

Market Disputes | Legal, Social, and Long-Term Implications

for an

Evolving Spectrum Market

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Abstract

Enforcement, adjudication, and litigation, as implemented by the Federal Communications Commission (FCC), resides at an interesting intersection between traditional law and normative common property resource agreements – similar to those found in common pool resource systems. Despite being granted specific legal powers by Congress, the FCC works to resolve contentions that arise between spectrum incumbents through market dispute resolutions mediated through their Enforcement Bureau’s Market and Dispute Resolution Division (MDRD). The MDRD mediates and adjudicates a myriad of complaint types brought on by “market participants, entities, and organizations against common carriers, commercial and mobile data service providers, and/or utility pole operators” (EB-Market Disputes and Resolution Division, n.d.).

The MDRD’s decision to promote resolutions between complainants and defendants is unique in terms of traditional enforcement mechanisms – especially as a primary regulatory agency. The initiative to have stakeholders mediate, negotiate, and ultimately settle their disputes on their level is reminiscent of dispute remediation tactics observed in common pool resource environments. To investigate this approach to enforcement, adjudication, and litigation further, we utilize the Institutional Analysis and Development (IAD) Framework developed by Elinor Ostrom. Used to scaffold a myriad of policy, regulatory, and traditional CPRs, the IAD Framework provides a useful tool to investigate the agreements that arise between disputing parties. Our work shows that state/government regulation is not explicitly required to foster an enforcement environment.

1. Introduction

A consequence of the emergence of new technologies, systems and services is that there is now a larger pool of market participants, entities, organizations, device types, business models, etc., so the opportunity for disputes will likely increase. There are several ways in which disputes can be resolved, formal and informal. In the United States, disputes between telecommunication business entities are formally adjudicated under the market and dispute resolution division – an organization within the Federal Communications Commission’s Enforcement Bureau (EB). The MDRD is empowered to act as an arbitrator to resolve disputes between claimants and defendants, effectively acting as a judicial entity. As the diversity of potential claimants and defendants grows, and as spectrum sharing in its several technological incarnations emerges as a significant factor, we expect the MDRD to be increasingly challenged in their ability to provide timely and appropriate resolution of disputes.

Regulation in its most basic and traditional sense, is a construct that encompasses a set of rules/policies, a mechanism for monitoring and ensuring they are being followed, and processes to deal with the violations of these rules. However, it is important to consider whether the cost of policing would be efficient, as the cost of policing – or regulating – may be “too high to allow the market to generate accurate information” where there would be social benefits (Demsetz 1964). Because of the innovative technologies and the subsequent services that are projected to enter the market in the near future, it has become important to investigate the regulation of the technologies that thrive on the information highway and depend on radio spectrum. Knowing how the Federal Communications Commission regulates is becoming ever more important so that regulation and the subsequent enforcement mechanisms can be as predictable as possible.

Each wave of technological innovations that enter the market have threatened to disrupt the market and exacerbate the demand for radio spectrum. Despite these concerns, society is still able to utilize radio spectrum resources as more innovations and investment options have made it possible for service providers to meet their demands. Whether current regulatory practices will be sufficient to maintain oversight and enforcement for violators is an open question at this time. Our previous research has examined the current state of enforcement from the FCC, as well as approaches to automated enforcement mechanisms (Das et al. 2019 & Bustamante et al. 2019). This paper extends that work by studying how informal agreements between spectrum incumbents occur within the context of the FCC, and how these stakeholder resolutions may provide insight as to how successful enforcement and disputes may be resolved with decreased or absent regulatory oversight.

2. Background

Research that describes the various facets of adjudication arbitrated by the FCC is very limited. After surveying the existing literature and how it pertains to or is limited in terms of spectrum specific adjudication process, we provide an overview of the current adjudication environment at the FCC and how this area concentrates on enabling market dispute resolutions to occur between parties.

