The Role of Research in Communications Policy
Theory and Evidence[*]

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Abstract

This paper develops a theoretical framework for studying the role of research in communications policymaking and presents first findings of a project examining these relations for the United States. At a conceptual level, the paper distinguishes between the epistemic base of communications policy, ideas that influence communications policy and practical knowledge that is used to design specific policy measures. The relations between these areas of knowledge are complicated and multifaceted but lie at the root of understanding the role of research in policymaking. The paper also presents selected findings from two case studies (media ownership, spectrum policy) that allow a more detailed examination of some of the conceptual claims. As the cases illustrate, research does matter but many contingencies apply to whether it is recognized and influential. The paper concludes with a brief synthesis of the main insights and an analysis of the structural conditions of policymaking and academic research that might impede a more fruitful exchange of information between the two realms.

1. Introduction

Many scholars agree that social science research should, inter alia, contribute to the formation and improvement of public policies. Due to its multiple and far-reaching effects on society, communications policy poses a particularly daunting set of questions to the research community. Communications policy affects the creation, processing, dissemination and use of information and hence the processes at the heart of creating shared meaning among the members of a society. Such shared mental images ("ideologies") — summary representations of a much more complicated reality — are a precondition for the functioning of small and large groups and the cohesion of society at large. As technology-mediated communication augments and partially replaces more traditional forms of face-to-face, written or broadcast communication, new challenges arise for communications policy. For example, there is growing awareness that the architecture of computer-mediated communication systems affects information seeking and the kind of information available to individuals (Lessig 1999, Hargittai 2004). Often, only insufficient or contradictory knowledge about the effects of policy measures is available. One

response to this dilemma is the laissez faire approach, to declare that policy cannot improve the outcomes of the self-organizing market system. However, this position overlooks that markets are necessarily embedded in systems of legal and regulatory rules. As an increasing body of comparative institutional research shows, alternative specifications of these rules exist which typically yield different outcomes that cannot be ranked according to general social welfare principles (e.g., the Pareto criterion). Thus, even proponents of laissez faire eventually need to solve the question of how this framework is structured or at least how it came about (Samuels 1992).

As one of the organized ways of producing knowledge, there is a role for research in assisting policymakers to understand the choices available, to illuminate the trade-offs between competing policies, and to examine their short and long-run consequences as well as possible. A broad range of disciplines potentially could contribute to communications policy, including communications, economics, law, engineering, sociology, psychology, and anthropology. Although communications researchers have developed highly visible theories and models (Braman 2003), some scholars have lamented the absence of communications research in practical policymaking. Writing with reference to the fundamental transformation of communications during the 1980s and 1990s, Noam (1993, 1999) asserts that legal scholars and economists had the highest degree of influence on communications policy whereas engineers, technologists and political scientists played a fairly limited role. Likewise, he claims that "mainstream academic scholarship in communications has been without a real-world role" (Noam 1999, p. 424). This assessment is based on an expert insider's interpretation of the relative contributions. However, empirical facts that would help evaluate the role of research and the relative impacts of different disciplines on communications policy are scarce.

This paper is a first attempt to shed more systematic light on the role of research in communications policy both from conceptual and empirical perspectives. Section two of the paper reviews the multi-faceted literature on the role of research on policymaking in general. Section three builds on these approaches and develops a more comprehensive conceptual framework. Section four presents selected findings from an ongoing research project aiming to map the field of telecommunications policy research. Section five derives first insights from

empirical evidence collected in the context of a larger research project on the role of research in communications policy. The most important conclusions and questions for further study are synthesized in section six.

2. The role of ideas and research

2.1 Overall assessments

Despite the potential contribution of research in communications policy, surprisingly little research exists to document its role and influence. Of the disciplines relevant for communications policy, apparently only communications and economics have made explicit efforts to discern their effects on practical policy. The 1983 special issue "Ferment in the Field" of the *Journal of Communication* dedicated some space to the issue and, on the grounds of the centrality of communications, claims a central role for its contributions in policymaking. Several authors have recognized the role of metaphors and traced their evolution (e.g., Napoli 1999, Sawhney 1994). Mueller (1997) emphasized the importance of ideology and stakeholder interests in shaping the notion and specific approaches towards achieving universal telephone service during the early part of the twentieth century. Braman (2003) assembles and interprets influential research by communications researchers. There is also a long tradition of the social shaping literature, in which ideology is recognized as a determining force of policy (see, for example, Dutton 1999). Recently, Sarikakis (2004) has looked at the ideological constructs shaping Internet policy. Notwithstanding these important efforts, none of the contributions directly assesses the effect of research or ideas on policy. Economists are mixed in their appraisal of the contributions of their discipline to public policy, although none of the commentary focuses on communications policy per se. On the one hand, Winston (1993) boasts that deregulation was an outstanding success of economic analysis: not only did economists contribute heavily to shaping it, their predictions as to the likely effects in telecommunications and other regulated industries largely materialized. On the other hand, a few economists, concerned about declining student numbers and an increasing sense that economics does not contribute to improved public policy, come to a much more skeptical conclusion, urging more

detailed additional research, in particular as to the transformation of research into policy (Frey 2000, Weizsäcker 2000).

There is a burgeoning more general literature on the role of research and ideas in policymaking and the remainder of this section briefly reviews important contributions. Policy-making takes place under conditions of incomplete information and uncertainty. Research and ideas are used to help overcome these informational constraints. Campbell (1998) suggests that ideas can be in the foreground (explicit) or in the background (tacit) of the debate. Moreover, they shape the discourse at the cognitive or the normative level.

