

Letters

We welcome letters from readers, particularly commentaries that reflect upon or take issue with material we have published. The writer's name, affiliation, address, and telephone number should be included. Because of space limitations, letters are subject to abridgment.

Highway Congestion Pricing

TO THE EDITOR:

Being one of those economists who has contributed to the clutter in professional journals of articles dealing with theoretical underpinnings of congestion pricing, I read with considerable enjoyment Stephen F. Williams's eloquent plea for a pricing solution to urban traffic congestion (*Regulation*, March/April). What disagreements I have with Williams's article stem entirely from an apparent disagreement between us about the political feasibility of congestion pricing. That a benevolent autocrat, Lee Kwan Yew, was able to impose an imperfect but enormously successful congestion-pricing scheme on downtown Singapore without inciting rebellion is no guarantee that an American mayor, governor, or president could do so; beneficial though congestion pricing would be, I seriously doubt that it is in the cards for the United States or, for that matter, for any but the most unusual of democratically governed societies.

Perhaps because of a political judgment that congestion pricing really is feasible in the United States, Williams gives short shrift to such traffic control measures as reserved lanes on city streets and preferential access ramps to expressways for buses and other high-occupancy vehicles. He dismisses these traffic-control schemes on the grounds that "queuing rations access to users who are most willing to throw away a valuable resource (time)." My political judgment, coupled with independent analyses that Kenneth Small and I have done of

traffic flows, leads me to take these traffic management schemes much more seriously.

The case for reserved lanes and preferential access requires a brief excursion into the theory of "second-best" congestion pricing. "Second-best" prices are those that should be charged if for some reason "first-best" (that is, marginal cost) prices cannot be charged. The "full price" of a highway trip can usefully be defined as the sum of a traveler's cash outlays for vehicle operation, tolls, bus fares, and the like plus the value to the traveler of the time it requires—the amount he would be willing to pay to save that time. A basic proposition of second-best congestion pricing is that if the cash component of the price of a trip must for whatever reason be lower than that of the optimal price, then the time component of the price should be higher than that of the optimal price. In such a situation, expansion of the highway would, it is true, reduce the total time and other resource costs of the equilibrium number of trips. At the same time, however, expansion would encourage additional trips valued by their takers at less than the full costs these trips would impose on society at large. The social costs of these trips would more than offset the social gains from the reduced full prices of individual trips.

One step further: If a traveler has alternative ways—bus and auto, for example—of taking a trip, he will choose that mode which has what is for him the lowest full price. If the time-plus-money cost of an auto trip is less than that of a bus trip, he will go by auto; if the reverse, he will go by bus. As Williams suggests, current prices for highway use are far below the optimal marginal-cost prices. As a result, too many travelers use autos; if more travelers could be induced to shift to buses, the total time and other resource costs of a given number of trips would fall. If it is impossible to establish marginal-cost prices for highway use, the second-best way of effecting such a shift is to

increase and decrease respectively the time components of the full prices of auto and bus trips from what they would be with both modes given equal access to capacity. One way of doing this is to provide reserved lanes on city streets and preferential access to expressways for buses and other high-occupancy vehicles. My calculations, based on a representative Minneapolis arterial street during rush hour, suggest that a reserved bus lane could capture about three-quarters of the benefits that would be gained from complete marginal-cost pricing. Small gets similar results for preferential access by high-occupancy vehicles to San Francisco Bay-area expressways.

In a nutshell, then, Williams is quite right in claiming enormous potential benefits for marginal-cost pricing of highway capacity. He is wrong, though, in lightly dismissing such traffic management techniques as preferential access for high-occupancy vehicles. Second-best though they may be, these techniques seem to be surprisingly efficient ways of rationing highway capacity.

*Herbert Mohring,
University of Minnesota*

TO THE EDITOR:

In response to "Getting Downtown," here are some comments:

(1) Charging a toll for access to downtown in rush hour will do no more good than \$3.00-per-gallon gas does for automobile use in Europe and Japan.

(2) The majority of people who enter the downtown areas at rush periods have to do so to report for work on time; they will be penalized for something over which they have no control.

(3) Cost-benefit analysis will show that the cost to those people who must pay is more than the inconvenience of starting earlier.

(4) The answer lies in prohibiting more expansion of the center while encouraging those businesses now in the center city to move out to suburban areas, as well as giving tax benefits to the construction of adequate downtown housing for those who must work there.

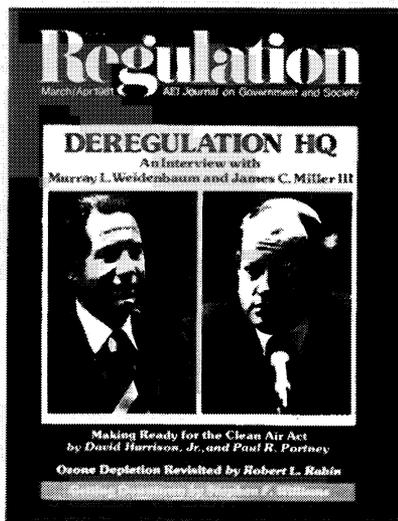
(5) Suburban office parks and shopping must be required to locate in areas having sufficient close-by housing for their employees or to subsidize construction or financing of such housing if they choose to move where such housing is not available.

