Preliminary

Neo-corporatism and Energy Efficiency Regulation

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Abstract –

Energy efficiency regulations promulgated by the Department of Energy (DOE) since the oil shocks of the 1970's draw firms and the DOE into long-run relationships. The DOE itself has come to characterize firms as "stakeholders" in "collaborative negotiated rulemaking" processes.

The question of how the DOE determines which industries and firms to draw into its regulatory sphere remains outstanding. Further, there is a question of how such regulation affects entry and exit (if at all) from given markets. The research presented here provides some clues. Specifically, the pace of rulemaking appears largely driven by ideology in that it whipsaws from one administration to the next. Further, it is not obvious that "collaborative negotiated rulemaking" generally frustrates entry or promotes exit, but unilateral promulgation of "direct final rules" can induce sharp episodes of exit.

These results are consistent less with regulatory capture theory (according to which the regulator acts as an agent of private interests) and more with a concept of neo-Corporatism (according to which private parties act as agents of the regulator). These results derive from examination of data on all "energy efficiency" rulemaking processes filed between 1998 and 2016.

Introduction

In *The State and Revolution* (1917), Vladimir Lenin contemplated the optimal design of regulation: render regulation all-encompassing by subsuming the entire private sector within the public sector. Do it by "organizing the whole of society" as "a single factory" and imposing "'factory' discipline."[1] The new Soviet government would manage the entire economy by centralized, administrative process, and it would make that process conform to the best aspects of Scientific Management as expounded by Frederick W. Taylor in his slender tome *The Principles of Scientific Management* (1913). Indeed, Lenin declared in "The Immediate Tasks of the Soviet Government" (1918) that the "Taylor System" would enable the new Soviet administration to harness "the up-to-date achievements of capitalism" and thus operate the economic system like a finely-tuned and finely-tooled machine.[2]

[1] Lenin 1917, pp. 86-87.
[2] Lenin 1965(1918), pp. 258-259.

In *The State* (1889), Woodrow Wilson could observe that versions of the Leninist program had been around for some time. The Socialists of his time would surely have approved of the program that Friedrich Engels had sketched in *Principles of Communism* (1847, p. 12): to "abolish competition and replace it with association," or, as Wilson himself put it: to "stamp out competition" by way of making "all men equally subject to the public order, to an imperative law of social co-operation."[3] Wilson, however, advocated for an approach that would contemplate a non-trivial role for market-mediated exchange and private initiative: rather than entirely supplant decentralized, market-mediated exchange with centralized, administrative process, use government to regulate, and thus fortify, market processes. How to do this remained to be seen, but "such a doctrine [could] be formulated, surely, with no great vagueness."[4]

In "Cartelization by Regulation," Laffont and Tirole (1993) could very well have observed that implementing regulation could yet involve navigating through much vagueness. Among other things, the authors posed the hypothesis that regulation would potentially draw a host of parties into agency relations, and the problem of governing those relations might be non-trivial insofar as they were fraught with informational asymmetries. A legislature, for example, might delegate much authority to an administrative agency to design and implement regulation. Whether or not an agency's implementation accorded well with legislative intent, however, would remain an issue. An administrative agency might, for example, find itself operating as the agent of private interests—that is, it might become subject to "regulatory capture" by the private parties it had been charged with regulating, in which case it might be able to get away with tailoring regulations to benefit those same private parties.

Laffont and Tirole (1993) explore an environment in which private parties can seamlessly make transfer payments to an administrative agency, and it is through such transfer payments that an agency may be induced to collude with firms over the question of either enabling or blocking the entry of competing firms into a given market.

The notion of transfer payments might strike some observers as unrealistic, but it has been the case that a particular agency, the United States Food and Drug Administration (FDA), has long maintained a "User Fee Program"[5] within its Office of Financial Management, and it is through this program that "biotech companies make payments to the agency partly to seek product approvals"—that is, to seek entry into markets.[6]

Some observers might suggest that the FDA experience would represent a sparkling, sanitized case of regulatory capture. Other observers, however, such as Moe (1987), might yet suggest

[3] Wilson 1889, p. 660. The Engelsian program was (Engels 1847, p.12)
[4] Wilson 1889, p. 660.
[5] https://www.fda.gov/industry/fda-user-fee-programs, accessed June 20, 2024.
[6] "The fees have soared since the program's inception three decades ago and now make up nearly half of the F.D.A.'s budget, …" *New York Times*, "FDA's Drug Industry Fees Fuel Concerns Over Influence." September 15, 2022, https://www.nytimes.com/2022/09/15/health/fda-drug-industry-fees.html.