Table 1

Role of research and ideas in policy-making

	Concepts and theories in the foreground of the policy debate	Underlying assumptions in the background of the policy debate
Cognitive level	*Programs* Ideas as elite policy prescriptions that help policy makers to chart a clear and specific course of policy action	*Paradigms* Ideas as elite assumptions that constrain the cognitive range of useful solutions available to policy makers
Normative level	*Frames* Ideas as symbols and concepts that help policy makers to legitimize policy solutions to the public	*Public sentiments* Ideas as public assumptions that constrain the normative range of legitimate solutions available to policy makers

Source: Campbell (1998).

Stakeholders have different interests and values. As will be discussed in more detail in the next sections, research and ideas are actively generated or usurped in support of these competing positions and material interests. Both types of discourses are intertwined and contribute to forming a shared mental model of the situation (among society as a whole, groups, organizations, or individuals) that facilitates identifying a problem and devising a solution. Denzau and North (1994) have emphasized the importance of shared mental models. In the presence of incomplete information and uncertainty, the gaps in knowledge are often closed with "myths, dogmas,

ideologies and 'half-baked' theories." Likewise, Aoki (2001, p. 10), in defining the concept of an "institution" emphasizes that they are a "self-sustaining system of shared beliefs". Institutions, which greatly simplify and facilitate interaction, are endogenously generated by the interactions of agents. They are held in the minds of agents as summary representations (compressed information) of a mutually consistent expectation of how action-choice rules are applied by agents in the domain.

Research and ideas are not homogenous, however, and shape policy at three interrelated levels: (1) General frames used to interpret a situation and select a principal course of action (e.g., an "ideological disposition" in favor of freedom of speech, market solutions or government intervention). (2) Organizing concepts within which a policy problem is addressed (e.g., models of competitive markets and market failure, or communications theory). (3) Operational level concepts used to design specific policy measures (e.g., the proposed diversity index to assess media concentration or cost models used to determine universal service funding). Several authors have argued that the classical view of policymaking as an external force that shapes society to achieve desirable goals is inadequate and needs to be replaced with a more dynamic approach, in which policy is at least in part endogenous to the system it strives to influence (see Eggertsson (1998) for a synthesis of the large literature; see also Morçöl 2002 and Bauer 2004).

Ideas at the highest level are drawn from a broad range of sources and often originated many decades or centuries ago. They are often used in a metaphorical way, taken out of context, and with limited knowledge of their origins and original meaning. In the famous closing passage of his *General Theory*, John Maynard Keynes (1936, pp. 383) stated:

> "… the ideas of economists and political philosophers, both when they are right
> and when they are wrong, are more powerful than is commonly understood.
> Indeed the world is rules by little else. Practical men, who believe themselves to
> be quite exempt from any intellectual influences, are usually the slaves of some
> defunct economist. Madmen in authority, who hear voices in the air, are distilling
> their frenzy from some academic scribbler of a few years back. I am sure that the
> power of vested interests is vastly exaggerated compared with the natural
> encroachment of ideas. Not, indeed, immediately, but after a certain interval; for
> in the field of economic and political philosophy there are not many who are
> influenced by new theories after they are twenty-five or thirty years of age, so that

the ideas which civil servants and politicians and even agitators apply to current
events are not likely to be the newest. But soon or late, it is ideas not vested
interests, which are dangerous for good or evil."

Research and ideas are part of a continuum of mental models of the world. Whereas research is
organized inquiry according to specific methodological principles, ideas emerge and evolve in a
less structured way. Both research and the world of ideas utilize, in different degrees, metaphors,
analogies, slogans, and many additional forms of expressing claims (e.g., Sawhney 1994).

Since the last century, co-existing, competing schools of thought characterize most disciplines
relevant for telecom policy. For example, in law idealist concepts compete with realist notions
of law. In economics, neoclassical ("mainstream") economics is rivaled by institutional,
evolutionary and critical approaches. Communications and political science likewise are multi-
paradigmatic. In order to determine the relative influence of these competing programs on
policy-making an explanation of the transmission of these concepts into the policy arena is
needed. Likely, such an explanation will need to relate the world of ideas with specific material
vested interests.

Lastly, because ideas are ossified in statutes, case law, regulations and other policies, they evolve
slowly and their impact on policy is gradual (Brock 1994). This may be different in
extraordinary circumstances or during windows of opportunity when more radical change is
possible. This can be seen, for example, in the evolution of legal doctrine.

2.2 Transmission mechanisms

Whereas some research and ideas is created within policy-making institutions, most of it
originates from outside and needs to be introduced to policy-making and further processed
among policy-makers. To understand the transfer of ideas it is necessary to understand agency
and the structure of policy-making. Research and ideas need to be adopted and promoted by
agents, which operate within a given, but changeable institutional structure. At a very high level,
research and ideas shape the world-views and preferences of policy-makers (and constituencies).

This process is multi-facetted, diffuse, and difficult to trace. More specific transmission channels through which research and ideas are introduced include (but are not limited to):

- Research emanating from academia, think tanks, associations, industry research laboratories, public interest groups, and independent writers
- Background studies commissioned by the government or other stakeholders (e.g., the 12 studies commissioned by the FCC in the context of the media ownership proceeding)
- Research conducted under consulting arrangements introduced during specific proceedings by specific stakeholders
- Expert testimony in regulatory and court proceedings
- Lobbying activities
- Public relations activities (e.g., op eds, TV commentary)
- Media coverage

Whereas research in the first category is often generated without any specific policy purpose in mind, the latter forms are produced with a specific purpose in mind, which may shape their findings. For example, consultants are often hired because they represent a view that supports their client.

