



Issues and opinions

How advances in technology keep reducing interventionist policy rationales

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ABSTRACT

Rationales for government interventions in the market are typically based on theories of market failure set within a framework of fixed private-sector practices and technologies. However, continuous technological progress and entrepreneurial innovation are eroding the theoretical foundations of these policies, making them increasingly obsolete. This paper describes the four pillars of market failure doctrine and provides examples of how the market is using technology to solve problems previously considered to necessitate government intervention.

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1. The half-life theory of policy rationales

Government policy can be divided into two classes:

- a) policy which has social costs greater than social benefits, and is enacted due to political pressure from median voters and special interests.
- b) policy which provides social benefits greater than social costs, and is provided because of perceived failures of market dynamics to provide equivalent benefits.

The categories of (b) presented in conventional economic texts include externalities, natural monopolies, public goods, and informational asymmetry.

What conventional theory does not recognize, and what we offer in this paper, is that the extent of these market failures is a function of cost, and therefore of technology as it affects costs. Specifically:

- 1) The reduction of informational asymmetry is a function of the cost of information. As advancing technology reduces the cost of obtaining information, the asymmetry gets reduced. The Internet and computing power has indeed provided such cost-reducing technology. This reduces the rationale for policies such as mandatory licensing and restrictive consumer protections. The market-failure theory is conditional: if there is asymmetry, there is market failure. We show that the condition is disappearing due to the Internet and its inexpensive and widely available information.

The “half life” metaphor, adapted from radioactive decay, refers to a constant quantity undergoing a constant rate of exponential decay. For example, Moore's law posits constantly increasing computing speed relative to a given price, resulting in the cost per processor cycle getting cut in half approximately every two years. Applied to the transaction costs of exchanging information, if the available information at a fixed cost doubles every 10 years, then the policy rationale for, say, mandatory occupational licensing, has been cut in half since 2006, as customers can ever better obtain data and reviews for service providers.

- 2) Technology can provide more effective private and governmental remedies for negative externalities. For example, remote sensing can detect vehicle emissions and identify the car owner,

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enabling the owners to be charged for actual pollution. While government still retains a role, the policy of regulation can be replaced with price charges, thereby creating a half-life effect for the justification of inefficient regulations. Also, the same technology enables privately owned highways to charge drivers for pollution.

- 3) As better technology reduces the cost of recycling of water and small-scale generation of electricity, they become less and less natural monopolies.
- 4) Technology enables a better creation of enforceable property rights, such as for ocean resources and lighthouses.

We provide examples and data of the effects of advancing technology. We argue that the dynamics and effects are theoretically warranted and the evidence is clear.

2. Perceived market failures

Some technological changes have merely made contributions to the quality of life, such as the now-ubiquitous Internet videos on any topic of interest, but the total effect of better technology has had profound implications for both market transactions and governmental provision and interventions. Many of the facts and propositions on which policymakers and theorists base their case for government corrections and market supplements become less justified as the market itself generates new technology to solve previously intractable entrepreneurial difficulties.

Government intervention into markets occurs in many forms, including restrictions, mandates, and the government provision of services, as well as taxes and subsidies aimed at specific groups. The following are the four classic categories of efficiency problems that offer a theoretical rationale for government intervention²:

1. The market does not produce an important product that people value enough to cover the costs. The products most frequently said to experience such failure are collective goods.
2. Asymmetric information enables one party of a transaction to exploit the other.
3. The market price does not take into account external effects—that is, costs imposed on third parties or benefits enjoyed but not paid for by others.
4. Pricing power enables sellers to reduce the quantity of a product and sell it at a higher price than it would fetch in a more competitive industry.

In this paper, we show examples of corrective policies that are based on those perceived market failures. We also discuss the ways in which changing technology has made those policies increasingly obsolete, either by correcting the problem more effectively or by shifting the problem from one of regulation to one of property rights enforcement. Although a full rebuttal of the theory of market failures is beyond the scope of this paper, we believe that the examples provided demonstrate that the necessity of government intervention is increasingly being eroded and that the forward-thinking policymaker will be able to observe many new market-based solutions to problems traditionally solved by government action.

3. Collective goods that were previously costlier or difficult for markets to provide

One of the most common government actions is the provision of

collective or public goods and services, such as roads, schools, and parking. The economic rationalization for such activity is that although people are willing to pay the costs of production, thus making the provision of the good an efficient use of resources, the transaction costs of collecting those payments or excluding non-payers are great enough that entrepreneurs will not provide an efficient amount based on the benefits. The economic term for these activities is *public goods*, which are typically defined as being nonrivalrous and nonexcludable.

A good is *nonrivalrous* if a group of people can benefit from its presence without reducing others' ability to benefit, and it is *non-excludable* if it is physically impossible or very costly to exclude those who do not pay for the good from consuming it once it is produced. National defense is a classic example: a US resident does not become less protected from foreign invasion if the population increases, and individuals obtain that protection merely by being located within the national territory.

However, closer examination reveals that many government-provided goods and services do not fit this rubric. Some goods are easily excludable, but the efficient amount will not be produced because of difficulties in compensating the producer for the positive externalities to nonusers. For example, highways are excludable because reckless drivers can be arrested and tolls can be charged. Nevertheless, many people argue that the government must provide roadways because they are expensive to build and maintain, and financing them only from tolls would, in many cases, not provide sufficient funds. An open-access road financed by taxation would get more traffic, which would prevent the waste of an underused highway. Also, if improved roads have general benefits to the community that are not captured by the tolls, then it must be true that government provision corrects what would otherwise be a market failure.

However, private communities such as homeowners' associations (discussed later) can also provide these efficiencies, and, in the current political climate, such contractual communities are more likely to adopt efficient pricing than the current taxes that have an excess burden or deadweight loss. Private communities, including associations and condominiums, as well as proprietary communities such as office buildings and shopping centers, sometimes can and do pay for the neighborhood streets. These communities could also form higher- or broader-level associations for the provision of goods for a larger territory. The lower-level associations would be efficiently financed by rentals and assessments on property value and would pass on some of the revenues to the higher-level associations. Higher-level associations would finance higher-level goods, such as the major boulevards and mass transit. Thus, private rental payments could efficiently pay for the streets and highways, along with tolls high enough to prevent congestion. Also, a privately organized network or hierarchy of contractual communities could supplement their road revenues with pollution charges by using remote sensing [21].

As Peter Samuel [34] notes, a market failure argument for highways has been that a highway that is privately owned by a profit-maximizing firm is a natural monopoly and has less traffic than it would if it didn't have a user charge. As such, it creates a *deadweight loss*, an inefficient use and waste of resources due to either government interventions or high private-sector pricing. When the marginal cost of one or more users of a highway is zero when the road is not congested, the efficient policy is to not charge tolls; therefore, charging a positive toll constitutes a market failure. But as explained earlier, this market failure argument overlooks the possibility of private communities that pay for the highways and use tolls only to prevent congestion.

Toll collection may have been impractical in the past, other than for heavily traveled bridges, but improving technology has been

² For details on 1 and 2 see [18], for 3 see [23], for 4 see [15].

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