Rev Ind Organ
DOI 10.1007/s11151-016-9553-9

The Evolution of "Competition": Lessons for 21st Century Telecommunications Policy

Amanda B. Delp[1] · **John W. Mayo**[2]

Abstract For over a century, assessments of competition or the lack thereof have been central to how public policy treats the telecommunications industry. This centrality continues today. Yet, numerous foundational questions about this concept persist. In this paper, we chronicle how the definition of "competition" has evolved in economics and has been applied in the communications arena. The academic literature on competition hits an important inflection point in the mid-20th century with the development of "workable competition": a term that is equated to "effective competition." We find that while the concept of "effective competition" is central to policy formation at the FCC, the Commission's own applications of "effective competition" are inconsistent. Given the centrality of this concept, and its inconsistent applications to date, we draw upon the seminal contributions to the development of the notion of "effective competition" to offer a modern definition suitable for application in 21st century communications markets.

Keywords Effective competition · Competition · Regulation · Telecommunications

✉ John W. Mayo
mayoj@georgetown.edu

Amanda B. Delp
abd35@georgetown.edu

[1] Georgetown Center for Business and Public Policy, Georgetown University, 37th & O Streets NW, Washington, DC 20057, USA

[2] McDonough School of Business, Georgetown University, 37th & O Streets NW, Washington, DC 20057, USA

Published online: 02 December 2016

"[C]ompetition is first and foremost only a word, a word which may or may not be used effectively, in economic discourse, to communicate propositions about realities."

Kenneth G. Dennis (1977, p. 325)

1 Introduction

Assessments of competition or the lack thereof have been central to the evolution of public policy in the telecommunications industry for over a century (Weiman and Levin 1994). This centrality continues today.

For instance, citing competitive concerns, the Federal Communications Commission (FCC) chose recently to set aside spectrum for all but the largest two mobile telephony providers (FCC 2014a). Similarly, the FCC chose early in 2015 to reclassify broadband services under Title II of the Communications Act and cited concerns that, absent expanded regulatory oversight, incumbent broadband providers may anticompetitively forestall both competitors and innovation (FCC 2015e).[1] And beyond particular policy decisions, ongoing FCC reports assess competition in local telephony, wireless telephony, and multichannel video programming distribution.[2]

Despite this centrality, basic and profound questions remain in telecommunications regarding the definition and measurement of competition, as well as the appropriate institutional oversight mechanisms for competition policy. These questions were recently manifested in a white paper that was offered by the U.S. House of Representatives Committee on Energy and Commerce (2014). The paper is part of a series of white papers that are designed to provoke input on key questions that confront policymakers as they contemplate a major update to the Communications Act of 1934, which was last updated in 1996. The first question the Committee asked is: "How should Congress define competition in the modern communications marketplace?"[3]

In response to this and other questions posed by the Committee, 84 parties offered answers, reflections, observations, and recommendations.[4] While the Committee may have hoped for a consensus set of responses, or at least general agreement, a review of the responses finds widely differing opinions. Indeed, despite the importance of this definition to competition policy in the communications industry, the responses to the Committee largely either sidestepped the question or offered inadequate replies.

[1] In an accompanying article in this volume, Katz (2017) examines the economics of these regulatory changes.

[2] See recent installments of each report at FCC (2014c, 2016a, b) respectively.

[3] Similarly, the repeated mantra of current FCC Chairman Tom Wheeler has been "competition, competition, competition"; he has stated that the FCC's "competition policy will take the 'see-saw' approach: when competition is high, regulation can be low; when competition is low, we are willing to act in the public interest" (Wheeler 2014). Of course, this approach to policy formation provokes the same question that was posed by the Committee.

[4] These collected responses are available at http://energycommerce.house.gov/CommActUpdate.

The side-steps largely fall into three categories. Some ignored the question altogether.[5] Some substituted a conclusory assessment regarding the state of the (undefined) competition in communications.[6] Others sought to divert attention from a definition, instead urging Congress to focus any attention to competition more narrowly[7] or, alternatively, broadly.[8]

For those respondents that did nominally address the Committee's question, the most common approach was to define competition by example; this approach implicitly suggests that we know competition exists because we see it. A number of respondents provided a litany of examples of what seem to be competitive indicators such as: a low market share, a diminishing market share, or a proliferation of perceived competitors.[9]

Three difficulties arise with this approach: First, it points toward a specific declarative regarding the presence of competition as it now exists and would exist for the foreseeable future. Yet, these same respondents also emphasized the rapid evolution of communications markets.[10] While there is a broad consensus that telecommunications markets have now become more rivalrous, the rapidly evolving nature of telecommunications markets raises the possibility of future market failure. Additionally, while the examples that were offered as competitive indicators are prolific, it is difficult to know whether these examples prove the presence of competition absent a definition of competition. And, finally, while some respondents provided examples that seem to indicate intuitively the presence of competition, others argued that the relatively concentrated nature of telecommunications markets indicates a lack of competition.[11]

But if the respondents largely failed to provide a sound foundation for defining competition, where might legislators and regulators turn to understand this concept? The discipline of economics provides insights, if not a complete resolution.

[5] See, e.g., the responses of Cox Enterprises, FlexJobs, Integra, ITTA, and NARUC.

[6] See, e.g., the responses of: Broadband for America, which stated that there is a "single truth underscor[ing] the importance of any modern communications policy: Fierce competition occurs throughout the Internet eco-system…" (p. 2); CTIA, which stated "the wireless ecosystem is vibrantly competitive, requiring only continued 'light touch' regulations by the FCC" (p. 2); Free State Foundation, which called for a "new Digital Age Communications Act… that requires the FCC to take into account the existence of the increasing cross-platform, facilities-based intermodal competition that characterizes the digital environment" (p. 3); USTelecom, which stated "Rather than attempting to statutorily define competition…definition that will inevitably become outmoded in a very short time…acknowledgement that the communications marketplace has, indeed, become competitive" (pp. 3–4); American Action Forum, which stated "Broadband competition is vigorous, facilities-based and intermodal; while the relevant law is largely siloed" (p. 1).

[7] E.g., in its response, Cellular One advocated for Congressional attention to interconnection, interoperability, the size of geographic wireless licenses and set-asides.

[8] E.g., in its response, AT&T suggested that the focus should not be on "multiple discrete markets for particular inputs" but rather on "the ecosystem as a whole."

[9] See, e.g., the responses of Alton Drew, Sprint, and the American Enterprise Institute's Center for Internet, Communications, and Technology Policy.

[10] See, e.g., the responses of Alton Drew and the American Enterprise Institute's Center for Internet, Communications, and Technology Policy.

[11] See, e.g., the response of Cellular One (p. 1) and the response from the Competitive Carriers Association (p. 19).

In this paper, we use the lens of economic analysis to bring focus to the discussion of competition in modern communications markets. While other articles in this issue focus on the specific economics that surround the FCC's Open Internet Order, this paper provides a complementary, but more primitive, assessment of "competition" with an eye toward not only enhancing our tools for assessing the basic claims with regard to the presence or absence of competition as it pertains to the net neutrality debate but also more generally.

We begin in Sect. 2 by reviewing how the concept of "competition" has evolved over the history of economic thought. In Sect. 3, we discuss an important inflection point in the mid-20th century with the development of the concept of "workable competition" and its corollary term, "effective competition," in the policy arena. In Sect. 4, we review the definition and use of the term effective competition in two important sectors overseen by the Federal Communications Commission: cable television and mobile telephony. We find that the various policy applications rely on substantially different definitions of effective competition.

In Sect. 5, we return to the basic question that was posed by the Committee: how to define competition in the modern communications marketplace. Drawing upon the core elements of the academic concept of effective competition, we offer a straightforward and robust definition for application to 21st century communications markets. Like virtually every economic concept in the policy arena, our offered definition would be subject to pressures from interests that would seek to advance their cause for more, or less, governmental intervention into telecommunications markets. Nonetheless, this definition, which is rooted in the discipline of economics, holds the promise to guide policy sensibly in the rapidly evolving communications markets of the 21st century.