(6) Modern electronic communication facilities make it no longer

necessary for businesses to be grouped together in a downtown area.

(7) In many areas of our country this suburbanization of business is now in progress with much success. It should be vigorously encouraged.

Henry D. Norris,
Architects Norris & Lynch, Inc.



STEPHEN WILLIAMS responds:

Mohring's letter very graciously corrects a false impression my article may have left: that I viewed preferential access for high-occupancy vehicles (HOVs) as no better than the simple queuing that has prevailed on the urban expressway until recently. Clearly they represent a step forward, and Mohring's calculation that they may achieve three-quarters of the benefits of marginal cost pricing is impressive.

For access to the *non*-HOV lanes, preferential access systems retain rationing by queue rather than by price, with the resulting waste of time. And while they provide an incentive for the use of HOVs, they provide none for other behavior that would reduce peak-hour congestion (such as changes in travel time). Thus they fail to squeeze out that last one-quarter of possible benefit.

As to the political feasibility of congestion pricing, who knows? While it is notorious that the best can be the enemy of the good, so can a premature despair.

On Norris's points:

(1) Wouldn't peak-hour congestion rise in Europe and Japan if gasoline cost only \$1.30 per gallon? Wouldn't it fall if the price rose to

\$10 per gallon? The doubling of prices in 1979-80 has clearly reduced gasoline consumption here.

Also, for a car averaging 30 miles to the gallon, the difference between gas at \$3 and gas at \$1.25 is only 7 cents per mile. Any realistic set of center-city peak-hour tolls would be very considerably higher—more like 30 cents per mile. (That is comparable to \$10 per gallon gas.)

(2) But they *do* have control over the decision to carpool or not.

(3) Again, changing time is not the only option. Further, with a well-conceived plan for distributing the pricing proceeds, anyone whose savings in time were less than the value of his new cash expenses would reasonably expect to more than make the loss up in his share of the pricing proceeds.

(4) through (7) Maybe, maybe not. Even well-sprawled cities like Houston and Los Angeles seem to have downtown congestion, so I doubt that changes in urban form would render pricing solutions moot.

Ozone Depletion

TO THE EDITOR:

Robert Rabin ("Ozone Depletion Revisited," March/April 1981) provides an excellent overview of both the continuing chlorofluorocarbon (CFC) controversy and the problems associated with any attempt to implement alternatives to traditional "command-and-control" regulation.

As Rabin suggests, the theoretical advantages of permits are clear. (Here and throughout, I speak only for myself and not for EPA.) Instead of selective bans or separate performance or technology standards for hundreds of different CFC uses—which involve enormous information, administrative, and enforcement burdens—there would be a ceiling on total emissions, producers' or users' permits would be allocated up to this total, and the market would set a clearing price. Recent studies indicate that a permits system designed to hold CFC emissions at current levels would cost industry roughly half the control investment of equivalent performance or emission standards—\$100 million versus nearly \$200 million.

Unfortunately, the difficulties of implementing permits in the real world are equally clear. They include both allocation and structural problems, as well as agency/in-

dustry resistance to the uncertainty of a new approach. Giving permits to current makers or users in accord with a historical baseline would grant them an enormous windfall and might create significant barriers to market entry. An auction of permits could require firms to cough up as much as \$2 billion to continue activities now viewed as free. The system must somehow ensure that the same permits are not sold twice. And it must have a mechanism to connect sellers and buyers without prohibitive delays or other transaction costs, if it is to be fully efficient. None of these problems is insoluble, but some government involvement, and a good deal of institution-building, will still be needed.

The important point, which Rabin touches but does not expand upon, is that EPA's bubble policy and other controlled trading approaches *have already accomplished this critical groundwork*, in far more complex areas of the Clean Air Act. Indeed it is not inaccurate to say that controlled trading has made permits possible. At least 1,000 offset transactions for new plants have occurred since January 1978. Three formal banking systems are now operating, with twenty more under development by state and local authorities. EPA has approved or proposed approval of fourteen bubbles saving \$40 million. Sixty other bubbles averaging \$2 million in savings are being developed by American industry. New Jersey was recently authorized to approve individual bubbles without case-by-case federal review, and fourteen states are developing similar "generic" rules. Several interplant bubbles are also being developed. In May the Illinois Chamber of Commerce inaugurated the first private clearinghouse for buyers and sellers of surplus emission reductions. The agency now projects savings of over \$200 million from EPA-approved bubbles this year, and several times that amount if five state "generic" rules are in place by this fall. . . .

These trends should accelerate soon when EPA formally integrates its past policies, streamlining procedures and making controlled trades easier for more firms in more places. The need to make controlled trading work has compelled EPA to start becoming a manager auditing state programs rather than a regulator directly involved in each individual transaction. That shift is crucial for any market-based approach.