that we should consider the prospect that administrative agencies like the FDA *were designed to be captured*—that is, they were designed to factor the interests of private parties (a subset of "stakeholders") into enforcement decisions and rulemaking processes. In either case, the public agency (the FDA in this case) ends up operating as an agent of private interests. In contrast, this paper takes up the prospect that private interests may end up operating as agents of an administrative agency. Specifically, I examine rulemaking activity concentrated within the Office of Energy Efficiency & Renewable Energy (EERE program) at the United States Department of Energy (DOE).

In Laffont and Tirole (1993), private parties would need to pay off the administrative agency in order to secure its participation in a cartelization gambit, although cartelization might yet suit public policy objectives insofar as limiting entry into a given market may amount to frustrating inefficient entry. In the EERE case, the remit of the administrative agency (the DOE) does not include explicitly regulating entry into a given market, but it does involve imposing regulations that may inform the decision of a firm to enter or exit. Specifically, EERE regulation may impose costs. Some of these costs may become manifest as the costs of certifying compliance with each new iteration of EERE regulation as well as in increased fixed operating expenses as firms install capacity in managing and monitoring "regulatory affairs." In 2015, for example, the DOE had published in the *Federal Register* a "Notice or Proposed Rulemaking" by which it would inaugurate "Energy Conservation Standards" for "specific rotodynamic, clean water pumps used in a variety of commercial, industrial, agricultural, and municipal applications."[7] In a public letter to the DOE, the Antitrust Division of the United States Department of Justice (DOJ) indicated that it could not conclude that implementation of the proposed energy efficiency standard would or would not "substantially lessen competition," but it did illuminate concern that "the standards and test procedure could cause some manufacturers to halt production, reduce the number of manufacturers of pumps covered by the new standards, and deter companies who do not currently manufacture pumps covered by the new standards from entering the market."[8] The DOE subsequently implemented a Final Rule without accommodating the DOJ's concerns. Indeed, the DOE averred that the standards would "not result in adverse impacts on competition,"[9] and it further argued that, notwithstanding the fact that pumps manufacturers had not previously been subject to EERE regulation, these manufacturers likely had experience bearing the costs of testing as part of any one firm's own "existing quality control process."[10] EERE compliance would therefore not, in the DOE's view, incrementally increase firms' operating expenses.

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[7] *Federal Register*, Vol. 80, No. 63, April 2, 2015, pp. 17826-17892, https://www.regulations.gov/document/EERE-2011-BT-STD-0031-0040.

[8] The letter is available at https://www.regulations.gov/document/EERE-2011-BT-STD-0031-0053 and was transcribed in the *Federal Register*, Vol. 81, No. 16, January 26, 2016, pp. 4432-4433, https://www.regulations.gov/document/EERE-2011-BT-STD-0031-0060.

[9] Federal Register, Vol. 81, No. 16, January 26, 2016, p. 4380, https://www.regulations.gov/search?filter=EERE-2011-BT-STD-0031-0060.

[10] *Federal Register*, Vol. 81, No. 15, January 25, 2016, p. 4138, https://www.govinfo.gov/content/pkg/FR-2016-01-25/pdf/2016-00039.pdf.

The DOE represented both the proposed rule of 2015 and the final rule of 2016 as according with "the consensus of a stakeholder negotiation" even though it then proceeded to implement a final rule in the face of continued opposition from many of those same stakeholders (firms). One might be tempted to suggest that the invocations of "consensus" belie a harsher reality: A given DOE rule might generate a consensus among firms subject to the rule insofar as the rule accords with the interests of those same firms. For example, a rule that firms understand would frustrate new entry into given markets might generate broad approval among market insiders; energy efficiency regulation may support a softer version of cartelization-by-regulation. But, the appearance of consensus may merely mask a reality that the DOE rulemaking process is more unilateral than consensual and multilateral. Moreover, claims of consensus will sometimes mask the reality of a lack of consensus.

The DOE does not sketch so much a public interest theory as a public interest narrative according to which it folds the interests of "stakeholders" (firms and environmental interest groups) into the design and implementation of its regulations; these regulations also promote the larger public interest by virtue of including environmental interest groups within the agency's collaborative processes. Broad consensus emerges. One can imagine, however, that consensus across stakeholders may also characterize cartelization by that same regulation in which case conduct under either regime may be difficult to distinguish from the other.