2 The Evolution of "Competition" in Economic Thought

At its most primal level competition is rivalry. In business, rivalrous actions are intended to secure the patronage of consumers. Most often, competition provokes firms to take actions that benefit consumers. Competition is routinely attributed to be a cause of improved firm-level efficiency, lower prices, increased quality, accelerated innovation, and more rapid development of new services. For these reasons, for at least 125 years, policymakers in the United States have championed the cause of preserving and promoting competition.[12]

Yet while generally agreeing that competition is desirable, the House Committee white paper asks a more basic question: How should policymakers define competition? This question is crucially important: Without a clear and shared understanding of what marketplace characteristics and activities constitute competition, well-meaning but misguided policy interventions may inadvertently harm competition through actions that are intended to promote it; or alternatively, when competition is inadequate, policymakers may fail to intervene under a mistaken belief that existing competition levels are adequate to protect consumers.

[12] See, e.g., Sherman Antitrust Act of 1890, 15 U.S.C. §§ 1–7.

The subject of competition has been central in economics since the writings of the mercantilists of the 17th century (Dennis 1977, p. xii). Mercantilists believed that competition occurred between nations via international trade. The focus on more atomistic competition between firms emerged with the writings of the physiocrats and ultimately gained prominence through the work of Adam Smith.[13] Smith provided a now central tenant of capitalism that competition among self-interested actors commonly promotes the aggregate economic welfare of society at large.[14] Additionally, Smith provides context by contrasting competition with monopoly (Dennis 1977, p. 96). And he notes as well that competition “disciplines” and “regulates” firm behavior (Dennis 1977, p. 100). For all the value of Smith’s linking competition to the social outcomes, his concept of competition “is solely equilibrating in tendency and thereby a principle of order and stability rather than change” (Dennis 1977, p. 101). It was not until the 20th century that Schumpeter (1942) offered a vision of competition as a fundamental source of disequilibrium (and growth) in markets.

Beginning with Smith, the word and concept of competition has often been conjoined with an adjective. Smith emphasized “free” competition. Smith’s use of the word “free” emphasized the notion that the competition he envisioned was one in which individuals and firms could freely enter to compete for consumers’ patronage. Against a medieval backdrop in which entry into professions and particular lines of commerce was heavily regulated, the adjective “free” brought two special purposes. First, it provided a reinforcing notion of individual liberty that was a common theme throughout Smith’s writings. Second, it provided a marker for economists for the next two centuries that would emphasize the important role that economically “free” entry can have for the ability of markets to promote efficient resource allocation.[15]

[13] For a more detailed description of the antecedents to Smith’s concept of competition, see, e.g., McNulty (1967).

[14] See, e.g., Smith (1937/1776, p. 423), stating, “…where the competition is free, the rivalship of competitors, who are all endeavouring to justle [sic] one another out of employment, obliges every man to endeavour to execute his work with a certain degree of exactness.” He goes on to state, “But the annual revenue of every society is always precisely equal to the exchangeable value of the whole annual produce of its industry, or rather is precisely the same thing with that exchangeable value. As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.”

[15] Economically “free” entry does not, of course, literally mean that the cost for firms to enter markets is zero but rather that barriers to entry are minimal.

In the years after Smith's treatise, economists have honed, refined, and parsed the notion of competition. Prominent economists of the 19th century began to refer to "the law of competition": referring to the general propensity of competition to drive prices to an equilibrium level.[16] Later still, economists came to qualify the word competition with "perfect." Today, the model of "perfect competition" provides a standard introduction for students of economics into the equilibrium tendencies of markets that are characterized by perfectly free entry, atomistic firms selling a homogeneous product or service and perfectly informed buyers and sellers.[17] As a theoretical model it provides a powerful congruence of competition with the economic efficiencies that were anticipated by Smith some 240 years ago.

By the mid-20th century, however, it was widely recognized that many if not most modern markets had characteristics that strained the then-standard characterization of perfect competition. Firms in advanced capitalistic societies are often large in both absolute and relative terms, sell mildly-to-highly differentiated goods, and operate in markets that are subject to at least modest barriers to entry. Ironically, a core element of competition (*viz.*, rivalry) is absent from the perfectly competitive model as firms in this market model do not compete with each other in the sense of reacting to a rival's actions, but instead simply respond to anonymous market forces.

This disconnect compelled fresh thinking among economists who began serious efforts to develop models of imperfect competition that may more accurately take into account the structural aspects of modern markets.[18] In imperfectly competitive market models, firms compete with each other by accounting for and reacting to rivals' behaviors. Efforts to model imperfectly competitive models, however, have not been the silver bullet that economists had sought. An early attempt to construct a general model of imperfect competition was criticized for its overreaching generality and its tendency to envision all competition as "monopolistic" (Stigler 1956). Game theoretic models of competition, which have the virtue of explicitly modelling rivals' strategic reactions to each other, provided specific insights under particular assumptions. Yet the equilibrium outcomes of these models vary from very desirable economic outcomes (i.e., high output and low prices) to less "competitive" (lower output and higher prices) outcomes. Consequently, no general theory of imperfect competition has arisen that captures, or anticipates, the general economic behavior of firms in modern markets.[19]

[16] E.g., Ricardo (1811/1887), George (1879/1920, § 2 ¶ 10), Mill (1848).

[17] E.g., Katz and Rosen (1998, pp. 327–331).

[18] This research might be said to originate with Chamberlin (1933), who developed the model of monopolistic competition. See also Robinson (1933).

[19] This is, of course, not to say that significant progress has not been made in the development of specific market models, with particular features, that may be accurately used to understand economic outcomes better in appropriately identified markets. See also the more general theoretical contributions of Boone (2008a, b) as well as studies examining the relationship of competition and economic performance metrics such as investment and innovation; e.g., Schmutzler (2013).

3 Workable (Effective) Competition

The 20th-century incongruity between the simplistic (and potentially misleading) model of perfect competition and the structure of many modern markets naturally triggered a debate about the concept of competition and the appropriate policy toward competition. In the 1940s, this discourse found a new and promising pathway. John Maurice Clark (1940), a prominent early 20th-century economist, argued passionately for a new concept of competition. He noted that models of imperfect competition, while “current,” were in “an unformulated state” for applications of economic policy. He further noted that scrutinizing the model of perfect competition had led economists to realize that “‘perfect competition’ does not and cannot exist and has presumably never existed for reasons quite apart from any inescapable tendency toward collusion, such as Adam Smith noted in his familiar remark on the gettings-together of members of a trade” (p. 241).

To advance a better platform, he defined competition as follows:

> **Competition** is rivalry in selling goods, in which each selling unit normally seeks maximum net revenue, under conditions such that the price or prices each seller can charge are effectively limited by the free option of the buyer to buy from a rival seller or sellers of what we think of as “the same” product, necessitating an effort by each seller to equal or exceed the attractiveness of the others’ offerings to a sufficient number of [buyers] to accomplish the end in view (p. 243, *emphasis added*).

This definition provides the core of Clark’s theory of “workable competition”: a term that he and others came to use interchangeably with “effective competition” (Clark 1961). Clark emphasizes three key features of competition: (1) rivalry among sellers; (2) the “free option” of buyers to buy from alternative vendors; and (3) efforts by sellers to equal or exceed the attractiveness of others’ offerings.

Clark’s definition provides guidance for identifying firms that are subject to workable competition and for offering policy guidance. Workable competition admits the prospect that industries may, “despite large-scale production, have the characteristics of fairly healthy and workable imperfect competition, rather than those of slightly-qualified monopoly” (Clark 1940, p. 256). On the policy front, Clark concludes that where markets deviate from structural conditions of perfect competition but are, nonetheless, workably competitive, “one may hope that government need not assume the burden of doing something about every departure from the model of perfect competition” (p. 256).

