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## CONCLUSION

THIS BOOK HAS REEXAMINED America's early experience with telephone competition and the emergence of a policy of universal service. Its objectives were threefold: 1) to reformulate and test current economic theories regarding network competition; 2) to provide a more complete and accurate understanding of early telephone history, particularly the phenomenon of competition between unconnected telephone systems and the emergence of universal service as a policy prescription; and 3) to derive insight into current telecommunications policy from historical experience.

The historical argument presented here diverges sharply from the prevailing views of interconnection, competition, and universal service in telephone history. While in possession of patent monopoly, the Bell companies left the market for telephone service drastically underdeveloped. When the patents expired, independent competitors rushed into the developmental vacuums left by the Bell companies. In keeping with their organizational mandate to be an integrated, centrally managed, nationwide system, the Bell companies refused to connect with them. Bell's refusal to connect was not the devastating blow to competition it has often been made out to be. From 1894 to 1900, independent competition thrived despite its total exclusion from the Bell system. Independent telephone systems were able to establish thousands of new exchanges and attract hundreds of thousands of new telephone users. Far from being unwilling victims of Bell's refusal to connect, most of the independents reciprocated. They viewed themselves as a mutually exclusive, nationwide movement bent on displacing the Bell system's control of the telephone business. Both the Bell and independent interests opposed efforts by the courts and legislatures to compel interconnection of the rival systems. By 1898, with the support of both telephone interests and the acquiescence of the courts, the U.S. telephone industry had taken the path of access competition.

Access competition pushed both systems into a race to achieve universal geographic coverage and broader penetration. Neither telephone system could afford to leave any part of the country or any part of the population uncontested. The telephone network grew to embrace most of the country because the companies derived a direct competitive advantage from adding new users or locations to their systems. The absence of interconnection allowed the rival networks to appropriate the added value derived from expanding their scope. The legal and (non)regulatory environment of the time permitted and even encouraged that approach to competition.

The stereotype of the independent telephone movement as consisting largely of small, local, and technologically inferior systems is unfounded. By 1910, many commercial independents had grown into consolidated regional operating companies. They had their own long-distance companies and were able to offer connections to independent exchanges over a 150-mile area. It is true, however, that the lack of integrated financial and managerial control made it more difficult for the independents to achieve connectivity and to maintain system integrity against the Bell challenge. The independents' attempt to rely on long-term contracts providing for exclusive connection rights might have been a solution to that, but, ironically, that tactic was overruled by the courts as "anti-competitive."

The success of the Bell system in the competitive struggle cannot be attributed to superior technology, public relations, politics, predatory pricing, or financial acquisitions, although all of those tactics were employed. Bell's dominance came primarily from its decision to pursue comprehensive coverage of the country. Its decisions to accelerate exchange development in smaller towns, to systematically create toll connectivity among all of its exchanges, and to aggressively pursue interconnection with thousands of non-competing independents in the rural areas gave it the edge. Its incentive to expand was a natural product of access competition. The achievement of critical mass by an independent system of comparable scope was prevented not by Bell's refusal to connect *per se* but by sublicensing contracts which drew thousands of independent exchanges out of the independent movement and into the Bell system. Ironically, then, Bell's willingness to interconnect with independents was more "anti-competitive," in effect, than its policy of total exclusion had been. Bell's ability to attract independent exchanges into its orbit was in turn a product of its all-encompassing connectivity.

Bell achieved *dominance* in the competitive marketplace but not total victory. Dual service survived the return of Theodore Vail and the Morgan interests in 1907, the accelerated sublicensing policy of 1908, the buyouts and sellouts of 1910-12. By 1914, significant pockets of dual service were still in place in major urban areas. Federal and state antitrust laws and municipal anti-consolidation requirements prevented the consolidation of competing exchanges. While it is evident that AT&T wanted to achieve a monopoly (Vail was perfectly explicit about it), the Bell system alone was unable to achieve it.

The crucial additional ingredient needed to make the transition from competition to monopoly was public acceptance of the philosophy of universal service. Universal service at that time meant a unified and technically integrated telephone network - the end of user fragmentation into separate systems. Telephone users and state and local government officials came to see a divided telephone service as a public nuisance. The economic basis for monopoly, then, came from

demand-side economies of scope among influential user groups, not from supply-side efficiencies. Although business and household users were still suspicious of monopoly, they had become increasingly impatient with the inconveniences of a fragmented service. The presence of regulatory commissions seemed to offer the best of both worlds; it created the unified service of a monopoly but promised to control rates as effectively as competition.

AT&T spokesmen helped to formulate and publicize the concept of universal service, but to view a monopoly structure as something foisted upon the public by the Bell system is to give one actor in the historical process too much weight. The debate over unification of the service was explicit, public and extended over a period of fifteen years. Unification could be, and often was, held up when opposed by newspapers, state or federal antitrust laws, public referenda, independents unwilling to sell out, or hostile city councils. The passage of the 1921 Willis-Graham Act, which exempted the industry from federal antitrust laws, provided explicit national recognition of the importance of unifying telephone service. The law was preceded by many “mini Willis-Graham Acts” in various states, exempting the industry from state antitrust laws or the anti-consolidation provisions of municipal utility franchises.

Interconnection of competing exchanges made a tentative appearance on the historical stage but was not seen as a permanent solution to the problem of telephone competition. From 1907 to 1918 telephone companies, users, regulators, and the courts considered and sometimes experimented with a telephone industry structure based on interconnection of competitors. They rejected it for four reasons. Those can be summarized as the parasitism argument, the complementarity argument, the compatibility argument, and the cost argument.