In this paper I illuminate patterns across three sets of data that, I would suggest, would be difficult to reconcile with a public interest narrative and would easier to rationalize with a narrative that affords some scope for variations in ideologically-motivated policy preferences from one administration to the next. Patterns in the data suggest that (1) the Antitrust Division of US Department of Justice has had some success in predicting "significant harm to competition" after the implementation of certain energy efficiency regulations; (2) the Division was less likely to discern harm in industries that had long been absorbed into the regulatory regime but, rather, was more likely to discern harm not long after regulation of a given industry had first been inaugurated; (3) the pace of rule-making could whipsaw sharply from one administration to next as certain administrations were intent on expanding the scope and pace of regulation while others made some efforts to rollback regulation; (4) Sharp episodes of exit would follow those rulemaking processes that appeared to be less collaborative and rather more unilateral in that the DOE would sometimes opt to fast-track regulation by way of "direct final rules."

The rest of the paper proceeds in four parts. In the next part I sketch the history of energy efficiency regulation in the United States. I then describe the data sources. The part after that features data exhibits, and the last part concludes.

1. A brief history of energy efficiency regulation

The Energy Policy and Conservation Act of 1975 (EPCA) directed the newly-created Federal Energy Administration to propose voluntary energy efficiency benchmarks for thirteen sets of

household appliances of "covered products": "(1) refrigerators and refrigerator-freezers; (2) freezers; (3) dishwashers; (4) clothes dryers; (5) water heaters; (6) room air conditioners; (7) home heating equipment, not including furnaces; (8) television sets; (9) kitchen ranges and ovens; (10) clothes washers; (11) humidifiers and dehumidifiers; (12) central air conditioners; and (13) furnaces." See EPCA §322(a)(1)-(13).[11]

Energy efficiency benchmarks for household appliances constituted but one part of a larger "comprehensive national energy policy" following the experience of the OPEC oil embargo of 1973. Policy initiatives "included residential appliance efficiency standards, the commercialization of residential applications of solar photovoltaic (PV) installations and solar thermal appliances, and the implementation of energy performance standards for buildings" all with the aim of reducing "residential fossil fuel consumption." (Hartman 1981)

The DOE's rulemaking activity really only started in 1977 after the Federal Energy Administration was folded into the newly-created Department of Energy. In 1978, the administration of Jimmy Carter then shepherded passage of the National Energy Conservation Policy Act (NECPA). The big innovation of NECPA was to supplant "voluntary" energy efficiency benchmarks with "mandatory" energy efficiency standards.

The incoming administration of Ronald Reagan revisited the energy efficiency standards program and endeavored to rollback the mandatory standards, restoring them to voluntary benchmarks. The administration's initiative quickly became the subject of several streams of protracted litigation. The portfolio of cases was ultimately consolidated and resolved in *Natural Resource Defense Council v. Herrington*, 768 F.2d 1355 (D.C. Circuit 1985). The regime of mandatory efficiency standards survived, and the DOE was forced to withdraw a number of rules that had effectively undone mandatory standards implemented at the very end of the Carter administration.

The EPCA/NEPCA regime was amended in 1992 to require the DOE to factor into its rulemaking processes "the impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the imposition of [a given] standard."[12] Investigation into the impact of any lessening of competition was then delegated to the Antitrust Division. Investigation would amount to a cursory affair that involved mostly interviewing the manufacturers that would be subject to a given efficiency standard.[13]

Rulemaking activity at the DOE picked up markedly in the 1990's, especially during the second term of the Clinton administration. Activity diminished somewhat during the years of the administration of George W. Bush, but it was during those years that the DOE reorganized its

[11] https://www.congress.gov/bill/94th-congress/senate-bill/622/text, accessed June 20, 2024.
[12] 42 U.S. Code § 6295(o)(2)(B)(i)(V) - Energy conservation standards, https://www.law.cornell.edu/uscode/text/42/6295.
[13] I know this from having been drawn into some number of such investigations in 2015 and 2016 in my role as a research economist at the Division.

EERE program. This reorganization anticipated the Energy Independence and Security Act of 2007. Among other things, the Act provided for a broad expansion of "covered products."

DOE rulemaking activity increased sharply during the two terms of the Obama administration with the promulgation of final rules reaching an all-time peak during President Obama's second term. By 2010, an interagency working group had developed a concept of the "social cost of carbon for Regulatory Impact Analysis" (SCC)[14], and the DOE subsequently started using the SCC to rebuff objections to new efficiency standards.