Although in practice these phases overlap and are not arranged in a linear fashion, analytically several stages of the policy process can be distinguished: agenda setting, policy formulation, policy adoption, policy implementation, policy evaluation, policy modification (or policy termination). Research and ideas play a role at all these stages but general frames are more important in earlier stages and mid-level and operational ideas relatively more important at later stages.

Some agents (policy entrepreneurs) earn a living from promoting ideas. Social scientists (political science, communications, or economics) have developed many models and empirical studies to analyze these processes. For example, communications researchers have studied the agenda setting process in detail, especially the role of third parties such as the media (see Rogers and Dearing 1987 for a survey). Lindblom (1968) (synthesized based on the discussion in

Mintrom 2000) argues that policy decisions are made by "proximate policymakers" (legislators, political executives, appointed bureaucrats, perhaps party officials). As they are highly specialized, there typically are only small groups that are able to focus their attention on specific policy areas. They operate within institutional structures and rules of the game, including the provisions of relevant constitutions, legislative acts, administrative rulings, executive orders, and judicial decisions. In the words of Mintrom (2000): "prior to formal decisions being taken, the proximate policy makers are subject to influence both from one another and from outsiders, such as interest group leaders and people with ideas to push." In the process, policy makers will make adjustments to their positions, resulting in policies that may not reflect anyone's original views. Fear from unpopular consequences and the structural dynamics of policy typically results in incremental policy changes.

Research in organizational sociology and behavioral economics indicates that individuals behave in ways that are influenced by self-interest but also conceptions of duties, roles, and fairness. March and Olson (1989) developed a model that might illuminate who has influence to set policy agendas, how learning occurs in political settings, and why policy change can be incremental but also non-incremental. In their own words: "Most individuals in politics most of the time will not be eyewitnesses to most relevant events. Both what they "see" and what they "like" will be dependent upon available sources of information, which of the available sources they are exposed to, and which of those exposed to they trust. Learning under such conditions becomes dependent both upon processes like discussion and persuasion, and upon relationships like trust and antagonism … Individuals under such conditions will tend to like what those with whom they most frequently interact like" (cited in Mintrom 2000, p. 48).

Another influential model was proposed by John Kingdon (1995). His work focuses on how particular problems and solutions achieve prominence at certain times. Kingdon argues that policy issues emerge on the decision-making agendas as the result in three separate process streams: the problem stream, the policy stream, and the political stream. In the problem stream, problem recognition occurs. In the policy stream, which is populated by policy specialists, ideas for policy solutions or viable policy alternatives are generated and debated. Mintrom (2000, p. 43) summarizes this stream: "Occasionally people come up with new ideas or policy solutions,

but for the most part they work with old ideas, thinking about ways to reformulate and combine them with others. Even though ideas often sweep policy communities like fads, governments typically react slowly in response to them. To survive in the policy community, ideas must be workable and feasible, and must also be compatible with the values of a majority of specialists in the relevant policy community. Compatibility can be achieved both through the alteration of ideas and through efforts by their advocates to persuade others of their merits." Kingdon (1995, p. 125) emphasizes "the content of ideas themselves, far from being mere smokescreen or rationalizations, are integral parts of decision making in and around government." In the third, political stream, election results, changes in administrations, changes in the ideological distribution of legislatures, interest group campaigns, and changes in public opinion unfold. When these three streams are synchronized, agenda change (but not necessarily actual policy change) may result. Joining these streams is one key function of policy entrepreneurs.

It has been emphasized that for ideas to become influential and guiding principles for policy, the relevant policy community (policy network) needs to agree on their basic premises and implications. This is easier at the level of general ideas and principles (e.g., the foundation principles discussed by Napoli 2001). If policy ideas among relevant stakeholders ("veto players") diverge significantly, change may be slow or even impossible (Tsebelis 2002).

2.3 Influence and irrelevance

Stakeholders have different resource bases and thus vastly different opportunities to produce background research, organize lobbying efforts, launch public relations campaigns, and contribute to political campaigns. How important is the resource base for being heard in policy debates and being able to influence its outcomes?

Costs and benefits of policies are typically distributed unevenly among stakeholders (this was, for example, emphasized by the "capture" theory of regulation and other political economy approaches). This implies that small groups of stakeholders with high stakes will be able and willing to dedicate significant resources to policy issues whereas large groups are difficult to

organize and mobilize. For example, studying firm lobbying behavior, Figueirdo and Tiller (2001) find that there are systematic differences between the lobbying efforts of small and large firms at the FCC. Whereas "large firms … act in ways that collective action theories and transaction cost theories predict" (i.e., they lobby through trade associations or individually, depending on which strategy is deemed most effective), "small firms … show little systematic behavior." "This may be because the small firms are constrained in their options for organization, due to resource constraints and economies of scale. It could also be because smaller firms do not have as sophisticated lobbying strategies as large firms."