Previous research (e.g., Gerber and Patashnik, 2007) posits how well governments can promote general welfare. The cases investigated in their work seek to “demonstrate the pervasiveness and significance of market and government failures and the incompleteness of existing explanations of the sources of government underperformance” (Gerber and Patashnik 2007). The “incompleteness of existing explanations” is a recurring constraint within the data we analyzed. Although we cannot claim if it specifically is a result of government underperformance, there are disparities on how financial penalties and other adjudication results vary (even when it pertains to similar violation types). Therefore, this assertion holds true, as many cases adjudicated under the MDRD – whether formal or informal- provide limited insight as to how the parties agreed on a settlement.

Matheson delves into the ideologies of Henry Mitzberg and further dissects the organizational structure focusing on standardization, coordination, and strategy. In our work, we investigate this structure further through data collected by the regulatory authority, which is then assessed further using the IAD framework.

The overarching goal of much of the reviewed research can best be summarized as initiatives to “help policymakers evaluate alternatives and reduce the uncertainty under which they must make high-stakes decisions” (Gerber and Patashnik 2007). Our research, however, specifically focuses on enforcement mechanisms absent of or with decreased intervention from policymakers and regulators.

Research conducted by Astudillo and his colleagues proposes a policy-based model that would include policy creation, actors, and policy abstraction among other things. Although their research discusses a framework for policy management, repositories, enforcement & decision points, their research does not cover the externalities. Examples include how decisions (which are created at the regulatory authority level) affect the general public – or are subsequently adjudicated, despite having listed the user/customer as group within the overall scheme (many within the public do not understand the facets of telecommunications policy or the effects of the decisions made over the long term). Our previous and continued research proposes alternative methods in the form of automation by which, stakeholders can more readily resolve their disputes or take proper action against rogue actors and/or free-riders without having to escalate the dispute directly to the FCC or other regulatory authority.

The origins of the Institutional Analysis and Development (IAD) framework stemmed from Elinor Ostrom’s work regarding institutional diversity in 2005. Since then, the framework has evolved and been applied to various types of agreements. The IAD framework allows for “economic theory, game theory, transaction cost theory, social choice theory, covenantal theory, and theories of public goods and common-pool resources” to be analyzed further (Ostrom 2011). The framework is used to identify the elements and the general relationships among situations and actors so that analysis can occur in order to “organize diagnostics and prescriptive inquiries” (Ostrom 2011). However, new applications of how the framework can be used in the policy domain are consistently being adapted and applied. To this end, social-ecological systems policy analysis has emerged to better understand governing institutions, the actors, and the situations that arise.

3. Methods and Data

The MDRD handles Section 208 complaints brought by market participants, entities or organizations against common carriers (wireline, wireless or international carriers) (<https://www.fcc.gov/ebmdrd> 2018). The MDRD handles complaints from all of the FCC's bureaus, so the scope is well beyond interference complaints.

There are many stakeholders regarding radio spectrum, however, the violations adjudicated under the MDRD's authority encompass an onslaught range of circumstances and procedural hearings. Parties in these proceedings – whether interference or other violations - are complainants and defendants, mostly large names within the telecommunications landscape. Complaints – prior to 2005 – were filed as informal or formal proceedings. Many of these complaints were dismissed, denied, or the parties decided to file joint motions to dismiss – which the FCC granted, as it was within the public interest to do so.

For our research, we extracted data from the FCC EB website for all violations and specifically parsed the data for spectrum violations and market disputes. The dataset spans from 1999 to 2018. Thus far, more than eight thousand records have been obtained from the FCC. Violations that occur within the dataset include but are not limited to defrauding the United States government through the E-Rate program, unsolicited marketing, not notifying the FAA of antenna light outages, marketing of signal jammers and other illegal equipment, and market disputes. The data suggests an increasing trend in radio spectrum violations; where 2017 is the year in which most violations appear. Unknown factors for this trend could range from policy implementations where radio interference has become the primary mission, or that better detection finding techniques to identify radio frequency interference have been deployed and may influence the types of violations the Enforcement Bureau is able to identify and enforce. The dataset utilized provides as a foundation into what violations are being identified and how the FCC EB responds to radio spectrum interference throughout the years. In our previous work, we discuss how explicit violations of spectrum are minimal within the violation corpus. Similarly, market disputes only account for 5.6% of the violations adjudicated.