By 2015, the DOE would recognize 55 classes of "covered products" including "battery chargers" and "illuminated exit signs."[15] By then, covered products had already encompassed commercial (non-residential) products. Three more classes of covered products had also been proposed.

The Trump administration revisited many of the rules rolled out late in the Obama years and rolled some of the new standards back to previous levels. The proposed rollbacks were met with record levels of public commentary, most of which was in the spirit of "make appliances great again!"

2. Data

I work out of three sets of data:

(1) Statistics of U.S. Businesses (SUSB): An annual count, from 1998 through 2016, of firms, establishments and employees (by 6-digit industrial code) from the Statistics of U.S. Businesses (SUSB) maintained by the United States Census Bureau. The 6-digit industrial codes correspond to the North American Industry Classification System (NAICS).

(2) EERE Filings: A record of DOE filings pertaining to energy efficiency standards from 1974 through 2018, with a particular focus on the interval 1998-2016. The EERE data include counts of "final rules," "proposed rules," and "public comments."

(3) DOJ Letters: Letters, publicly posted in the *Federal Register*, from the Antitrust Division of the US Department of Justice to the Department of Energy (DOJ). These letters relay Division assessments of "the impact of any lessening of competition… that is likely to result from the imposition of" energy efficiency standards.

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[14] See, for example, "Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866," Interagency Working Group on Social Cost of Carbon, United States Government, February 2010, https://www.regulations.gov/document/EPA-HQ-OAR-2009-0472-11457.

[15] *Federal Register*, Vol. 80, No. 20, January 30, 2015, p. 5100, https://www.regulations.gov/document/EERE-2021-OT-0032-0042.

I merge SUSB data with EERE data to create a dataset in which the unit of analysis is the NAICS-SUSB survey year (hereafter, "NAICS-year"). To each NAICS-year I assign a vector that includes the number of final rules, direct final rules, proposed rules, comments, firms, establishments and employees.

The EERE filings from 1998-2016 span 556 proposed rules (PR's), 189 final rules (FR's) and 17 direct final rules (DFR's). Only two rules had been withdrawn in that time whereas as many as 14 had been withdrawn as of 1986.

A given final rule (FR) or proposed rule (PR) advanced by the DOE may map into several NAICS. The matching of NAICS to rules involved matching text in the rules to text in the descriptions of NAICS.

SUSB firm count data were first rolled out in 1997 with the inaugural rollout of NAICS. NAICS replaced the Standard Industrial Classification (SIC) regime. Both the NAICS and SIC systems assign industrial codes to firms and establishments. The inaugural 1997 edition of SUSB only affords access to 4-digit NAICS codes whereas subsequent editions afford finer resolution at the level of 6-digit codes. I restrict my analysis to 6-digit codes and thus exclude SUSB firm count data from 1997.

NAICS codes had been amended several times: in 2002, 2007, 2012, 2017 and 2022. The mappings from different editions of NAICS are many-to-one over time with a given 6-digit code from an earlier edition being absorbed by NAICS in subsequent editions. The mapping from SIC codes to NAICS is many-to-many.

The mapping of successive editions of NAICS and SIC codes will involve aggregation into a smaller number of more highly populated NAICS. Rather than adapt the analysis to the 2017 edition of NAICS, I stopped analysis at 2016, the last year in which the 2012 edition of NAICS had been operational. That left me with 24 NAICS that were at least partially subject to energy efficiency standards at some point in 1998-2016. (See Table 1.) That leaves 19 years of observations across 24 NAICS thus totaling 456 observations at the level of the NAICS-year unit of analysis.

For other purposes, I use EERE counts of the final rules and proposed rules extending from the Carter years (1977-1980) through the first two years of the Trump administration (2017-2018).

Finally, I identify 75 DOJ letters posted as late as 2020. I also match these letters with the SUSB data at the NAICS-year level of analysis to generate a dataset of 456 observations over the interval 1998-2016.

