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Using Taxes to Improve Cap and Trade, Part II: Efficient Pricing

by David Gamage and Darien Shanske



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In this essay, the second in a series, the authors propose how to reform state-level cap-and-trade regimes. Gamage and Shanske use California's regime under AB 32 as an example to explain how tax elements could improve these regimes to improve the efficiency of auction pricing so as to limit economic harm.

How should we combat global warming? As we discussed in our prior article on this topic,¹ cap-and-trade regimes have become the preferred approach. This is especially so at the state level, with California's cap-and-trade regime (AB 32) being a prime example. In this series of essays we explore how state-level cap-and-trade regimes can be improved by incorporating tax elements.

Our central purpose in these essays is to critique some aspects of the structure of California's cap-and-trade regime and suggest how this regime should be reformed in light of our critiques.² We secondarily intend for these articles to be instructive as to important issues involved in the design of cap-and-trade regimes outside California — especially in other states. Our first article explained how tax elements could improve a cap-and-trade regime by making the regime fairer to the disadvantaged. This article explains how tax elements can mitigate a cap-and-trade regime's impact on

¹Gamage and Shanske, "Using Taxes to Improve Cap and Trade, Part I: Distribution," *State Tax Notes*, Jan. 12, 2015, p. 99.

²This series of essays grows out of policy advisory work we consulted on in regard to California's cap-and-trade system (AB 32).

economic growth, thereby making the regime more efficient for everyone. Our third article will explain how states might incorporate border adjustments into a cap-and-trade regime.

For a number of interrelated reasons, this is a particularly apt time to consider how California's cap-and-trade regime might be improved. We are rapidly approaching 2020, the date the cap-and-trade program is scheduled to end. The California Air Resources Board (CARB) recently announced that it plans to extend the program,³ but there is a legal dispute as to whether CARB can do so.⁴ If CARB cannot, there is a further legal question whether a vote of the State Legislature to expand the program must achieve a two-thirds supermajority, which will be difficult to achieve. Whether a supermajority is required depends on whether, as a matter of California constitutional law, the cap-and-trade regime imposes a "tax." A tax requires a two-thirds supermajority approval.⁵ There is, of course, already litigation challenging whether the original vote establishing AB 32 required a supermajority vote in 2006.⁶ Even if cap and trade survives this challenge, the California Constitution was amended in 2010 in a manner that makes the argument for a supermajority vote stronger if AB 32 must be extended by a vote of the Legislature.⁷ Amid all of this uncertainty, and

³Dan Walters, "Brown's ARB Makes a Sly and Maybe Risky Move in Carbon Chess Game," *The Sacramento Bee*, July 14, 2016, available at <http://www.sacbee.com/news/politics-government/politics-columns-blogs/dan-walters/article89670287.html#storylink=cpy>. The details of the proposal are in California Air Resources Board, "Preliminary Draft Proposed Regulation Order and Staff Report," July 12, 2016, available at http://www.arb.ca.gov/cc/capandtrade/draft-ct-reg_071216.pdf.

⁴See *id.*

⁵Cal. Const. Art. 13A, Sec. 3. For further commentary, see generally Joseph Grodin, Michael Salreno, and Shanske, *The California State Constitution* (2015) (note that one of the authors of this column [Shanske] was the primary author on the sections relating to California's fiscal constitution).

⁶*California Chamber of Commerce v. California Air Resources Board*, Nos. C075930, C075954 (Cal. Ct. App.), available at <https://www.edf.org/climate/california-cap-and-trade-auction-legal-resources>.

⁷Though not compelling, at least to us.

likely in part because of it, only about 10 percent of available allowances were purchased at the most recent cap-and-trade auction.⁸

Our articles do not attempt to solve the problems caused by this legal uncertainty, though we will give our two cents on the issues. But we think that we can suggest design elements that could improve the program.

AB 32 prices allowances through an auction mechanism wherein both CARB and entities to which allowances are given will sell allowances for other entities to purchase. This auction mechanism represents the “trade” in cap and trade. The purpose of the auction is to create a pricing system so that the entities that can reduce their emissions at the lowest cost will be encouraged to do so, with the entities that would need to incur higher costs to reduce their emissions provided incentives to purchase allowances.

In theory, an auction-based cap-and-trade system can reduce emissions as cost effectively as can a carbon tax, with the key mechanism used to control the magnitude of emissions being the total number of allowances made available instead of the tax rate. However, in practice, cap-and-trade systems must resolve numerous administrative and implementation problems.⁹ Two central concerns are (1) the potential for price volatility or market manipulation and (2) the potential for insufficient trading volume. AB 32 contains several provisions designed to address these two concerns. Nevertheless, as we will explain, further reforms could improve how AB 32 prices allowances.