Our research draws inferences based on information extrapolated from informal interviews with stakeholders, and data collected directly from the FCC Enforcement Bureau (EB). This work is a first order initiative to better ascertain the existing spectrum enforcement landscape and understand what the current initiatives are enacted or being conceived for the future health, success, and “expansion” of the spectrum market through the current adjudication scheme.

Out of the 487 market dispute proceedings, preliminary findings show that 42.3% are concluded as motions to dismiss – typically a joint motion between the claimant and defendant, settlement agreements, or motions to withdrawal. Between, 2004 and 2005 the 47 C.F.R. § 1.718(a) was changed requiring formal complaints to be filed within six months of the defendant's response to the informal complaint. With this change in the code of federal regulations, there is an increase in the number of procedures where both parties request extensions in order to engage in dispute mediation sessions or settlement negotiations – this accounts for roughly 4.8% of the market disputes analyzed. Very few cases reach the level of an Administrative Law Judge (ALJ) or a

formal court proceeding (e.g., adjudicated by the circuit court). Usually, the FCC grants motions regarding cases that are resolved between the disputing parties stating:

“We are satisfied that granting these motions will serve the public interest by promoting the private resolution of disputes and by eliminating the need for further litigation and the expenditure of further time and resources of the parties and of this Commission”.

-Common MDRD remarks regarding motions to dismiss

However, there are extenuating circumstances where the FCC may deny a joint motion on the basis of untimely filing. In one proceeding, the MDRD responded *“Although we strongly encourage the parties to settle their disputes, `parties should endeavor to settle such disputes before the Commission spends time and resources to decide them, not after”* (Dortch, Marlene 2004 - File No. EB-01-MD-007). Therefore, the question arises regarding the standard or operating procedures where the FCC deems proceedings as cost effective versus the alternative, and how stakeholders can utilize this standard further among themselves.

4. Analysis

The Institutional Analysis and Development (IAD) Framework was developed by Elinor Ostrom and has been utilized to assess various policy and regulatory environments and analyze cooperative agreements (Ostrom 2005). Although the FCC Market and Dispute Resolution Division is given the authority by Congress to litigate matters that arise between spectrum incumbents, as we have shown above, several of these disputes are resolved in agreements made between the disputing parties. The IAD framework was developed particularly for Common Pool Resource systems; however, in earlier work, we have argued that spectrum is generally consistent with the characteristics of CPRs (Weiss et.al., 2015). As a result, we claim using IAD in this research is appropriate to its context.

The original IAD framework encompasses eight design principles:

1. CPRs have clear boundaries. Users know what they are managing and can identify legitimate users.
2. The rules suit local conditions. Users know what they (a) are expected to contribute to management and (b) receive from CPRs.
3. The actors affected by the rules help shape them (at low cost).
4. CPR monitors are users or accountable to users. They monitor (a) the conduct of users and (b) the state of the CPR. The costs of mutual monitoring are low, and their consequences felt quickly.
5. The penalties for rule-breaking are low if the choice is a one-off and understandable under the circumstances (to avoid alienating the user). The penalties are high if the choice

is part of a pattern which makes other users feel like ‘suckers’, or if rule-breaking would be catastrophic.

6. Conflict resolution is frequent, rapid and low cost.

7. Users have the right to self-organise without too much outside interference.

8. Many projects are connected geographically and at different scales – local, regional, national – in ways that do not undermine individual projects. (Paul Cairny 2019, OCSDNet.org 2019, & Ostrom 2005).