The *parasitism* argument, which could also be termed an *appropriability* argument, held that interconnection undermined the ability of larger networks to derive economic benefits from their larger scope. Small, “parasitical” networks could benefit from the widespread access created by the “host” network without shouldering any of the costs or risks of creating the access.

The *complementarity* argument held that interconnection of competing networks produced a relationship of interdependence rather than one of competition and substitution. To interconnect competing exchanges was tantamount to ending real system competition. Early experiences with interconnection of competing networks in the United States and Canada tended to confirm that observation. Users tended to gravitate toward one local exchange network while enjoying the benefits of the Bell toll lines.

*Compatibility* and control was one of the Bell system’s main concerns about a telephone network made up of interconnected competitors. A heterogeneous mass of competing networks would work against coordination and compatibility by making standardization of practices and equipment more difficult.

The *cost* argument held that interconnecting competing exchanges was an expensive proposition and, given the other three points, represented a needless duplication of facilities and labor relative to the option of consolidation.

Thus, by the mid-1920s, the model of universal service under regulated monopoly had been adopted uniformly as the proper structure for the telephone industry. From 1920 to the late 1960s, universal service, insofar as the term was used, meant a telephone system that covered the country and sacrificed access competition for the sake of unification of the service. It did not mean rate regulations that subsidized local telephone rates by using long-distance revenues. Universal service policy was not mentioned in or mandated by the 1934 Communications Act. State and federal regulators in that period did not conceive of the jurisdictional separations process as a means of subsidizing household telephone penetration.

The modern concept of universal service, which uses rate regulation to effect cross subsidies between various services and user groups, is in fact a very recent invention. The first hard evidence of proposals to use the separations and settlements process to lower local service rates can be found in the late 1960s. Those ideas were not fully realized until the implementation of the Ozark Plan in 1971. By that time household telephone penetration already stood at 80 to 85 percent. The attempt to promulgate an ideological linkage between universal telephone service and the separations and settlement procedures of regulated monopoly did not come until the mid-1970s. That alleged linkage was put forward by AT&T as part of its efforts to fend off long distance competition. In other words, it was inspired by contemporary policy battles and not by historical evidence.

That reinterpretation of the history of universal service was shown to have significant contemporary policy implications. Those can be summarized as follows.

First, the earlier definition of universal service, which stressed integration and unification of the service in order to realize the benefits of the so-called “network externality” (actually, demand-side economies of scope), is in many ways more relevant to the policy challenges of the next two decades than the latter conception of universal service as subsidized household penetration. The developing global information infrastructure is characterized by competing and often incompatible or imperfectly integrated technologies. Mandating compatibility can improve the lot of telecommunications users by creating demand-side economies of scope or by otherwise eliminating the frustrations and inconveniences of fragmentation and heterogeneity. But such a policy can also limit competition and technological diversity. Thus, the policy choices to be faced in the next two decades are quite similar to the debate over the unification of telephone service in the second decade of the 20th century. The major differences are that the debate will take place on a global scale rather than a national scale and that the increasing sophistication of information technology may soften the nature of the choice somewhat. At any rate, current antitrust law and theory does not provide much of a basis for making such a choice because its roots in the theory of natural monopoly only equip policymakers to respond to supply-side phenomena. Current antitrust doctrine gives us little guidance as to how to handle monopolies that originate in demand-side economies of scope.

A second area of policy relevance concerns the relationship between interconnection and network competition. Today’s policy analysts and theorists have oversimplified the relationship between unbundling, interconnection, and competition in telecommunications. The unbundling of network components and the interconnection of competing networks to the incumbent on

nondiscriminatory terms have been portrayed as unqualifiedly good things. That view was challenged on both theoretical and historical-empirical grounds. Networks are very large bundles of different services; they derive their value to users and their supply-side efficiencies from integrating services and components together. If bundling is what networks are all about, a regulatory doctrine that equates competition with unbundling is bound to find anticompetitive behavior everywhere and will be perpetually at war with the very basis of network efficiencies. Moreover, the doctrine of charging only incremental costs for interconnection makes it difficult for networks to profit from enlarging their scope and may actually penalize them for doing so.

The historical evidence supports those theoretical critiques. It shows that the refusal of the competing telephone networks to connect in the early 1900s actually promoted the achievement of universal service by giving both networks a strong incentive to enlarge their scope. Competition over the size of the bundle is, then, not necessarily a bad thing. At the very least, that analysis lends support to proposals to base interconnection prices upon opportunity costs rather than incremental costs alone. More fundamentally, it indicates that the deregulation of telecommunications must be based upon a property rights regime that allows networks to appropriate some of the value added by enlarging the size of their service bundle.

A third policy application concerns the demystification of regulated monopoly's claims regarding universal service. The role of regulated monopoly and rate subsidies in creating a universal infrastructure has been greatly exaggerated and deliberately so. Those invalid claims have distorted the policy dialogue for many years. The rate subsidies which are alleged to be so central to the development and maintenance of universal service in the United States did not even exist until after 1965, when household penetration already exceeded 80 percent. Access competition provided the real stimulus to create a geographically ubiquitous network. It also had created, by 1920, startlingly modern levels of telephone penetration in many parts of the country. If nothing else, this book should discredit, once and for all, the idea that competition and universality are fundamentally inimical.

The universality of communications access will always be a salient public policy issue. Debate over the nature of the telecommunications infrastructure – whether it should be fragmented or integrated, competitive or monopolistic, more or less subsidized – can only increase in importance as information technology occupies an ever-larger role in society. This book sheds light on the historical origins of that debate and in so doing, attempts to illuminate the contemporary debate as well.