To begin with, consider the concern related to the potential for price volatility or market manipulation. As the total number of allowances made available is reduced to control emissions, there is a danger that the auction price for emissions might rise much higher than anticipated, potentially causing excessive economic harm. AB 32 addresses this concern by establishing an allowance price containment reserve and authorizing the banking of allowances. The price containment reserve essentially works as a price ceiling — a price at which applicable entities could purchase their entire quantity of needed allowances from the government at a price significantly higher than the anticipated auction

price. For example, for 2014 CARB offered to start selling a large number of allowances out of its allowance price containment reserve at \$42.38 per allowance, while the reserve price for 2014 was \$11.34.¹⁰ In the August 2014 auction, the market cleared at a price of \$11.50, just above the reserve price, so there was no need to sell allowances out of the reserve.¹¹

Introducing a price ceiling is, in effect, placing a carbon tax safeguard on AB 32. If the auction price of emissions ever exceeded the price ceiling, entities could purchase allowances directly from the government at the ceiling price rather than through the auction — effectively paying a per-unit tax on emissions equal to the price ceiling. To ensure that AB 32 meets its emission reduction goals, the price ceiling gradually increases over time.

A price ceiling protects against price volatility or market manipulation, resulting in a much higher auction price than anticipated. The corollary to a price ceiling for protecting against prices being much lower than anticipated is a reserve price. AB 32 includes a reserve price provision that initially sets a reserve price of \$10 per ton, with this reserve price scheduled to increase over time. As noted above, that reserve price was \$11.34 in 2014; in fact the market clearing price has been only slightly above the reserve price, even for the successful auctions.¹² The reserve price for the August 2016 auction is \$12.73.¹³

The demand for allowances is a function of both the number of allowances given away and the cost that entities must incur to reduce emissions. If entities face lower costs to reduce emissions than anticipated and/or too many emissions have been given away, such that the market clearing price is lower than the reserve price, the auctions will fail. This is not an imagined horrible, as it has arguably afflicted the European carbon trading regime, which also has seen lower than expected allowance prices.¹⁴ Prominent analysts believe this may be part of the reason for California’s recent problems.¹⁵ Indeed, as part of its recent regulatory proposal

⁸Ralph Vartabedian, “State Cap-and-Trade Auction Falls Far Short, Hurting Bullet Train,” *Los Angeles Times*, May 25, 2016, available at <http://www.latimes.com/local/california/la-me-cap-trade-20160525-snap-story.html>. For further analysis, see Danny Cullenward and Andy Coghlan, “Structural Supply and Credibility in California’s Carbon Market,” 29 *The Electricity Journal* 7 (2016). For interested readers without access to this journal, the article is well summarized at Timothy Taylor, “The Collapse of California’s Carbon Cap-and-Trade Market,” the *Conversable Economist* blog (July 15, 2016), available at <http://conversableeconomist.blogspot.ca/2016/07/the-collapse-of-californias-carbon-cap.html>.

⁹And these problems are more severe than the challenge posed in implementing a carbon tax. Michael Wara, “Instrument Choice, Carbon Emissions, and Information,” 4 *Mich. J. Envtl. & Admin. L.* 261 (2015), available at <http://repository.law.umich.edu/mjeal/vol4/iss2/2>.

¹⁰California Air Resource Board, “2014 Annual Auction Reserve Price Notice” (2014), available at http://www.arb.ca.gov/cc/capantrade/auction/2014_annual_reserve_price_notice_updated.pdf.

¹¹California Air Resource Board, “2014 August Auction Summary Report” (2014), available at <http://www.arb.ca.gov/cc/capantrade/auction/august-2014/results.pdf>.

¹²Cullenward and Coghlan, *supra* note 8.

¹³California Air Resource Board, “Auction Notice: California Cap-and-Trade Program and Quebec Cap-and-Trade System Joint Auction of Greenhouse Gas Allowances on August 16, 2016,” available at <http://www.arb.ca.gov/cc/capantrade/auction/aug-2016/notice.pdf>.

¹⁴A. Denny Ellerman et al., “The European Union Emissions Trading System: Ten Years and Counting,” 10 *Review of Environmental Economics and Policy* 89, 103 (2016).

¹⁵Cullenward and Coghlan identify three likely drivers for the recent weakness in the auction market. First, as already mentioned, there is the legal uncertainty. Second, there may be too many allowances, and this is at least partially a result of the fact that CARB has made it too easy for California utilities to shift to cleaner energy. This

(Footnote continued on next page.)

to extend AB 32, CARB included several regulatory changes that would reduce the number of allowances, which suggests CARB also sees a surfeit of allowances as a problem.¹⁶ By 2020 about half of all allowances are planned to have been given away.¹⁷

If all allowances were sold rather than given away, concerns related to the potential for auctions to fail due to the reserve price exceeding the market clearing price would be greatly alleviated. This is because there would be only one main axis along which the governing calculations could go astray: the cost of reducing emissions being less than expected and hence the reserve price being too high.

