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Utility service quality—Telecommunications, electricity, water

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Abstract

This survey of quality-of-service issues raised by regulation identifies 12 steps for promoting efficient sector performance. First, regulators must identify objectives and prioritize them. Inter-agency coordination is often required to establish targets. Regulators must also determine a process for selecting measures and an appropriate method for evaluating them. Finally, performance incentives must be established and outcomes periodically reviewed. Telecommunications, electricity, and water all have multiple dimensions of quality that warrant careful attention.

Keywords: Quality; Regulation; Incentives

1. Reasons for quality-of-service regulation

In this paper, I examine the incentive mechanisms increasingly used by utility regulators to encourage telecommunications, electricity, and water companies to improve the quality of their services to customers. Specifically, regulators face the challenge of ensuring that service quality for core services does not deteriorate as companies under their jurisdiction transition from rate-of-return to price-cap regulation and experience increasing competition for some of their non-core services.

Traditional price regulation is changing to allow utilities greater flexibility in making investments in operations and infrastructure. Without appropriate quality regulation, price regulation (rate-of-return, price-cap, or variants) may give companies unintended and distorted incentives for infrastructure investments and service delivery. For example, a company may oversupply quality if rate-of-return regulation encourages excessive capital investments to improve service quality. Because rate-of-return regulation affects quality, the level of quality customers receive for services may be more than they are willing to pay (Baldwin and Cave, 1999). In other situations, companies may have a perverse incentive to reduce investments and outlays that promote higher service quality. For example, a company subject to price-cap regulation may compromise its service quality by reducing costs to increase profits, particularly if its services are not subject to much competition (Baldwin and Cave, 1999).

1.1. Definition of service quality

A utility company's quality-of-service applies to the delivery of services to the end user. "Delivery" in this context includes activities preceding and following service delivery and the network components (hardware and software) through which those services (telephone signals, water, and voltage) are provided. Certain services are common to all three utility industries

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(telecommunications, electricity, and water), and the quality concerns are likewise similar, notably in regard to customer and technical services (e.g., timely installations or connections, prompt responses to customer complaints, efficient billing practices, safeguarding of customer accounts, accuracy of customer information, and network reliability). Other concerns about non-price performance are industry-specific.

1.2. Twelve regulatory steps

A goal of regulation is to have service quality properly aligned with customer rates. Establishing a quality-of-service framework is a formidable task for regulators who try to integrate quality into incentive systems. Regulators should:

- determine appropriate regulatory objectives,
- balance those objectives to determine regulatory priorities,
- coordinate oversight responsibilities for quality-of-service and quality-of-commodity programs,
- define the appropriate quality standards desirable for each service,
- develop quality-of-service measures,
- identify a process for developing those measures,
- select the number of measures for the framework,
- select the types of measures for the framework,
- evaluate the measures,
- understand the biases in and contexts for the measures,
- determine the appropriate incentives for incorporating those measures,
- determine the most effective process for monitoring and reviewing the framework.

2. Quality-of-service measures

The development of meaningful measures is the foundation for all quality-of-service frameworks. However, there are certain preconditions for establishing measures. Regulators should determine their objectives, including the quality level required, in the context of competing objectives. Because collecting and processing information is a complicated undertaking that requires extensive planning, regulators must also consider the coordination needed to develop the parameters and incentives as well as the best means of obtaining information.

2.1. Determining regulatory objectives

The design of parameters and incentives depends on the regulatory objectives, which may include establishing conditions for increased competition, improving service reliability, and making companies more responsive to customer complaints. Other concerns might be energy conservation and employee safety.

2.2. Balancing regulatory objectives

Regulatory mechanisms can encourage utilities to provide too much quality (rate-of-return regulation) or too little (price-cap regulation) in relation to customers' assessed needs. Furthermore, mandates for utility efficiency (measured in terms of cost per unit), universal service obligations, and competitive access also may affect and even conflict with a regulator's quality-of-service objectives. In addition, regulators must weigh any externally imposed objectives, such as environmental standards, that potentially drive up costs and affect the quality. For example, in England and Wales, water companies must invest in a wide range of capital improvements to meet the standards of the European Union regarding levels of lead in drinking water and treatment of wastewater to be returned to the environment.

2.3. Coordinating oversight responsibilities

When responsibility for quality-of-service regulation is shared by different regulatory agencies, coordination of oversight is necessary. Performance standards and customer complaints may be managed by agencies other than the utility regulator. For example, in Victoria, Australia, the Regulator General monitors the quality and supply of electricity while the safety is regulated by the Chief Electrical Inspector. The Australian Competition and Consumer Commission regulates prices for telecommunications services, but quality and technical standards are regulated by the Australian Communications Authority (Arblaster, 1999).

The regulator may consult with other agencies to assess the likely costs of a quality improvement program. For example, environmental standards, which affect service costs as well as service quality, may influence the prices set by utility regulators. Ofwat (the UK water regulator) works with the utility companies, the Department of the Environment, Transport and the Regions, and four other regulators concerned with drinking water quality and the environment to identify changes needed to companies' assets to meet quality improvement obligations (Ofwat, 2002b).

2.4. Defining appropriate quality levels

Before developing policies to promote service quality, regulators need to decide on the desired quality level for each service under consideration. To that end, regulators must weigh competing objectives, such as expanding