

Analyzing Telecommunications Market Competition: A Comparison of Cases

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4 November 2009

Abstract

We examine three case studies regarding the assessment of market competition in telecommunications: The finding by the U.S. Federal Communications Commission that AT&T was non-dominant in the U.S. long distance market in the early 1990s; The finding by Ofcom in the United Kingdom that each mobile network operator possessed significant market power for the termination of calls to its subscribers; and Japan's development of pro-competitive policies for its telecommunications markets.

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Executive Summary

We examine three case studies regarding the assessment of market competition in telecommunications: The finding by the U.S. Federal Communications Commission (FCC) that AT&T was non-dominant in the U.S. long distance market in the early 1990s; The finding by U.K. Office of Communications (Ofcom) Ofcom that each mobile network operator possessed significant market power for the termination of calls to its subscribers; and Japan's development of pro-competitive policies for its telecommunications markets.

The FCC gradually relaxed its regulation of AT&T in the late 1980s and early 1990s, but a petition by AT&T in 1993 forced the FCC to specifically declare AT&T to be either dominant or non-dominant. The FCC had developed its concept of dominance over time, primarily in its investigations into ways to relax its regulation of AT&T's rivals. In these proceedings the FCC had defined a dominant carrier as one that possessed market power. To determine whether market power existed, the FCC relied upon market features, such as the number and size distribution of competing firms, the nature of barriers to entry, the availability of reasonably substitutable services, and whether the operator controlled bottleneck facilities Also in these proceedings, the FCC had determined that it should treat the entire country as a single long distance market and that all services should be considered to be effectively in the same market.

In studying whether AT&T should be declared non-dominant, the FCC analyzed AT&T's market share, the supply elasticity of the market, the demand elasticities of AT&T's customers, and AT&T's cost structure, size and resources. Regarding market

share, the FCC found that AT&T's market share was steadily declining, indicating a lack of market power. From 1984 to 1994, AT&T's market share fell from approximately 90 percent to 55.2 and 58.6 percent in terms of revenues and minutes respectively. In its consideration of supply elasticities, the FCC examined two factors that determine supply elasticities: (1) The supply capacity of existing competitors; and (2) Entry barriers. The FCC had already concluded in a previous proceeding that AT&T's competitors had enough excess capacity to constrain AT&T's pricing behavior and found no reason to change that conclusion. The FCC also found that barriers to entry were insignificant, so supply elasticities indicated that the market was competitive. Regarding demand elasticities, the FCC concluded that AT&T's residential customers' demand was highly price-elastic and that these customers would readily switch to or from AT&T in order to obtain price reductions and desired features. The FCC also found that business customers were highly demand-elastic, indicating a competitive market. Finally, the FCC concluded that, although it might be true that AT&T had lower costs, superior resources, greater financial strength, and better technical capabilities than its rivals, these advantages, by themselves, would not necessarily result in market power for AT&T.

In the end, the FCC concluded that AT&T lacked market power in the overall interstate, domestic, long distance market, and reclassified the company as a non-dominant carrier. This finding resulted in removing all but AT&T's international services from price cap regulation and relieved AT&T of dominant carrier reporting requirements, but the FCC indicated that it might change its requirements to ensure that it had sufficient data to monitor competition.

Ofcom considered whether mobile call termination (MCT) was competitive in the United Kingdom. The regulator's analysis included a determination of the relevant market, identification of significant market power (SMP), examination of possible negative impacts of the exercise of SMP, and the development of appropriate remedies. Ofcom concluded that call termination service was necessary for a network operator to connect a caller with the called party and that the service was wholesale because it was purchased by network operators rather than by retail customers.

To determine whether it constituted a market for competition analysis, Ofcom examined the possibility for demand-side substitution and supply-side substitution. To examine the possibility of demand-side substitution, Ofcom performed a SSNIP ([Small but Significant and Non-transitory Increase in Price](#)) test. Two demand-side substitutions were considered. The first was retail demand-side substitution, which is the situation where the retail customer responds to the MCT price and changes her purchasing sufficiently to constrain the possibility of raising MCT prices above a competitive level. Ofcom found no retail demand-side substitutes. The second possible demand-side substitute considered was wholesale substitution. Ofcom could find no prospects for network operators to be able to bypass a customer's MNO to terminate calls. Regarding supply-side substitution, Ofcom examined possibilities for retail and wholesale substitution and found neither.

Ofcom concluded that no adequate wholesale demand or supply side substitutes for termination of calls to customers of a specific MNO existed at the time of the investigation. The regulator further concluded that no technology existed, and none was on the horizon, that would allow the termination of a call to another MNO other than on

the network of the MNO to which the called party had subscribed. Regarding retail alternatives, there were no effective alternatives at the retail level for calling parties that could constrain call termination charges. Furthermore, Ofcom concluded that each MNO was a single market for mobile call termination.

Once it had defined the relevant market, Ofcom then had to determine whether an MNO possessed SMP, consistent with EU policies. To do this, Ofcom considered market shares, potential competition, countervailing buying power, and whether there was excessive pricing. Ofcom's analysis of market share was straightforward; because each MNO was its own market, each MNO had 100 percent market share by definition. Regarding potential competition, Ofcom found that significant barriers to entry protected each MNO's MCT. Based on its observations of operator behavior, including the development of interconnection agreements, Ofcom concluded that there was no countervailing buyer power to offset the MNO's market power. Finally, Ofcom concluded that MCT prices were above competitive levels. Having concluded that each MNO possessed SMP for its own MCT market, Ofcom decided to impose price controls on mobile termination until 1 April 2011.

Japan began liberalizing its markets in the 1980s, partly in response to the policies adopted in the United States and other OECD countries. Japan took a gradual approach, focusing first on the privatization of NTT and opening markets to competition, then on interconnection policies, then on the restructuring of NTT, and lastly on broader policy goals, such as e-Japan, that led to unbundling DSL.

Liberalization has stimulated market growth in Japan, lowered prices, and created more services. However, it was not always a grand vision that led Japan's policy

developments; rather, as is often the case in other countries, policy innovations occurred when stakeholders, whose interests had been created by previous policies, found it in their interests to create the political momentum for further policy changes. eAccess, a DSL provider, illustrates this phenomenon.

I. Introduction

Since the 1980s, liberalization has been the dominant theme for reforms in telecommunications worldwide. In the early part of that decade, the United States broke up AT&T – which at that time was the largest telecommunications company in the world – in an effort to limit the company’s ability to stifle the development of competition. About that same time the United Kingdom began liberalizing its telecommunications market and privatized British Telecom. Since then almost every country in the world has experienced some degree of telecommunications liberalization.

Liberalization has been important because it has led to an impressive expansion in the investment in and use of telecommunications, which has in turn significantly contributed to economic development over recent decades. Liberalization has led to increased telecommunications investment and use because it has decreased the role of government in making investment decisions, decreased the market power of incumbent operators, freed new market entrants to innovate and expand markets, and protected investors from government opportunism. Greater investment in and use of telecommunications led to increased economic growth because it opened new business opportunities, decreased risk, improved business efficiency, and expanded demand for telecommunications equipment.

But liberalization is not without difficulties. Incumbents have been known to use their influence to limit or delay liberalization policies or to hinder rivals. Determining the appropriate regulatory framework has been difficult. At one time many believed that the emergence of competition in telecommunications would lead to extensive deregulation. However, the reality has been that sector regulation has been as important, if not more

important with competition than with monopoly, although the needed form of regulation has changed considerably.

One of the recent issues in market liberalization has been determining when it is that competitive forces are sufficient so that that regulatory control of prices and services is no longer useful. This issue is important because a premature removal of such constraints would allow operators with market power to raise prices or discriminate against rivals, which limit telecommunications as an engine of economic growth. Conversely, keeping price and service constraints in place when market forces are effectively at work would limit economic efficiency and innovation: When regulation competes with market forces, prices are unable to change with movements in supply and demand, incentives to innovate are limited, and the process of Schumpeterian creative destruction is muffled.

This paper examines the practical realities of analyzing market competition in telecommunications by considering case studies in the United States, Europe, and Asia. It is organized as follows. The next section describes the importance of appropriately facilitating liberalization by summarizing economic studies that relate telecommunications competition to economic development. The third section examines the decision in the United States to declare that AT&T was non-dominant in the market for long distance in the country and thus should be allowed significant deregulation. The fourth section examines the decision in the United Kingdom that mobile network operators (MNOs) had significant market power in the markets for terminating mobile calls and so needed to be subjected to regulation. The following section reviews the

policies Japan put in place to promote competition. The final section provides concluding observations.

II. Telecommunications and Development

This section summarizes research on the impacts of telecommunications competition on economic development. This research includes two main themes: (1) Studies of telecommunications' impacts on economic growth; and (2) how competition affects telecommunications growth. We begin by reviewing research on telecommunications and economic growth.

A. Telecommunications, Productivity, and Growth

During the 1970s and 1980s, firms invested heavily in information and communications technologies (ICTs), but most research failed to find any impact of productivity. (Crandall et al. 2007; Jorgenson et al. 2007) This result was troubling because, if the firms were making rational decisions, there should have been some economic benefit to the ICT investment and most economists anticipated that this would be in productivity, reflecting the viewpoint that ICT was primarily a substitute for labor, travel, or other traditional inputs. But in the 1990s, this all changed in the United States, in part because the study methodologies improved, but also because it took time for firms to adapt their operations and take full benefit of their investments in ICT.

Studying productivity growth in the United States, Jorgenson et al. (2002, 2004) find that productivity began to surge around 1995 and that production of ICT accounted for between 35 and 55 percent of this increase. This was impressive because ICT made

up only 5 percent of the aggregate output of the economy. More recent estimates find that ICT contributed 80 percent of the U.S. productivity growth between 1995 and 2000 (Jorgenson et al. 2007). ICT's contribution to productivity growth slowed after the dot-com crash of 2000, but continued to be important, causing 24 percent of the productivity growth from 2000 to 2005 (Jorgenson et al. 2007). Jorgenson et al. (2004, 2007) explains that the role of ICT in productivity growth is complex. First the ICT-producing industries experienced fundamental changes in their technologies, which resulted in constant improvements in the performance of their products. Thus the quality of their output improved even while its prices declined. As a result of this increasing economy of purchasing ICT equipment, firms in other industries increased their investment in ICT, leading to both economic growth and improved labor productivity.

Van Ark and Inklaar (2005) find that European firms have been unable to turn their ICT investments into meaningful productivity growth. Their conclusion is that there is a U-shaped pattern for ICT's impact on productivity. In the first stage, ICT is substituted for other inputs and so leads to normal returns. Once firms learn about ICT, they engage in a period of experimentation, which involves some failures and so results in a negative relationship between ICT and productivity growth. Ultimately some of these experiments succeed and ICT investment results in new businesses and new ways of doing business, leading to significant impacts on productivity. The authors believe that realizing these latter benefits depends on having highly competitive processes that stimulate complementary innovations and weed out inefficiency. They were concerned that Europe during the time of their study was stuck in the unproductive stages of ICT investment.

Studying telecommunications in the United Kingdom from 1984-1996, Correa (2006) found that most industries benefited from the incorporation of advanced telecommunications technology, which had spillover effects for the economy as a whole in part because of lower prices. For example, she found that investments in advanced telecommunications lowered prices for basic utilities by 4.3 percent, lowered prices for transportation services by 10.8 percent, lowered prices for financial institutions by 27.3 percent, and lowered prices of telecommunication providers by 56 percent. Overall, prices in the economy were 14.1 percent lower because of the application of advanced telecommunications. In terms of productivity, she found that applying advanced telecommunications improved productivity in the manufacturing sector 31 percent, improved productivity in construction 59 percent, and improved productivity in the financial sector a dramatic 486 percent. Productivity overall improved over 100 percent. According to Correa, her “[r]esults suggest that the telecommunications productivity, over a 34-year period, has outpaced the economy-wide productivity level...[and] telecommunications was a strong contributor to the performance of the economic system as a whole. This coupled with the telecommunications productivity rate figures suggests that not only has telecommunications contributed its share of total output more efficiently, but it has also contributed to overall economy-wide productivity growth via its influence on other industries...[A]ll industries have benefited from the incorporation of advances in telecommunications technology...”