Once introduced, the concept of workable competition gained immediate traction in both the academic and political communities.[20] Joe Bain, who is often attributed to be the father of modern industrial organization economics, scrutinized Clark’s vision of workable competition, finding much merit in the concept. As he observed, Clark’s notion of workable competition “include[ed] a rather effective answer to those who would hold that all oligopoly tends to approximate pure monopoly

[20] See, e.g., Wilcox (1940).

behavior, or that reasonably satisfactory results are possible only if all oligopolists price independently on a price-equals-marginal-cost basis" (1950, p. 36).

Bain noted that determining whether a market was workably competitive would require an empirical assessment of performance along several dimensions. He further correctly observed that successfully assessing the workability of competition requires judging the empirical results of the analysis against some "ideals or goals of performance" as well as providing some clear sense of the acceptable degree of deviation from these ideals (1950, p. 37).

The original definition of workable competition that was fashioned by Clark is both straightforward and, with Bain's caveats duly noted, seemingly a "workable" tool for economists as they consider the merits of turning up or down the regulation of an industry. Following Clark's original exposition of workable competition, however, economic analyses proceeded by continuing to alter the definition of what constituted a workably competitive market and by generating an ever-growing list of criteria that were seen as necessary to render a confident conclusion that a market was, in fact, workably competitive.

These developments ultimately caused a muddling of the clean concept. By 1957, one prominent economist wryly noted that "[t]here are as many definitions of 'effective' or 'workable' competition as there are effective or working economists" (Mason 1957, p. 381). The list of criteria too became unwieldy: One study went so far as to argue that "a market is effectively competitive *if and only if* it is free of 25 flaws" (Sosnick 1968, p. 827, *emphasis added*).[21]

Future Nobel laureate George Stigler added the criticism that the factors that were identified as congruent with effective competition were "simply parts of the theory of perfect competition restated in homely language" (1956, p. 505). The multiple criteria for labeling a market "workably competitive" had not created greater clarity, but instead clutter and ambiguity. And the ever-growing set of criteria also made the labelling of a market as "effectively competitive" more stringent than labelling it "perfectly competitive." Stigler's cutting synthesis concluded, "[t]o determine whether an industry is workably competitive, therefore, simply have a good graduate student write his dissertation on the industry and render a verdict. It is crucial to this test, of course, that no second graduate student be allowed to study the industry" (p. 505).

Another poignant critique concluded that the erosion of the concept from its original form was not due to failures of classical economic thought, but rather failures of those "who fell into the bad habit of equating competition with pure competition, of confusing theoretical benchmarks with policy norms, of expecting highly monopolistic behavior in most markets where competitors are few" (Peterson 1957, pp. 76–77).

While theoretically adrift, the increasingly ill-defined concept of workable competition also ran a risk of providing a misleading policy tool. As pointed out by

[21] These flaws included unsatisfactory products, underuse or overuse, inefficient exchange, inefficient production, bad externalities, spoliation, exploitation, unfair tactics, wasteful advertising, irrationality, undue profits or losses, inadequate research, predation, pre-emption, tying arrangements, resale price maintenance, refusals to deal, undesirable discrimination, misallocation of risk, undesirable mergers, undesirable entry, misinformation, inefficient rules of trading, and misregulation.

Stigler (1956), “[b]ecause [the concept of workable competition] does not focus upon the alternatives open to the society in a given situation, it is misleading: sometimes nothing can be done with an unworkable industry; sometimes a workable situation can be improved” (p. 505). This important insight points toward the need, when considering public policy that is directed toward any industry, to consider not only observable behaviors of firms within a market but also the costs and effectiveness of governmental policies that are designed to remedy perceived market shortcomings.

Fortunately, as Jesse Markham observed, a definitional refinement helps circumvent the policy trap that was identified by Stigler:

> A possible alternative approach to the concept of workable competition may be one which shifts the emphasis from a set of specific structural characteristics to an appraisal of a particular industry’s over-all performance against the background of possible remedial action. Definitions of workable competition shaped along these lines might accept as a first approximation some such principle as the following: *An industry may be judged to be workably competitive when, after the structural characteristics of its market and the dynamic forces that shaped them have been thoroughly examined, there is no clearly indicated change that can be effected through public policy measures that would result in greater social gains than social losses* (Markham 1950, p. 361, *emphasis added*).

4 Effective Competition in Policy Practice

Following the introduction of effective competition to the academic literature, the concept was quickly integrated into policy usage. Its first appearances in the policy arena were limited to federal tax and procurement policy applications. As early as 1944, the term “effective competition” appeared in an IRS Bulletin that referenced an exemption from stringent wartime contract policies if competitive conditions were likely to result in effective competition for the contract (U.S. Treasury Department 1944, pp. 807, 961, 1048). Similar early references to effective competition appear in procurement clauses that were related to telecommunications and the military.[22] Missing from these early policy directives was any definition of

[22] See, e.g., the Satellite Communications Act of 1962, Public Law No. 87-624, 76 Stat. 419, codified at 47 U.S.C. ch. 6 § 701 et seq, which directed the FCC to “insure effective competition, including the use of competitive bidding where appropriate, in the procurement by the corporation and communications common carriers of apparatus, equipment, and services required for the establishment and operation of the communications satellite system and satellite terminal stations…” See also An Act of July 5, 1968 to amend section 2306 of title 10, United States Code, to authorize certain contracts for services and related supplies to extend beyond one year, Public Law 90-378, 82 Stat. 289, which permitted the armed forces to enter multi-year contracts so long as, among other requirements, “the use of such a contract will promote the best interests of the United States by encouraging effective competition and promoting economies in operation.”

"effective competition." When certain sections did incorporate definitions much later, they tended to focus on the presence of two or more rivals.[23]

In the 1970s, "effective competition" found its way into freight railroad policy. In the Railroad Revitalization and Regulatory Reform Act of 1976, Congress declared that the Interstate Commerce Commission could not judge a rate for rail service to be unreasonable unless it first determined that the carrier in question held "market dominance," which it defined to be the "absence of effective competition" from either other rail carriers or other modes of transportation.[24] It did not, however, define "effective competition."

Apart from procurement applications, it appears that the first meaningful discussions in communications of competition and "effective competition" in particular began in the 1980s. In a 1985 FCC Office of Plans and Policies working paper, John Haring wrote:

> Competition is a process of discovery and adaptation, not a particular distribution of market shares. *Any* configuration of market shares may be consistent with effective competition or noncompetitive performance... Whether competition is 'effective' depends primarily on the degree of resource mobility in the economy. It has little to do with the distribution of market shares prevailing at any point in time, particularly when shares are determined by regulation rather than competition (1985, p. 2, *emphasis in original*).

In 1993, the FCC began to define effective competition in a proceeding that involved the entry of foreign telecommunications carriers into the U.S.: "Effective competition means competition among service providers in a market that benefits consumers by expanding service offerings, promoting development of innovative technology, and lowering prices" (FCC 1995b, ¶ 1). While establishing a definition that appeared congruent with Clark's foundational definition, the FCC has vacillated in other policy areas in which the definition of effective competition is central to policy.

We now turn to those areas.

4.1 Effective Competition in Cable TV

The concept of effective competition was present at the FCC,[25] but the agency did not take concrete steps to employ the concept as a benchmark for regulation telecommunications until the Cable Communications Policy Act of 1984 compelled

[23] See, e.g., 48 C.F.R. § 34.001 (1986), which defines effective competition within the Federal Acquisition Regulations System for major acquisitions as, "a market condition that exists when two or more contractors, acting independently, actively contend for the Government's business in a manner which ensures that the Government will be offered the lowest cost or price alternative or best technical design meeting its minimum needs." The definition was first added into this section of code in 1986.

