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The Wonderful Politics of Cap-and-Trade: A Closer Look at Waxman-Markey

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The headline of this post is not meant to be ironic. Despite all the hand-wringing in the press and the blogosphere about a political “give-away” of allowances for the cap-and-trade system in the Waxman-Markey bill voted out of committee last week, the politics of cap-and-trade systems are truly quite wonderful, which is why these systems have been used, and used successfully.

The Waxman-Markey allocation of allowances has its problems, which I will get to, but before noting those problems it is exceptionally important to keep in mind what is probably the key attribute of cap-and-trade systems: the allocation of allowances - whether the allowances are auctioned or given out freely, and how they are freely allocated - has no impact on the equilibrium distribution of allowances (after trading), and therefore no impact on the allocation of emissions (or emissions abatement), the total magnitude of emissions, or the aggregate social costs. (Well, there are some relatively minor, but significant caveats - those “problems” I mentioned — about which more below.) By the way, this independence of a cap-and-trade system’s performance from the initial allowance allocation was established as far back as 1972 by David Montgomery in a path-breaking article in the *Journal of Economic Theory* (based upon his 1971 Harvard economics Ph.D. dissertation). It has been validated with empirical evidence repeatedly over the years.

Generally speaking, the choice between auctioning and freely allocating allowances does not influence firms’ production and emission reduction decisions. Firms face the same emissions cost regardless of the allocation method. When using an allowance, whether it was received for free or purchased, a firm loses the opportunity to sell that allowance, and thereby recognizes this “opportunity cost” in deciding whether to use the allowance. Consequently, the allocation choice will not influence a cap’s overall costs.

Manifest political pressures lead to different initial allocations of allowances, which affect distribution, but not environmental effectiveness, and not cost-effectiveness. This means that ordinary political pressures need not get in the way of developing and implementing a scientifically sound, economically rational, and politically pragmatic policy. Contrast this with what would happen when political pressures are brought to bear on a carbon tax proposal, for example. Here the result will most likely be exemptions of sectors and firms, which reduces environmental effectiveness and drives up costs (as some low-cost emission reduction opportunities are left off the table). Furthermore, the hypothetical carbon tax example is the norm, not the exception. Across the board, political pressures often reduce the effectiveness and increase the cost of well-intentioned public policies. Cap-and-trade provides natural protection from this. Distributional battles over the allowance allocation in a cap-and-trade system do not raise the overall cost of the program nor affect its environmental impacts.

In fact, the political process of states, districts, sectors, firms, and interest groups fighting for their share of the pie (free allowance allocations) serves as the mechanism whereby a political constituency in support of the system is developed, but without detrimental effects to the system’s environmental or economic performance. That’s the good news, and it should never be forgotten.

But, depending upon the specific allocation mechanisms employed, there are several ways that the choice to freely distribute allowances can affect a system’s cost. Here’s where the “caveats” and “problems” come in.

First, auction revenue may be used in ways that reduce the costs of the existing tax system or fund other socially beneficial policies. Free allocations to the private sector forego such opportunities. Below I will estimate the actual share of allowance value that accrues to the private sector.

Second, some proposals to freely allocate allowances to electric utilities may affect electricity prices, and thereby affect the extent to which reduced electricity demand contributes to limiting emissions cost-

effectively. Waxman-Markey allocates allowances to local distribution companies, which are subject to cost-of-service regulation even in regions with restructured wholesale electricity markets. So, electricity prices would likely be affected by these allocations under existing state regulatory regimes. The Waxman-Markey legislation seeks to address this problem by specifying that the economic value of the allowances given to electricity and natural gas local distribution companies should be passed on to consumers through lump-sum rebates, not through a reduction in electricity rates, thereby compensating consumers for increases in electricity prices, but without reducing incentives for energy conservation.

Third, and of most concern in the context of the Waxman-Markey legislation, “output-based updating allocations” provide perverse incentives and drive up costs of achieving a cap. This merits some explanation. If allowances are freely allocated, the allocation should be on the basis of some historical measures, such as output or emissions in a (previous) base year, not on the basis of measures which firms can affect, such as output or emissions in the current year. Updating allocations, which involve periodically adjusting allocations over time to reflect changes in firms’ operations, contrast with this.

An output-based updating allocation ties the quantity of allowances that a firm receives to its output (production). Such an allocation is essentially a production subsidy. This distorts firms’ pricing and production decisions in ways that can introduce unintended consequences and may significantly increase the cost of meeting an emissions target. Updating therefore has the potential to create perverse, undesirable incentives.

In Waxman-Markey, updating allocations are used for specific sectors with high CO₂ emissions intensity and unusual sensitivity to international competition, in an effort to preserve international competitiveness and reduce emissions leakage. It’s an open question whether this approach is superior to an import allowance requirement, whereby imports of a small set of specific commodities must carry with them CO₂ allowances. The problem with import allowance requirements is that they can damage international trade relations. The only real solution to the competitiveness issue is to bring non-participating countries within an international climate regime in meaningful ways. (On this, please see the work of the Harvard Project on International Climate Agreements.)

Also, output-based allocations are used in Waxman-Markey for merchant coal generators, thereby discouraging reductions in coal-fired electricity generation, another significant and costly distortion.

Now, let’s go back to the hand-wringing in the press and blogosphere about the so-called massive political “give-away” of allowances. Perhaps unintentionally, there has been some misleading press coverage, suggesting that up to 75% or 80% of the allowances are given away to private industry as a windfall over the life of the program, 2012-2050 (in contrast with the 100% auction originally favored by President Obama).