Nevertheless, commentators seem to agree that many allowances must be given away for political reasons, though they note that the Northeast Regional Greenhouse Gas Initiative (RGGI) sells all of its allowances.¹⁸ Yet this is an exception, and in any event California's regime is already in place, so let us assume that it is no longer possible to sell all of California's allowances. Is there another taxlike solution to the challenge of successful auctions given this political reality?

We believe there is: Emitters covered by AB 32 should be given tradable or salable tax credits to purchase allowances, rather than the allowances themselves.¹⁹ What is the difference between giving away allowances and giving away credits to *buy* allowances? One key difference is that all emitters would need to enter the market to buy allowances, thereby making the market more robust.²⁰ This should reduce the risk of auction failure.

There might also be a cognitive payoff.²¹ Part of the challenge of cap and trade is that businesses must grow accustomed to the notion that they must pay for something

that had previously been free — at least free to them. Granting allowances permits emitters to continue to perceive emissions as free, so the mere act of being forced to purchase an allowance, even if it will ultimately be refunded, could be significant. Further, because the credits are salable, an emitter would still have an incentive to undertake low-cost mitigation measures so as to need to buy fewer allowances.

In sum, because so many allowances have already been given away, with many more permits expected to be given away, continued auction failure is a real threat, especially given the legal uncertainties. To alleviate this threat, at least in part, we propose that emitters be given tradable or salable tax credits to purchase allowances, rather than the allowances themselves. Incorporating this tax element into AB 32 would mitigate the risks to economic growth, promising a more efficient approach for combating global warming.

Concluding Thoughts on the Legal Challenges to AB 32

One response to this article (and the previous article) could be that adopting additional tax elements into AB 32 would kill the patient legally (and politically) in order to save it economically. That is, whatever the current analysis of whether AB 32 imposes a tax, adding tax elements will only make the case stronger that it is a tax for constitutional purposes. There is some merit to this concern, especially since we do not believe that the tax-vs.-fee distinction can — or should — bear the enormous weight that has been placed on it.²² Nevertheless, we think that as a matter of California constitutional law, AB 32 does not impose a tax and that none of the reforms we have proposed would change that.

To understand our confidence on this point,²³ consider another explanation for the recent auction failure: Businesses are not purchasing allowances, because they do not need them, and they do not need them because the businesses have discovered cost-effective ways to reduce their emissions. This is obviously the goal of the program, and it is not far-fetched to imagine it succeeding dramatically.²⁴ The cap-and-trade regime in sulfur dioxide (the chemical

is a problem because the California utilities have simply swapped dirtier sources of energy with non-California utilities without actually achieving any net carbon reduction. The third reason, discussed *infra*, has to do with the success of the rest of California's regulatory apparatus in reducing emissions.

¹⁶See, e.g., Preliminary Draft Proposed Regulation Order and Staff Report, *supra* note 3, at 12-13.

¹⁷Legislative Analyst's Office, "2014-15 Budget: Cap-and-Trade Auction Revenue Expenditure Plan" at 3.

¹⁸Bruce R. Huber, "How Did RGGI Do It? Political Economy and Emissions Auctions," 40 *Ecology L.Q.* 59 (2013).

¹⁹For elaboration on this proposal and similar alternatives, see Mark Gergen, "The Case in Economic Theory for Wrapping a Carbon Tax Around Cap and Trade" (2013) (draft essay on file with authors).

²⁰Another difference could be that administering the credits through the tax system could allow the state to meet some distributional goals.

²¹For some of our prior writings on tax cognition and tax salience, see Gamage, "On the Future of Tax Salience Scholarship: Operative Mechanisms and Limiting Factors," 41 *Fla. St. U. L. Rev.* 173 (2013); Andrew Hayashi, Brent Nakamura, and Gamage, "Experimental Evidence of Tax Salience and the Labor-Leisure Decision: Anchoring, Tax Aversion, or Complexity?" 41 *Public Finance Review* 203 (2013); Gamage and Shanske, "Three Essays on Tax Salience: Market Salience and Political Salience," 65 *Tax L. Rev.* 19 (2011).

²²Gamage and Shanske, "On Tax Increase Limitations: Part II — Evasion and Transcendence," *State Tax Notes*, Apr. 23, 2012, p. 245; Gamage and Shanske, "On Tax Increase Limitations: Part I — A Costly Incoherence," *State Tax Notes*, Dec. 19, 2011, p. 813.