[24] Railroad Revitalization and Regulatory Reform Act of 1976, Public Law 94-210, 90 Stat. 31, 45 U.S.C. § 801.

[25] See, e.g., the 1962 Satellite Communications Act, cited in *supra* note 22, which had instructed the FCC to "insure effective competition."

the agency to define the term for the purposes of cable regulation.[26] The FCC, operating on a strict Congressionally-dictated timetable for adopting a standard, initially settled on a finding of effective competition if at least three non-duplicated over-the-air broadcast signals were receivable within the cable system's market area.

This standard was implemented as an exemption criteria from rate regulation, and ultimately resulted in rate deregulation for 96 percent of the cable industry (U.S. House of Representatives 1992, p. 31), and remained in effect (with minor revisions and clarifications[27]) until 1991. The FCC monitored the relevance of its definition, and staff analysis of 1988 viewership data found a lack of support for the three-signal standard as a true finding of effective competition.

Consequently, the FCC began a reexamination of the effective competition standard to reflect the changed circumstances of the video marketplace. This time, the FCC dedicated 17 months to the exploration of various criteria for effective competition, and settled on a two-pronged definition for the existence of effective competition. One of two alternatives must be met: (1) at least six unduplicated Grade B broadcast signals[28] must be available in the relevant market, and cable system penetration in the market must be less than 50 percent; or (2) at least one independently owned multichannel video service must be available to at least 50 percent of viewers in the relevant market and actually subscribed to by at least 10 percent of the potential viewers in the market (FCC 1991).

This stricter definition, enacted in June 1991, significantly increased the number of cable systems that were subject to regulation. At the same time, Congress had already begun an investigation of what it viewed to be price gouging in the wake of substantial deregulation[29] and disempowered the FCC by enacting legislation that would regulate rates on a broader scale.

With the passage of the Cable Television Consumer Protection and Competition Act of 1992, the criteria for effective competition changed again.[30] Any of three conditions would demonstrate the presence of effective competition: (1) when fewer than 30 percent of the households in the system's franchise area subscribe to the

[26] Cable Communications Policy Act of 1984, Public Law 98-549, 98 Stat. 2779, codified at 47 U.S.C. § 521 et seq. This Act deregulated the cable industry, with much of the outcome contingent on the presence of effective competition—the definition and determination for which Congress gave authority and mandated the FCC to create.

[27] E.g., the FCC made revisions in 1988 per direction of the U.S. Court of Appeals—after a case brought against the FCC by the American Civil Liberties Union—to require that 100 percent of the community receive three Grade B signals, although they need not necessarily be the same three signals throughout the whole community, and also to use community-wide rather than county-wide data to determine whether a signal qualifies as "significantly viewed." See FCC (1988).

[28] A "Grade B" broadcast signal was defined as the field strength of a television broadcast station computed in accordance with regulations that were promulgated by the Commission pursuant to 47 USC § 522 (11).

[29] The prevailing argument made by the cable providers at this time in defense of this accusation had two parts: first, that prices had been artificially low during the period of regulation prior to the 1984 Act; and second, that in the period of deregulation, the industry offerings had significantly improved and merited a price increase.

[30] Cable Television Consumer Protection and Competition Act of 1992, Public Law 102-385, 106 Stat. 1460, 1465, codified as amended at 47 U.S.C. §§ 521–555.

operator's service; (2) if the franchise area is served by at least two multichannel video programming distributors, each of which offers comparable programming to at least 50 percent of the franchise area's households and also if more than 15 percent of the franchise area's households subscribe to service that is offered by a distributor other than the largest one in the area; or (3) when the area's franchising authority operates a multichannel video programming service that is available to at least 50 percent of the households in the area.

The FCC was required to implement these controversial changes and define certain Congressionally-undefined aspects of the law's standard for effective competition. As a procedural mechanism, the FCC officially adopted the presumption of no effective competition during the implementation of the 1992 Cable Act (FCC 1993).

Four years later, Congress passed the Telecommunications Act of 1996, with the stated goal of increasing competition and reducing regulation. This act again altered the definition of effective competition in the cable industry: It broadened the scope to include competition from a local exchange carrier's facilities that offered video programming services that were comparable to the offerings of cable operators.[31] In line with the act's stated goal of promoting competition and reducing regulation, the definition also eliminated many situations in which a determination of effective competition would be necessary to exempt a service provider from rate regulation.

After the FCC implemented the act (1996), the percentage of cable service providers that were found to be subject to effective competition rose, albeit slowly initially but then more rapidly.[32] In particular, as the new technology of direct broadcast satellite (DBS) developed and DBS coverage became nearly ubiquitous, DBS came to be seen as a ready driver of effective competition among other multichannel programming video providers (MVPDs). As competition was increasingly seen as effective, the regulatory presumption that cable companies did not face effective competition absent a rigorous demonstration was seen as burdensome regulation.

Against this backdrop, the STELA Reauthorization Act of 2014[33] gave the FCC a mandate to reevaluate the usage of the effective competition standard. Specifically, under the mandate of Congressional order to "establish a streamlined process for filing of an effective competition petition pursuant to this section for small cable

[31] The act provided, in addition to the previous three criteria—low penetration, competing providers, or the presence of a municipal provider—of effective competition, a definition for "local exchange carrier effective competition" if a local exchange carrier or its affiliate or any MVPD using the facilities of such carrier or its affiliate offers video programming services directly to subscribers by any means other than direct-to-home satellite service in the franchise area of an unaffiliated cable operator which is providing cable service in that franchise area, but only if the video programming services so offered in that area are comparable to the video programming services provided by the unaffiliated cable operator in that area. See Telecommunications Act of 1996, Public Law 104-104, 110 Stat. 56, 115, § 301(b)(3).

[32] In 1997, for example, the FCC issued decisions determining the presence of effective competition in 45 communities with approximately 300,000 subscribers. The majority of successful effective competition petitions in 1997 were based on the local exchange carrier test for effective competition. See FCC (1998a).

[33] STELA Reauthorization Act of 2014, Public Law 113-200, § 111, 128 Stat. 2059, 47 U.S.C. § 543(o)(1).

operators, particularly those who serve primarily rural areas,” the FCC revisited the presumption that determined the presence or absence of effective competition in the cable industry (FCC 2015b). As the FCC had noted in its annual competition reports, it had denied progressively fewer petitions for determination since 1993, and in only half a percent of the communities that had been evaluated since 2012 had there been insufficient evidence for a finding of effective competition (FCC 2015a). With DBS service providing nearly universal coverage in the U.S. (FCC 2015c, ¶¶ 26–28) and generally fulfilling the requirements for the competing provider effective competition test (FCC 2015b, ¶9), in June 2015 the FCC alleviated the burden of petitioning for small (and large) cable operators by adopting a rebuttable presumption of competing provider effective competition (FCC 2015b, ¶¶ 13–16).

In sum, both the definition and policy determination of effective competition in cable TV provision have vacillated over the years. The FCC has alternatively defined “effective competition” to be a number of competitors greater than or equal to three, six, or two. At times, the FCC has focused solely on the number of competitors, while at other times it has incorporated an additional focus on market shares that were measured, at times, using capacity or customers, and, alternatively at different times focusing on the market share of the largest—or smallest—provider in the marketplace. In short, the only consistency over the years has been the inconsistency with which policymakers have defined effective competition in the MVPD marketplace.

4.2 Effective Competition in Mobile Wireless

The FCC began a formal annual review of the state of “competitive market conditions with respect to commercial mobile services” after Congress passed legislation that requiring the review in 1993.[34] Unlike the case of cable TV, however, Congress did not dictate the definition or terms of effective competition for mobile telephony. The law simply required that the FCC include “an analysis of whether or not there is effective competition,” as well as “identification of the number of competitors in various commercial mobile services” and “whether any of such competitors have a dominant share of the market for such services.” In the wake of such flexibility, the FCC’s approach to the annual reporting requirement changed substantially over the years since 1993.