Studying how telecommunications affects economic growth, Röller and Waverman (2001) found that it contributed one-third of the economic growth in the Organisation for Economic Co-operation and Development (OECD) countries from 1971

through 1990, or about US\$1,700 per person per year on average.¹ They explain that the link between telecommunications and economic growth is as follows: When one portion of the economy adopts telecommunications to improve its productivity, this has positive spillovers on the productivity of other portions of the economy. For example, improved methods for managing inventory lower costs for businesses, which lead to lower prices for consumers. These lower prices give consumers additional discretionary income that they can then use for other purposes. Furthermore, when one portion of the economy, say banking, increases its use of telecommunications, other portions of the economy also adopt the use of telecommunications so as to better work with the banking sector.

In a seminal study considering the effects of telecommunications on economic growth in developing countries, Waverman, Meschi, and Fuss (2005) found that from 1996 through 2003, mobile telecommunications had a positive and significant impact on economic growth and that “this impact may be twice as large in developing countries compared to developed countries.” The authors explained that a “developing country that had an average of 10 more mobile phones per 100 population between 1996 and 2003 would have enjoyed per capita GDP growth that was 0.59 percent higher than an otherwise identical country.” Using the Philippines (which had a mobile phone penetration rate of 27 percent in 2003) as an example, its citizens could enjoy an annual average per capita income growth that was as much as 1 percent higher than neighboring Indonesia (whose penetration rate was only 8.7 percent in 2003) “owing solely to the greater diffusion of mobile telephones, [if] this gap in mobile penetration [was] sustained for some time.”

¹ From Table 1 in Röller and Waverman (2001): OECD GDP per capita in 1971 was US\$11,297 and in 1990 was US\$16,321, a difference of US\$5,093. One-third would be US\$1,698.

In a seminal study on the effects of broadband on economic development, Crandall et al. (2007) examined how broadband penetration effected economic output and employment in the United States during the 2003 through 2005 time period. Cautioning that broadband was new at the time of the study and so its full impacts might still be in the future, the authors nevertheless found that nonfarm private employment in general and employment in several industries were positively correlated with broadband use. They calculated that “for every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2 to 0.3 percent per year. For the entire U.S. private non-farm economy, this suggests an increase of about 300,000 jobs, assuming the economy is not already at ‘full employment’.”

B. Telecommunications and Competition

Studies have consistently shown that competition stimulates growth in telecommunications investment and usage. As we have already described above, Waverman, Meschi, and Fuss (2005) found that competition was a key regulatory policy for developing mobile telecommunications in both developed and developing countries. In his study of telecommunications development in Latin America, Gutiérrez (2003), found that “opening of the market to more competition and the free entry of private investors in basic telecommunications services will propel network expansion and efficiency across the sector.” In her study of telecommunications, Hamilton (2003) concludes that competition in mobile phones has fostered the expansion of telecommunications penetration in Africa. In his study of telecommunications competition in developing countries, Wallsten (2004) found that protecting incumbents

from competition resulted in “a significant decrease in the incumbent’s investment in the telecommunications network, payphones, mobile telephone penetration, and international calling.” In their study of broadband in the United States, Aron and Burnstein (2003) found that competition between telecom companies and cable television companies is the most effective catalyst for increased broadband penetration. Gruber and Denni (2005) reached the same conclusion two years later, but they also found that the resale of a telecom company’s broadband service can increase penetration in the early stages of competition. In the first study of both wireless and wireline broadband competition, Lee and Marcu (2007) found that competition, and especially intermodal competition, had a positive impact on broadband development in both developed and developing countries.

To understand market competition, Crandall and Waverman (2006) examined why some new entrants in the local fixed line market in the United States failed to thrive. They concluded that business plans had a significant impact. The survivors tended to be the integrated cable television companies and smaller, regional carriers. Stand-alone competitive local exchange carriers (CLECs) that lacked a wide product offering were unable to succeed, presumably because the new carriers offered little more than the voice/data services that customers were already buying from incumbent carriers and there was little unmet demand. Over-reliance on using incumbents’ facilities made it difficult for new entrants to differentiate themselves from incumbents. The only exception to this general pattern appeared to be the market for small and medium sized businesses, where some entrants were able to tailor specialized services for individual business needs on a local or regional basis.

III. Deregulation of AT&T Long Distance in the United States

In this section we examine the U.S. Federal Communications Commission's (FCC) decision to declare that AT&T was non-dominant. We begin with background on the market and industry in the United States. We then review how the FCC developed its definitions of dominance and non-dominance. Next we study decisions the FCC made to relax its regulation of AT&T prior to finding that AT&T was non-dominant. We then examine at length the FCC's investigation into the question of whether AT&T was dominant or non-dominant. We conclude with an examination of economic studies of AT&T's potential dominance and the nature of competition in the long distance market in the United States.

A. Background on the Long Distance Market

In 1984 the United States broke up AT&T, which was at that time the largest telecommunications company in the world.² The basic concern articulated by the U.S. Department of Justice, which was the primary competition authority in the United States prosecuting the legal case against AT&T, was that AT&T used its control of bottleneck local telephone lines to foreclose³ competitors and to cross subsidize its potentially competitive markets, primarily long distance and manufacturing. (Temin, 1990) "Long distance" is the general term for telecommunications services that allow customers to call

² In 1982, the Antitrust Division of the U.S. Department of Justice and AT&T agreed to enter into a consent decree to settle the Government's antitrust suit against AT&T. This decree would among other things cause AT&T to divest its ownership of the Bell Operating Companies, through which AT&T owned local access facilities. See United States v. Western Electric Co., 552 F. Supp. 131 (D.D.C. 1982) (Modification of Final Judgment or MFJ), aff'd sub nom. Maryland v. United States, 460 U.S. 1001 (1983) (approving MFJ); United States v. AT&T, 569 F. Supp. 1057 (D.D.C. 1983) (Plan of Reorganization), aff'd sub nom. California v. United States, 464 U.S. 1013 (1983) (approving Plan of Reorganization).

³ Foreclosing a competitor means that the dominant firm is taking steps to prevent a rival from entering a market or to limit the amount of competitive pressure the rival can put upon the dominant firm.

between local exchange areas, which were geographic communities of interest designated early in the development of the telephone industry in the United States and generally comprised of a city or town and the associated rural areas. Because the primary driver of the breakup was a concern that AT&T was using its control of the local telephone lines to limit competition in other markets, the breakup required AT&T to divest its ownership of the Bell Operating Companies (BOCs), which owned the local telephone lines.

The breakup created a number of what were called Local Access Transport Areas (LATAs), which were geographic areas that were generally smaller than a state and that often crossed state boundaries. AT&T was allowed to provide long distance between LATAs (called interLATA long distance), but could not provide intraLATA long distance unless the relevant state public service commission (PSC) granted permission.⁴ Under the theory that the BOCs would carry on AT&T's tradition of using monopoly local telephone lines to disadvantage competitors, the divestiture agreement prohibited the BOCs from providing interLATA long distance services until the court overseeing the breakup was confident that the BOCs would not engage in such anticompetitive conduct.⁵ (Kaserman and Mayo, 2002)

At the time of the breakup, AT&T faced competition primarily from two facilities-based rivals, MCI and Sprint, although there were a number of smaller rivals, including some that simply resold AT&T's services. In part to assist AT&T's rivals and also to limit the BOCs' abilities to favor their former parent company over its rivals, the

⁴ In the United States, telecommunications is regulated by both a federal regulator, the Federal Communications Commission or FCC, and 51 state PSCs. At the time of the breakup of AT&T, the FCC's jurisdiction was generally limited to telecommunications services that crossed state boundaries, so called interstate services. State PSCs regulated intrastate services.

⁵ The court never reached such a finding and its jurisdiction over the issue was removed by the Telecommunications Act of 1996 (1996 Act), which established criteria that the BOCs could satisfy in order to be allowed into the interLATA market. The 1996 Act gave state PSCs and the FCC responsibility for determining whether a BOC had satisfied the criteria.

breakup agreement developed a concept called equal access, which allowed customers of AT&T's rivals to make long distance calls using 1+ dialing. Prior to the implementation of equal access, a customer could use AT&T for long distance by simply dialing one plus the telephone number that the customer wanted to call, but that same customer would have to dial a series of extra digits in order use one of AT&T's rivals. In addition, prior to equal access, the quality of the rivals' connections to the local telephone networks were not as good as the connections enjoyed by AT&T. Equal access was designed to remedy that inequality of connection quality. It took a number of years to fully implement equal access because it necessitated the local telephone companies installing new network software, sometimes installing new network facilities, and issuing ballots to customers so that they could easily sign up for their long distance company of choice. This balloting process was called presubscription.

B. FCC's Development of its Dominance Concept

Long distance competition began in the United States in the early 1970s with the entry of MCI into the point-to-point private line market, and soon thereafter into the regular switched long distance market. This competition raised the issue of how to regulate the new rivals to AT&T, which at the time was still vertically integrated and still a monopoly for all practical purposes. Thinking that these new rivals probably lacked the market power of AT&T and so perhaps should not be subjected to full regulation, the FCC began an investigation in the late 1970s into how to regulate common carriers that did not possess market power.⁶ This Competitive Carrier rulemaking was intended to

⁶ Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Therefor, CC Docket No. 79-252, Notice of Inquiry and Proposed Rulemaking, 77 FCC 2d

establish policies for reducing or eliminating economic regulation for new entrants because, according to the FCC, the new entrants would provide rivalry to the incumbent AT&T, which would improve market performance. Through its proceedings, the FCC distinguished two kinds of carriers -- those with market power (dominant carriers) and those without market power (non-dominant carriers). The FCC relaxed its regulation of the non-dominant carriers, but classified AT&T as a dominant carrier and determined that it should remain subject to the “full panoply” of regulation.⁷

In its First Report and Order, issued in 1980, the FCC defined a dominant carrier as one that “possesses market power” and decided that it would rely upon “clearly identifiable market features” in identifying market power. These features included “the number and size distribution of competing firms, the nature of barriers to entry, and the availability of reasonably substitutable services,” and whether the operator controlled “bottleneck facilities.” The FCC further decided that it would treat all operators as single product firms and so would apply a dominance or non-dominance classification to all of a firm’s services.⁸

The FCC’s initial finding of dominance for AT&T was concluded before the breakup of the company, and so included reasons such as AT&T’s control of bottleneck facilities, such as the approximately 80 percent of the nation’s local telephone lines, for

308 (1979); First Report and Order, 85 FCC 2d 1 (1980) (First Report and Order); Further Notice of Proposed Rulemaking, 84 FCC 2d 445 (1981) (Further NPRM); Second Further Notice of Proposed Rulemaking, FCC 82-187, 47 Fed. Reg. 17,308 (1982); Second Report and Order, 91 FCC 2d 59 (1982); Order on Reconsideration, 93 FCC 2d 54 (1983); Third Further Notice of Proposed Rulemaking, 48 Fed. Reg. 28,292 (1983); Third Report and Order, 48 Fed. Reg. 46,791 (1983); Fourth Report and Order, 95 FCC 2d 554 (1983) (Fourth Report and Order), vacated AT&T v. FCC, 978 F.2d 727 (D.C. Cir. 1992), cert. denied, MCI Telecommunications Corp. v. AT&T, 113 S. Ct. 3020 (1993); Fourth Further Notice of Proposed Rulemaking, 96 FCC 2d 1191 (1984); Fifth Report and Order, 98 FCC 2d 1191 (1984) (Fifth Report and Order); Sixth Report and Order, 99 FCC 2d 1020 (1985), vacated MCI Telecommunications Corp. v. FCC, 765 F.2d 1186 (D.C. Cir. 1985) (collectively referred to as the Competitive Carrier proceeding).