DOJ assessments of "the impact of any lessening of competition" lend themselves to an obvious partition. The Division might indicate the prospect of a lessening of competition as "not likely," "likely," or "significant." The Division might also express broad concerns (which I label as

"some concern") or might indicate that it had not been well equipped to indicate a level of concern. Finally, the Division might decline to offer an opinion. The Division does not publish a letter in the *Federal Register* for every rulemaking process. For example, in promulgating its final rule in 2015 for "Test Procedures for Small, Large, and Very Large Air-Cooled Commercial Package Air Conditioning and Heating Equipment," the DOE had "consulted" with both the Division and the Federal Trade Commission but "received no comments."[16]

Table 1

Industrial Codes that Intersected with Energy Efficiency Regulation 1998-2016

NAICS (2012)	NAICS label
332410	Power Boiler and Heat Exchanger Manufacturing
332913	Plumbing Fixture Fitting and Trim Manufacturing
333318	Other Commercial and Service Industry Machinery Manufacturing
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
333911	Pump and Pumping Equipment Manufacturing
333912	Air and Gas Compressor Manufacturing
334290	Other Communications Equipment Manufacturing
334310	Audio and Video Equipment Manufacturing
334413	Semiconductor and Related Device Manufacturing
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use
335110	Electric Lamp Bulb and Part Manufacturing
335121	Residential Electric Lighting Fixture Manufacturing
335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing
335210	Small Electrical Appliance Manufacturing
335221	Household Cooking Appliance Manufacturing
335222	Household Refrigerator and Home Freezer Manufacturing
335224	Household Laundry Equipment Manufacturing
335228	Other Major Household Appliance Manufacturing
335311	Power, Distribution, and Specialty Transformer Manufacturing
335312	Motor and Generator Manufacturing
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing
339950	Sign Manufacturing

[16] Federal Register, Vol. 80, No. 246, December 23, 2015, p. 79667, https://www.regulations.gov/document/EERE-2015-BT-TP-0015-0016.

3. Exhibits

The pace of rulemaking activity across administrations

The unit of analysis is the NAICS-year for the years spanning 1977-2018. The combination of 24 NAICS and 42 years thus makes for 1008 observations.

I compare the counts of final rules and proposed rules by NAICS-year across administrations. I implement Poisson count regressions. The regression analysis amounts to estimating latent, fixed, base-line rates at which administrations implemented FR's and PR's and then comparing deviations from these rates by administration. I use the first term of the administration of George W. Bush as the baseline.

The coefficients in Table 2 indicate the rates at which given administrations implemented FR's and PR's as fixed proportions of the baseline rates. First consider FR's. The Carter administration appears as having implemented FR's at 2.27 times the baseline rate, and this rate is statistically distinguishable from the baseline rate at the 5% level. Meanwhile, the rate for the first term of the Reagan administration is not distinguishable from the baseline rate for FR's, but the rate of Reagan's second term clocked in at a mere one-seventh (14%) of the baseline rate. The implementation of rules sharply decline. The FR rate did not pick up appreciably again until the second term of the Clinton years (1997-2000), but FR activity increased sharply in the first Obama term, clocking in at 4.71 times the baseline rate. The rate was highest in Obama's second term but reverted to the baseline rate in the first two years of Trump's term.

PR counts tell a similar story. The Carter administration issued PR's at a rate that exceeded the baseline rate. The Clinton administration was even more active in this respect, but it was the Obama administration that was most active with it advancing PR's at 12 times the baseline rate during Obama's second term.

Result: The rates at which administrations would pursue rulemaking activity could vary sharply from one administration to the next. Rulemaking activity generally diminished during the administrations of Reagan and Trump as these administrations endeavored to either rollback regulation or temper the pace of regulation. In contrast, the Obama administration was most aggressive in promulgating new rules. The administration used carbon mitigation as justification for much of this accelerated activity. Altogether, the pace of activity has the appearance of being largely, if not wholly, driven by ideological differences across administrations.

Table 2

Relative Rates of FR and PR activity by Administration

Dependent Variable	**FR counts**	**PR Counts**
Observations	1008	1008
Groups	24	24
Carter (1977-1980)	**2.57****	**2.26***
	1.02	1.12
Reagan (1981-1984)	**1.29**	**0.78**
	0.61	0.53
Reagan (1985-1988)	**0.14*****	**1.78**
	0.06	0.86
GHWBush (1989-1992)	**0.71**	**1.09**
	0.26	0.51
Clinton (1993-1996)	**0.71**	**2.74****
	0.27	1.47
Clinton (1997-2000)	**2.28****	**3.26*****
	0.91	1.05
Bush (2001-2004)	**Baseline**	**Baseline**
Bush (2005-2008)	**1.29**	**1.83****
	0.47	0.62
Obama (2009-2012)	**4.71*****	**7.04*****
	1.68	2.42
Obama (2013-2016)	**5.79*****	**12.04*****
	2.22	4.44
Trump (2017-2018)	**1.43**	**2.35*****
	0.84	0.59
Log-likelihood	-484.86	-856.83