Initially, the FCC did not explicitly comply with all parts of the law that outlined the contents of the annual report. In particular, the FCC described the industry’s competitive metrics and trends without making a finding of effective competition or lack thereof in the first seven reports. The term “effective competition” does not appear in many of the reports, except for citations to the law that motivated the report.[35]

[34] The Omnibus Budget Reconciliation Act of 1993, Public Law 103-66, Title VI, § 6002(b), amending the Communications Act of 1934 and codified at 47 U.S.C. § 332(c).

[35] See, e.g., FCC (1995a, 1997, 1998b, 1999).

Surprisingly, the FCC's neither defining effective competition nor attesting to its presence or absence did not prove particularly controversial despite being a blatant contravention of a major component of its reporting requirement. This was perhaps based in the presence of phrases such as "less than fully competitive" (FCC 1995a, ¶4), and "undergoing major changes that have resulted in growing competition" (FCC 1995a, ¶2), which hinted at the absence of effective competition without requiring a conclusion. Later reports similarly hinted at progression toward an effectively competitive industry, which allowed the FCC to broach the topic of effective competition without specifically concluding that the industry had yet become effective competitive.[36] Over time, both the extent of data upon which the reports were based and the analyses of those data expanded considerably.[37]

By the release of the *Eighth Report* in 2003, the FCC's perception of competitive growth in the mobile wireless industry led to a conclusion that the industry could be characterized by effective competition. Improvement in the quality and granularity of the underlying data was also revealed in the *Eighth Report* (FCC 2003).[38] Still, the *Eighth Report*'s finding of effective competition was not predicated on a specific definition or set of criteria for effective competition. The *Eighth Report* did, however, manage to set a precedent, and each of the following six reports continued to conclude that effective competition was present in the mobile wireless industry, despite never referencing a definition for the term or stating the criteria for such.

The FCC's changed methodology and approach to assessing competition did not go unnoticed. Internally, Commissioner Michael J. Copps criticized it. Commissioner Copps argued for the need to "establish a definition of 'effective competition' and a standard for determining when such competition exists" and stated that "merely listing possible relevant areas of inquiry is far different from having a rigorous method of determining whether current market characteristics mean that there is adequate competition" and that "[w]ithout more rigor, without an articulated 'effective competition' standard, the Report is of limited use in providing an analytically solid foundation for Commission or Congressional action"

[36] See, e.g., a statement in the *Fourth Report*, "While there is still considerable room for further competitive development, the effects of the progress to date are clear" (FCC 1999, p. 10207).

[37] The *First Report* (FCC 1995a) was composed almost entirely of a discussion of various mobile services and how they complemented each other, with some generalized price ranges for those products and broad subscription statistics, although it did reference goals for how the reporting would improve by the time of the *Second Report*. By the time of the *Fifth Report* (FCC 2000), the length of the report had more than quadrupled, and included a much broader selection of sector descriptors. With regard to advancements in data, prior to the *Seventh Report*, the Commission based its analysis solely on publicly available data sources e.g., FCC (2001); but the Commission incorporated the "Numbering Resource Utilization / Forecast" data in the *Seventh Report* (FCC 2002), and also conducted a public forum in February 2002 to collect further data.

[38] FCC Chairman issued a statement as part of the report stating, "This is the most comprehensive wireless competition report that the Commission has ever produced and I applaud the efforts of the Wireless Bureau to update, verify, and diversify our data to better capture the state of the marketplace" (FCC 2003, p. 14783).

(FCC 2003, p. 14784). Copps reiterated his views upon the release of the subsequent four competition reports.[39]

While Copps was alone in his views within the FCC, outside the Commission, others supported the development of an effective competition standard. Notably, a 2006 report of the U.S. Government Accountability Office (GAO) concluded that the FCC needed to "develop a meaningful and workable definition of effective competition" (GAO 2006, p. 43), which it characterized as a proxy of true consumer choice.[40]

Upon review, the managing director of the FCC, Anthony Dale, commented that developing such a definition would be "administratively impracticable" because "there is no universally accepted, bright-line definition of 'effective competition'" and questioned the recommendation to define and "measure effective competition on a granular basis" on the grounds that it was inconsistent with the deregulatory goals of the 1996 Telecommunications Act (GAO 2006, p. 74).

The GAO responded that: (1) the FCC was in the best position of any entity to accomplish this task, despite its complexities; (2) defining effective competition was "a relevant and important task for the requisite federal regulatory body"; and (3) the "FCC would be significantly hindered in its ability to fulfill its regulatory responsibilities and statutory goals of promoting competition if it cannot define competition, does not have measurable goals, and does not collect and analyze reliable data on the state of competition for dedicated access" (GAO 2006, p. 46).

In January 2009, Commissioner Copps stepped in as Acting Chairman of the FCC six days after the release of the *Thirteenth Report*. During his brief tenure in this role, the wireless bureau approached the task of articulating the components of an effectively competitive industry. With a *Public Notice* in May 2009, the FCC launched preparations for the *Fourteenth Report*, and along with the usual requests for data and anecdotes with regard to industry developments, the FCC finally requested feedback on which "specific criteria should be used to determine whether there is 'effective competition' among [mobile wireless] providers" (FCC 2009b, p. 5619).

The *Public Notice* referenced a variety of interpretations of what could constitute effective competition, and asked whether it "should continue to consider a range of indicators in determining whether effective competition is prevalent in [the mobile

[39] E.g., Copps remarked: "… the Report still contains arguments and omissions that trouble me. The central question of the legislation that requires this Report is whether the market is characterized by 'effective competition.' Yet again this year, the Report does not provide a useful definition of this term" (FCC 2004, p. 20720). "Congress tasked us with doing 'an analysis of whether or not there is effective competition' in commercial mobile services. Yet still we fail to define 'effective competition'textendash and this limits the ability of the Commission and the Congress to rely on our results" (FCC 2005, p. 16014). "The need for a clearly-stated, objectively-measurable definition of 'effective competition' gets more compelling every year…Our conclusion that competition remains effective [ ] would be more credible if we had defined that term ahead of time and **then** assessed whether current competition data meets our definition" (FCC 2006, p. 11070, *emphasis in original*). See also his comments in the *Twelfth Report* (FCC 2008).

[40] This was in marked contrast to earlier reports that focused more on the weaknesses of the data that underlay previous reports. See, e.g., GAO (2003).

wireless] marketplace or define effective competition in a more specific manner" (p. 5620). The *Public Notice* also mentioned some of the definitions that had been explored within public policy practice and economics literature and inquired whether the definition of an effectively "competitive market [as] one that requires no intervention to improve its performance" should be considered "in conjunction with the metrics and factors currently analyzed" (p. 5621).

However, few of the comments addressed this topic. Most of the 14 commenters ignored the opportunity to shape a definition for effective competition and simply addressed other aspects of the *Public Notice*, focusing on concerns with regard to consolidation in the industry or perceived impediments to competition that stemmed from roaming and exclusive handset agreements.[41] Others dismissed the importance of defining effective competition and stated that the FCC should continue to approach the topic as it had in the *Eighth* through *Thirteenth Reports*, or expressed that the FCC was incapable of generating a useful definition.[42]

Soon after the comment and reply-comment period for the *Public Notice* had closed, the newly confirmed Chairman of the FCC, Julius Genachowski, announced a goal of "upgrading [the] competition reports across the board to provide important information to all stakeholders and to create solid, fact-based foundations for predictable policy" (FCC 2010, p. 11700), which appeared congruent to developing a definition of effective competition.

