compliance costs are assessed. On the contrary, also the administrative, monitoring and enforcement costs of government tend to be substantial. Furthermore, radical types of regulation also necessitate considerable investments in raising public support. Proportionality may imply, however, that regulatory options are assessed and compared in terms of “more” or “less” costs than others. Such assessment in relative instead of absolute terms requires less time, labor and data and is as useful. So, the added value of our cost classification does

Table 3 Regulatory costs

Cost category	Cost bearer	Cost type
Direct regulatory costs	Government	Information costs
		Decision-making costs
		Drawing-up costs
		Planning costs
		Administrative costs
		Start-up costs
		Operational costs
		Monitoring costs
		Enforcement costs
	Citizens and businesses	Rent-seeking costs
		Information costs
		Planning costs
		Compliance costs
		Administrative burdens
		Start-up costs
		Operational costs
		Delay costs
		Enforcement costs
Indirect regulatory costs	Consumers and producers	Efficiency losses
		Corporate strength
		International competitiveness
		Oligopoly
		Market transaction costs
		Information costs
		Search costs
		Negotiation costs
		Contract costs
		Policing costs

not lie as much in providing a detailed calculation method, but in offering a correct and consistent framework for evaluation.

Finally, indirect regulatory costs are now clearly defined as the efficiency loss (plus, in some specific cases, market transaction costs). To guarantee optimal, proportional and justifiable regulatory choices, it is required that the indirect costs of regulation are put in the cost-analysis as well.

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