Market-based Approaches to Environmental Regulation
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Abstract

Economists argue that policymakers should take advantage of market principles in designing environmental regulations. Such market-based approaches – environmental taxes and cap-and-trade – use economic incentives to achieve environmental goals at lower costs. Market-based approaches have now become common due to near-unanimous advocacy by economists and early positive policy experiences. Despite this acceptance, policymakers have often merged market-based incentives onto existing non-market approaches resulting in a set of mixed policies whose economic properties are often difficult to unravel. Thus, even the most prominent market-based regulations contain many non-market elements. The authors review the economics literature on the rationale for and optimal design of environmental taxes and cap-and-trade systems. They then discuss the structure and economics of the major U.S. market-based policies.
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Introduction

For nearly a century, economists have argued that policymakers should take advantage of market principles in designing environmental regulations. Such market-based approaches would use economic incentives to achieve environmental goals at lower costs. Pigou (1920) suggested levying a tax on production activities that generate environmental externalities and showed that this would achieve the same desirable effects as the free market does for ordinary goods. Much later, Dales (1968) suggested that the same advantages could be gained if polluters were assigned transferable rights to their pollution, with the total number of such rights set equal to the overall emissions goal. This approach to environmental regulation was originally known as tradable permits and is now known simply as cap-and-trade. These two mechanisms – taxes and cap-and-trade – together constitute the set of market mechanisms.

While these economic approaches to environmental problems have existed for many years in the minds of economists, they have been slow to be adopted as actual regulations. The Clean Air Act Amendments of 1970 and the Clean Water Act of 1972 – the cornerstones of U.S. pollution policy – contain no economic incentives as recommended by the economics literature. Shortly after their passage, however, policymakers began to experiment with market-oriented solutions.
Introduction

Market-based approaches have now become more common, due in large part to the long-standing and unanimous advocacy of such approaches by economists and some early positive policy experiences. Market-based approaches have become more widely accepted among policymakers as reasonable ways to tackle U.S. environmental concerns. Even among environmentalists, support for market-based approaches has increased, although many critics still exist in this community.

Despite this apparent acceptance, a gap remains between the real-world market-based policies that have made it into law and the ideas that have been propounded by academic economists over the course of eighty-plus years. In short, policymakers have often grafted or merged market-based incentives onto existing non-market approaches. The result is a set of mixed policies whose economic properties are often difficult to unravel. Economists have almost uniformly conceived of market approaches as the sole regulatory instruments to be used for a given problem, but this has rarely been the case in practice. Careful examination of any environmental regulation, even ones considered by most people as market-based, will reveal that they in fact consist of a complicated mix of market and non-market mechanisms. The economics of such mixed approaches remains under-explored.

A similar sort of gap exists between the problems that market-based regulations should tackle and the problems that they actually tackle. Since the most common market instrument is cap-and-trade, we call this the “misplaced cap” problem. Fuel standards are a perfect example; they cap miles per gallon of new cars, not gallons of gasoline or miles driven, which are closer to true externality causes. As with the mixed approach, the economics of this misplaced cap problem have received rather little attention.

In Section 2, we review the economics literature on the theory of market-based environmental regulations. Section 3 covers design issues for environmental taxes and cap-and-trade systems. In Section 4, we discuss the U.S. experience with a number of regulatory approaches that are commonly characterized as market-based. We describe the mix of market and non-market instruments that characterize these policies. Section 5 draws our main conclusions.


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