When the *Fourteenth Report* was released, however, rather than elaborate on criteria for effective competition, the FCC simply reversed its position on the feasibility of finding the presence or absence of effective competition in the industry stating, "[t]he mobile wireless ecosystem is sufficiently complex such that no single definition of effective competition adequately encompasses both general indicators of competition and challenges inherent in the mobile wireless industry, such as spectrum availability, network interconnection issues, and network access issues" (FCC 2010, p. 11435). The FCC further justified its stance by referencing the lack of a consensus on the definition of effective competition among economists and competition policy authorities as the driving reason that they failed to make a finding for or against effective competition. Chairman Genachowski posited that an "overly-simplistic yes-or-no conclusion about the overall level of competition in this complex and dynamic ecosystem" would be at odds with the FCC's role "as a fact-based and data-driven agency" (FCC 2010, p. 11701).

Similar to the first seven reports, although accompanied by a much more granular description of the industry, the FCC's *Fourteenth Report* assessed mobile telephony market conditions without providing a conclusory assessment with regard to the presence of effective competition. Unlike those first seven reports, however, the

[41] See, e.g., comments from Cellular South, Cricket, the Rural Telecommunications Group, MetroPCS, and Brighthouse Networks, among others on FCC (2009a).

[42] In its response, AT&T went so far as to argue that the task was unnecessary because it was obvious that "any rational definition" would clearly indicate effective competition in the wireless industry and serve as an efficient fulfillment of the FCC's statutory duty. Thus, AT&T characterized the existence of the inquiry as a "distraction of academic debates on the proper definitional phrasing" (FCC 2009a, AT&T, p. 5).

Fourteenth Report did not imply that effective competition did not exist. Instead, what conclusions should be drawn from the report were simply left to the reader.

There was not even a consensus among the various commissioners as to how to interpret the report. Commissioner Meredith Baker applauded the thoroughness of the report, but stated, "we should have made an affirmative finding of a competitive market based on the year-over-year trends set forth in the Report and the significant consumer opportunities and investment provided by the wireless industry" and "[the Report's] data demonstrate a vibrant competitive environment across the mobile wireless sector" (FCC 2010, p. 11708). Commissioner Robert McDowell argued that there was not "new or particularly revealing information that would prevent us from opining as to 'whether or not there is effective competition'" and "[i]f nothing else, the report shows that the wireless sector is dynamic, ever-improving, and responsive to consumer demand" (FCC 2010, p. 11704).

Given Commissioner Copps' repeated calls for the FCC to define "effective competition," surprisingly, he complimented the new report's format and called it, "the kind of comprehensive and granular analysis that [he had] been looking for." Copps then went on to emphasize a growth in the Herfindahl-Hirschman Index value within the mobile telephony market, which he thought heralded the "dramatic[] ero[sion]" and "serious[] endanger[ment]" of competition "by continuing consolidation and concentration in the wireless markets" (FCC 2010, p. 11702). Commissioner Mignon Clyburn also applauded the report and expressed her fears about rural consumers without "meaningful choices among providers" (FCC 2010, p. 11707).

The new unwillingness of the FCC to conclude that the mobile wireless market was effectively competitive was seen by many as a change in the FCC's opinion of the competitive levels in the market and, correspondingly, a harbinger of impending greater regulation of the wireless industry. Unsurprisingly, this report was met with public outcry, in particular from those companies that never expected the FCC might change its stance so dramatically and so quickly.[43] Despite this public outcry, the *Fourteenth Report* set a new course for the following five reports.[44] Through the publication of the *Nineteenth Report*, the FCC continued to analyze a collection of competitive attributes of the mobile wireless industry without defining effective competition or making a finding that the market is or is not effectively competitive.[45]

[43] E.g., AT&T had previously posited that any "rational definition" would surely indicate the presence of effective competition (FCC 2009a, AT&T, p. 5). The change in the FCC's position also garnered substantive academic criticism; e.g., Faulhaber et al. 2012).

[44] See FCC (2011, 2013, 2014b, 2015d, 2016b).

[45] FCC Commissioner Robert McDowell continued to criticize this decision not to make a finding for/against effective competition until his retirement, and was also joined by Commissioner Ajit Pai, noting, "For what it's worth, the answer is pretty obvious to me: Yes, there is effective competition" (FCC 2013, p. 4174). Commissioner Ajit Pai and Commissioner Michael O'Rielly were particularly critical of the FCC's stance at the release of the *Eighteenth Report* (FCC 2015d), with O'Rielly stating "[it] amazes me that with more than 90 percent of Americans having a choice of four or more wireless providers that we are incapable of concluding, as directed by Congress, whether this industry is competitive" (FCC 2015g), and Pai casting aspersions on the reasons for the FCC's failure to make a finding of effective competition, "The bottom line: this FCC will *never* find that there is effective competition in the wireless market, regardless of what the facts show. That's because doing so would undermine the agency's goal of expanding its authority to manipulate the wireless market—a goal it can't accomplish if it deems that market healthy" (FCC 2015f, *emphasis in original*).

Our review of the FCC's approach to "effective competition" in mobile telephone markets indicates that without a clear definition to guide its analysis of competition, the FCC has expended substantial effort on mobile competition reports that are ultimately just as haphazard in their approach as the arbitrary rules that had surrounded effective competition in the cable industry.

This approach could have been improved at any point in the last 23 years by establishing a definition of effective competition. It is to that effort that we now turn.

5 "Competition" for 21st Century Communications Markets

Collectively the last two sections indicate that: (1) after a promising start the definition of workable (effective) competition became excessively burdened and muddied in the academic realm; and (2) despite the absence of an agreed upon definition of the term, "effective competition" was nonetheless adopted by policymakers who have based critical decisions with regard to the level of regulation or deregulation of various industries on determinations of whether the market at hand was, indeed, effectively competitive.

As we have seen, however, the lack of definition permits inconsistent and vacillating interpretations in the policy realm, with little or no reliance on the economic underpinnings that are associated with the concept. Consequently, a rigorous definition of "competition" that is capable of sensibly guiding economic policy for the 21st century does not readily spring from a continuation or simple modification of "effective competition" as historically used by the FCC.

This does not, however, mean that a sound definition is not possible. Nor does it mean that a definition must be constructed *de novo*. Rather we offer a definition that is rooted in the lineage of economic thought on competition.

Three pillars form the foundation. First, we begin by emphasizing the basic definition offered by Clark (1940), who argued that workable or effective competition has three core elements: (1) rivalry among sellers;[46] (2) the free option of buyers to buy from alternative vendors; and (3) efforts by sellers to equal or exceed the attractiveness of others' offerings.

Second, as elaborated by Bain and Qualls (1987), "workable ... competition in markets is revealed by, and is the result of, whatever gives rise to satisfactory or workable performance–performance that enhances economic welfare to a reasonable degree" (p. 10).[47]

Finally, to the extent that effective competition serves as a trigger for policy intervention in markets, Markham's insight becomes a requisite element of any

[46] As McNulty (1967) points out, the centrality of rivalry in competition can be traced at least as far back as Smith (1937/1776). See, e.g., Stigler (1957) who observed that the Smithian notion of competition was "in the sense of rivalry in a race—a race to get limited supplies or a race to be rid of excess supplies."

[47] As a practical matter, this feature of effective competition embodies the prospect that Schumpeterian-style competition for a market (as opposed to the more traditionally-conceived competition within a market) is sufficiently powerful that the market generates desirable performance characteristics despite high ex post levels of market concentration.

sound policy application of effective competition. In particular, in the absence of a "clearly indicated change that can be effected through public policy measures that would result in greater social gains than social losses" (Markham 1950, p. 361), the market may be considered effectively competitive.[48]

When we take these considerations together, a market can be said to be **effectively competitive** when:

1. Firms exhibit overt rivalry in their quest for consumer patronage;
2. Consumers have choices among vendors, readily demonstrate their ability to change vendors, and vendors (either incumbents or *de novo* entrants) have the ability and propensity to expand output to satisfy consumer demands; and
3. Rivalry among vendors manifests itself in desirable economic performance metrics, including price, output, quality, investment, and innovation.