When considering market disputes, stakeholders know what products they are operating or providing service for, and their respective boundaries – either geographical, frequency, or by technical designation of their products¹. In terms of contribution, the second design principle, individuals operating within the technological landscape are aware – either through their license or thorough knowledge of the Commission’s rules - what business practices, and permissible behaviors are expected. Yet, there have been cases where ambiguity or a misunderstanding of the rules have resulted in a complaint to seek clarification from the FCC. However, the third design principle is more nascent in the telecommunications regulatory structure. Many companies that are stakeholders partake in conferences, roundtables, and other efforts, yet, our research thus far – aside from our informal interview with an NTIA CSMAC participant – does not provide much foundation as to how stakeholders are affecting or shaping the rules that govern them. Stakeholders are monitors in their own right, mainly due to self-interest. They monitor the conduct of other users – stakeholders – by filing informal (prior to 2005) and/or formal complaints against the perceived violator. In terms of this study, penalties for rule-breaking are relatively low. Less than 5% of the market disputes result in a monetary forfeiture and, as stated previously in this work, ~40% of the proceedings end in motions to dismiss, withdrawal, or a settlement negotiation – or similar outcome. Repeat rule-breakers – which are scarce – can expect to receive up to millions regarding a monetary forfeiture order. As noted from our analysis, conflict resolution – termed dispute mediation and/or negotiation settlements – are encouraged (in a timely manner) by the Commission. Similarly, the low statistics regarding the amount of market disputes implies that stakeholders typically confer with one another and the matter is escalated to the FCC when an initial agreement cannot be determined prior. Lastly, stakeholders whether operating within the same geographical location or otherwise can conduct their business without interfering and/or undermining other incumbents – this holds true when all stakeholders are adhering to the outlined rules and expected behaviors of operations; this does not include outlier events/infractions such as faulty equipment and similar cases.

¹ Convergence has made traditional boundaries less clear. Thus, disputes may arise between entities that were traditionally not contending for similar markets. For example, historically, Comcast and Amazon were not competitors, a situation changed by convergence.

Design Principle	Discussion
1	Stakeholders know what products they are operating or providing service for and their respective boundaries – either geographical, frequency, or by technical designation of their products
2	individuals operating within the technological landscape are aware – either through their license or thorough knowledge of the Commission’s rules what behaviors, business practices, and permissible behaviors are expected – their knowledge of this typically allows them bring claims against other stakeholders
3	Many companies that are stakeholders partake in conferences, roundtables, and other efforts, yet, our research thus far – aside from our informal interview with an NTIA CSMAC participant – does not provide much foundation as to how stakeholders are affecting or shaping the rules that govern them.
4	Stakeholders are monitors in their own right, mainly due to self-interest, they monitor the conduct of other users – stakeholders – by filing informal (prior to 2005) and/or formal complaints against the perceived violator.
5	In terms of this study, penalties for rule-breaking are relatively low. Less than 5% of the market disputes result in a monetary forfeiture, and as stated previously in this work, ~40% of the proceedings end in motions to dismiss, withdrawal, or a settlement negotiation – or similar outcome; repeat rule-breakers – which are scarce – can expect to receive up to millions regarding a monetary forfeiture order.
6	As noted from our analysis, conflict resolution – termed dispute mediation and/or negotiation settlements – are encouraged (in a timely manner) by the Commission
7	Similarly, the low statistics regarding the amount of market disputes implies that stakeholders typically confer with one another and the matter is escalated to the FCC when an initial agreement cannot be determined prior
8	Lastly, stakeholders whether operating within the same geographical location or otherwise can conduct their business without interfering and/or undermining other incumbents – this holds true when all stakeholders are adhering to the outlined rules and expected behaviors of operations; this does not include outlier events/infractions such as faulty equipment and similar cases.

“The IAD framework rests upon a view of human beings as capable of going back and forth between being guided by rules and being rule makers” (Blomquist & DeLeon 2011). From our preliminary data analysis and informal interviews, we have observed that stakeholders are able to reach desirable outcomes from their proceedings with little to no immediate intervention from the FCC’s MDRD. Moreover, the IAD Framework can be used as both an analysis tool and as a design mechanism for agreements. Whereby, specific areas in the adjudication process can be highlighted and resolved to ensure a better adjudication mechanism – or at a minimum oversight for replicability/consistency can exist whether the enforcement remains with the FCC, is offloaded to a third-party enforcer or becomes automated in the future.

Figure 1, shown below, provides a visual perspective of the IAD framework, however, it does not provide insight regarding new entrants, changes to the community/ecosystem, nor does it provide

a comparison between traditional adjudication practices and that of a community consensus – similar to CPRs.