Given the nature of the allowance allocation in the Waxman-Markey legislation, the best way to assess its implications is not as “free allocation” versus “auction,” but rather in terms of who is the ultimate beneficiary of each element of the allocation and auction, that is, how the value of the allowances is allocated. On closer inspection, it turns out that many of the elements of the apparently free allocation accrue to consumers and public purposes, not private industry.

First of all, let’s look at the elements which will accrue to consumers and public purposes. Next to each allocation element is the respective share of allowances over the period 2012-2050 (measured as share of the cap, after the removal - sale — of allowances to private industry from a “strategic reserve,” which functions as a cost-containment measure.):

- a. Electricity and natural gas local distribution companies, 22.2%
- b. Home heating oil/propane, 0.9%
- c. Protection for low- and moderate-income households, 15.0%
- d. Worker assistance and job training, 0.8%

- e. States for renewable energy, efficiency, and building codes, 5.8%
- f. Clean energy innovation centers, 1.0%
- g. International deforestation, clean technology, and adaptation, 8.7%
- h. Domestic adaptation, 5.0%

The following elements will accrue to private industry, again with average (2012-2050) shares of allowances:

- i. Merchant coal generators, 3.0%
- j. Energy-intensive, trade-exposed industries, 8.0%
- k. Carbon-capture and storage incentives, 4.1%
- l. Clean vehicle technology standards, 1.0%
- m. Oil refiners, 1.0%

The split over the entire period from 2012 to 2050 is 59.4% for consumers and public purposes, and 17.1% for private industry. This 17% is drastically different from the suggestions that 70%, 80%, or more of the allowances will be given freely to private industry in a “massive corporate give-away.”

All categories - (a) through (m), above - sum to 76.5% of the total quantity of allowances over the period 2012-2050. The unallocated allowances — 23.5% over 2012 to 2050 — are scheduled in Waxman-Markey to be used almost entirely for consumer rebates, with the share of available allowances for this purpose rising from approximately 10% in 2025 to more than 50% by 2050. Thus, the totals become 82.9% for consumers and public purposes versus 17.1% for private industry, or approximately 80% versus 20% — the opposite of the “80% free allowance corporate give-away” featured in many press and blogosphere accounts. Moreover, because some of the allocations to private industry are - for better or for worse - conditional on recipients undertaking specific costly investments, such as investments in carbon capture and storage, part of the 17.1% free allocation to private industry should not be viewed as a windfall.

Speaking of the conditional allocations, I should also note that some observers (who are skeptical about government programs) may reasonably question some of the dedicated public purposes of the allowance distribution, but such questioning is equivalent to questioning dedicated uses of auction revenues. The fundamental reality remains: the appropriate characterization of the Waxman-Markey allocation is that more than 80% of the value of allowances go to consumers and public purposes, and less than 20% to private industry.

Finally, it should be noted that this 80-20 split is roughly consistent with empirical economic analyses of the share that would be required - on average — to fully compensate (but no more) private industry for equity losses due to the policy’s implementation. In a series of analyses that considered the share of allowances that would be required in perpetuity for full compensation, Bovenberg and Goulder (2003) found that 13 percent would be sufficient for compensation of the fossil fuel extraction sectors, and Smith, Ross, and Montgomery (2002) found that 21 percent would be needed to compensate primary energy producers and electricity generators.

In my work for the Hamilton Project in 2007, I recommended beginning with a 50-50 auction-free-allocation split, moving to 100% auction over 25 years, because that time-path of numerical division between the share of allowances that is freely allocated to regulated firms and the share that is auctioned is equivalent (in terms of present discounted value) to perpetual allocations of 15 percent, 19 percent, and 22 percent, at real interest rates of 3, 4, and 5 percent, respectively. My recommended allocation was designed to be consistent with the principal of targeting free allocations to burdened sectors in proportion

to their relative burdens, while being politically pragmatic with more generous allocations in the early years of the program.

So, the Waxman-Markey 80/20 allowance split turns out to be consistent — on average, i.e. economy-wide — with independent economic analysis of the share that would be required to fully compensate (but no more) the private sector for equity losses due to the imposition of the cap, and consistent with my Hamilton Project recommendation of a 50/50 split phased out to 100% auction over 25 years.

Going forward, many observers and participants in the policy process may continue to question the wisdom of some elements of the Waxman-Markey allowance allocation. There's nothing wrong with that.

But let's be clear that, first, for the most part, the allocation of allowances affects neither the environmental performance of the cap-and-trade system nor its aggregate social cost.

Second, questioning should continue about the output-based allocation elements, because of the perverse incentives they put in place.

Third, we should be honest that the legislation, for all its flaws, is by no means the “massive corporate give-away” that it has been labeled. On the contrary, more than 80% of the value of allowances accrue to consumers and public purposes, and less than 20% accrue to covered, private industry. This split is roughly consistent with the recommendations of independent economic research.

Fourth and finally, it should not be forgotten that the much-lamented deal-making that took place in the House committee last week for shares of the allowances for various purposes was a good example of the useful, important, and fundamentally benign mechanism through which a cap-and-trade system provides the means for a political constituency of support and action to be assembled (without reducing the policy's effectiveness or driving up its cost).

Although there has surely been some insightful press coverage and intelligent public debate (including in the blogosphere) about the pros and cons of cap-and-trade, the Waxman-Markey legislation, and many of its design elements, it is remarkable (and unfortunate) how misleading so much of the coverage has been of the issues and the numbers surrounding the proposed allowance allocation.