²³This is not to say that we are confident the California courts will agree, just that they *should*. At the time of this writing, there were arguably indications that an appellate court was going to find that AB 32 amounts to a tax. See Walters, *supra* note 3.

²⁴Frank Wolak, a Stanford economist, suggested this as a possibility to the *Los Angeles Times*. Chris Megerian and Ralph Vartabedian, "California's Cap-and-Trade Program Faces Daunting Hurdles to Avoid Collapse," *Los Angeles Times*, June 14, 2016, available at <http://www.latimes.com/politics/la-pol-sac-climate-change-challenges-20160614-snap-story.html>. Prominent economists have also argued that this might in part explain the drop in price of European allowances. See Ellerman et al., *supra* note 14.

that causes acid rain), the first big test for the cap-and-trade concept, was a big and speedy success.²⁵ Remember, part of the idea behind cap and trade is to put an implicit price on an externality that had never been priced before, and so there might indeed be lots of low-hanging emissions reductions. Further, the genius of cap and trade is to provide incentives for those emitters that can most cheaply reduce emissions to do so and then profit from selling their allowances to emitters that face higher costs in reducing their emissions.

Granted, the program's success is not the most likely explanation for the problems with the last auction, at least in general, but the conceptual point is that it well could be. And the reason could be that this is a program with a regulatory goal, not a revenue-raising goal. Indeed, and by design, California's cap-and-trade program is only one small part of a larger regulatory program. Right from the start of cap and trade, CARB anticipated that more traditional command-and-control regulations would lead to 80 percent of the greenhouse gas reductions.²⁶ Therefore, auction revenue is also vulnerable to the success of the vast majority of the remainder of the regulatory regime because why should an emitter purchase an allowance if regulations are already forcing him to reduce his emissions below the cap? Accordingly, the success of the rest of the regulatory regime is also a reason that prominent commentators believe explain the recent poor auction results.²⁷

Receipts from cap and trade thus do not resemble the receipts that governments collect from taxation. An income tax might, at the margins, suppress the earning of income, but the success of the income tax is its ability to regularly finance the ordinary operation of government while not causing too many economic inefficiencies. Volatility is a major knock against a tax. In general, there is a fortiori not

²⁵Jonathan Gruber, *Public Finance and Public Policy* 154-55 (2013).

²⁶Michael Wara, "California's Energy and Climate Policy: A Full Plate, but Perhaps Not a Model Policy," 70 *Bulletin of the Atomic Scientists* 26 (2014).

²⁷Cullenward and Coghlan, *supra* note 8.

an entire regulatory apparatus meant to suppress the base of the income tax, sales tax, or property tax.²⁸

It is precisely because general taxes go to the broad financing of government functions that taxes are considered by some — including the people of California — a special case requiring supermajorities. Anyone's tax dollars can go to finance a broad category of projects, so the concern is that a minority will be taxed to support a bare majority. Because cap and trade is designed to mitigate an externality, it is not well-designed to finance the general workings of government and hence cannot be a tool of majority oppression in this way. We are not claiming that revenue from cap and trade *has* been spent on general government functions. To the contrary, there has been a deliberate effort to spend the revenue only on greenhouse gas mitigation. Yet even as to these projects, including high-speed rail, the recent auction's failure demonstrates why the revenue from this regulatory program is not to be relied on like tax revenue.

There is, of course, much more to be said about these matters.²⁹ Our point is just that what we take to be the knockdown argument that cap-and-trade revenue is *not* tax revenue as a legal matter is not affected by whether a cap-and-trade regime is improved with the tax elements we have discussed in our two articles. ■

²⁸It could be objected that sin taxes are meant to mitigate negative externalities. Surely a cigarette tax is a tax, even if it is also meant to reduce smoking and there are many regulations that complement cigarette taxes in order to reduce smoking. Yet the cases are distinguishable. The difference is in the assumed elasticities of the different activities. It is assumed that people will continue to smoke, if slowly less frequently; hence, this is a tax that provides a stable source of revenue even as it also contributes to a regulatory objective. Cap and trade is premised on the assumption that the ability of our economy to reduce its use of carbon is much greater than the ability of tobacco users to quit.

²⁹For instance, Proposition 26 seems to expand the definition of a tax to include regulatory fees, which would seem to be the broad category into which cap-and-trade revenue would fall. We disagree. We think that the better reading of Proposition 26 is that it bars regulatory fees that are retroactive and hence only tenuously connected to affecting behavior. Shanske, "Going Forward by Going Backward to Benefit Taxes," 3(2) *California Journal of Politics and Policy* (2011), available at <http://scholarship.org/uc/item/1bt4928f>.