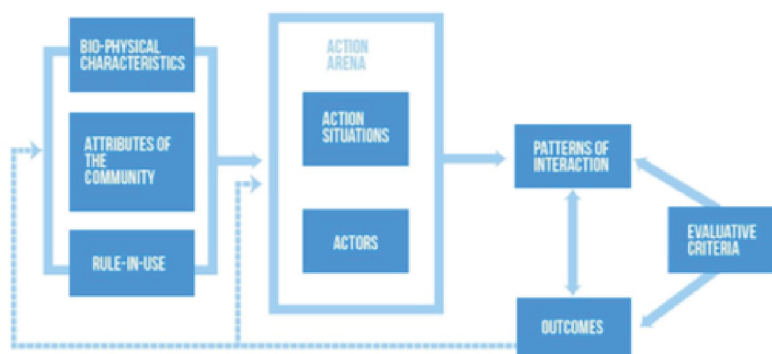


Figure 1 IAD Framework Logic OCSDNet.Org 2019

As a first order approach, we adapted the IAD framework logic to accommodate for the specific actions and actors that occur within the market disputes environment. As shown in figure 2, we have replaced the bio-physical characteristics with the spectrum landscape. Next, we consider the community attributes and rules-in-use (policy). To generalize this approach, the action situation would encompass general operations that rely on spectrum. Actors would be different spectrum providers, users, etc. (stakeholders in general). The action situation includes violations and interference, as these stem from operations using spectrum. When there are violations, general stakeholders become complainants and defendants. Additionally, we review the patterns of adjudication and the subsequent adjudication outcomes in the overall evaluation criteria.

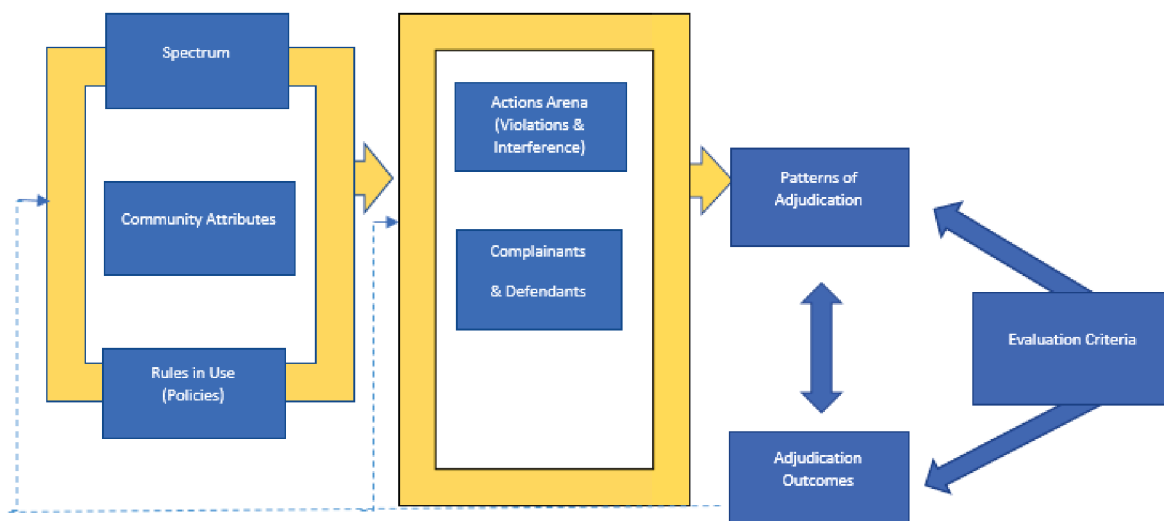


Figure 2 IAD Framework Logic Applied to Market Disputes 2019

Although the analysis does not provide insight as to how market disputes are specifically resolved among stakeholders, we are able to ascertain that a trustworthy enforcement landscape is

conceivable limited regulatory input – aside from the established rules in the code of federal regulations and subsequent statutes.

The IAD framework has been used to analyze various common pool resource cooperative agreements. Although spectrum is not formally considered a common pool resource, it is a resource that encapsulates various stakeholders, participants, and beneficiaries. In this sense – specifically in terms of market disputes – stakeholders are working together to resolve a problem amongst themselves. Even in circumstances where a formal dispute has been submitted - by escalating the dispute to the Federal Communications Commission – these issues are typically resolved between the service providers with little to no direct intervention from the EB MDRD.

