



By Robert N. Stavins

The Myth Of Simple Market Solutions

I introduced my first column by noting that there are several prevalent myths regarding how economists think about the environment, and I addressed the “myth of the universal market” — the notion that economists believe that the market solves all problems. In response, I noted that economists recognize that in the environmental domain, perfectly functioning markets are the exception, not the rule. Pollution is an example where governments can try to correct such market failures, by restricting emissions. It is to these government interventions that I turn this time.

A second common myth is that economists always recommend simple market solutions for market problems. Indeed, in a variety of contexts, economists tend to search for instruments of public policy that can fix one market by introducing another. If pollution imposes large external costs, the government can establish a market for rights to emit a limited amount of that pollutant. Such a market for tradeable emission permits can be expected to work well if there are many buyers and sellers, all are well informed, and the other conditions I discussed in my last column are met. The government’s role is to enforce the rights and responsibilities of permit ownership, so that each unit of emissions is matched by the ownership of one permit. Equivalently, producers can be required to pay a tax on their emissions. Either way, the result — in theory — will be cost-effective pollution abatement, that is, overall abate-

ment achieved at minimum aggregate cost.

The tradeable-permit approach has much to recommend it, and can be just the right solution in some cases, but it is still a market. Therefore the outcome will be efficient only if certain conditions are met. Sometimes these conditions are met, and sometimes they are not. Could the sale of permits be monopolized by a small number of buyers or sellers? Do problems arise from inadequate information or significant transactions costs? Will the government find it too costly to measure emissions? If the answer to any of these questions is yes, then the permit market may work less than optimally. The environmental goal may still be met, but at more than minimum cost. In other words, cost effectiveness will not be achieved.

To reduce acid rain in the United States, the Clean Air Act Amendments of 1990 require electricity generators to hold a permit for each ton of sulfur dioxide they emit. A robust permit market exists, in which well-defined prices are broadly known to many potential buyers and sellers. Through continuous emissions monitoring, the government tracks emissions from each plant. Equally important, penalties are significantly greater than incremental abatement costs, and hence are sufficient to ensure compliance. Overall, this market works very well; acid rain is being cut by 50 percent, and at a savings of about \$1 billion per year in abatement costs, compared with a conventional approach.

A permit market achieves this cost-effectiveness through trades because any company with high abatement costs can buy permits from another with low abatement costs, thus reducing the total cost of reducing pollution. These trades also switch the source of the pollution from one company to another, which is not important when any emissions equally affect the whole trading area. This “uniform mixing” assumption is certainly valid for global problems such as greenhouse gases or the effect of chlorofluorocarbons on the stratospheric ozone layer. It may also work reasonably well for a regional problem such as acid rain, because acid deposition in downwind

states of New England is about equally affected by sulfur dioxide emissions traded among upwind sources in Ohio, Indiana, and Illinois. But it does not work perfectly, since acid rain in New England may increase if a plant there sells permits to a plant in the Midwest, for example.

At the other extreme, some environmental problems might not be addressed appropriately by a simple, unconstrained tradeable emission permit system. A hazardous air pollutant such as benzene that does not mix in the airshed can cause localized hot spots. Because a company can buy permits and increase local emissions, permit trading does not ensure that each location will meet a specific standard. Moreover, the damages caused by local concentrations may increase nonlinearly. If so, then even a permit system that reduces total emissions might allow trades that move those emissions to a high-impact location and thus increase total damages. An appropriately constrained permit trading system can address the hot-spot problem, for example by combining emissions trading with a parallel system of non-tradeable ambient standards.

The bottom line is that no particular form of government intervention, no individual policy instrument — whether market-based or conventional — is appropriate for all environmental problems. There is no simple policy panacea. The simplest market instruments do not always provide the best solutions, and sometimes not even satisfactory ones. If a cost-effective policy instrument is used to achieve an inefficient environmental target — one that does not make the world better off; that is, one that fails a benefit-cost test — then we have succeeded only in “designing a fast train to the wrong station.” Nevertheless, market-based instruments are now part of the available environmental policy portfolio, and ultimately that is good news both for environmental protection and economic well-being.

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