

## Reading 8

### Regulation of Markets and Industries

#### I. The Function and Types of Regulation of Industry

Every country in the world engages in regulation by the government of economic activity. This regulation can be **direct regulation** by departments and bureaus of the government specifically created for this purpose (e.g. Civil Aviation Authorities) or the government may engage in **indirect regulation** through legislation, standards and corporate chartering (e.g. licensing doctors or setting up banks), professional accreditation, and the mandating and overseeing of private supervision. The specific department or organization within government that is charged with regulation and oversight is called the competent authority. While there is only one competent authority for the particular economic activity in a country, there may be more than one instrument of government that is engaging in regulation the activity. For example, the aviation authority may be answerable to the executive branch of the government, but may be funded and influenced by the legislative branch, as well. The laws and regulations on the industry that are developed by the legislative branch may be dependent on judgments made by the judicial branch. Thus, the authority that is responsible for regulation may appear to be an independent and highly specialized body, but it is in fact functioning in a highly interrelated and quite tumultuous environment. Government is constantly responding to a number of different pressure points in making and implementing regulations.

In addition, private markets, without the intervention of government, will of necessity at times need to bring some order to production, operations, and trading. A good example of this is the natural creation of security exchanges and clearinghouses with individuals assigned to maintain orderly markets (so-called market makers). Professional accreditation may be done through industry associations pledged to maintain high quality.<sup>1</sup> All companies will be involved in quality and safety control to ensure the continuance of their business. It is within their self-interests to ensure safety and high quality. However, history has shown that these companies may be lax in such self-regulation. It is therefore necessary for the government to step in and independently regulate these industries, as it sees fit.

Sometimes, the government regulates to ease bottlenecks and market imperfections. For example, during the 19<sup>th</sup> century rise of railroads in the US, several different gauges (i.e. width between the two rails and their size) of rails were used depending on which railroad company owned the line. Thus, when one company shipped 100 cars of coal from one city another, with

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<sup>1</sup> This is especially true of maintaining international standards. The famous ISO accreditation is a good example of this. ISO is an independent, non-governmental international organization with a membership of 163 national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market relevant International Standards that support innovation and provide solutions to global challenges. Its Central Secretariat is located in Geneva, Switzerland.

an intermediate stop, all 100 cars had to be unloaded to other cars (having smaller or larger gauge, as the case may be) to continue the transportation journey on another railroad company's line. This was an enormous and senseless cost to be borne by society. The simple solution was for the government to specify a *single gauge* for all railroads to use; then to force uniform compliance across the industry. Note how this was a good solution to the problem of railroad gauges, but it would have been a miserable solution to the problem of multiple computer operating systems. One operating system for all computers would clearly not have been optimal since (i) users of these different systems enjoy the diversity of choice, (ii) it would have made computers far more vulnerable to hacking and crime, and (iii) it keeps computer companies competitive. Of course, industry standards where they exist can often come about quite naturally by allowing the market to choose a winner (think of Betamax and VCRs – VCRs won that competition) . No need for heavy regulation. The issue of the government establishing a single standard is complicated by many considerations. It is not true that the best answer is always to have the government regulate (although the change from analog TV to digital was publicly enforced by government). Indeed, the onus should be on government to provide strong evidence that such interventions are worthwhile. This is done by cost-benefit analysis, as discussed below. But, cost-benefit analysis can become extremely controversial, since it involves planners in making difficult assumptions and assessments. For example, determining the appropriate level of a carbon tax on people who use carbon fuels can be hard to justify, if the assumptions are not just right. Naturally, people fight over these assumptions, and all too often it is difficult to decide whose assumptions are best. It will always be a good thing to ask what are the combined costs of additional regulation.

In general, we can say that there are two major types of regulation by government

(i) economic regulation – this involves influencing the competitive structure of the industry, controlling the prices charged, or perhaps outputs produced by firms for their output, creating rules for hiring foreign labor and FDI, providing subsidies for R&D, etc.

(ii) social regulation – establishing rules on pollution, health, safety, and the control of general externalities, the establishment of industry standards, monitoring of advertising and consumer protection, etc.

