Summary for GRiSTS 2024

Performativity, Complexity, and Framing in the FCC Spectrum Incentive Auction

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Introduction

The US Federal Communication Commission's (FCC) Spectrum "Incentive Auction" began on March 29th, 2016. The complex, multi-stage auction was the first of its kind, and had been designed by a team led by Stanford economist Paul Milgrom, a well-known expert from the field of "market design". The auction's goal was to reallocate a portion of the United States' radio spectrum from local cable television broadcasters — whose product had been largely supplanted by cable and digital TV — to mobile broadband providers, who could serve rising demand for smartphone-enabled wireless data access. Reallocation was necessary because spectrum bandwidth is limited, and signal "interference" occurs if the same channel is used by multiple broadcasters in a given area.

The incentive auction concept had first been proposed in 2010 in the FCC's National Broadband Plan (FCC Staff 2010), and had been implemented by the FCC and Milgrom's team over the intervening six years. In its final form, the auction was extremely complex; designer Milgrom would refer to it as "by far the most complicated resource reallocation ever attempted, anywhere in the world" (Crawford 2016). The incentive auction would actually consist of two smaller, interdependent auctions — a descending "reverse" auction, wherein television broadcasters would have the option to sell their spectrum rights back to FCC, and a complementary ascending "forward" auction, wherein buyers would purchase cleared spectrum rights for new use. Between the two auctions, the FCC would computationally "repack" the spectrum of television broadcasters that chose to remain on air, clearing out contiguous, nationwide spectrum blocks that were desirable for mobile broadband providers. When the auction concluded some 11 months after its start, it would clear roughly 84 MHz of spectrum, paying roughly $10 billion to broadcast television providers in the reverse auction, raising $19 billion from buyers in the forward auction, and netting around $7 billion for the US treasury after expenses.

The auction was not without controversy; in the leadup to the auction, journalists documented that several private equity firms had begun quietly buying up underperforming commercial television stations around the country, speculating that the firms had a goal of "flipping" them for a profit (e.g. Malone 2013; Mook 2013). As the auction neared, a team of independent economists further developed these concerns, showing that the reverse auction — which was supposed to be "obviously strategy proof" (Leyton-Brown et al. 2020) — could in fact be strategically manipulated due to a subtle assumption in its theoretical design (Doraszelski et al. 2017). In short, auction designers had assumed that broadcasters selling in the reverse auction would act independently. However, according to Doraszelski et al. (2017), this assumption was violated in practice — if sellers controlled multiple stations, they could profitably withhold some stations to increase the price of others.

Following the auction, Doraszelski et al. (2017) documented that the private equity firms had apparently behaved consistently with this supply-reduction strategy — purchasing TV stations to accumulate market power in the reverse auction, and then selling some for large

profits while withholding others (Doraszelski et al. 2017; see also Ausubel et al. 2017). One collaborator on the paper, Yale economist Katja Seim, would subsequently explain in an interview that strategic supply reduction (not exclusively enacted by private equity firms) had increased reverse auction prices by something like 7%, implying that the FCC—and hence US taxpayers—had "overpaid" on the order of $700 million, with something like $100 million[1] of this accruing as profit to private equity firms (Romer 2020; Milgrom 2020). These issues would lead to subsequent public critique from Weyl (2020) and Feltri (2020) and a response by Milgrom (2020).

Despite this controversy, the incentive auction has widely been viewed by experts and practitioners as a success (e.g. Wheeler in FCC, 2017[2]). In the field of economic market design, it is generally treated as a crowning achievement and an example to be emulated in other settings (e.g Kominers, 2020). Paul Milgrom — the auction's lead designer — would go on to share the 2020 Nobel Prize in Economics for his work on "the invention of new auction formats" (The Prize in Economic Sciences, 2020).

Summary of Argument

This paper will proceed in three parts. First, I will analyze the incentive auction from the perspective of the "performativity" of economics (Mitchell 2007; Callon 1998a; MacKenzie 2008). I will focus especially on the work of "framing" (Callon 1998b) — i.e. the process by which market designers sought (and partially failed) to draw boundaries around the economic (i) *objects*, (ii) *agents*, and (iii) *decisions* that would be "on stage" and hence relevant in the auction transactions. I will show that none of this framing was accomplished "for free" but instead required various background legal, political, and material investments to hold in place.

Second, I will zoom out and examine the design flexibility of the auction itself. Among the many ways that the public problem of spectrum reallocation *might have been addressed*, how and why did the Incentive Auction — with its particular set of framing choices — come to be understood as an appropriate and necessary solution to this problem? To answer this, I will first position the incentive auction — and spectrum auctions more generally — within a broader US political culture which centers economic efficiency and market-like solutions to public problems. I will show how economic experts sought to simultaneously position the incentive auction as an "efficient", market-like solution, while *also* justifying its particular, highly-centralized and technocratic form as uniquely appropriate among market-like approaches. I will focus especially on the role of "complexity" in explaining why more typical market forms *would not* suffice to solve the problem of spectrum reallocation. I will argue that rendering the problem "complex" is a *co-productive* moment (Jasanoff 2004): it involves both (1) making a fact about the economic reality and calculative capacity of economic agents, and (2) drawing a normative implication

[1] This $100 million number is quoted in Milgrom (2020) as a summary of Doraszelski et al. (2017). The estimates Doraszelski et al. (2017) have since been updated; the paper now states that "strategic supply reduction increases payouts to TV stations by between 13.5% and 42.4%" (vs. the 7% quoted by Seim in Romer 2020).

[2] Wheeler said: "The world's first spectrum incentive auction has delivered on its ambitious promise. Reaching the Final Stage Rule means the benefits of the auction are indisputable. We will repurpose 70 MHz of high-value, completely clear low-band spectrum for mobile broadband on a nationwide basis. On top of that, 14 MHz of new unlicensed spectrum – the test bed for wireless innovation – will be available for consumer devices and new services. The auction will provide $10.05 billion to broadcast television licensees who participated and billions towards deficit reduction."

about the need for market design, framing, and (a particular type of) economic expertise in helping to manage this complexity.

In the third and final portion of this paper, I will return to the question of the auction's success. Drawing on the interpretive resources developed in the previous parts, I will seek to understand how and why the auction was rendered successful, despite the allegations of strategic manipulation and profiteering by private equity firms and multi-station owners.

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