As research and ideas need to be introduced to the policy process, what are the preconditions for successful strategies of making them known to policy makers? Summarizing Lindblom's (1968) arguments, Mintrom (2000, p. 41) states: "Whereas those who have more financial resources are often better placed to make strong arguments for policies that reflect their preferences, such resources are neither necessary nor sufficient for achieving influence. Many people are excluded from influence because they are not prepared to make the committed effort required to gain a hearing from proximate policymakers." Not all potentially relevant disciplines have been able to shape policy-making. As mentioned earlier, Noam (1993) claims that communications has not fully realized its potential, whereas mainstream economics has been widely adopted. However, the reasons for this diagnosis are not clear. Is it the willingness of scholars to engage with policy-makers? Is it the presence of individuals trained in these disciplines in consulting firms? Or is it the conceptual basis of the disciplines (for example, the economic notion of efficiency, despite its weaknesses, lends itself to derive policy recommendations)? Last but not least, it needs to be mentioned that funding for academic researchers also differs widely across disciplines and could affect the ability of researchers to contribute to policy issues.

3. A generalized model

Building on these approaches and a framework proposed by Mokyr (2002), this section develops a more comprehensive model of the multiple relations between research, ideas, and public policy. One of Mokyr's innovations is to distinguish between the epistemic base of science and

technology and the practical knowledge used by engineers and entrepreneurs. In a similar vein, we define the epistemic base of communications policy as the body of research with direct and indirect relevance for policy problems and decisions. Practical knowledge is the set of knowledge and beliefs that is applied through the stages of the policy cycle.[2] It is related to the epistemic base but not a full subset of it. First, practical knowledge also has roots in ideas, visions and norms that are not, strictly speaking, part of the epistemic base. For example, the notion that the freedom of speech should be protected by strong constitutional guarantees or that all humans have unalienable rights are not derived from theoretical and empirical research but from a social and political discourse. This does not mean they have less importance or meaning for policymaking but it underscores the necessarily limited role of research in policymaking. Second, practical knowledge translates findings in the epistemic base into manageable procedures. For example, the theory of incentive regulation is transformed into much simpler and pragmatic routines, which often are not simplified versions of more complicated theories but poor approximations at best. Third — and this is perhaps more contested — practical knowledge is in part independent of the epistemic base. It typically contains routines that are not rooted in research and knowledge, but known (or at least believed) to work. In extreme cases, they may even contradict the epistemic base. Moreover, those who use it do not have to be aware of its epistemic roots as long as they can execute the corresponding instructions. In the social sciences these problems are aggravated by the complexity and dynamic adaptation that is typical for social systems. Due to problems of incomplete information, multiple political and institutional constraints, and conflicting stakeholder interests, practical policy is often little more than a real time experiment, far different from the policy vision coined by enlightenment thinkers.

Knowledge is continuously exchanged between these three areas (epistemic base, ideas, practical knowledge). The most indirect form of knowledge exchange is the publishing of research results in academic outlets and trade journals. While this may be a necessary condition for research to shape policy, it is certainly not a sufficient condition. In order to potentially influence policy,

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[2] The notion of a policy cycle is widely used among political scientists and policy analysts as a simplified description of the different stages of policymaking. Main phases of the cycle are the emergence of a policy problem, problem definition, search for alternative responses and solutions, evaluation of options, selection of a policy option, implementation, and policy evaluation. There are multiple feedbacks between these phases and they do not necessarily evolve in the suggested linear sequence. See Parsons (1995, pp. 77-81) for a critical review of different models of the policy cycle.

Figure 1

Stylized relations between knowledge, ideas and policy
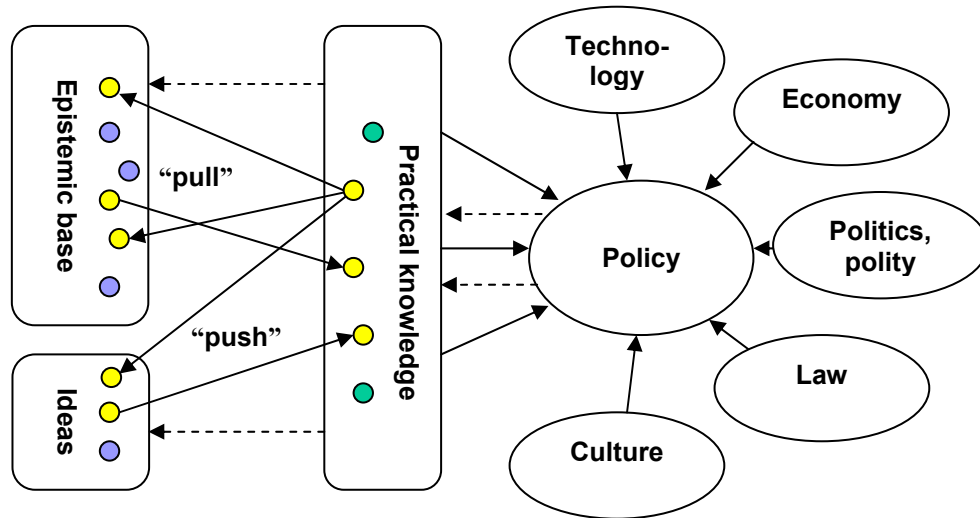
Inspired by Mokyr (2002).

knowledge needs to be introduced into policymaking. Some academics serve as conduits
between these two worlds by taking on positions in government or on government appointed
advisory councils.[3] Components of the epistemic base are also "pushed" towards the realm of
practical knowledge by agents such as academic, government or industry researchers serving as
expert advisers and consultants. Selected aspects of it are also pushed by partisan stakeholders in
support of their own interests. Some of this work is done by specialized professionals, such as
consultants (some involved in the generation of new knowledge) or lobbyists. Knowledge is also
"pulled" by those involved in practical policymaking, including government agencies, industry,
business associations, and public interest groups. These stakeholders will often have their own
perception as to what policy should be chosen and will seek selected information to support this
position. Although the government is often seen as the neutral arbitrator between interest groups,
it may also seek selected information to legitimize a pre-made decision. Procedural requirements