⁷ First Report and Order, 85 FCC 2d at 23.

⁸ Id. at 20-21, 22 n.55.

which there was no competition; AT&T's "overwhelming" market share in long distance and barriers to entry in that market; and AT&T's over 90 percent market share for private line services.⁹

Immediately before the breakup, the FCC elaborated on its definition of market power to include "the ability to raise prices by restricting output" and "the ability to raise and maintain prices above the competitive level without driving away so many customers as to make the increase unprofitable." The FCC further refined its definitions of markets by concluding that "all interstate, domestic, interexchange telecommunications services comprise a single relevant product market with no relevant submarkets," although the FCC said that this definition might not necessarily apply to AT&T.¹⁰

C. FCC's Relaxing of Regulation on AT&T

In subsequent years, the FCC took steps that relaxed its regulation of AT&T.¹¹ In 1989, the FCC ceased subjecting AT&T to rate of return regulation, which restricted AT&T's price level by regulating AT&T's profits, and began using price cap regulation, which limited AT&T to increasing its prices on average no more than inflation minus an offset, called an X-factor.¹² The FCC divided AT&T's services into three baskets – residential and small business services, 800 toll-free services, and all other business services -- because the FCC was concerned that AT&T might raise prices for residential

⁹ First Report and Order, 85 FCC 2d at 23.

¹⁰ First Report and Order, 85 FCC 2d at 23, 563-564, n.24.

¹¹ These preceded the agency's investigation into whether AT&T was dominant or non-dominant.

¹² Policy and Rules Concerning Rates for Dominant Carriers, CC Docket No. 87-313, Report and Order and Second Further Notice of Proposed Rulemaking, 4 FCC Rcd 2873 (1989) (AT&T Price Cap Order); Erratum, 4 FCC Rcd 3379 (1989); Memorandum Opinion and Order on Reconsideration, 6 FCC Rcd 665 (1991) (AT&T Price Cap Reconsideration Order).

and small business services in order to lower prices for other services.¹³ Furthermore, the FCC allowed AT&T to custom price some services and did not subject these services to price cap regulation.

One year after initiating price caps for AT&T, the FCC launched its Interexchange Competition proceeding. This proceeding was to examine competition in interstate long distance and assess whether existing regulations should change in light of competition.¹⁴ Considering such factors as demand elasticity, supply elasticity,¹⁵ how AT&T was pricing relative to its price caps, AT&T's market share, the relative cost structures of AT&T and its competitors, and AT&T's size and resources,¹⁶ the FCC found that competition had increased. More specifically, it found that all business services except analog private line and 800 services (except 800 directory assistance) had become "substantially competitive." Based on this finding, the FCC streamlined its regulation of those AT&T services, which meant that AT&T could change prices on fourteen days' notice and AT&T was not required to file cost support information when asking for a price change. Price cap ceilings, bands and floors no longer applied to streamlined services.¹⁷ The FCC did not address the relevant product and geographic market nor whether AT&T possessed market power for business and 800 services; rather,

¹³ AT&T Price Cap Order, 4 FCC Rcd at 3051-65.

¹⁴ Competition in the Interstate Interexchange Marketplace, CC Docket No. 90-132, Notice of Proposed Rulemaking, 5 FCC Rcd 2627 (1990) (Interexchange Competition NPRM); Report and Order, 6 FCC Rcd 5880 (1991) (First Interexchange Competition Order); Order, 6 FCC Rcd 7255 (Com Car. Bur. 1991); Memorandum Opinion and Order, 6 FCC Rcd 7569 (1991); Memorandum Opinion and Order, 7 FCC Rcd 2677 (1992); Memorandum Opinion and Order on Reconsideration, 8 FCC Rcd 2659 (1993); Second Report and Order, 8 FCC Rcd 3668 (1993) (Second Interexchange Competition Order); Memorandum Opinion and Order, 8 FCC Rcd 5046 (1993); Memorandum Opinion and Order on Reconsideration, 10 FCC Rcd 4562 (1995) (February 1995 Interexchange Reconsideration Order) (collectively referred to as the Interexchange Competition proceeding).

¹⁵ The FCC examined existing rivals' abilities to supply AT&T's customers.

¹⁶ First Interexchange Competition Order, 6 FCC Rcd at 5885-92.

¹⁷ First Interexchange Competition Order, 6 FCC Rcd at 5887 and 5894; Second Interexchange Competition Order, 8 FCC Rcd at 3671.

the FCC simply concluded that “substantial demand and supply elasticities . . . limit AT&T's ability to exercise market power. . . .” within the relevant market.¹⁸

D. FCC’s Finding that AT&T was Non-Dominant

In 1993 AT&T requested that the FCC classify it as a non-dominant carrier.¹⁹ Such a finding would have several implications for how the FCC would regulate AT&T. First, AT&T would not be subject to price cap regulation, except for international services.²⁰ Second, AT&T would be allowed to file tariffs for all domestic services on one day's notice and justification for the prices would not be required.²¹ Third, certain requirements for AT&T to receive FCC permission to construct facilities would be reduced or eliminated, as long as it had FCC approval to use any relevant radio frequencies. Fourth, AT&T would not have to submit cost-support data. Lastly, AT&T would be released from a number of reporting requirements, including annual financial, depreciation rate, rate-of-return, and traffic reports. However, the decision would not deregulate AT&T as the company would still be subject to common carrier regulations contained in Title II of the Communications Act of 1934.²² Next we describe the FCC’s analysis of AT&T’s market power.

First we examine the FCC’s investigation and decision regarding AT&T’s status as a dominant or non-dominant carrier. We begin by looking into how the FCC defined

¹⁸ Id. at 5887.

¹⁹ Motion for Reclassification of American Telephone and Telegraph Company as a Non-Dominant Carrier, CC Docket No. 79-252, filed September 22, 1993 (AT&T Motion).

²⁰ The FCC deferred a decision on international services.

²¹ Tariff Filing Requirements for Nondominant Carriers, CC Docket No. 93-36, Memorandum Opinion and Order, 8 FCC Rcd 6752 (1993) (Tariff Filing Requirements Order), vacated Southwestern Bell Corp. v. FCC, 43 F.3d 1515 (D.C. Cir. 1995); Order on Remand, FCC 95-399, at paras. 8-9 (rel. September 27, 1995) (Tariff Filing Requirements Remand Order); First Report and Order, 85 FCC 2d at 31-33.

²² Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier, CC Docket No. 95-427, Order, adopted October 12, 1995, at 10-13. (AT&T Non-Dominance Proceeding)

markets and market power. We then study the FCC's analysis of the relevant market by looking into the FCC's examination of market shares, demand elasticities, AT&T's economic characteristics, and other claims.

1. Market Definition and the Standard for Assessing Market Power

For this proceeding regarding AT&T's status, the FCC decided to leave unchanged the decision it made in the Competitive Carrier rulemaking regarding how to define the relevant market.²³ This meant that the FCC used "all interstate, domestic, interexchange services" as its market definition for determining AT&T's status, even though the FCC had never explicitly applied that market definition to AT&T in the Competitive Carrier proceeding. The FCC gave two reasons for using this market definition. First, it could find no basis for defining AT&T's markets differently than it defined other long distance companies' markets. Second, the FCC found that supply side substitutability of interexchange services was substantial because "there is no significant difference between the interexchange facilities used to provide" business and residential services, even if some operators participated more in one market than another. And "in light of this supply substitutability, it is reasonable and appropriate to include all domestic, interstate, interexchange services in the market for evaluating AT&T's dominance."²⁴

²³ The FCC could not change its Competitive Carrier decision in the AT&T Non-Dominance Proceeding because the Competitive Carrier decision was a rulemaking. Procedurally, the FCC could not change an administrative rule in a petition proceeding. To address this problem, the FCC modified its rules on market definition after completing the AT&T Non-Dominance Proceeding.

²⁴ Fourth Report and Order, 95 FCC 2d at 563 n.24; AT&T Non-Dominance Proceeding, at 21-23.

In choosing a standard for assessing market dominance, the FCC decided to use as its standard whether AT&T had “the ability to control price with respect to the overall relevant market.”²⁵

2. Classification of AT&T as Non-Dominant

The FCC found that AT&T did not have the ability to unilaterally control prices in the relevant market even though the market was not perfectly competitive. The FCC also found that, in light of this limited market power, continuing dominant carrier regulation of AT&T would inhibit the company from reacting to market pressures by, for example, quickly introducing new services and responding to rivals’ new offerings. Furthermore, the FCC recognized that regulation imposes compliance costs on AT&T and administrative costs on the FCC.²⁶ We next examine how the FCC reached these conclusions.

To assess whether AT&T possessed market power, the FCC applied well-accepted principles of antitrust analysis, namely: “(1) AT&T’s market share (and trends in market share); (2) the supply elasticity of the market; (3) the demand elasticity of AT&T’s customers; and (4) AT&T’s cost structure, size and resources.”²⁷ We consider each in turn.

Market Share. Regarding market share, the FCC found that AT&T’s market share was steadily declining, indicating at least a declining market power. In its Competitive Carrier First Report and Order in 1980, the FCC had found that AT&T had approximately 90 percent of the overall long-distance industry revenues. But “from 1984

²⁵ Id. at 25.

²⁶ Id. at 26-27 and 36.

²⁷ Id. at 39.

to 1994, AT&T's market share, in terms of revenues and minutes, fell from approximately 90 percent to 55.2 and 58.6 percent in terms of revenues and minutes respectively.” Although some argued that a nearly 60 percent market share was sufficient for a finding of market dominance, the FCC disagreed, explaining that market share alone was an inadequate indicator of market power and furthermore that: (1) AT&T had not controlled any essential facilities, such as local access lines, for over ten years; (2) AT&T had two facilities-based competitors – MCI and Sprint – who are capable of serving almost all of AT&T’s customers; (3) Virtually all customers, including resellers, had numerous competitive alternatives and about 97 percent of customers had equal access, which meant that they could presubscribed to a carrier besides AT&T for 1+ long distance dialing; and (4) AT&T’s market share had decreased 33 percent from 1984 to 1994.²⁸

Supply Elasticity. In its consideration of supply elasticities, the FCC examined two factors that determine supply elasticities: (1) The supply capacity of existing competitors; and (2) Entry barriers. Supply elasticities are high if existing competitors have excess capacity or can easily acquire significant additional capacity in a short time period. (A high elasticity indicates that it is easy for a substitute product to be made available to customers.) Supply elasticities are also high if it is easy for new rivals to enter the market and add to existing capacity even if existing suppliers lack excess capacity or are unable to add capacity easily and quickly.²⁹ In examining supply capacity from existing rivals, the FCC had already concluded in its Interexchange Competition proceeding that “AT&T's competitors have enough readily available excess capacity to

²⁸ Id. at 68-73.