Finally, in a policy context and in light of the fact that policy interventions are neither costless nor perfectly efficacious, a market can be said to be effectively competitive in a policy context if:

4. No clearly indicated and cost-effective policy change can improve upon prevailing economic performance in the market at issue.

Under conditions of effective competition, sector-specific regulatory asymmetries can be confidently removed in lieu of general economy-wide consumer protection regulations that apply to all firms.

Although rooted in the initial definition of workable competition, this modern definition is manageable and avoids the encumbrances that hindered its early progress in the academic arena.[49] It offers a consistent foundation for policy analysis and creates the possibility that assessments of market competition will not vacillate depending on the ideological mood of Congress, regulators, or the public.[50] It has the advantage of being grounded in measurable indicators about which consumers are likely to care deeply: Do they face choices of vendors? Can they readily change vendors? Do firms actively vie for their patronage? Are they benefiting from marketplace rivalry? Additionally, while laying a foundation for the assessment of competition in 21st century markets, the definition is sufficiently congruent with current FCC undertakings with regard to competition that adopting it as a standard would not require significant departures from current practices and policies. For instance, the modern effective competition standard would require very

[48] This early call for an assessment of the policy effectiveness of market interventions is more recently repeated by the Department of Justice when it noted that "[t]he operative question in competition policy is whether there are policy levers that can be used to produce superior outcomes, not whether the market resembles the textbook model of perfect competition" (2010, p. 11).

[49] See the discussion in Sect. 3.

[50] For evidence of such vacillation in regulatory and deregulatory measures over the past half-century, see Mayo (2013).

few changes in data collection and analysis that is commonly conducted by the FCC.[51]

While arguably advancing the ability for policymakers to discern effectively competitive from non-effectively competitive markets, our definition provokes two important qualifications. First, in relying on “rivalry” we implicitly limit the scope of our definition. In particular, atomistic markets (e.g., commodity markets) do not exhibit rivalry among individual sellers, yet these markets are routinely described as competitive. Similarly, rivalry is absent in pure monopoly markets. Thus, our focus is on those small-number markets in which firms may be expected to respond strategically to one another. As a practical matter, it is precisely these markets that are likely to provoke policy discussions regarding the presence or absence of effective competition. Second, a profit maximizing firm can be expected to establish a price that is sufficiently high that any further elevation in price would provoke sufficient consumer flight that the contemplated price increase is likely to be unprofitable. Thus, aware of the infamous “cellophane fallacy”[52] the assessment of effective competition should carefully rule out that the observed substitutability of consumers between firms does not derive from high and rising prices. This means that condition 2 above (which in part addresses observed substitution across vendors) and condition 3 above (which in part addresses observed pricing) must be considered together.

We also observe that relying on a definition of “effective competition” will surely raise both anticipated and unanticipated challenges. An anticipated challenge of the modern definition is that it, like its early predecessor, provokes assessments of performance without providing a clear, bright-line determination of performance standards that would be sufficient for rendering a market effectively competitive. Nonetheless, benchmark analysis is possible and in many cases may provide clear judgments.

Another anticipated challenge that the modern definition will face is that, although it provides a direction for analysis, advocates are likely to seek to hijack its application for their own ends. This challenge, however, is not new. Indeed, self-serving advocates are likely to find it more difficult to manipulate policy toward their narrow self-interests with the definition in place. And, as noted above, by establishing the modern definition, policy swings solely based on ideological shifts in Congress, the FCC, or the public are less likely.

6 Conclusion

Economic concepts own a special place in the social sciences. Similar to concepts that are employed in other social sciences, economic concepts provide its practitioners with the tools that they need to understand better the workings of

[51] Indeed, to the extent that the modern definition focuses policymakers more toward performance-based analysis of communications markets, it is completely consistent with the FCC’s own observation that “market performance metrics provide more direct evidence of competitive outcomes and the strength of competitive rivalry than market structure factors, such as concentration measures” (FCC 2010, ¶10).

[52] See Posner (1976, pp. 127–128).

the target of their inquiry. Economic concepts, however, also routinely inform and drive policy. This is especially true of the concept of competition. Despite the centrality of the concept of competition to communications policy, however, numerous, foundational questions about the concept persist.

Accordingly, in this paper, we have chronicled the evolution of “competition” in economics and also how “competition” has taken shape in the communications arena. We have found that the concept of “effective competition” is central to policy formation at the FCC. Yet, we also have found that the FCC’s own applications of “effective competition” are inconsistently applied.

Given the importance of this concept, and its inconsistent applications to date, we draw upon the seminal contributions to the notion of effective competition to offer a modern definition that we believe is suitable for application in 21st century markets.

Acknowledgements We thank Tim Brennan, Shane Greenstein, Roger Noll, David Sappington, Armin Schmutzler, Scott Wallsten, and other participants at the Technology Policy Institute and University of Pennsylvania conference on “The Future of the Internet Ecosystem in a Post-Open Internet Order World” that was held January 8, 2016 for helpful suggestions. We also appreciate the support and feedback from Carolyn Brandon, Marcia Mintz, and other scholars of the Georgetown Center for Business and Public Policy. Finally, we are especially grateful to Lawrence White, the Editor, for his carefully considered and value-adding suggestions.

References

Bain, J. S. (1950). Workable competition in oligopoly: Theoretical considerations and some empirical evidence. *The American Economic Review*, *40*(2), 35–47.

Bain, J. S., & Qualls, P. D. (1987). *Industrial organization: A treatise* (Vol. 6A). Greenwich, CT: JAI Press.

Boone, J. (2008a). A new way to measure competition. *The Economic Journal*, *118*(531), 1245–1261.

Boone, J. (2008b). Theoretical parameterizations and empirical measures. *Journal of Institutional and Theoretical Economics*, *164*(4), 587–611.

Chamberlin, E. H. (1933). *The theory of monopolistic competition*. Cambridge, MA: Harvard University Press.

Clark, J. M. (1940). Toward a concept of workable competition. *The American Economic Review*, *30*(2), 241–256.

Clark, J. M. (1961). *Competition as a dynamic process*. Washington, DC: Brookings Institution.

Dennis, K. G. (1977). *‘Competition’ in the history of economic thought*. New York: Arno Press.

Faulhaber, G. R., Hahn, R. W., & Singer, H. J. (2012). Assessing competition in U.S. wireless markets: Review of the FCC’s competition reports. *Federal Communications Law Journal*, *64*(2), 319–370.

Federal Communications Commission. (1988). *Amendment of parts 1, 63, and 76 of the commission’s rules to implement the provisions of the Cable Communications Policy Act of 1984; second report and order* (3 FCC Rcd. 2617). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1991). *Reexamination of the effective competition standard for the regulation of cable television basic service rates; report and order and second further notice of proposed rule making* (6 FCC Rcd. 4545). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1993). *Implementation of sections of Cable Television Consumer Protection and Competition Act of 1992; rate regulation* (8 FCC Rcd. 5631). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1995a). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; first report* (10 FCC Rcd. 8844). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1995b). *Market entry and regulation of foreign-affiliated entities; report and order* (11 FCC Rcd. 3873). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1996). *Implementation of cable act reform provisions of the Telecommunications Act of 1996; order and notice of proposed rulemaking* (11 FCC Rcd. 5937). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1997). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; second report* (12 FCC Rcd. 11266). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1998a). *Annual assessment of the status of competition in the market for the delivery of video programming; fourth report* (13 FCC Rcd. 1034). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1998b). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; third report* (13 FCC Rcd. 19746). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (1999). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; fourth report* (14 FCC Rcd. 10145). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2000). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; fifth report* (15 FCC Rcd. 17660). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2001). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; sixth report* (16 FCC Rcd. 13350). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2002). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; seventh report* (17 FCC Rcd. 12985). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2003). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; eighth report* (18 FCC Rcd. 14783). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2004). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; ninth report* (19 FCC Rcd. 20597). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2005). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; tenth report* (20 FCC Rcd. 15908). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2006). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; eleventh report* (21 FCC Rcd. 10947). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2008). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to commercial mobile services; twelfth report* (23 FCC Rcd. 2241). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2009a). *Wireless telecommunications bureau seeks comment on commercial mobile radio services market competition; collected comments in response to public notice* (WT Docket No. 09-66). Received by the FCC June 15, 2009. Available at http://apps.fcc.gov/ecfs.

