

"Post-Kyoto Architecture: Toward an L20?"

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A Global Carbon Tax?

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If the L20 wants to establish a reputation as far-sighted, action-oriented, with a global perspective (rather than just another photo op), they will address climate change, and emphasize that the issue needs to engage all countries, not just rich countries—especially in view of the contention that the main damage will fall on poor countries.

I see no reasonable prospect for including rich and poor countries together in a target-based scheme that bites. There is at least a possibility they could agree on common actions, such as a carbon tax or its functional equivalent. An EU trading system could be integrated into a global tax system which leaves disposition of the revenues to the discretion of each country by requiring that the EU trading price be no lower than the *ad valorem* equivalent of the internationally-agreed tax rate.

There are negative and positive arguments for introducing a tax on emissions of greenhouse gases (GHGs). The negative argument is that the leading alternative, quantitative goals with a trading regime in emission rights, is almost certainly politically unsustainable on a global basis. Key developing countries must be seriously involved in any effective effort to reduce GHG emissions. On EIA projections, for instance, China's CO₂ emissions will reach those of Europe before 2010 and those of the United States by 2035. Emissions from India, Brazil, and others are also significant and growing rapidly. Yet it is difficult to imagine a set of effective national quantitative targets that

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China and the United States could both agree on, to take only the leading emitters among rich and poor countries. Kyoto excludes developing countries. Kyoto's advocates acknowledge that, but aver it is only the first step. What does the next step look like?

Furthermore, "cap and trade" will involve the allocation of valuable rights. The prospect of such allocation might be attractive to domestic businessmen, who are always looking for government handouts (witness any tax bill), but it will necessarily be a highly political process, unless the rights are auctioned, which will be resisted strongly by the business community. While the domestic process is merely unattractive, and in a sense deeply corrupting, the international allocation with trading will be politically impossible. What U.S. Senator, once s/he understands the full implications of a trading regime, can vote for a procedure which could result in the unconditional transfer of billions of dollars, even tens of billions, to the government of communist China, or to Castro's Cuba, or even to Putin's Russia? Not only is it politically impossible, at least in the United States, but I would argue that large unconditional transfers to governments are in general highly undesirable, shifting attention away from the need for fiscal discipline and thoughtful cost/benefit analysis of the balance to be struck between taxation and government expenditure.

The key alternative, if action to reduce GHG emissions is to be taken, is to focus on level of effort rather than on quantitative targets: concretely, on the introduction, within an internationally agreed framework, of a domestic tax on GHG emissions, revenues to accrue to the government of each country where the emissions occur. The focus initially would be on fossil fuels, cement, and other industrial processes that result in emissions of carbon dioxide. Methane is more difficult under any regime, and can be added later after experience is garnered with CO₂.

The proposal involves international agreement on a regime for a common tax to be levied on the major sources of emissions of carbon dioxide, and on the selection of the common tax rate, both initially and subsequently. The tax would be incremental to existing taxes (and subsidies), including those on fossil fuels, on the grounds that whatever taxes exist were introduced for reasons unrelated to global climate change, that global climate change is a newly recognized problem for purposes of collective action, and that all parties should add new incentives for the reduction of emissions.

(Allowance might be made for taxes that have been introduced in a few European countries following the December 1997 agreement on the Kyoto Protocol whose explicit rationale was to reduce CO₂ emissions.)

A uniform incremental CO₂ tax would introduce an incentive, worldwide, to reduce carbon emissions. The response to the tax would of course differ from country to country. Where emissions can be reduced at a cost lower than the tax, such reductions can in time be expected to take place. Where the cost of reducing emissions exceeds the tax, the tax will be paid. In either case the cost of fossil fuels will be raised everywhere, in proportion to their carbon content. A uniform tax thus is economically efficient, in that reductions will be greatest where the cost of such reductions is least, worldwide. The universal presence of the tax will also avoid geographic relocation of industries to avoid the tax, except where such relocation is in fact economically efficient.

The introduction of such a tax raises a number of issues, which will be taken up in turn: the level of the tax, and procedures for changing it; compliance; enforcement; macro-economic effects; possible differential treatment; use of revenues; and how to treat sequestration—activities that deliberately withdraw atmospheric CO₂.

One objection sometimes raised to a tax is that we will not know initially what the quantitative impact will be. Entirely true. But the KP targets also bear little direct relationship to the underlying problem, viz. the growing concentration of GHGs in the atmosphere. It is, as its advocates insist, only a first step. The tax would similarly be a first step, with a much clearer path to what the second and subsequent steps might look like.