²⁹ Id. at 58.

constrain AT&T's pricing behavior -- i.e., that they have or could quickly acquire the capacity to take away enough business from AT&T to make unilateral price increases by AT&T unprofitable."³⁰ The FCC found no evidence in the immediate proceeding that would lead it to change that conclusion. Indeed, according to the FCC, "AT&T asserts, and no one disputes, that MCI and Sprint alone can absorb overnight as much as fifteen percent of AT&T's total 1993 switched demand at no incremental capacity cost; that within 90 days MCI, Sprint, and LDDS/WilTel, using their existing equipment, could absorb almost one-third of AT&T's total switched capacity; or that within twelve months, AT&T's largest competitors could absorb almost two thirds of AT&T's total switched traffic for a combined investment of \$660 million."³¹

Demand Elasticity. The FCC found evidence that AT&T's residential customers' demand was highly price-elastic and would switch to or from AT&T in order to obtain price reductions and desired features.³² AT&T provided studies that demonstrated that "as many as twenty percent of its residential customers, representing nineteen percent of annual revenue to AT&T, change interexchange carriers at least once a year."³³ The FCC concluded that such a high churn rate among residential consumers indicated that these customers viewed AT&T's and its competitors' services to be very close substitutes. This conclusion, combined with the FCC's finding that AT&T and its rivals engaged in extensive advertising campaigns, indicated that AT&T lacked the ability to raise its price unilaterally above competitive levels for the residential long distance market. Some participants in the proceeding had argued that high advertising indicated a lack of

³⁰ First Interexchange Competition Order, 6 FCC Rcd at 5888.

³¹ AT&T Non-Dominance Proceeding at 60. The FCC cites an AT&T April 24, 1995 Ex Parte Filing.

³² Id. at 64. The FCC cited an AT&T April 24, 1995 Ex Parte Filing and its own First Interexchange Competition Order, 6 FCC Rcd at 5887-88.

³³ AT&T Non-Dominance Proceeding at 64. The FCC cited an AT&T April 24, 1995 Ex Parte Filing.

competition. The FCC rejected these arguments because AT&T and its competitors advertised their discount plans, not their basic prices, which was consistent with aggressive price competition. Furthermore, the FCC concluded that customers viewed the alternative long distance carriers as slightly differentiated, which was also consistent with substantial competition.³⁴

The FCC also considered demand elasticities for business customers and found, consistent with its findings in the First Interexchange Competition Order, that AT&T's business customers were highly demand-elastic. In that proceeding, the FCC had found that business customers "routinely request proposals from carriers other than AT&T and accord full consideration to these proposals" and that business customers considered AT&T's and its competitors' offerings to be close substitutes. The FCC had also found that business customers were sophisticated and knowledgeable consumers of telecommunications services and often use consultants and in-house experts to make informed buying decisions.³⁵ The FCC did find that, when considering the services offered by resellers, some business customers preferred to buy from AT&T even at a premium price, but concluded that this did not necessarily mean that the competition was not constraining AT&T's prices. The FCC reached this conclusion in part because AT&T's market share for resold services had declined from 25.6 in 1994 to 20.3 percent in 1996.³⁶

AT&T's Cost Structure, Size and Resources. Some participants in the proceeding argued that AT&T had "market power simply by virtue of its lower costs, sheer size,

³⁴ Id. at 65.

³⁵ First Interexchange Competition Order, 6 FCC Rcd at 5887-88.

³⁶ AT&T Non-Dominance Proceeding at 66. The FCC cited an Ex Parte Presentation by AT&T.

superior resources, financial strength, and technical capabilities.”³⁷ The FCC disagreed that these advantages, by themselves, would result in market power for AT&T. The FCC had already concluded in the Interexchange Competition proceeding that the issue was not whether AT&T had advantages, but “whether any such advantages are so great to preclude the effective functioning of a competitive market.”³⁸ The FCC concluded that “(i)t is not surprising that an incumbent would enjoy certain advantages, including resource advantages, scale economies, long-term relationships with suppliers (including collocation agreements), and ready access to capital. Such advantages, however, do not a fortiori indicate that AT&T has a lower cost structure that can give it an unfair competitive advantage over its competitors.”³⁹ In fact, the FCC thought the evidence that AT&T’s costs were lower than its competitors was not necessarily conclusive.

Other Claims of Dominance. The BOCs, who sold long distance access to AT&T and its competitors and who were seeking to enter the interLATA long distance market to compete with AT&T, argued to the FCC that price trends since 1990 indicated that residential services were not becoming more competitive and may even have been becoming less competitive. The BOCs believed that not only had the basic price schedule for long distance had increased, but that AT&T, MCI and Sprint had engaged in price parallelism, a practice where operators engage in “lock-step” pricing rather than price competition. There were also claims that AT&T’s price-cost margins had risen since 1990, that AT&T’s gross margins (net sales less cost of goods sold divided by net sales) had increased between 1984 and 1994, that AT&T’s earnings per share had increased over the same time period, and that AT&T was consistently pricing near the top

³⁷ Id. at 74.

³⁸ First Interexchange Competition Order, 6 FCC Rcd at 5891-92.

³⁹ AT&T Non-Dominance Proceeding at 74.

of its allowed price range for residential and small business services. Finally, the BOCs claimed that announcements by AT&T of price increases led to increases in the stock price not only of AT&T, but also of its rivals, MCI and Sprint.⁴⁰

AT&T provided evidence to counter the BOCs' claims. The company showed that its average revenue per minute had actually decreased, after accounting for discounts. AT&T also explained that the lock-step price increases occurred because price caps was keeping these particular prices below cost, and that the regulation created the artifact of price leadership. Also regarding the increase in the price-cost margin, AT&T explained that high fixed costs dictated the increasing gap between prices and marginal costs. AT&T also showed that, between 1991 and 1994, its average revenue per minute decreased faster than what the company paid the BOCs for access charges. AT&T contended that this comparison showed that over all, its prices had declined by more than the amount of the access charge reductions implemented by the local exchange carriers during that period.⁴¹

The FCC concluded that AT&T's pricing of residential services also supported the conclusion that AT&T lacked market power. Between 1991 and 1995, the company's lowest available residential rates for customers with monthly bills over \$10.00 fell between 15 and 28 percent, in nominal terms, and during the period the percentage of AT&T customers taking advantage of the discounts increased.⁴² The FCC also found that often AT&T was the price follower when its rivals initiated new discount plans.⁴³ Regarding claims of tacit coordination between AT&T and its main rivals on price

⁴⁰ Id. at 76. The FCC cited various filings by the BOCs.

⁴¹ Id. at 77. The FCC cited various filings by AT&T.

⁴² Id. at 79-80 and Appendix B, Table 1. The FCC used data from AT&T's price cap filings to investigate customers' use of discount plans.

⁴³ Id. The FCC cited an Ex Parte filing from AT&T.

increases, the FCC found that the evidence presented in the proceeding was contradictory and inconclusive. The FCC noted, but did not find relevant to the finding of non-dominance, that AT&T had promised to introduce new pricing plans for residential and low income consumers.⁴⁴

Other Potential Indicators of Dominance. Other issues not directly related to market power were raised during the proceeding as reasons to not find AT&T non-dominant. For example, some local telephone companies were concerned that AT&T might deaverage its prices. Up until that time, AT&T maintained uniform long distance prices across the country, even though there was no explicit FCC requirement for the company to do so. To address this concern, AT&T voluntarily committed for three years to giving the FCC five days notice, rather than one day notice, if any new prices departed from the company's traditional approach to geographic averaging for residential customers. MCI and another party in the case expressed concern that AT&T would bundle customer equipment with its long distance services if declared non-dominant. The FCC rejected this claim as irrelevant to the decision about dominance.⁴⁵

3. Conclusion

The FCC concluded that AT&T lacked market power in the overall interstate, domestic, long distance market, and reclassified the company as a non-dominant carrier. The FCC also accepted all of the voluntary commitments stated by AT&T (some of which we cite above) and noted that AT&T's failure to comply with the commitments could result in fines, forfeitures, or a revocation of AT&T's licenses. The finding of non-

⁴⁴ Id. at 84-87.

⁴⁵ Id. at 147-150.

dominance resulted in removing all but AT&T's international services from price cap regulation. The finding also relieved AT&T of dominant carrier reporting requirements, but the FCC indicated that usage data would still be required and that the FCC might need to augment its reporting requirements for non-dominant carriers so as to have sufficient data to monitor competition.⁴⁶

E. Studies of the Long Distance Market and of AT&T

In this section we review research relating to the long distance market in the United States. Our intent is to simply provide an overview and not a thorough analysis of the research. Readers interested in a more thorough critique are encouraged to read Kaserman and Mayo (2002).

The availability of data, the prominence of the breakup of AT&T, and the BOCs' strong interests in entering the interLATA long distance market stimulated a number of studies leading up to the time the BOCs were allowed to compete with AT&T following the passage of the 1996 Act. Some of these studies were provided to the FCC by stakeholders in its proceeding and so we address their ideas above, but it is useful to examine such studies separately in this section because many took approaches other than the approach used by the FCC and some reached different conclusions than did the FCC.

For several decades, economists have used a structure-conduct-performance framework for studying market power. This approach, which is attributed to Bain (1956), assumes that the structure of an industry largely determines firm conduct, which in turn largely determines the economic performance of the industry. Several studies of AT&T and the long distance market followed this tradition. One such study was conducted by

⁴⁶ Id. at 164-167.

Taylor and Zona (1997). They examined several metrics that they believed should indicate the structure of the long distance market. Their metrics included changes in retail prices relative to changes in the access charges paid by long distance companies to local telephone companies for interconnection, productivity gains by AT&T, changes in service quality, advertising by long distance companies, entry patterns, and financial performance of long distance providers. The authors concluded that competition did not appear to be constraining AT&T's prices. Rather, it was regulation and the threat of antitrust action that limited AT&T's exercise of market power. One finding that was central to their conclusion was the persistence of new entry into the long distance market. The authors argued that continual new entry implied that there were excess profits in the industry, which would attract such entry. However, as Kaserman and Mayo (2002) point out, non-competitive conduct is not a necessary condition for new entry. Historical price distortions, pervasive cross subsidies (Temin, 1990), and regulation could all have created conditions favorable to continued entry. Furthermore, the continued entry eroded AT&T's market share, and presumably its market power. In essence, the Taylor and Zona (1997) findings were consistent with the existence of market power, but were insufficient to conclude that market power existed.

Also applying the structure-conduct-performance framework, Shepherd (1995) argued that AT&T's price differentials relative to its rivals indicated that AT&T possessed market power. At the time of his analysis, AT&T's prices for some services were 30 percent higher than those of MCI or Sprint. However, Knittel (1997) examined these price differentials and found that they resulted from switching or search costs, not non-competitive conduct. Switching costs are costs that a customer must incur, or that a

competitor must incur on behalf of the customer, in order for the customer to change service providers. Search costs are costs that a customer must incur in order to find a new supplier and investigate whether the alternative supplier offers a greater net consumer surplus than does the customer's current service provider. Net consumer surplus is the difference between the value the customer receives from consuming the service and the price the customer has to pay. Studying access charges and advertising expenditures from 1984 through 1993, Knittel (1997) found that advertising seemed to decrease customer search costs (resulting on lower price-cost margins for long distance providers). However, as Kaserman and Mayo (2002) pointed out, equal access was being implemented during the time of Knittel's study. Prior to equal access, AT&T's rivals were allowed a discount on the access charges that they had to pay to the local telephone companies, presumably to compensate for the lower quality interconnection. But as equal access was implemented, long distance services became more homogeneous, which should have led to lower price-cost margins. So while Knittel's study offered an explanation of the differences between AT&T's prices and those of its rivals, the study was not necessarily conclusive.

MacAvoy (1995), Hausman (1995), and Taylor and Zona (1997) all use the structure-conduct-performance framework to examine whether there was tacit collusion between AT&T and its rivals. Tacit collusion is thought to exist when rival firms gravitate towards a monopoly price without explicitly agreeing to do so. The studies concluded that AT&T and its rivals were engaging in tacit collusion. However, as Kaserman and Mayo (1996) showed, the market structure for long distance was not conducive to tacit collusion. More specifically, they found that low entry barriers, the

presence of excess capacity in the existing long distance networks, asymmetry in the sizes for the rival firms, highly tailored pricing plans, the large number of service providers, and other factors violated well-established preconditions for tacit collusion.