Federal Communications Commission. (2009b). *Wireless telecommunications bureau seeks comment on commercial mobile radio services market competition; public notice* (24 FCC Rcd. 5618). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2010). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to mobile wireless, including commercial mobile services; fourteenth report* (25 FCC Rcd. 11407). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2011). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to mobile wireless, including commercial mobile services; fifteenth report* (26 FCC Rcd. 9665). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2013). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to mobile wireless, including commercial mobile services; sixteenth report* (28 FCC Rcd. 3836). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2014a). *Fact sheet: FCC mobile spectrum holdings rules* (DOC-327110A1). Retrieved 21 July 2015, from https://www.fcc.gov/document/fact-sheet-fcc-mobile-spectrum-holdings-rules.

Federal Communications Commission. (2014b). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to mobile wireless, including commercial mobile services; seventeenth report* (29 FCC Rcd. 15311). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2014c). *Local telephone competition: Status as of December 31, 2013*. Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2015a). *Amendment to the commission’s rules concerning effective competition, implementation of Section 111 of the STELA Reauthorization Act; notice of proposed rulemaking* (30 RCC Rcd. 2567). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2015b). *Amendment to the commission’s rules concerning effective competition, implementation of Section 111 of the STELA Reauthorization Act; report and order* (30 RCC Rcd. 6574). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2015c). *Annual assessment of the status of competition in the market for the delivery of video programming; sixteenth report* (30 FCC Rcd. 3253). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2015d). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to mobile wireless, including commercial mobile services; eighteenth report* (30 FCC Rcd. 14515). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2015e). *Protecting and promoting the open internet; report and order on remand, declaratory ruling, and order* (30 FCC Rcd. 5601). Washington, DC: Federal Communications Commission.

Federal Communications Commission (2015f). *Statement of Commissioner Ajit Pai on the FCC’s ostrich-like approach to competition in the wireless market (DOC-337035A1)*. Released 23 Dec 2015. Washington, DC: Federal Communications Commission.

Federal Communications Commission (2015g). *Statement of Commissioner Michael O’Rielly on the 18*th *annual wireless competition report (DOC-337040A1)*. Released 23 Dec 2015. Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2016a). *Annual assessment of the status of competition in the market for the delivery of video programming; seventeenth report* (31 FCC Rcd. 4472). Washington, DC: Federal Communications Commission.

Federal Communications Commission. (2016b). *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, annual report and analysis of competitive market conditions with respect to mobile wireless, including commercial mobile services; nineteenth report (DA-16-1061)*. Released 23 Sept 2016. Washington, DC: Federal Communications Commission.

George, H. (1920). *Progress and poverty (Book III)*. Garden City, NY: Doubleday, Page & Co. (Original work published 1879). Available at http://www.econlib.org/library/YPDBooks/George/grgPP12.html.

Haring, J. R. (1985). *The FCC, the OCCs, and the exploitation of affection*. Office of Plans and Policy Working Paper. Washington, DC: Federal Communications Commission.

Katz, M. L., & Rosen, H. S. (1998). *Microeconomics* (3rd ed.). Burr Ridge, IL: McGraw-Hill.

Katz, M. L. (2017). Wither U.S. net neutrality regulation? *Review of Industrial Organization*.

Markham, J. W. (1950). An alternative approach to the concept of workable competition. *The American Economic Review*, *40*(3), 349–361.

Mason, E. S. (1957). *Economic concentration and the monopoly problem*. Cambridge, MA: Harvard University Press.

Mayo, J. W. (2013). The evolution of regulation: Twentieth century lessons and twenty-first century opportunities. *Federal Communications Law Journal*, *65*(2), 119–156.

McNulty, P. J. (1967). A note on the history of perfect competition. *Journal of Political Economy*, *75*(4), 395–399.

Mill, J. S. (1848). *Principles of political economy with some of their applications to social philosophy*. London: Longmans, Green and Co.

Peterson, S. (1957). Antitrust and the classic model. *The American Economic Review*, *47*(1), 60–78.

Posner, R. A. (1976). *Antitrust law: An economic perspective*. Chicago, IL: The University of Chicago Press.

Ricardo, D. (1887). Letter from David Ricardo to Thomas Robert Malthus (June 18, 1811). In J. Bonar (Ed.), *Letters from Ricardo to Malthus, 1810–1823*. Oxford: Clarendon Press.

Robinson, J. (1933). *The economics of imperfect competition*. London: Macmillan.

Schmutzler, A. (2013). Competition and investment—A unified approach. *International Journal of Industrial Organization*, *31*, 477–487.

Schumpeter, J. A. (1942). *Capitalism, socialism, and democracy*. New York: Harper & Brothers.

Smith, A. (1937). *An inquiry into the nature and causes of the wealth of nations*. E. Cannan (Ed.). New York: The Modern Library. (Original work published 1776).

Sosnick, S. H. (1968). Toward a concrete concept of effective competition. *American Journal of Agricultural Economics*, *50*(4), 827–853.

Stigler, G. J. (1956). Discussion of papers on the report of the Attorney General's committee on antitrust policy. *The American Economic Review*, *46*(2), 504–505.

Stigler, G. J. (1957). Perfect competition, historically contemplated. *Journal of Political Economy*, *65*(1), 1–17.

U.S. Department of Justice. (2010). *Ex Parte submission before the Federal Communications Commission in the matter of economic issues in broadband competition, a national broadband plan for our future* (GN Docket 09-51). Received by the FCC January 4, 2010. Available at http://apps.fcc.gov/ecfs/comment/view?id=6015504395.

U.S. Government Accountability Office. (2003). *FCC should include call quality in its annual report on competition in mobile phone services* (GAO-03-501). Washington, DC: U.S. Government Printing Office.

U.S. Government Accountability Office. (2006). *FCC needs to improve its ability to monitor and determine the extent of competition in dedicated access services* (GAO-07-80). Washington, DC: U.S. Government Printing Office.

U.S. House of Representatives. Energy and Commerce Committee. (1992). *Report on the Cable Television Consumer Protection and Competition Act of 1992* (House Report 102-628). Washington, DC: Government Printing Office.

U.S. House of Representatives. Energy and Commerce Committee. (2014). *White paper: Competition policy and the role of the federal communications committee & collected responses*. Retrieved 23 June 2015, from http://energycommerce.house.gov/CommActUpdate.

U.S. Treasury Department. Bureau of Internal Revenue. (1944). *Internal revenue bulletin: Cumulative bulletin 1944*. Washington, DC: Government Printing Office.

Weiman, D. F., & Levin, R. C. (1994). Preying for monopoly? The Case Southern Bell Telephone Company, 1894–1912. *Journal of Political Economy*, *102*(1), 103–126.

Wheeler, T. (2014). *Prepared Remarks Of FCC Chairman Tom Wheeler, Silicon Flatirons, University Of Colorado Law School, Boulder, Colorado*. Retrieved 23 June 2015, from https://www.fcc.gov/document/fcc-chairman-tom-wheeler-remarks-silicon-flatirons.

Wilcox, C. (1940). *Competition and monopoly in American Industry, TNEC Monograph No. 21*. Washington, DC: U.S. Government Printing Office.