This allows us to draw two inferences. First, the FCC would prefer to save time and resources by having the complainant and defendant resolve the issue in question at their level. Second, the implementation and use of automated enforcement mechanisms in lieu of a regulatory authority are conceivable as they could be developed to adhere to current and/or future rules and regulations.

Policymaking efforts regarding this endeavor are steadily occurring. One effort is that of the CSMAC committee. According to a 2018 report, the committee convened to discuss various facets of spectrum interference which focused on the technical, legal, and policy requirements/ suggestions needed to ensure a comprehensive solution – whether automated or leveraging existing spectrum remedies – takes place. Although the report was skeptical regarding a future consensus, our research – previous and works still in progress - show that a comprehensive solution is feasible and attainable in the near future.

Additionally, although actual spectrum interference is not statistically a large-scale issue, operation and budget of the regulatory authorities are also something to take into consideration. Sans an automated enforcement structure, the physical, real-world manpower, and operating budget, are necessary to assist with oversight and regulation within the enforcement bureau and subsequent divisions that assist with spectrum interference issues. Unfortunately, it appears that these requirements for regulation and adjudication between complaints arising between licensees and the financial resources to accommodate the continuation of this construct is diminishing.

5. Discussion

Much of the discussion and subsequent resolutions for spectrum measures concerning its scarcity have been enshrouded by the use of spectrum management techniques. Typically, these resolutions are focused on spectrum allocation, tactics to share spectrum more intensively, among others. Very rarely – if ever, the regulation of – and enforcement of spectrum do not enter the discussion, literary works, or newly adopted policy initiatives. This paper specifically focuses on identifying the existing enforcement and adjudication structure of the FCC. We have collected, organized, and analyzed administrative data, in order to provide a foundation for future automated interventions. We entrust and rely on regulatory institutions to create, implement, and enforce policies that can best safeguard various environments – such as radio spectrum resources. This means that there should be a comprehensive and replicable system in place to carry out this task.

Each year, technologies undergo a resurgence and/or emergence whereby theorized, conceptualized, and cutting-edge technologies and services either enter the market, are awaiting to enter the market, or are conceived and planned to enter the market in the future. The rate at which this occurs doesn't provide much time for policymakers and regulators – or even current incumbents – to digest how these changes will affect the existing market or how they can best plan/prepare, formulate policy to accommodate, or best staff their respective units to respond to any issues that may arise as a direct result of these pivotal changes and strides towards the next revolution – the 4th revolution.

“The opportunities and constraints individuals face in any particular situation, the information they obtain, the benefits they obtain or are excluded from, and how they reason about the situation are all affected by the rules or absence of rules that structure the situation” (Ostrom 2005). As we continue to investigate the regulation of the FCC and how it affects incumbents and their subsequent dispute resolutions, we will further examine some of the additional questions that arose during our analysis, which include:

- What happens when a new, unknown entity enters the market? Can they expect the same hospitality regarding market disputes?
- What will happen as more stakeholders enter the spectrum ecosystem? What will this mean for enforcement and adjudication?
- Do market disputes really serve the public interest? And, is saving time and resources more beneficial than adhering to a traditional adjudication protocol?

In our work, we assess how disputes/agreements occur and use the Institutional Analysis and Development (IAD) Framework developed by Ostrom to better ascertain how these disputes are settled with little to no state intervention – specifically, limited input from the FCC MDRD on how to resolve these problems and what agreements at this level may mean for future dispute resolutions if an automated enforcement mechanism were to be introduced. We are using the IAD framework to obtain a set of guidelines for analyzing dispute resolution when it happens among the conflicting parties, without the intervention of a regulatory entity. This can be useful so that in the future we can categorize and provide structure to this decentralized process. One outcome of this would be the ability to derive ‘informal’ rules that actually drive resolutions, which could further help us work on automated enforcement solutions. Preliminary data has shown that between 1999-2018 many market disputes have been resolved between the complainant and defendant with little to no formal intervention from the MDRD. Moreover, in some cases the FCC encourages these informal agreements and resolutions to occur between both parties. We posit whether formal or informal complaints and subsequent resolutions are utilized more by stakeholders. In many of these cases, the FCC touts that by approaching adjudication in this manner, it is in the public interest.

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