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[3] Examples of academics who served as such bridge-builders are the Chief Economists at the Federal
Communications Commission (including names such as Harry M. Trebing (Michigan State University), William H.
Melody (Simon Fraser University), Thomas Hazlett (University of California, Davis), Howard Shelanski (University
of California, Berkeley), Michael Riordan (Boston University), David Sappington (University of Florida), Simon
Wilkie (Cal Tech), and Martin J. Perry (Rutgers University)).

and the participation of multiple stakeholders, as is, for example, the case in public hearings, may mitigate overly abusive biases but may not be able to entirely prevent them. This problem is aggravated by the complexity of social systems, the availability of partisan knowledge in markets for knowledge, and the inherently multi-paradigmatic nature of much of present social science.

Overall, the relations between the epistemic base, ideas, and practical political knowledge are multifaceted and far more complicated than commonly assumed. Actual policy, in turn, is not only shaped by practical knowledge but also by other factors, such as technology, politics, the organization of the policy, the structure and substance of the legal system, culture, and so forth. As our main focus is on the contribution and role of research and ideas, these relations will not be further investigated in this paper.

4. Empirical approach and selected findings

The research project, whose early findings are reported in this paper, combines a comprehensive but limited mapping of the literature with selected in-depth case studies of specific policy issues. Multiple methods of inquiry were and will be used, including citation analysis, semantic analysis, and interviews with key policymakers. The ultimate goal is to map the field of communications policy and to document the influence of research and ideas on policy decisions. Due to the vastness of the field, a full documentation of the literature poses great challenges of delineation. Should only papers with a clear policy-focus be included or also contributions with relevance for policy even though no specific policy lessons are drawn? At the aggregate level, we addressed these issues by initially focusing on the literature in core journals in the field. As many of them are available in electronic databases such as FirstSearch, EconLit, the Web of Science, or Communication Abstracts, a raw bibliography could be generated fairly easily. After collecting full lists of articles of which detailed information is available from the databases, we selected papers that are relevant to telecommunications policy. The decisions were made based on the title of the article and the abstract if it is available. From the raw list, editorials, book reviews, and other papers that we considered not pertinent were eliminated. This initial bibliography

comprised 3,358 articles. The research team is presently in the process of augmenting this list by contributions in non-core policy journals and the book literature. Due to the vast literature, a detailed analysis will only sought in a few dimensions, such as the main research question asked, the disciplinary base of the contribution, the affiliation of the researcher and where available the source of funding. This part of the research project is still in progress and findings will be reported separately. More detailed analyses were conducted of three important policy arenas cases: the media ownership debate, spectrum policy, and policies towards advanced, next generation networks. This paper reports selected findings related to the first two areas.

4.1 The FCC media ownership order

Media ownership and especially policies to limit media concentration has been a contested policy issue for many years. With the proliferation of media outlets from the introduction of UHF to the emergence of cable television, satellite broadcasting, and the Internet, existing ownership restrictions had been relaxed several times from the 7 per market (AM/FM/TV) policy during the early days of the industry. The Telecommunications Act of 1996 had further eased ownership limits for example, by raising the national TV ownership ceiling to 35% of the audience and purging national radio ownership limits altogether (several local rules remained in place). During the late 1990s and early 2000s, the FCC experienced several setbacks in the courts, which either voided FCC policies or remanded them back to the Commission for further deliberation.[4] The courts overturned FCC policies essentially on the grounds that insufficient empirical evidence had been provided to justify specific measures, such as ownership ceilings or cross-ownership restrictions between different media outlets in one market. As a result of these defeats, the FCC combined several pending reviews into one mega-ownership proceeding. It commissioned 12 background studies from external and internal experts and invited comments from the general public on a Notice of Proposed Rulemaking. In June 2003, the Commission adopted its new ownership policy in which it proposed once again to relax important earlier

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[4] For example, *Fox Television Stations, Inc. v. FCC*, 280 F.3d 1027, 1044 (D.C. Cir. 2002), addressing the national television ownership rule. See also *Sinclair Broadcast Group, Inc. v. FCC,* 284 F.3d 148 (D.C. Cir. 2002), addressing the local television ownership rule.

safeguards.[5] The Order was highly contested and led to Congressional action to overturn the national TV ownership limits as well as to court action to overturn most of the remaining provisions.

