LETTER

Low-carbon transition is improbable without carbon pricing

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Rosenbloom et al. (1) downplay the role of carbon pricing in climate policy. We counter their criticisms.

The authors claim that framing climate change as a market failure fails to appreciate it is a "system problem." This overlooks that market failures, such as negative/positive externalities and public goods/bads, represent a clear systemic perspective on problems and policies (2). Carbon pricing (CP) is, moreover, a prime example of systemic policy: It simultaneously shifts choices of consumers, producers, investors, and innovators in all sectors—essential to a low-carbon transformation (3). We agree that additional instruments supporting innovation and escape from carbon lock-in are needed. Historical absence of CP contributed, though, to current lock-in.

The authors suggest that CP means efficiency is an overriding policy priority. However, efficiency requires effectiveness. CP is highly effective as no decision in the economy escapes its influence, resulting in closure of all behavioral and economic holes through which emissions leak. It therefore better limits energy/carbon rebound than other instruments (4). For example, CP discourages spending savings from energy conservation on high-carbon goods, as these will be more expensive. This said, it seems Rosenbloom et al. (1) do not value efficiency much. Inefficient policies contribute, however, to less emissions reduction for a given cost, lower incomes, and unemployment—which will hamper stable political support.

The authors neglect that CP is critical to innovation. However, CP contributes to steering innovations toward low-carbon products and production, because private investors are influenced by price expectations as these codetermine profit opportunities (5). Furthermore, unlike other instruments, CP stimulates among "clean" technologies the cleaner ones, like solar photovoltaic (PV) panels with low-carbon lifecycles (6).

The authors prefer a context-sensitive over a universal approach. However, sector-specific approaches tend to be ad hoc, costly, and susceptible to lobbying, while causing intersectoral carbon leakage. Moreover, climate policy is bound to remain weak if it is fragmented between jurisdictions. Policy harmonization is needed to weaken freeriding and international-competitiveness concerns that hamper stringent policies. A CO_2 price facilitates comparison and harmonization of national policies (7).

Regarding political realities, the authors suggest CP faces much resistance. However, this holds for all serious climate policies. No evidence is provided that other effective instruments receive more political support. On the contrary, CP is quite popular: Almost 60 jurisdictions have implemented it in some form (8).

While CP has been criticized as inequitable, this is not the case if it is complemented by appropriate revenue recycling (9). In fact, no other instrument generates revenues for compensation. To compare, adoption subsidies for rooftop solar PV or electric vehicles even use up money and are inequitable by going to well-off households.

It is not true that CP is only supported by neoclassical economics. Many types of empirical and theoretical studies underpin its effectiveness, including agent-based models describing boundedly rational and socially sensitive behaviors (10).

The literature on low-carbon transitions offers creative policy ideas. It is time that CP is integrated with these into a more complete theory of transition policy.

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