Up to this point, we have focused on the market structure aspect of the structure-conduct-performance framework. We now turn our attention to studies of market conduct. Two studies on market conduct by MacAvoy (1995, 1996) conclude that price competition was declining over time in the long distance market. He supports his conclusions in two ways. First, he argues that intense price competition existed about the time of the breakup of AT&T because regulation had held long distance prices artificially high and because the access charge discounts that AT&T's rivals enjoyed gave them cost advantages. Second, he performed an econometric analysis of price-cost margins in long distance, which he conducted by regressing the AT&T's price-cost margins for several services on the Herfindahl-Hirschman Index (HHI) calculated for the three largest carriers and on a series of dummy variables indicating to which service the price-cost margin applied.⁴⁷ MacAvoy finds that the HHI had a greater impact on price-cost margins in the period 1991-1993 than for the period 1987-1990, which he interprets as implying growing tacit collusion.

Kaserman and Mayo (2002) review MacAvoy's studies and point out several flaws. First they contend that he incorrectly estimates AT&T's price-cost margins because he incorrectly quantified AT&T's prices and underestimated AT&T's marginal costs by more than 60 percent. Secondly, MacAvoy limited his study to a relationship between price-cost margins and his mis-specified HHI. Many other market features that

⁴⁷ The HHI is an index for measuring market concentration. It is normally calculated as the sum of the squares of each firm's market share. MacAvoy limits his estimate to the market shares of the three largest firms, which is highly unusual.

could influence price-cost margins were not considered. Furthermore, MacAvoy's study shows a negative relationship between his version of the HHI and price-cost margins. If firms were exercising market power, the relationship should be positive. Finally, even if there were no problems with the study, the study results do not link price-cost margins to tacit conclusion.

In another study conducted about the time of the FCC's declaring that AT&T was non-dominant, Kahai, Kaserman, and Mayo (1995) examined whether relaxed regulation of AT&T had resulted in the company engaging in predatory behavior. Assuming that such behavior would result in the exit of rivals, the study empirically measured whether relaxed regulation of the carrier had triggered market exit. Using state-level data from 1992, the authors regressed the number of competitors to AT&T in each state on whether the state had relaxed its regulation of AT&T, the number of competitors present in 1986, and a number of other factors that should influence the number of rivals in a market. The study found that relaxed regulation had no influence on the number of competitors and so concluded that AT&T had not engaged in predatory conduct. While this study's results would be consistent with no-predation on the part of AT&T, other factors could explain the empirical results. For example, it could be that a state is not a really a market for purposes of making entry decisions. Furthermore, even if it were true that a state is a relevant market for making entry decisions, it could be the case that AT&T knew that predatory behavior at the state level would result in a finding of dominance by the FCC. As a result, it is possible that AT&T was restraining from predatory conduct in order to improve its chances of a declaration of non-dominance by the FCC.

Turning now to studies of market performance, many observers of the long distance market in the 1980s and early 1990s would point to the decline in long distance prices and in the HHI as indicators that the competition was at least increasing, if not constraining AT&T's ability to raise prices above a competitive level.⁴⁸ Some studies, such as Taylor and Zona (1997) and Taylor and Taylor (1993) argued that the price declines were largely the result of access charge decreases and, indeed, when viewed in that context, the retail price declines were modest relative to the access charge decreases. Kaserman and Mayo (2002) analyze this issue. They explain that such studies are based on two propositions, namely: 1) that the "flow through" of access charge changes to retail prices can be used to gauge the intensity of competition; and 2) long distance companies had indeed not flowed access charge declines through to retail long distance prices. Regarding the first proposition, Kaserman and Mayo explain that its theoretical underpinnings are questionable. The proposition is based on the following formula, first developed by Sumner (1981) in a study of the U.S. cigarette industry:

$$P_i = [\eta_i / (\eta_i + 1)] MC_i \quad (1)$$

where P_i is the price, η_i is the elasticity of demand, and MC_i is the marginal cost in market i . As can be seen from the formulation of equation (1), it is clear that its validity relies upon some critical assumptions. The first assumption is that elasticity of demand is constant. If elasticity changes with price, then equation (1) loses some validity. A further assumption is that marginal costs are constant with respect to output. A third assumption is that there is a single product in the market. Lastly the formula assumes that there is no regulation to influence prices. Kaserman and Mayo show that these assumptions did not hold for the long distance market in the 1990s, so the theoretical underpinning for the

⁴⁸ See, for example, Kaserman and Mayo (2002).

first proposition – that access charge declines should result in an almost identical decline in retail long distance prices – does not hold.

Regarding the second proposition – that retail prices did not decline as much as access charges did in the 1980s and 1990s – Kaserman and Mayo explain that the evidence is inconclusive. One reason for the lack of clarity is that long distance price structures are complex, making it difficult to conclusively measure the overall change in “price”. A second complication is that it is difficult to know whether other cost changes might mask any flow through of access charge declines. Lastly, it is hard to know when an access charge decline would be passed through via the competitive process. Retail prices do not change instantaneously to changes in cost because of regulatory restrictions, contracts, and costs of implementing price changes.

F. Conclusion

In this section we have described and analyzed the FCC’s declaration of AT&T to be non-dominant in the long distance market in the United States. To reach this conclusion, the FCC treated the entire country as a single market and used traditional approaches to assessing market power. Critical to the FCC’s declaration was the agency’s decision that the market did not need to be fully competitive to find that the incumbent player was non-dominant.

The study of the competitiveness of the long distance market was exhaustive, complex, and controversial for several reasons. One reason is that its history provided a natural experiment for economists and a large amount of data. Another reason is that the political interest in the market were high: The BOCs wanted to compete against AT&T, which provided them with an incentive to produce or support studies showing a lack of

competition, and the non-BOC long distance companies did not want to compete against vertically integrated local exchange companies, providing them with incentives to produce or sponsor studies that would counter the BOCs' claims. The result of these competing economic interests is a set of diverse studies illustrating many approaches to examining the intensity of competition in a market, and a rich literature that critically evaluates each of these approaches. In the end, the fears of the non-BOC long distance companies seemed to be validated: Shortly after the BOCs were allowed to enter the interLATA long distance market, the two primary players – AT&T and MCI – would be purchased by BOCs and the third player, Sprint, would exit the market.

IV. Analysis of Mobile Termination in the United Kingdom

In this section we examine a determination by U.K. Office of Communications (Ofcom) in 2007 that providers of mobile termination had significant market power (SMP) and so should be subjected to *ex ante* regulation of their prices. Mobile termination is the completion of a telephone call, from either a fixed line or a mobile phone, through a mobile network. According to Ofcom, this wholesale mobile voice call termination (“MCT”) is necessary for a network operator to complete calls to mobile customers of a different network. If MCT did not exist, customers of a particular network operator could only call other customers of that same operator. To reach customers of other networks, customers would need to subscribe to multiple network services. MCT is considered a wholesale service because it is sold to and purchased by network operators rather than retail customers.⁴⁹ We begin by examining the background to the case.

⁴⁹ Mobile Call Termination Statement published by Ofcom on March 27, 2007 (“March 2007 MCT Statement”) at 1.1.

A. Background

1. Procedural Background

Ofcom's March 27, 2007 MCT Statement was the most recent step in a series of Ofcom proceedings addressing the regulation of MCT. Ofcom last prior review of MCT was concluded in 2004.⁵⁰ In that proceeding, Ofcom designated five MNOs – Vodafone, O2, T-Mobile, Orange and Hutchison 3G UK (“the five MNOs”) – as having SMP. Ofcom imposed various conditions the five MNOs. These included a requirement to not unduly discriminate, price controls on fixed to mobile interconnection charges, price controls on mobile to mobile interconnection charges, a requirement to notify Ofcom of access contracts, and a requirement to publish prices. Ofcom chose to impose price controls on only the “2G/3G MNOs”, namely Vodafone, O2, T-Mobile and Orange.⁵¹ Hutchison 3G UK appealed its SMP designation and the Competition Appeal Tribunal directed Ofcom to reconsider its decision, which it did at the same time it completed the immediate investigation.⁵²

Ofcom launched the review that resulted in the March 2007 MCT Statement in June 2005 with the publication of a preliminary consultation.⁵³ Ofcom subsequently

⁵⁰ Wholesale Mobile Voice Call Termination markets published by Ofcom on June 1, 2004 (“June 2004 Statement”).

⁵¹ *Id.* at 1.3, 2.7.

⁵² *Id.* at 1.4. Statement Assessment of Whether H3G Holds a Position of SMP in the Market for Wholesale Mobile Voice Call Termination on its Network published by Ofcom March 27, 2007 (“Reassessment of H3G’s SMP”).

⁵³ Wholesale Mobile Voice Call Termination – A Preliminary Consultation published by Ofcom June 7, 2005 (“the Preliminary Consultation”). As provided for in the Framework Directive (Directive 2002/21/EC), the European Commission (the “Commission”) had adopted a Recommendation on relevant products and services markets (“the Recommendation”) that identified electronic communications markets that might qualify for *ex ante* regulation. MCT was Recommendation’s Market 16. See *Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services*.

published a more detailed consultation document⁵⁴ that set out Ofcom’s initial conclusion that each of the five MNOs constituted a separate market for MCT “and that the *prima facie* evidence indicated that each of these mobile operators had SMP in the market in which it supplies MCT.” Ofcom did not express an initial conclusion regarding “whether any purchasers of MCT have countervailing buyer power (“CBP”) sufficient so as to constrain a supplier’s ability to exercise SMP,” but Ofcom did indicate that the consultation would consider the negative effects of the exercise of SMP in these markets and explore regulatory options for addressing those effects. Ofcom stated its tentative conclusion that if it found SMP some form of price control might be appropriate. The agency also expressed an interest in the concept of a technology-neutral price control for each MNO, such as a single control that would apply to both 2G and 3G networks if a single MNO had both types of networks. Lastly, since Ofcom had not yet concluded its investigation into cost modeling, the regulator did not express a view on whether prices should be symmetric across the five MNOs.⁵⁵

After receiving and considering the responses to the March 2006 Consultation, Ofcom published a third consultation⁵⁶ in which the regulator confirmed its view that each MNO constituted a separate market for MCT and that each mobile operator had SMP in its market. The regulator also identified the negative effects it thought would likely result from the exercise of SMP and the remedies that it thought should be imposed, including price controls applied to each of the five MNOs for four years,

http://europa.eu.int/information_society/topics/telecoms/regulatory/publicconsult/documents/relevant_markets/I_11420030508en00450049.pdf

⁵⁴ Wholesale Mobile Voice Call Termination published by Ofcom March 30, 2006 (“the March 2006 Consultation”).

⁵⁵ March 2007 MCT Statement at 1.5-1.7.

⁵⁶ Mobile Call Termination – Proposals for Consultation published by Ofcom on September 13, 2006 (the “September 2006 Consultation”).

obligations for each MNO to “meet reasonable demand for MCT on fair and reasonable terms, prohibitions of undue discrimination and obligations concerning transparency of charges and contract terms.”⁵⁷

2. Industry Background

MCT supplied a significant portion of the mobile market in the U.K. at the time of Ofcom’s analysis. Annual retail revenues for the mobile industry in the U.K. were approximately £13 billion, with wholesale revenues comprising approximately £3.6 billion. Annual revenue from MCT was approximately £2.5 billion, or about 15 percent of sector revenue. Of this MCT revenue £1.5 billion was for calls between MNOs and £1 billion was for fixed to mobile calls.

Numbers of subscribers was difficult to measure because of variations in how MNOs managed customer churn,⁵⁸ but the 2G/3G MNOs each reported between 12 million and 18 million subscribers. Churn is the percent of customers that change providers during a year. The volume of voice call minutes was roughly proportionate to the number of customers, even though there were variances across MNOs.⁵⁹

Ofcom encountered difficulties analyzing the industry’s profitability. One reason is that the industry was not in a steady state, which meant that historical accounting data might not indicate future profitability from an accounting perspective.⁶⁰ Rapid technological change further complicated analysis because the changes meant that

⁵⁷ March 2007 MCT Statement at 1.8.