Figure 2

Linkages of the FCC media ownership order to the scholarly literature
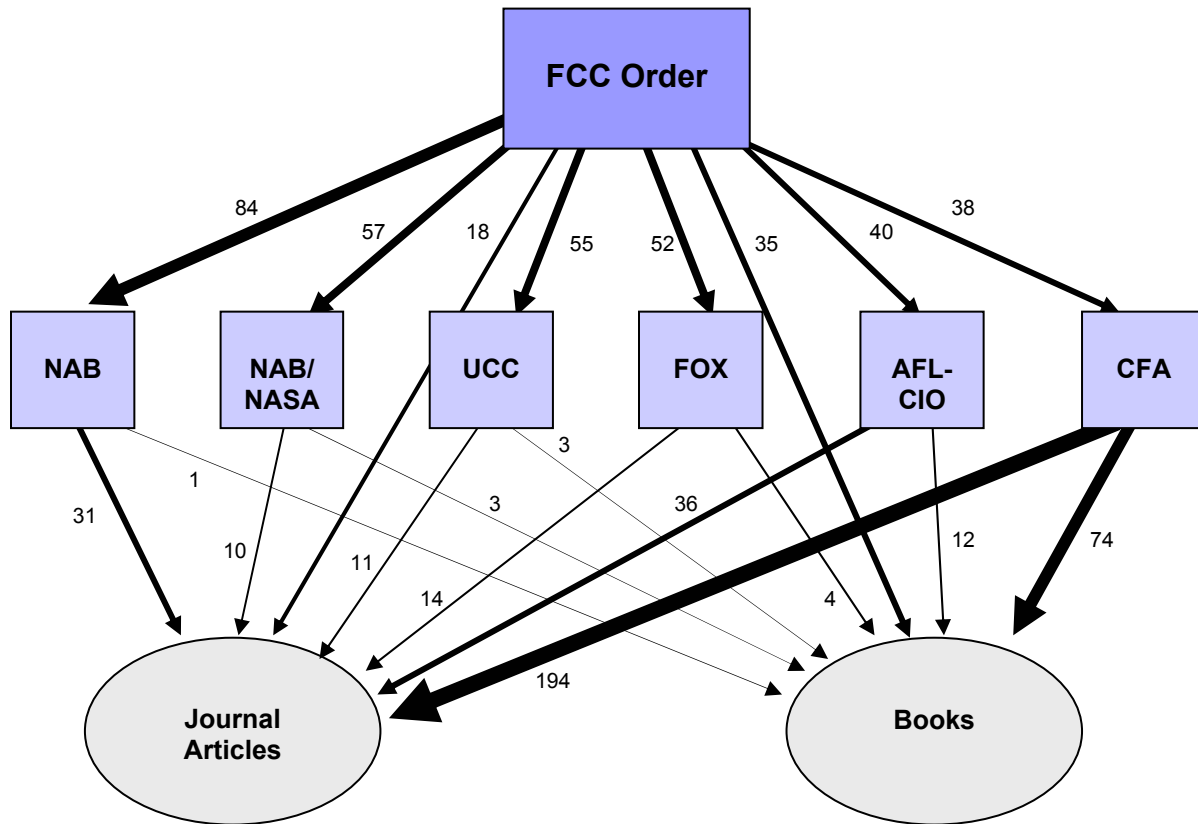
Source: own research.

[5] See U.S. Federal Communications Commission, *In the Matter of 2002 Biennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996* (MB Docket 02-277); *Cross-Ownership of Broadcast Stations and Newspapers* (MM Docket 01-235); *Rules and Policies Concerning Multiple Ownership of Radio Broadcast Stations in Local Markets* (MM Docket 01-317); *Definition of Radio Markets* (MM Docket 00-244); *Definition of Radio Markets for Areas Not Located in an Arbitron Survey Area* (MB Docket 03-130).

For the purposes of our investigation, we were interested in whether or not the Order recognized the pertinent research literature dealing with ownership related issues. (The goal of this stage of the analysis was not to find out whether the research had actually influenced the FCC's decision.) In order to pursue this goal, several simplifying steps had to be taken. We hypothesized that the FCC Order would not be tightly linked to the research literature, and that this would be done more likely in the background studies commissioned by the FCC and the comments and reply comments filed by a total of 168 parties. As time constraints prohibited a full analysis of all comments, it was decided to take a close look at the six commenting organizations that were most frequently mentioned in the Order. These were: National Association of Broadcasters (NAB), NAB together with NASA, the Office of Communication of the United Church of Christ (UCC), Fox, AFL-CIO, and the Consumer Federation of America (CFA).

Figure 2 captures the main structure of references to the research literature. As expected, the FCC Order is not heavily tied to the research literature. But neither are the comments submitted by the organizations most often cited in the FCC Order. Indeed, the submission by the Consumer Federation of America contributed the largest number of references to the pertinent research literature. Thus, if it were not for CFA, potentially important research may not have been introduced into the policy debate at all. This approach has several weaknesses. First, it does not allow differentiation between an affirmative and a negating citation. Second, it does not allow an assessment as to whether the cited research actually had an impact. It seems that the FCC was not strongly influenced by the results critical of media concentration. On the other hand, the courts in overturning the FCC's decision apparently relied heavily on critical social science research. Third, it is not possible without a thorough content analysis and/or interviews with the staff involved in drafting the Order, to assess whether concepts discussed in the research literature became part of the FCC Order without explicit reference to the literature. Nevertheless, the empirical data illustrates that without an advocate introducing it to policymakers, research risks being ignored.

4.2 The spectrum policy debate

With the growing demand for mobile communications services, the FCC and policymakers worldwide are seeking for alternatives to the traditional approach of administrative licensing of spectrum. Not only is this approach cumbersome and increasingly costly, it also has a bias toward incumbents and is afflicted with many forms of inefficiency (such as reliance on inefficient broadcasting technologies). Since 1993, the FCC has increasingly relied on spectrum auctions instead of administrative licensing. Whereas this approach has facilitated access to licenses it also has certain downsides. Thus, for the past ten years, an increasingly intense debate has been conducted as to a possible successor model. A range of proposals is being discussed, ranging from the full privatization of spectrum to the elimination of any form of entry control in an open access spectrum regime.[6] Which regime (or which mix of regimes) will be established has important consequences for the objective characteristics of the communications platforms that will be enabled and hence for the communications processes and patterns that will be facilitated and impeded. Open access might unleash a tremendous wave of innovation and new open communications services. Private property, on the other hand, may facilitate long-term investment into ubiquitous infrastructure but will likely result in the establishment of private control over communications and content. It is thus astonishing how quickly the policymaking system adopted the notion of open access. In its Spectrum Task Force Report, the FCC (2003) endorsed a mixed model, in which the present administrative regime should co-exist with bands with ownership-like rights and bands with open access.