Perturbations in counts of firms, establishments and employees after rulemaking events

Let n_{it} indicate the count (of firms, establishments or employees) in NAICS *i* and year *t*, and let "notices" of forthcoming rulemaking processes as well as the promulgation of proposed rules, final rules, and direct final rules indicate rulemaking events. Let r_{it} indicate the rate of growth in year *t* such that $n_{it} = (1 + r_{it}) n_{it-1}$. Note that $\left(\frac{n_{it}}{n_{it-1}}\right) = 1 + r_{it} \approx e^{r_{it}}$ so that $\ln\left(\frac{n_{it}}{n_{it-1}}\right) \approx r_{it}$ or $\ln(n_{it}) \approx \ln(n_{it}) + r_{it}$. This expression motivates a regression of the form $\ln(n_{it}) = (1 - \alpha_i)\ln(n_{it-1}) + \beta_{notice} Notice_{it} + \beta_{pr} PR_{it} + \beta_{fr} FR_{it} + \beta_{dfr} DFR_{it} + \phi_i + \varepsilon_{it}$ where the variables $Notice_{it}$, PR_{it}, FR_{it} and DFR_{it} indicates counts for a given NAICS-year of rulemaking events. The coefficients β_{notice}, β_{pr}, β_{fr} and β_{dfr} indicate average effects across all NAICS-years of a given rulemaking event.

I applied one-year lags of the "events" to accommodate the prospect that unlagged events may pre-date adaptations in a given year to the events. Including lags introduces the prospect of "dynamic panel bias" in estimation involving panels with "short *T*" as characterized by Nickell (1981).[17] Estimation with bootstrap-based bias correction[18] accommodates such prospective bias.

All of the results in the following table obtain from a fixed-effects analysis with year dummies. Both estimation with random-effects and a fixed-effects analysis with bootstrap-based bias correction yield virtually the same results (not reported here).

It is not obvious that rulemaking processes should have any effect on the counts of firms, establishments or total employment in markets subject to energy efficiency regulation. If the regulator really is captured, then one might not expect much exit or entry as the regulator and regulated negotiate their way toward settlements that insulate markets from entry and prevent the exit of insiders. Similarly, if the regulator really does preserve the interests of "stakeholders" (which would include insiders), *de facto* cartelization may yet obtain with the regulator having the appearance of operating (in antitrust parlance) as the "hub" in a "hub-and-spoke" conspiracy to restrain trade. In either case, counts of firms, establishments and employees may yet appear invariant to rulemaking events. Evidence, however, that counts of firms, establishment or employees are systemically sensitive to certain classes of rulemaking events would suggest that regulator does not wholly accommodate the interests of insiders. Rather, the regulator may be operating without regard for the welfare of insiders, in which case it might be disposed to sometimes propose and then implement regulations that really would encourage exit.

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[17] Bias may derive from correlation between the "fixed effect" ϕ_i and the error process ε_{it}.

[18] See Everaert and Pozzi (2007). Bootstrapped bias correction constitutes an alternative to GMM estimation of the Arrelano-Bond variety that deploys lags of the dependent variables as instruments.

Even if rulemaking events will sometimes induce exit, such exit may be difficult to discern in that NAICS may not afford a perspective of high resolution into market dynamics. NAICS, of course, do not delineate antitrust-cognizable markets. At the very best, NAICS may comprise little more than noisy proxies for markets, but actual market dynamics may yet sometimes emerge from the noise and reveal themselves.

Estimation does yield some sharp results. (See Table 3.) The imposition of Direct Final Rules induces exit of 14.99% of firms as well as an exit of 12.56% of establishments. (These results involve the sums of the lagged and non-lagged effects and are both statistically significant at the 5% level.) Meanwhile, counts of firms, establishments and employees appear invariant to other types of rulemaking events.

Direct Final Rules appear 17 times in the dataset across 13 NAICS-years. The DOE often represents a DFR as the product of a "Consensus Agreement … submitted by a broad cross-section of the manufacturers who produce the subject products, their trade associations, and environmental, energy-efficiency and consumer advocacy organizations."[19] The results reported here suggest that prospect that "Consensus Agreements" may not, in fact, reflect consensus across all market insiders and may better reflect the policy preferences of the regulator than those of the regulated.