⁵⁸ Operators varied in how long they consider a non-active account to be a subscriber before considering the subscriber to be lost.

⁵⁹ March 2007 MCT Statement at 2.17-2.18.

⁶⁰ Accounting numbers provide one measure of profitability, but these are quite different from economic profits—those profits that are above the amount required in a competitive industry facing comparable commercial (demand-side) and technological risks. Such above-normal profits might represent the results of good luck, extraordinary cost-containment or product development, or market power.

historical costs might not be relevant for assessing the future. Long payback periods on investments meant that it was difficult to match revenues with the investments that made the revenues possible. Finally, asset values for accounting purposes did not represent economic value, meaning that the accounting data did not reflect opportunity costs, which were the costs that operators should have been considering when making business planning decisions.⁶¹ Despite these difficulties, Ofcom estimated the operators' returns on capital to be about 16 percent, which was slightly higher than Ofcom's estimated weighted average cost of capital for the operators, which was 14.6 percent. To estimate the actual return on capital, Ofcom excluded investments the operators were making in 3G networks because, give the long planning horizons, these investments would create incremental revenue for some time into the future.⁶² Ofcom concluded that realized returns in excess of the actual cost of capital implied market power.⁶³

⁶¹ Id. at 2.21.

⁶² According to Ofcom, "Accounting returns over a short period are unlikely to be representative of the long term return, particularly in capital intensive industries; for example, the MNOs have incurred the costs of building out their networks and of acquiring 3G spectrum in anticipation of returns over a long period. It is only after looking at the returns over the duration of the investment cycle that a full picture of the profitability can be assessed. Specifically, for the MNOs, the assumptions regarding the treatment of the 3G spectrum costs will impact significantly on any measure of performance, whether it is in assessing the profit (which will be impacted by assumptions regarding amortisation) or the asset base (which will be impacted by assumptions regarding the appropriate valuation of the asset). 3G spectrum represented a substantial upfront cost to the MNOs. The amortisation of these costs represents a significant reported annual cost to the MNOs, yet the expected increase in revenues will occur in future years. The impact is therefore to increase the capital employed and depress annual profits in the short term." Id. at 2.23-2.24.

⁶³ While this conclusion is consistent with a finding of market power, market power is not a necessary condition for the existence of returns in excess of the weighted average cost of capital. It is common business practice to make only those investments that promise a return in excess of the cost of capital. This is called pursuing economic value added, or EVA. The thinking goes in this approach that cost of capital reflects the investors' opportunity costs for money. If a firm's chooses investments that receive no higher return than the investors' opportunity costs, then the investors are made no better off by investing this company than they would be investing elsewhere, calling into question the underlying profit rationale for investing in the company.

B. Ofcom's Analysis

Ofcom's analysis included a determination of the appropriate market, identification of SMP, examination of possible negative impacts of the exercise of SMP, and the development of appropriate remedies. We examine each of these next.

1. Market Definition

Ofcom's tentative conclusion in its consultation document was that each MNO's MCT was a separate relevant product market. This was consistent with the European Commission's recommendations and BT, a fixed line provider in the U.K., agreed. However, the 2G/3G MNOs all disagreed, basically arguing that MCT is a "cluster market," which would include MCT with a wider range of other mobile services, including outbound retail mobile services. The basic argument for a cluster market concept was that mobile providers competed for a customer's entire business, including calls that terminated to that customer. So any profits from MCT that might appear excessive were actually competed away as operators attempted to gain the customer's entire business.⁶⁴ Ofcom disagreed with the cluster argument. For example, Ofcom believed that the use of Calling Party Pays (CPP) created a situation where the party who decides to make the call (the calling party) was not the party who had to pay for the wholesale call termination; the calling party's network provider paid for wholesale call termination. This disconnect resulted in a situation where the calling party did not consider the wholesale call termination when placing the call, in essence creating an externality for the calling party's network provider. Indeed, Ofcom found evidence that retail customers were generally unaware of the level of MCT prices. Furthermore, while

⁶⁴ March 2007 MCT Statement at 3.4.

Ofcom agreed that mobile communications constituted a two-sided market, where both called and calling customers were retail customers, Ofcom did not believe that this consideration rose to the level of implying that MCT was not a separate market for purposes of pricing.⁶⁵

Ofcom concluded that call termination service was necessary for a network operator to connect a caller with the called party and that the service was wholesale because it was purchased by network operators rather than by retail customers. To determine whether it constituted a market for competition analysis, Ofcom examined the possibility for demand-side substitution and supply-side substitution. We consider each next.

Demand-side Substitution. Ofcom performed a SSNIP test ([Small but Significant and Non-transitory Increase in Price](#)) to consider the possibility of demand-side substitutes. Two demand-side substitutions were considered. The first was retail demand-side substitution, which is the situation where the retail customer responds to the MCT price and changes her purchasing sufficiently to constrain the possibility of raising MCT prices above a competitive level. The second was wholesale demand-side substitution.⁶⁶

For retail demand-side substitution to have a meaningful impact, MCT prices must feed through to fixed and mobile retail prices and MCT must be a meaningful portion of the prices considered by a retail customer when choosing its retail service provider. In considering these possibilities, Ofcom concluded that the existence of bundled packages diluted any flow through of MCT prices, effectively precluding retail customers from responding to the prices. Furthermore in studying the pass-through of

⁶⁵ Id. at 3.8-3.9.

⁶⁶ Id. at 3.17.

historical decreases in MCT prices, Ofcom found that BT passed through greater proportions of the MCT price declines to its (fixed line) customers than did the MNOs to their mobile customers. Ofcom also found that many calling packages offered by MNOs did not have significant price differentials for on-net and off-net calls, further dampening the possibility that retail customers observe MCT prices to any meaningful extent.⁶⁷

Ofcom examined several possible sources of retail demand-side substitution:

- Behavior of the called party in response to an increase in the retail price of calls to mobiles

Called parties are one possible source of retail demand-side response. If called parties considered the MCT prices charged by an operator when choosing a mobile operator, and if the called parties considered high MCT prices to be a negative, then MCT might not be a separate market. In considering this possibility, Ofcom found the following conditions needed to be met for called parties to provide a demand-side constraint on MCT prices:

1. Mobile subscribers would need to place sufficient value on incoming calls that a reduction in incoming calls would induce a customer to change service providers;
2. Callers would need to be sufficiently aware that they are calling a mobile and that they are calling a specific network;
3. Callers would need to be sufficiently aware of the MCT price of calling that particular network; and

⁶⁷ Id. at 3-18-3-23.

4. Callers would need to be sensitive to changes in the prices of calling the network they want to reach.⁶⁸

After examining extensive customer surveys – some by Ofcom and some by others – the regulator concluded that callers did not consider MCT prices when placing calls or choosing between mobile networks. For example, in Ofcom’s February 2005 survey of residential and small to medium sized business customers, only 2 percent of residential customers spontaneously said that they considered whether the network was cheaper for others to call when choosing a mobile service provider, and only 11 percent considered whether their calling circle would also use a particular mobile provider. Figure 3.1 from Ofcom’s March 2007 MCT Statement, which summarizes this survey, is reproduced below. As a result of this and other surveys, Ofcom concluded that the above conditions were not met and determined that called party demand-side substitution was not sufficient to keep MCT for a particular MNO from being a separate market.⁶⁹

⁶⁸ Id. at 3.24-3.27.

⁶⁹ Id. at 3.34-3.68.

Figure 3.1 Spontaneous considerations when choosing network



- Behavior of the calling party in response to an increase in the retail price of calls to mobiles

The extent of pass-through of changes in MCT charges could affect the constraint that callers to mobile phones may impose on MCT prices. As Ofcom said, “If pass-through were significant, callers may impose a competitive constraint if they react to an increase in the retail price for calling mobiles by employing other means of communication to reach mobile subscribers.” Ofcom concluded that three conditions had to be met for callers to react to increases in prices to calls to mobile phones:

- Callers must be sufficiently aware that they are calling a mobile phone and that they are calling a specific mobile network;
- Callers must be sufficiently aware of the price of calling that particular network; and

- Callers must be price sensitive for calls into the network they want to reach.

Ofcom concluded that none of these criteria were sufficiently met. For example, Ofcom believed that the prevalence of service bundles made customers less sensitive to prices for certain calls, and in particular calls into specific mobile networks.⁷⁰

- Awareness of calling a mobile and awareness of calling a specific mobile network

Ofcom concluded that callers were generally unaware of when they were calling into a specific mobile network. For example a January 2006 survey conducted by Ofcom found that “of all consumers making calls to mobiles two fifths (42%) claimed never to know which mobile network they are calling or were unable to give an opinion. In addition, one quarter (23%) claimed rarely to know, one in six (16%) sometimes know and only one fifth (19%) mostly or always know which mobile network they are calling.”⁷¹

- Awareness of relative and actual prices

Ofcom found that customers had limited awareness of the prices they paid for calls to other mobile networks. In a February 2005 survey, Ofcom found that only 22 percent mobile phone users claimed to know the approximate prices for on-net calls and only 14 percent would make the same claim for off-net calls. Furthermore, only 16 percent claimed to know the

⁷⁰ Id. at 3.69-3.71.

⁷¹ Id. at 3.74.

prices for calling the people they contacted the most. Similar results were found for landline customers.⁷²

- Callers' sensitivity to changes in the prices of calling a specific network - adapting behavior

Ofcom also determined that, even if its analysis of customers' awareness of prices proved to be wrong or at least short lived, it was still important to analyze other options that customers have for calling into mobile networks. These included:

- Mobile-to-fixed call as a substitute for mobile-to-mobile off-net call;
- Mobile-to-mobile call as a substitute for fixed-to-mobile call;
- On-net mobile-to-mobile call as a substitute for mobile-to-mobile off-net call;
- SMS as a substitute for mobile-to-mobile call;
- Voice over Internet Protocol calls; and
- Call-back arrangement.

Ofcom examined each of these and concluded that they did not provide demand-side substitutes for MCT.⁷³

In summary, Ofcom found that there were no retail demand-side substitutes for MCT.⁷⁴ Regarding wholesale demand-side substitution, Ofcom could find no prospects for network operators to be able to bypass a customer's MNO to terminate calls.⁷⁵

⁷² Id. at 3.78-3.81.

⁷³ Id. at 3.82-3.116.

⁷⁴ Id. at 3.117.

⁷⁵ Id. at 3.118-3.119.

Supply-side Substitution. Ofcom explained that “Supply-side substitution occurs when, in response to a rise in the price of a product, suppliers of other products would at short notice and without incurring substantial sunk costs switch into supplying the product whose price has risen and render the price increase unprofitable for the hypothetical monopolist.” Ofcom examined supply-side substitution at both the retail and wholesale level.⁷⁶

Regarding retail-supply side substitution, Ofcom explained that, for it to constrain the level of MCT prices, “there would have to be operators which do not currently provide calls to mobiles that can switch into such provision and thus undermine a price set above the competitive level.” Such new providers “would have to be able to provide a service which did not rely on the provision of termination from the MNO(s) to which the called party subscribes.” Ofcom found this to be an unlikely scenario.⁷⁷

Regarding wholesale-supply side substitution, it would constrain MCT prices only if there were “other firms that could switch into the provision of wholesale voice call termination to a specific subscriber of an MNO’s network at short notice and without incurring substantial sunk costs in response to an increase in termination charges.” Ofcom concluded that this could not happen between MNOs because of technical barriers in handsets and SIM. Ofcom found there were also technical barriers to substitution from new mobile network operators, Local Area Networks over short-range radio technologies and wireless local area networks. Ofcom found greater prospects for mobile virtual

⁷⁶ Id at 3.120.