Our case study sought to understand which disciplines and which scholars contributed to the discussion as well as whether scholars in different disciplines were aware of each other's work. For the purposes of this analysis, we augmented the list of spectrum policy articles from our core database with contributions from other sources pertinent to spectrum policy. We also included key documents from the FCC for a total of 115 articles. The articles were classified based on the disciplinary background of the authors and the theoretical framework used in the article. Multiple authors were treated separately and assigned a weight of 1/n, with n the number of

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[6] The model is often, but misleadingly, termed "spectrum commons." Unlike open access regimes, commons are typically managed resources (Ostrom 1990).

authors. From these articles, a citation matrix was generated, which could then be analyzed using network analytical tools and to generate summary statistics. Only scholarly contributions, independently of where they were published, were included.

Figure 3

Contributors to the spectrum policy debate
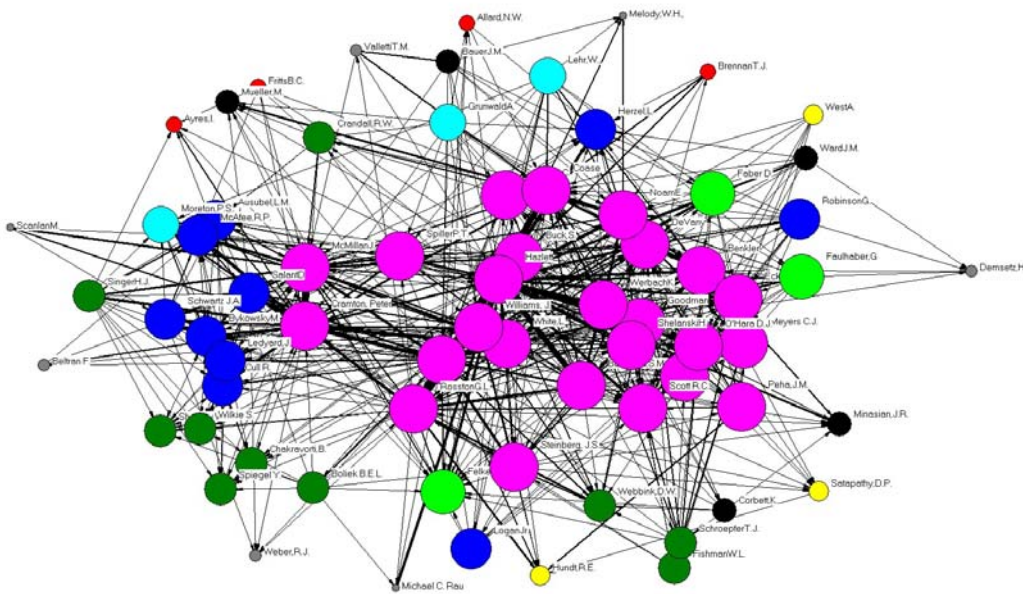
Source: own research

Of the 115 articles in the database, 71 were written by authors in the field of economics, 32 in law, four in communications or telecommunications, four in engineering, and four by others. Thus, within the current debate economic and legal scholars have contributed the bulk of writing. With few exceptions, very little of this research is actually cited in the landmark *Spectrum Policy Task Force Report* (FCC, 2002). However, in substance the writing has clearly influenced the positions articulated in the *Report*. For example, the report reiterates many of the arguments initially launched in the academic literature on the shortcomings of the present spectrum policy regime. It also adopts the notion that both private property and open access have desirable features and that a mixed regime would be superior to the present framework. At the same time,

several positions articulated in the academic literature were not adopted into the report. For example, Noam's (1998) proposal to establish real-time auctions for spectrum to deal with potential capacity problems was essentially overlooked. On the other hand, the Faulhaber and Farber (2003) position, recommending a combination of private property rights and spectrum commons, was apparently well received. Not even the position of conducting a "Big Bang" auction, recommended in an influential FCC working paper, received strong endorsement.[7] Figure 3 illustrates the main contributors to the debate and the network of citations between them. The size of the circles reflects the importance of a node (author).

Table 2

Cross-references within spectrum policy literature by discipline

Citations Received / Citations Made	Communication	Economics	Engineering	Law	Other
Communication	2.50	12.40	0.30	0.80	-
Economics	11.75	312.05	5.10	23.60	6.00
Engineering	2.50	22.70	1.40	1.40	0.66
Law	5.00	127.90	9.28	33.05	6.24
Other	1.50	18.50	2.16	0.75	2.91

Source: own research.

Additional insights can be gained from a study of the aggregate citation links between the disciplines that contributed to the 115 pieces. From table 2 the dominant position of economics is even more apparent. Not only are the economic contributors to this debate highly self-

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[7] This may be a sign for the importance of close links to be heard. Gerald Faulhaber was the Chief Economist at the FCC with apparently direct connections to the Chairman's office; David Farber served as the Chief Technologist at the FCC. Unlicensed open access spectrum was promoted by influential industry groups, including Intel or Apple computer and may have resonated well with the general deregulatory mood in Washington, D.C. These initial interpretations will have to be solidified during the interview stage of the project.

referential, but economic writing also attracted a high degree of attention from the other disciplines, which is in all cases higher than references to one's one discipline. Between economics and communications there exists near symmetry in citations whereas the relation is asymmetric in favor of economics with regard to law and engineering. Given the significance of this issue for the next generation of communications platforms, the absence of communications scholars in this debate is at least notable.