[19] See, for example, the Direct Final Rule for "Energy Conservation Standards for Residential Clothes Dryers and Room Air Conditioners," Federal Register, Vol. 76, No. 77, April 21, 2011, p. 22463, https://www.regulations.gov/document/EERE-2007-BT-STD-0010-0050.

Table 3

Effects of rulemaking events on counts of firms, establishment and employees

Dependent Variable	**ln(Firms)**	**ln(Establishments)**	**ln(Employees)**
Observations	432	432	432
Groups	24	24	24
Lag ln(Firms)	**0.8291***** 0.0370	**0.8721***** 0.0266	**0.9109***** 0.0182
Notices	**-0.0128***** 0.0043	**-0.0112***** 0.0037	**0.0004** 0.0023
Lag Notices	**0.0068*** 0.0036	**0.0052** 0.0036	**-0.0032** 0.0026
Proposed Rules	**-0.0035** 0.0027	**-0.0034** 0.0024	**-0.0016** 0.0009
Lag Proposed Rules	**0.0047** 0.0040	**0.0054** 0.0044	**0.0060** 0.0082
Final Rules	**0.0030** 0.0051	**-0.0006** 0.0053	**-0.0082** 0.0094
Lag Final Rules	**-0.0009** 0.0050	**-0.0030** 0.0046	**0.0031** 0.0093
Direct Final Rules	**-0.0334** 0.0228	**-0.0262** 0.0172	**0.0038** 0.0241
Lag Direct Final Rules	**-0.1165**** 0.0544	**-0.0997**** 0.0456	**0.0041** 0.0245
R-squared	0.77	0.83	0.93
Year Dummies	Yes	Yes	Yes
NAICS Dummies	Yes	Yes	Yes

DOJ assessments of the prospect of the "lessening of competition"

I scored DOJ assessments of "the impact of any lessening of competition… that is likely to result from the imposition of" energy efficiency standards as "Not Likely," "Likely," "Significant", or reflecting "Some Concern." I evaluated DOJ assessments by mapping the 63 letters from the interval 1998-2016 into the set of 456 NAICS-years. I conducted a fixed-effects analysis much in the spirit of the earlier analysis—see Table 4—although, of course, such analysis does not reflect causal relationships. It merely constitutes a way of systematically illuminating interesting correlations: Did the DOJ do a good job predicting harm to competition when, in fact, the imposition of rules induced harm to competition?

Four of the letters indicate concerns that implementation of proposed rules would induce a "significant" lessening of competition. The results indicate that the counts of firms and establishments declined 18.73% and 13.58%, on average, across these four cases. The analysis does not illuminate harm to competition in the 59 other cases in which the DOJ indicated that harm was either unlikely (39 cases), likely (7 cases) or a matter of some concern (13 cases).

Table 4

DOJ Assessments of a "lessening of competition"

Dependent Variable	**ln(Firms)**	**ln(Establishments)**	**ln(Employees)**
Observations	432	432	424
Groups	24	24	24
Lag of dependent variable	**0.7948***** 0.0448	**0.8497***** 0.0357	**0.913***** 0.0183
"Not Likely"	**0.0167** 0.0127	**0.0103** 0.0102	**-0.0109** 0.009
Lag "Not Likely"	**-0.0288** 0.0322	**-0.0245** 0.025	**0.0045** 0.008
"Some Concerns"	**-0.0186***** 0.0064	**-0.0123** 0.0072	**0.0029** 0.0105
Lag "Some Concerns"	**0.0001** 0.0109	**0.0024** 0.0094	**0.023** 0.0189
"Likely"	**0.0071** 0.013	**0.0154** 0.0107	**0.0077** 0.0276
Lag "Likely"	**-0.0022** 0.0245	**-0.0025** 0.0171	**-0.0154** 0.0167
"Significant"	**-0.1213***** 0.0289	**-0.0943***** 0.0192	**-0.0240** 0.0407
Lag "Significant"	**-0.066**** 0.0271	**-0.0415***** 0.0129	**-0.0035** 0.018
R-squared	0.75	0.82	0.93
Year Dummies	Yes	Yes	Yes
NAICS Dummies	Yes	Yes	Yes