⁷⁷ Id at 3.121.

network operators (MVNOs), but concluded that they could make only small impacts. Based on these analyses, Ofcom concluded that supply-side substitution was unlikely.⁷⁸

Aggregating all calls to a MNO into a single market. Ofcom thought it could be argued that each phone number was its own market for MCT, so it considered whether this might be the case. Ofcom concluded that it was appropriate to aggregate MCTs at the firm level for two reasons. “First, the competitive conditions relating to the provision of wholesale voice call termination to different numbers (or different subscribers) supplied by the same MNO to other Communications Providers are likely to be relatively homogenous... Second, there is a common pricing constraint i.e. in practice, given MNOs’ billing systems, it would be difficult/costly for an MNO to charge different prices for MCT to different numbers (or different subscribers) even if it wished to do so.”⁷⁹

Ofcom also considered an issue raised by Cable & Wireless, namely, whether all calls terminated in a mobile network, including on-net calls, should be in the same market and not just off-net MCTs. Cable & Wireless’ basic argument was that the calls were technically the same. Ofcom rejected the company’s arguments, finding that on-net calls were effectively retail prices that an MNO charges its own customers. As a result, retail competition would constrain these prices, but not off-net MCT prices.⁸⁰

Conclusions on Market Definition. In summary, Ofcom concluded that no adequate wholesale demand or supply side substitutes for termination of calls to customers of a specific MNO existed at the time of the investigation. The regulator further concluded that no technology existed, and none was on the horizon, that would allow the termination of a call to another MNO other than on the network of the MNO to

⁷⁸ Id. at 3.122-3.130.

⁷⁹ Id. at 3.131.

⁸⁰ Id. at 3.135-3.136.

which the called party had subscribed. Regarding retail alternatives, there were no effective alternatives at the retail level for calling parties that could constrain call termination charges. In addition, callers appeared to have limited awareness of the cost of calling mobiles and only a small proportion of mobile subscribers showed any sensitivity to the prices for incoming calls. And even though technology and customer behavior may change over time, Ofcom found no compelling evidence that such changes would occur by 2011, which is last year covered by the conclusions of the March 2007 MCT Statement.⁸¹

Furthermore, Ofcom concluded that the relevant product market was “not as narrow as calls to individual subscribers or (phone) numbers of a given MNO because it appears that when a termination charge is paid there is no discrimination between the off-net termination charge for calls to subscribers of a given network (with the exception of ported numbers).” Finally, Ofcom concluded that there was no common pricing constraint as between the supply of MCT to other service providers and a MNO terminating calls between its own customers, that is to say, self-provided termination and termination provided to other operators are not in the same market.⁸²

2. Existence of SMP

Having concluded identifying the relevant markets, Ofcom turned its attention to determining whether a MNO had SMP in its market. We begin by analyzing how Ofcom defined SMP. We then turn our attention to how Ofcom applied its definition of SMP in the immediate proceeding.

⁸¹ Id at 3.165.

⁸² Id at 3.165.

Defining SMP. Ofcom began its development of a definition for SMP with the European Union (EU) policies on the topic. More specifically, the EU has defined SMP for determining appropriate *ex ante* regulation so that it is equivalent to the EU concept of dominance in competition. As quoted by Ofcom, Article 14(2) of the EU Framework Directive states that:

“An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.”⁸³

Further as quoted by Ofcom, Article 14(3) of the Framework Directive states that:

“Where an undertaking has significant market power on a specific market, it may also be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking.”⁸⁴

Based on these directives from the EU, Ofcom concluded that in the relevant market, one or more firms may be designated as having SMP, separately or jointly, where any firm or firms is dominant. Also, a firm could be found to have SMP if it could strengthen its market power in the relevant market by leveraging its market power from a closely related market into the relevant market.⁸⁵

The European Commission (EC) had issued guidelines for market analysis for determining SMP, which Ofcom followed.⁸⁶ As quoted by Ofcom, the EC’s Guidelines state that:

⁸³ Id at 4.21.

⁸⁴ Id. at 4.22.

⁸⁵ Id at 4.23.

⁸⁶ Id at 4.25.

“NRAs⁸⁷ will assess whether the competition is effective. A finding that effective competition exists on a relevant market is equivalent to a finding that no operator enjoys a single or joint dominant position on that market.’ [Paragraph 19]”⁸⁸

and

“NRAs will conduct a forward looking structural evaluation of the relevant market, based on existing market conditions. NRAs should determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable, by taking into account expected or foreseeable market developments over the course of a reasonable period. The actual period used should reflect the specific characteristics of the market and the expected timing for the next review of the relevant market by the NRA. NRAs should take past data into account in their analysis when such data are relevant to the developments in that market in the foreseeable future.’ [Paragraph 20]”⁸⁹

Market shares are a common metric for assessing market power, especially in the

European context. Ofcom also quoted the EC on this matter:

“...Market shares are often used as a proxy for market power. Although a high market share alone is not sufficient to establish the possession of significant market power (dominance), it is unlikely that a firm without a significant share of the relevant market would be in a dominant position. Thus, undertakings with market shares of no more than 25% are not likely to enjoy a (single) dominant position on the market concerned. In the Commission's decision making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40%, although the Commission may in some cases have concerns about dominance even with lower market shares, as dominance may occur without the existence of a large market share. According to established caselaw (sic), very large market shares — in excess of 50% — are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position...’ [Paragraph 75]”⁹⁰

and

“It is important to stress that the existence of a dominant position cannot be established on the sole basis of large market shares. As mentioned above, the existence of high market shares simply means that the operator concerned might be in a dominant position. Therefore, NRAs should

⁸⁷ A National Regulatory Authority (NRA) is a European national regulatory agency, such as Ofcom.

⁸⁸ March 2007 MCT Statement at 4.26.

⁸⁹ Id at 4.27.

⁹⁰ Id at 4.29.

undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power. In that regard, the following criteria can also be used to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers. These criteria include amongst others:

- overall size of the undertaking,
- control of infrastructure not easily duplicated,
- technological advantages or superiority,
- absence of or low countervailing buying power,
- easy or privileged access to capital markets/financial resources,
- product/services diversification (e.g. bundled products or services),
- economies of scale,
- economies of scope,
- vertical integration,
- a highly developed distribution and sales network,
- absence of potential competition,
- barriers to expansion.

A dominant position can derive from a combination of the above criteria, which taken separately may not necessarily be determinative.’ [Paragraphs 78-79]”⁹¹

Ofcom also cited an Expert Regulatory Group working paper on SMP that considered additional criteria, namely:

- Excessive pricing;
- Ease of market entry;
- Cost and barriers to switching;
- Evidence of previous anti-competitive behavior;
- Active competition on other parameters;
- Existence of standards/conventions;
- Customers’ ability to access and use information;
- Price trends and pricing behavior; and
- International benchmarking.⁹²

Consideration of Factors to leading to SMP. Ofcom determined to focus its analysis on the following issues:

- Market shares;

⁹¹ Id at 4.30

⁹² Id at 4.31.

- Absence of potential competition; the ease of market entry and the related criterion concerning the control of infrastructure not easily duplicated;
- Absence of countervailing buying power and the related criteria concerning the overall costs and barriers to switching; and
- Excessive pricing.⁹³

Ofcom's analyses of three of these four issues were brief. Analysis of the market share issue was straightforward; because each MNO was a market, each MNO had 100 percent market share by definition.⁹⁴ Regarding potential competition, under contestable market conditions the threat of potential entry can prevent firms from raising prices above competitive levels. However, as Ofcom noted, barriers to entry prevent contestable market conditions and significant barriers to entry protect the each MNO's MCT.⁹⁵ Finally, Ofcom had already concluded that MCT prices were above competitive levels.⁹⁶

Ofcom also briefly considered a number of other issues, but found nothing that would lead the regulator to conclude that MNOs did not have SMP for MCT. However, the agency's consideration of countervailing buyer power was more extensive. We summarize Ofcom's consideration of that issue next.

Countervailing Buying Power and Related Criteria. Countervailing buyer power (CBP) refers to the bargaining power of a buyer in its negotiations with a seller. Ofcom argues that CBP "exists when a particular purchaser (or group of purchasers) of a good or service is sufficiently important to its supplier to influence the price charged for that good or service." The EC recognizes in its SMP policies that CBP may offset SMP in MCT.⁹⁷

Ofcom concluded that the appropriate test for CBP is whether a MNO can charge prices above competitive levels, i.e., whether a purchaser of MCT can constrain the

⁹³ Id at 4.33.

⁹⁴ Id at 4.36-4.38.

⁹⁵ Id at 4.39-4.42.

⁹⁶ Id at 4.45.

⁹⁷ Id at 5.2-5.3.

mobile operator from having the power to behave independently of competitors, customers, and consumers. So in a sense, Ofcom had already concluded that CBP did not exist because Ofcom found that MCT prices were above competitive levels, but Ofcom nonetheless performed an extensive analysis of CBP. Specifically, Ofcom considered BT's position as the largest purchaser of MCT and studied the contracts between MNOs and BT for MCT and the negotiations of certain price changes. In its analysis, Ofcom considered both regulatory factors and economic factors. Regarding economic factors, Ofcom considered whether a purchaser of MCT:

- a. represents an important outlet for terminating MNOs;
- b. is well informed and price sensitive;
- c. is able to exert bargaining strength by reason of reciprocity of trade;
- d. is able to draw on alternative sources of supply; or
- e. has the option not to purchase or to delay purchase.⁹⁸

Based on its review of contracts with BT, Ofcom concluded that regulation heavily influences BT's standard interconnection agreement, which applied to mobile voice call termination purchased by BT as well as almost all interconnection supplied or purchased by BT. This situation prevented Ofcom from observing whether BT was able to exercise CBP in negotiating interconnection arrangements with MNOs.

Ofcom rejected CBP for other reasons as well. For example, there was no reciprocity in negotiations between BT and the MNOs that provide MCT, which lessens any CBP that BT might have. Furthermore, BT and other carriers had no alternative sources of supply and could not self supply. BT also faced regulatory obligations to terminate calls on MNO networks.⁹⁹

⁹⁸ Id at 5.5-5.10.

⁹⁹ Id at 5.170-5.172.

Conclusions on SMP. Ofcom concluded that each MNO had SMP in the market for terminating calls over its own network. Ofcom's reasons included:

- The terminating MNO is the only operator that can terminate calls to its subscribers; therefore, each MNO has 100 percent market share.
- There did not appear to be any changes in the industry or technology that would change the situation.
- The high market share and the lack of any prospects for changing the market share strongly imply market power.
- Any CBP that does exist is insufficient to overcome each MNO's market power.
- The MNOs are able to sustain MCT prices significantly above a reasonable estimate of costs.¹⁰⁰

3. Possible Negative Impacts of Exercise of SMP

Having concluded that each MNO possessed SMP for MCT, Ofcom examined its options for regulatory response. Ofcom first examined the effect of no regulation. Then Ofcom looked into various regulatory responses. We examine these next.