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The principal difference between controlled trading and marketable permits is that in the former system tradeable assets are created by reductions below an existing baseline rather than by allocations from a zero base. This avoids allocation problems, while capturing most of the cost savings of a permits approach, and it neither forces all firms to trade nor requires existing systems to be restructured across-the-board before trading can start. If this approach can work for heavily regulated air pollutants for which the location of emissions matters, it can work for CFCs, for which location is irrelevant and no regulatory structure currently exists.

Michael H. Levin,
Regulatory Reform Staff,
Environmental Protection Agency

TO THE EDITOR:

... Rabin worked at EPA last year while the agency prepared the advance notice of its intent to regulate. His article is simply a rewriting of that agency document. He seems less concerned with the science of the ozone issue than with getting on to a new regulatory device, and avers that "the scientific debate is too technical to pursue in detail here." But your readers deserve to know more of the story.

The National Academy of Sciences, using computer models, concluded two years ago that a 16.5 percent depletion of stratospheric ozone could result from continued CFC emissions at 1977 production levels. More recent government- and industry-supported research, however, has revised the NAS estimates downward dramatically. Studies from Britain and the European Economic Community contradict the NAS report and recommend further research. Actual monitoring has shown an *increase* in ozone levels, not a decrease.

In short, there is serious doubt about the theory linking ozone depletion to CFCs. Rabin dismisses this scientific uncertainty. CFCs have many essential applications in air conditioning, food preservation, insulation, medical care, and elsewhere; before we abandon their benefits, we should prove or disprove the theory. Research is under way to achieve this. (Senator Bentzen and Representative Luken, among others, have introduced legislation to delay any EPA move on CFC production until sound evidence exists to warrant it.)

Rabin leaves many questions unanswered: How would a cap alter market responses? Would scarce supplies actually flow to the "highest and best" uses or to those with the ability to pay? Would monopolies arise? Could small companies, which need an adequate product supply to survive, still compete? Once the marketable permits game has begun, would competition from new producers be allowed? How would research and development and the capital investment programs of CFC producers be affected? Would any substitute be as safe, as cost-effective, as beneficial, as desirable to the worker *and* the consumer? Is there really a justification for regulation that would affect:

- more than 5,000 direct business users of CFCs, most of them small?
- nearly a quarter million business locations which rely on CFCs?
- more than three-quarters of a million related jobs?
- some \$135 billion worth of installed products touching virtually every consumer?

Note that these are all domestic disruptions. In the rest of the world, CFC production would proceed unregulated. The ozone issue is global, but EPA controls affect only American business.

Rabin's "maiden venture" into uncharted waters of government regulation would profoundly disrupt the American marketplace. We recommend against it.

Melvin C. Holm,
Chairman, Alliance for
Responsible CFC Policy

ROBERT RABIN responds:

Levin expands on a point that I made in passing; namely, that a marketable permits system for chlorofluorocarbons is one of a number of economic incentive strategies developed by EPA in recent years. I would hope that the new administration will evaluate these initiatives on their merits, rather than assuming that anything inherited from the previous agency leadership must be tainted. Levin's update provides some cause for optimism. I would offer only two brief qualifications to his remarks. First, I am not convinced that the offset and banking policies he mentions establish the "critical groundwork" for CFC marketable permits. Traditionally, CFC use has not been regulated and any market that is established will have very different characteristics from the air pollution control

system. Thus, the ground remains to be broken; and as Holm's letter indicates, the vested interests will make their voices heard. Second, I disagree with the statement that allocating CFCs from a zero base rather than reducing emissions below an existing baseline is necessarily "a principal difference" between marketable permits and controlled trading. If CFCs are allocated according to some percentage of historical use, the two strategies turn out to be indistinguishable. Thus, controlled trading "avoids allocational problems" only in the sense that it treats established emission levels as property rights.

I am certainly chastened by Holm, who has chosen to provide "more of the story" on the scientific debate that I considered too technical to pursue at length. His penetrating revelations consist of three sentences, two of which appear to be vague references to the studies which are in fact cited in my article's updating footnote—which he evidently failed to notice. I should add that these new studies, contrary to his assertion, make no reference to "serious doubt about the theory," as distinguished from uncertainty about the eventual level of ozone depletion. Nor does he mention that the NAS study assumed steady-state emissions whereas real world growth exceeds 7 percent annually. Nonetheless, continued scientific research does indeed seem warranted. Where did I say otherwise? But Holm's implication that such research will soon "prove or disprove the theory" demonstrates little understanding of the nature of scientific evidence. Moreover, why, in any event, is a production cap at existing levels inconsistent with careful monitoring of continued scientific research?

The other questions I am charged with having left unanswered are, in fact, the ones I raised in the article. Scarcity means higher prices and creates market impacts that are difficult to chart in advance. So does the elimination of any market externality, whether traditional regulatory strategies or an economic incentives approach is employed. A freeze at existing production levels no doubt would have a very modest effect on various CFC uses—contrary to Holm's dire warnings. I fail to see where he has shed any additional light on a difficult problem whose scientific, international, and domestic economic dimensions deserve serious policy consideration. ■