5. Concluding remarks

After a brief review of the literature on the relations between research and policy, this paper developed a conceptual framework to better understand this complex interaction. At a theoretical level, it clarifies that the production and publication of research is only a necessary but not a sufficient condition for it to be recognized let alone taken into consideration by practical decision-makers. The paper also contributes selected pieces of evidence from two recent cases of communications policymaking, the media ownership debate and the spectrum policy discussion. In both cases, we find that research matters but many contingencies influence whether it is noticed and matters. The following paragraphs synthesize some of the insights gained from the theoretical and empirical work.

Both research and politics are functionally differentiated systems but are coupled in various ways. Our conceptual framework and the preliminary empirical findings identify multifaceted relations between these realms. Conceptually, research influences policymaking at three interrelated levels: general frames, organizing concepts, and operational level concepts. Significant time-lags may occur between the gestation/publication of research and its introduction to policymaking, especially at the first two levels. For example, the notion of private ownership in spectrum was first articulated by Herzel (1951) but did not resonate with policymakers until the late 1990s. Moreover, there can be ideological cycles that bring old ideas back into "policy fashion" as can be seen in the rejuvenation of the belief in unregulated market forces (Derthick and Quirck 1985). Many transmission mechanisms exist by which research findings are translated from the realm of research to the realm of policymaking.

Research can be pushed into the policy system by academics with a strong interest in public policy who might temporarily serve in public office. More often, selective research results will be pushed by specific stakeholders with a vested interest in certain outcomes. During the past decades, entire professions (e.g., consultants) have emerged that manage this transfer of knowledge from the realm of pure research to applied arenas. Given the multi-paradigmatic nature of social science research and the complexity of social relations, it is not surprising that often contradictory positions compete in a market for ideas and for persuasion. The range and diversity of research used in policymaking depends to a large degree on the organization of policy and the funding for research. Where relatively open regulatory processes exist, an opportunity for stakeholders to insert research into the discussion exists at least in principle. If policymaking is a closed process this desirable diversity is undermined. Research is also sought by policymakers and stakeholders to improve decision-making or to legitimize planned action. However, there is evidence that the link between research and practice is partial at best as vast amounts of research exist that are either not known in policymaking or that are ignored as irrelevant. Moreover, some practical knowledge exists that is not rooted in the epistemic base of a field. Last but not least, research is nearly always incomplete. Gaps in the state of knowledge are often patched with vague but appealing notions from the realm of ideas or visions (e.g. the relentless repetition that unfettered markets are superior to all other forms of organization).

Research is often stimulated by policy problems and problems may be seen in a crisper light due to research. However, a mismatch in the timeline of policymaking and at academic (in not consulting) research is apparent. It is difficult for researchers without ties into policymaking to anticipate the pressing issues several years into the future. Once an issue is on the agenda of a government agency, the deadlines typically are too short for academic research to respond in time. Decisions will thus have to be based on past findings or on hastily conducted research. Neither research nor policymaking is independent of the larger social system in which they are embedded. Specific policies will nearly always be directly shaped by vested interests, cultural predispositions, or previous decisions. Thus, apart from the challenges of making research heard and recognized, its influence will be mitigated by other factors. This should not be seen as a reason to avoid the dialogue with the policymaking system but rather as an encouragement to

engage in a pragmatic and humble fashion. There is room and need for very specific applied, problem-solving contributions but also for fundamental critical thinking and grand narratives that can inspire alternative thinking. An example of the latter is the notion of a "spectrum commons" conceptualized by legal scholars and a few economists. The notion was quickly adopted by policy think tanks, such as the New America Foundation, and public interest groups, thus quickly gaining momentum in policy circles.[8]

One of the findings in the case studies is the dominance of economics and law relative to other social sciences. In part, this observation has probably to do with the epistemological structure of these disciplines: economics and law both have a long tradition of prescriptive reasoning that are of immediate use in decisionmaking. The core notion of efficiency, which is at the center of economists, despite many problems enjoys broad support and has intuitive appeal. Likewise, notions of justice and fairness lend themselves to normative analysis. In part this may be due to the fact that economics and legal scholarship are older than the discipline of communications, which tends to have a stronger positive orientation but has not (yet) developed comparable strength in normative reasoning. It probably also has to do with the organization pf communications policy and the organization of the academy. Not least due to the strong constitutional protections for free speech, communications policy has since its inception been conceptualized predominantly as technical and economic form of regulation. At the Federal Communications Commission, it was not until the 1970s that economist were hired in addition to engineers and lawyers. However, apart from occasional testimony, the agency does not have comparable ties into communications. In the academy it is evident that policy-oriented, applied research is less prestigious than theoretical work. This is even more the case for outreach and work with policymakers, which is generally not valued as highly as publications in refereed journals. Thus, the incentives in the academy are presently in conflict with the conditions of transferring research systematically to the policymaking arena. Recognizing these issues may contribute to more productive approaches in the future.

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[8] It may have helped that the notion of open access was also in the interest of powerful industry groups, especially the computer and mobile device sectors.

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