DOJ assessments across the life of a regulatory regime

In a final analysis, I examine the timing of DOJ assessments over the interval of time that a given NAICS was subject to regulation in the post-Reagan/Bush environment. The EERE regime had been mostly moribund through the Reagan and George H.W. Bush years but had been re-booted just before the Clinton administration came into being. Taking the year 1991 as Year Zero in the regulation of all NAICS that had thus far been nominally subject to energy efficiency regulation, and taking the year of the inaugural final rule as Year Zero for any other NAICS that had not been subjected to regulation as of 1991: Was the DOJ more likely to indicate concerns of "significant" or a "likely" lessening of competition early in the regulatory experience of a given NAICS? The mechanism would be that inaugural regulation would induce a one-time shake-out of firms in a given NAICS as some firms might either sell out their operations to others that would remain in a given market or otherwise redeploy assets. Alternatively, the inaugural imposition of regulation might not induce a discernable, one-time exit of firms.

To examine the timing of DOJ assessments, I simply run a linear equation of "years since the first Final Rule had been posted (post-1991) in a given NAICS" against dummy variables that partition the 75 DOJ letters from 1994 through 2020 into the sets "Not Likely," "Some Concerns," "Likely" and "Significant". Such a regression generates averages. Note that DOJ assessments have sometimes been issued *before* an inaugural final rule came out with one letter coming out as much as three years before a final rule finally emerged. See Table 5.

The six letters indicating "significant" lessening of competition emerged, on average, 3.33 years after the first post-1991 Final Rule in a given NAICS was promulgated. That, in itself is not interesting, but is interesting is to compare that average with those of the other categories. Most notably, "Not Likely" assessments emerged, on average, 14.05 years after first post-1991 Final Rule in a given NAICS was promulgated. "Some concerns" clocked in at 5.39 years, and "Likely" clocked in at 7.25 year. So, the relationship between expressions of increasing concern do not decline monotonically with time, but the basic result obtains: the DOJ tended to express more concern about the prospect of harm to competition early in the regulatory experience of a given NAICS than later in the experience of a given NAICS. Inaugural regulation has the appearance of inducing sharp episodes of exit.

Table 5

Years since first Final Rule posted
post-1991 through 2020

Observations	75
Not Likely (n = 43)	**14.05***** 1.42
Some Concerns (n = 18)	**5.39***** 1.74
Likely (n = 8)	**7.25**** 2.61
Significant Competitive Effects (n = 6)	**3.33** 2.35
R-squared	0.73
Min	-3
Average	10.39

4. Conclusion

There is an older literature about how a legislature (specifically Congress) may control administrative agencies through its control of budget appropriations, but Moe (1987) suggests that there had been little empirical evidence to support such a theory of "congressional dominance." Peters and Pierre (2017) seem to suggest that questions of who controls administrative agencies (and how) and what administrative agencies really do remain good questions seeking robust answers. The results presented here suggest some clues. Specifically, in the case of energy efficiency regulation, the influence of the executive branch of government (the President) on the conduct of an administrative agency (the DOE) seems obvious. That does not preclude the prospect that the legislative branch of government (Congress) does not itself exercise much influence, but it is difficult to imagine how it would exercise that influence. The EERE program is ensconced in a large administrative agency, and its remit is robustly established in statutory law. Certain aspects of the EERE regulatory regime might be vulnerable to change by executive order—the "social cost of carbon" apparatus would seem to be a good candidate—but Congress has proven to be good at following the lead of the executive in

expanding the scope of energy efficiency regulation. It has not been so good at rolling it back notwithstanding the efforts of at least two administrations to do just that.

Failure to rollback regulation through legislation suggests that the administrative agency itself exercises much control over the administrative agency. The influence of the executive is obvious as demonstrated by the fact that the pace and substance of rulemaking activity can whipsaw from one administration to the next, but the foundations of the regulatory regime remain unchallenged. Bureaucrats merely need to wait for one administration to pass and for one more inclined to support its own policy objectives to assume control of the executive.

The results also suggest that the administrative agency really does maintain its own policy preferences and operates with a willfulness to pursue its own policy preferences, notwithstanding the fact that the agency makes a big point of representing and accommodating the interests of all "stakeholders." Stakeholders include all firms subject to regulation as well as environmental lobbying groups that have insinuated their way into the agency's deliberative, rulemaking processes. It may be the case, however, that these deliberative processes do not accommodate the interests of outsiders. Outsiders would include prospective market entrants. Moreover, it is not obvious that the agency entirely respects the interests of insiders. Why else would it sometimes promulgate rules that (1) outside observers (like the DOJ) can anticipate will induce sharp episodes of exit and (2) really do induce sharp episodes of exit?

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