## II. The Issue of Cost- Benefit Analysis

In an ideal world, something we will use as a measuring rod against actual outcomes, every regulation undertaken by government would undergo a careful cost-benefit. Naturally, it is possible to develop regulations in a haphazard way by designing and implementing them without much care for the costs and benefits produced, but this seems a questionable practice and would certainly fall prey to substantive criticisms by conservative representatives in the government. On the other hand, regulation involves one in substantial non-quantitative judgments. Benefits and costs stretch way into the future, and it is difficult to assess what the quantitative effect on peoples' lives would be if the regulations were put in place. We have mentioned the regulation of fossil fuel consumption as it relates to climate change. The costs of reducing such fuel

consumption is real and substantial; however, the benefits may not be seen for one hundred years in the future.<sup>2</sup> For years, the definitive cost-benefit analysis on reduction of fossil fuels consumption was the [Stern Review](#). It has been since replaced by more precise analyses after much criticisms (e.g. [William Nordhaus](#)). These arguments are over a decade old, but the general methodology remains the same.<sup>3</sup>

The standard way of discussing cost benefit analysis is to first provide a sequence of benefits (in constant dollars) and a corresponding sequence of costs (in constant dollars) and then multiply the difference between benefits and costs for each period by a discount factor. Then add the quantities up over all periods now and in the future. The formula can be written as

$$\sum_{i=0}^T \frac{B_t - C_t}{(1 + r)^t} = \text{Net Present Value}$$

where  $T = \text{Life of project}$

$B_t = \text{Project Benefits at time } t$

$C_t = \text{Project Costs at time } t$

$r = \text{social discount rate}$

Arguments over this formula usually arise from difference in people's perceptions or estimations of B, C, T, and r. It is not difficult to find reasons for rejecting people's views on these variables and parameters. For one thing, some people have argued that we really should not discriminate

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<sup>2</sup> People often talk about saving the planet from a runaway greenhouse gas catastrophe. Yet, people in the future may live to 120 years of age. They may never suffer from cancer, diabetes, or heart disease. Machines may be used to do most of the heavy and horribly dull work, thus freeing labor to pursue more interesting lines of work. Areas of the world that were previously uninhabitable may become ideal living environments. Places that could grow no food may become rich with vegetation and farmland. To selectively choose the rise in temperature of a few degrees and then assert that the world will become an unavoidable, uncontrollable dystopia with humans left with no hope or choice, may seem a bit over the top. It does however increase the benefits of reducing CO2 emissions in any cost benefit analysis.

<sup>3</sup> The subject of a social discount rate, always a source of fierce debate between economists, has become highly controversial since the publication of the Stern Review on the Economics of Climate Change. The publication exploded on the global warming scene in 2006 with its dire warning that global gross domestic product (GDP) was at future risk of a 20% reduction if there was a failure to invest 1% of world GDP now to reduce global warming. The Review did not use a single discount rate, but applied a stochastic approach whereby the discount rate varied with the expected outcomes, reflecting the interaction between growth and the elasticity of marginal utility, in line with Frank Ramsey's growth model. However, critics questioned the findings on the basis that they were partly arrived at using an extremely low pure time preference rate of 0.1% in economic modeling. ([Wiki](#))

between people living now and people living 300 years in the future. All people, living or yet to be born, should be treated equally – I can think of no piece of legislation (outside of the Constitution) now or in the past that considered the welfare of people living 300 years in the future, but perhaps you can. Note also that animals, pets, and wildlife, living in the future, are not considered in these estimates, even though we do consider their welfare in current legislation – consider endangered species legislation and animal mistreatment laws. Comparisons of intertemporal welfare, as with trying to compare interpersonal welfare, is very tricky and fraught with all kinds of subtle theoretical *cul de sacs* (see the very complicated article by [Strotz 1956](#)).