The initially agreed tax should be at a level sufficient to attract serious attention to tax-avoiding emission reduction, say \$50 a ton of carbon. (This would amount to nearly \$14 per ton of CO₂, the unit of measurement used in the Kyoto Protocol, and would amount to roughly a 100 percent tax on coal, with lower tax rates per useful btu for oil and still lower for natural gas.)

The world would gain experience over time with the impact of this tax on emissions, while it is also learning more about the climate system and refining its estimates and its preferences concerning the prospects for climate change. Provision would be made for a review of the rate of tax after, say, the first ten years, and quinquennially thereafter, taking into account both greater knowledge about the impact of the tax and about the evolution of climate in response to continuing GHG emissions.

Compliance would be easy to assess. Every country has a known mechanism for promulgating new tax rates and regulations. We would know whether a country had responded to the international agreement by changing its tax regulations in accordance with it. Administratively, the tax would best be levied at the main choke points for fossil fuels: main gas and oil pipelines, or refineries, and main coal shipments by rail or barge, plus allowance for pit-head power production. But this practical detail could be left to each country.

Promulgating new taxes and actually collecting them are two different things, for any tax. Enforcement of tax collection raises complicated questions, as indeed would enforcement of emission ceilings. Almost all countries (Cuba, North Korea, Taiwan, and Hong Kong, along with a number of mini-states, are the exceptions) are now members of the International Monetary Fund (IMF), and as such their economic policies, including fiscal policies, are subject to detailed annual surveillance by the IMF staff. Under a carbon tax agreement, the IMF could be asked to pay special attention during these reviews to sources of revenue, and in particular to carbon tax revenues. Each country's revenue books would be open to inspection, and its tax officials available for questioning. Of course any country that desired to cheat could do so, but that is a problem with any regime to limit emissions, and many officials would have to be brought into the conspiracy. Furthermore, physical readings of the largest sources of emissions, such as power plants, could be taken (e.g. by satellite and by on-site inspection) as part of the compliance regime.

What about the erosion of impact of the carbon taxes through other tax relief or subsidies to the emitters? Again, the IMF could be asked to scrutinize any major tax change for consistency with the carbon tax regime. The process would be a consultative one, initially bilateral between

each country and the IMF. Presumptive cases of violation could be referred to special panels, WTO-style, for further investigation and scrutiny. Publicity would be given to significant violations. Exports from countries with egregious and quantitatively significant violations could, by panel finding, be made subject to counter-vailing duties by importing countries, even under existing legislation, once the tax on CO₂ emissions was judged internationally to be a cost of business, subsidization of which would be treated as a conventional export subsidy.

Any significant change in taxation can have disruptive macro- and micro-economic effects. Provision should be made in all countries for phasing in the tax, starting low and gradually rising to the full agreed and pre-announced rate. Macro-economic effects could be minimized by making the tax fiscally neutral (which would involve making a guess in each country what its initial impact on emissions would be), either by increasing expenditures or by reducing other taxes. Many governments would need the additional revenue, and for this reason ministers of finance everywhere would welcome such a tax. Where the revenue is not needed, or where an increase in the total tax burden is politically insupportable, the new revenues could be used to reduce other taxes.

The revenues are likely to be substantial, but not overwhelming. The U.S. Council of Economic Advisers calculated in 1998 that if the Kyoto Protocol were to be extended to China, India, Mexico, and South Korea (each of which was given a notional target equal to its business as usual trajectory), the trading price that would achieve the Kyoto targets would be \$23 a ton of carbon, equivalent to a tax of that rate, about half the rate suggested above. With estimated worldwide emissions in 2010 under effective Kyoto targets of 7 billion tons of carbon, the tax would yield worldwide revenues of \$160 billion, about 0.4 percent of gross world product in that year.

Developing countries, as noted above, must be fully included in the carbon tax regime if there is any hope of limiting atmospheric GHG concentrations. However, developing countries could be granted a longer period of time to introduce the tax, provided that the period was not so long as to induce uneconomic relocation of economic activity to countries that had not yet introduced the tax. Five years might be an appropriate delay, to be followed by the phase-in period.

Even though the carbon tax would increase the price of fossil fuels, growth need not be seriously affected, since the revenues could be used for expenditures or tax reductions that contribute to growth. Decisions about use of the carbon tax revenues would be left entirely to each country, so long as they were not used to undermine the purpose of the tax, which is to reduce CO₂ emissions.

Reduction of emissions may not always be the most efficient way to limit growing atmospheric GHG concentrations. Sequestration of CO₂ from the atmosphere should be included in the menu of permissible actions. Subsidies (at the agreed CO₂ tax rate) could be given for sequestration, or tax rebates where the sequester is also the emitter. Again, this process would be up to each country to implement, subject to international surveillance.