Let's take an example: Let  $B_1 = 100$ ,  $B_2 = 100$ ,  $B_3 = 200$ , and let  $C_1 = 50$ ,  $C_2 = 50$ ,  $C_3 = 30$ . Finally assume the social rate of discount is  $r = 0.03$ . Plugging these values into the formula above yields

$$\begin{aligned}\text{Net Present Value} &= (100-50)(1/1.03) + (100-50)(1/1.03)^2 + (200-30)(1/1.03)^3 \\ &= 48.54 + 47.13 + 155.57 \\ &= 251.24\end{aligned}$$

If all benefits and all costs have been included in the analysis, it will be socially advantageous for the regulation to undertaken, if the Net Present Value is positive. Note that in this example the Net Present Value is certainly positive, since every item in the sum is positive. There is no need for this to be true though every time. In a cost-benefit analysis for climate change, the early terms might be very negative, since the real benefits come later with the reduction in global warming. If the later terms are not highly discounted (i.e. the social rate of discount is low) then these later terms may be large enough to make the Net Present Value positive. This is part of the controversy of the Stern review – too low a social rate of discount. For projects or regulations that have high front-loaded costs and high back loaded benefits, a low discount rate is essential if the regulation is to pass the cost-benefit standard.

It will usually be difficult to measure and then value in constant dollars the benefits and costs extending far into the future. One reason for this is that the benefits and costs are typically very subjective in nature (e.g. a cleaner or safer environment). Because of this, proxies are usually sought which can be valued in money or for which a market exists. For example, if a nuclear power plant located in your city must be regulated for safety concerns, the value of reduced risk might be determined by reference to the prices on similar houses both near and far from the plant or similar plants. This is a highly imperfect way of guessing the value of reducing the health risks associated with the plant. Once again, we must stress that the determination or estimates of both benefits and costs of regulation can be murky and high subjective. They must be done in dollars. Therefore, there is always lots of room to argue.

### III. Deregulation as Policy

Regulation is costly, but it is nevertheless undertaken because there are clear and sufficient benefits – if not now, then later. However, after the regulation has begun, it is possible to revisit

the decision to regulate and again decide whether it would be better to deregulate the market. Deregulation is the lifting of government regulations to lower prices, encourage competition, improve quality, and drive up efficiency (i.e. reduce waste of resources). Deregulation does not always accomplish this, but it really depends on many factors. A good example is the deregulation of the airline industry in the US beginning in 1978.

For the US, the original purposes of the Civil Aeronautics Board (CAB) in 1938 can be listed as (i) award routes to airlines, (ii) control the number of airlines flying, (iii) manage the ticket fares. None of these were market-driven directives, which was a common theme of the late 1930's. Remember that the market was considered unreliable after the Great Depression of 1929-1939. This bias was manifested in the idea that competition for the skies was not very desirable. But, by the 1970s, with the tremendous growth of the industry, it became apparent that the market needed greater competition. After 1978 there was deregulation and low-cost carriers (LCC) appeared in the market. These LCC were highly flexible and proliferated quickly. This helped to drive down ticket prices (especially between big cities), but with this came a clear deterioration in service quality. Deregulation can be a very mixed bag at any one time. The US has continued to struggle with the difficulty of providing a private market involving a very crowded and unpredictable public skies.

***Deregulation in the US has been mainly concentrated in transportation, energy, communications, and finance.*** These have all had their ups and downs, but deregulation was a necessary and welcome phenomenon. The deregulation in finance began in 1980 with the introduction of non-bank firms that could provide many of the services of a modern bank. Also, deregulation of interest rates was introduced, as well. This led to considerable turmoil in some institutions including major bankruptcies among savings and loans (S&Ls). The 2008 financial crisis has been blamed on deregulation in finance since it created firms so large that they were "too big to fail". However, banking deregulation was hardly the problem since the real issue was the expansion of risk in the mortgage market coupled with the rise of uncontrolled derivative trading. The unregulated market for credit default swaps created tremendous hidden and systemic risk for the economy.

Questions:

- #1. Why do governments regulate economic activity?
- #2. What are the ways government can regulate industries?
- #3. Give an example of direct regulation of industry.
- #4. Give an example of indirect regulation of industry.
- #5. What is economic regulation? Give an example.
- #6. What is social regulation? Give an example.

#7. People who only look at the benefits of regulation will always support their use. People who look only at the costs of regulation will always support their lifting. Use our cost-benefit analysis formula to explain this.

#8. Why are costs and benefits for regulation hard to estimate objectively?