Regulation versus no regulation. Ofcom concluded that the "no regulation" option would result in inefficient prices that would harm consumers. Ofcom considered whether above-cost MCT prices lead to below-cost retail prices – the so-called waterbed effect – and concluded that it was likely to be incomplete, allowing MNOs to retain some of the

¹⁰⁰ Id at 5.173.

excessive profits generated by MCT prices.¹⁰¹ Any inefficiencies created in the mobile networks were extended to the fixed line networks because of their dependence on MCT.¹⁰² Furthermore, because of their consumption patterns, low income groups are disproportionately disadvantaged relative to higher income groups by the inefficiencies created by the exercise of market power in MCT.¹⁰³ Finally, Ofcom was concerned that excessive MCT prices increased the risk of anticompetitive behavior because it gave the MNOs an instrument for discriminating against rivals.¹⁰⁴

C. Ofcom's Decisions

Having concluded that there were separate MCT markets for Vodafone, O2, Orange, T-Mobile and H3G, and that each of these five MNOs had SMP in its market, Ofcom decided that it would impose charge controls on MCT for each operator and those “controls should apply without distinction to voice call termination whether on 2G or 3G networks.” The controls would last from 1 April 2007 to 1 April 2011.¹⁰⁵

V. Japan's Approach to Competition and Market Analysis

In this section we examine Japan's approach to competition. In contrast to the U.S. and U.K. situations described above where we reviewed specific instances where regulators analyzed the intensity of market competition, our study of the Japan situation will focus on steps the country took to increase competition.

¹⁰¹ *Id.* at 7.70.

¹⁰² *Id.* at 7.71.

¹⁰³ *Id.* at 7.72.

¹⁰⁴ *Id.* at 7.73.

¹⁰⁵ *Id.* at 1.10.

A. Development and Restructuring of NTT

NTT was established as a public corporation, wholly owned by the state, shortly after the conclusion of World War II. It was given a monopoly over domestic services, but a separate corporation, Kokusai Denshin Denwa (KDD), was given a monopoly over international services. (Kushida, 2006) In part because of political struggles within Japan and in part because of a growing trend towards liberalization around the world, Japan partially privatized NTT in 1985¹⁰⁶ and authorized the Ministry of Posts and Telecommunications (MPT) to license rival carriers (called New Common Carriers or NCCs) for domestic long distance service. (Kushida, 2006; Murase, 2001) According to Murase (2001), competition from the NCCs drove NTT's prices downward: In 1985 NTT charged \$4.00 for a 3-minute weekday call from Tokyo to Osaka. But by 1998 the NCCs had captured over 50 percent of all inter-prefectural calls and NTT had lowered its price for this call by over 75 percent to \$0.90. During this period, the number of NCCs increased from zero in 1985 to 33 in 1996. (MPHPT 2002)

From 1985 through much of the 1990a – an era referred to as controlled competition by Vogel (1996) – Japan adopted additional policies to promote competition. For example in late 1997 the country established rules on interconnection, including introduction of general obligations for carriers to interconnect with other networks.¹⁰⁷ (MPHPT, 2002) The impetus for this policy came from the NCCs, who claimed in 1995 that NTT discriminated against them by taking an unreasonably long time to establish network connections. Furthermore, the NCCs pointed out that NTT's interconnection

¹⁰⁶ In 1985, Japan's teledensity (37.57 mainlines per 100 population) and growth rate in teledensity (3.2) were below the OECD averages (39.23 and 4.2 respectively). (OECD, 1991)

¹⁰⁷ It also lifted foreign ownership restrictions in February 1998, except for NTT and KDD, and loosened its retail regulation of telecommunications prices later that year. (MPHPT 2002)

prices were high: They spent 40% to 60% of their revenue on interconnection charges. (Keiko, 2000, p. 155) According to Suda (2005), in November 1997, “Japan implemented a new Telecommunications Business Law that required NTT to provide interconnection with NCCs upon their request. The revised law also required NTT to ‘establish articles of interconnection agreement which set forth the amount of money which said Type I telecommunications carrier will receive’ and also ‘terms and conditions of interconnection’ with each NCC.” In implementing the legislation, Japan also established guidelines, procedures, and timelines for collocation. (MPHPT 2002)

Another major step that the Japanese government took to secure interconnection was the implementation of the LRIC (long-run incremental costing) methodology. This methodology is generally held to be superior to other methods because it sets the interconnection price based on economic costs. Prior to this methodology, the calculation of interconnection fee was based on historical costs. The introduction of the LRIC methodology resulted in a substantial reduction of NTT’s interconnection charges, which led to increases in the NCCs’ market share in long-distance.

The restructuring of NTT was accomplished in 1999. Although the issue had been seriously discussed prior to the time of privatization, it wasn’t until the mid 1990s that the idea had gained enough political support to become a reality. In its 1990 review of NTT’s status, MPT sought the breakup of the company to facilitate extending the competition that had developed in long distance to the local telecommunications markets. However, NTT was able to resist the initiative with the help of its labor union, business interests in the country, and the Japanese ministries of finance and of international trade. (Murase, 2001) The debate over the proposed breakup both raged and waned until 1996 when MPT

and NTT negotiated an agreement that would divide NTT as an organization, but governed by a single holding company.¹⁰⁸ From a policy perspective, the restructuring of NTT was to:

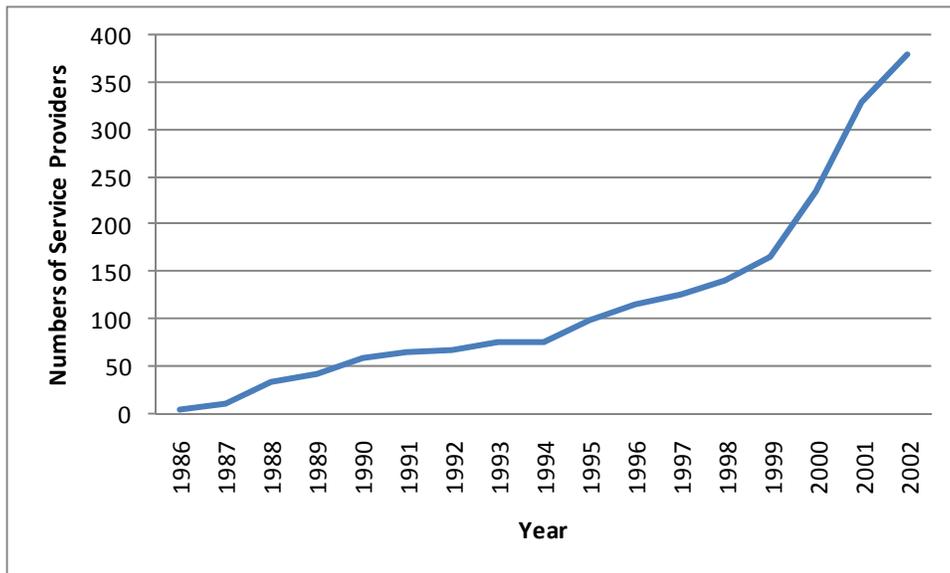
- (1) Promote fair and effective competition by introducing “yardstick” competition in the local call market and direct competition in the long-distance national call market.
- (2) Strengthen international competitiveness by introducing a new NTT long-distance company to enter the international call market.
- (3) Promote R&D activities with abundant research funds and able personnel.
- (4) Lower interconnection rates and provide diversified services. (Kagami and Tsuji, 2000, pp. 172-173)

This organizational breakup was possible politically because Prime Minister Hashimoto and other political leaders saw it as necessary to secure MPT’s cooperation in allowing NTT to compete internationally. The political leaders thought NTT’s entry into the international markets was important because all of the other major telecommunications operators around the world were entering into global mergers and alliances, leaving NTT increasingly isolated. (Kushida, 2006; Jamison, 1998)

The breakup divided NTT into a holding company with three subsidiaries, including long distance and international and two regional local carriers – NTT East and NTT West. The final agreement was brokered by Hashimoto and other political leaders, but kept secret and announced suddenly to avoid public debates. (Kushida, 2006; Murase, 2001; MPHPT, 2002)

¹⁰⁸ Prior to this time, holding companies had been illegal since World War II. (Kushida, 2006)

Japan's efforts appear to have stimulated entry into the country's telecommunications markets, with the largest growth corresponding in time with the establishment of interconnection policies and the restructuring of NTT. Following the resolution of interconnection policies, the number of regional carriers increased from 28 in 1997 to 329 in 2002 and the number of long distance carriers increased from 5 in 1997 to 33 in 2002. The number of mobile¹⁰⁹ and paging service providers actually decreased during this period, from 80 in 1997 to 9 in 2002. (MPHPT, 2002)



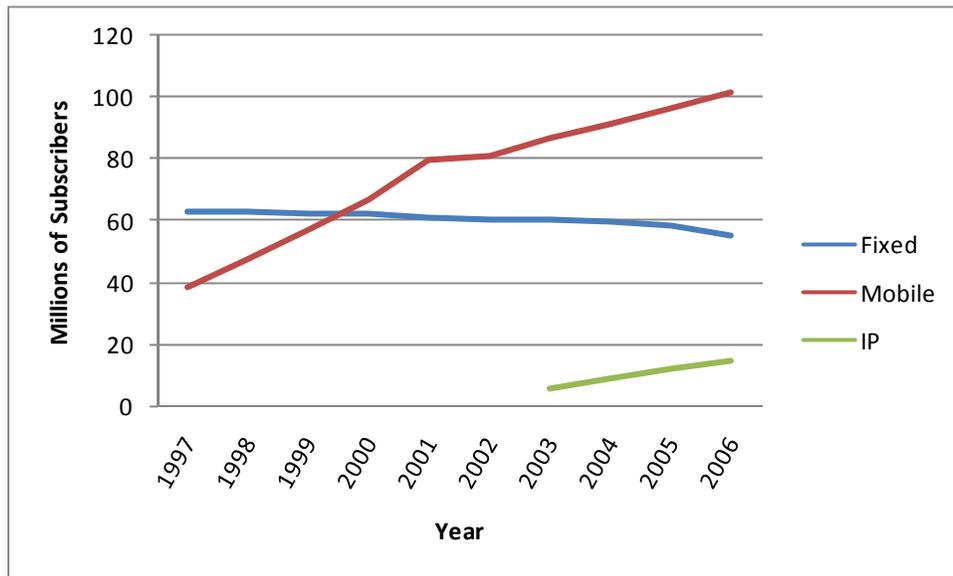
Graph 1. Numbers of Telecommunications Providers in Japan, 1986-2003 (MPHPT, 2002)

C. Current Status of Japan's Telecommunications Markets

Japan's is experiencing telecommunications trends that are similar to those of other countries, namely that mobile is replacing fixed line for voice and VoIP is also contributing to the decline of fixed service. By the end of fiscal year 2006, the number of

¹⁰⁹ Mobile includes cellular and Personal Handy-phone System or PHS.

mobile communications subscriptions (101.70 million subscriptions) had increased to 1.8 times that of fixed communications subscriptions (55.15 million subscriptions).¹¹⁰ The total number for IP telephone use at the end of fiscal year 2006 was 14.33 million. Telecommunications revenue in Japan reached 145.767 trillion yen in 2004, which was a 10.7 percent decrease from the previous fiscal year. (MIAC, 2007)



Graph 2. Numbers of Subscriptions for Fixed, Mobile, and IP Telephony in Japan, 1997-2006 (MIAC, 2007)

Prices are also decreasing. The standard rate for a 3-minute local call was approximately 8 yen, a 20 percent decrease compared to 1985. Actual prices paid are even lower because of the introduction of discount pricing plans. (MIAC, 2007)

¹¹⁰ “Current Status of Information and Communications” Chapter 2:
<http://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2007/chapter-2.pdf>

D. Role of the WTO Basic Telecom Agreement in Japan's Policy Changes

The World Trade Organization (WTO) basic telecommunications agreement focused on liberalizing telecommunications services through removal of barriers to entry, nondiscrimination, interconnection, and regulatory independence. Participating countries committed to the agreement were to remove barriers against foreign entry to domestic markets, such as foreign investment restrictions. In addition, many participating countries endorsed the Reference Paper.¹¹¹ In terms of interconnection fees, the Reference Paper states that interconnections should be provided “in a timely fashion, on terms, conditions . . . and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled.” Japan committed to the Basic Telecom Pact and that endorsed the Reference Paper. These agreements obligated Japan to open its telecom service market to foreign market and also to follow specific pro-competitive regulatory policies. Steps like this furthered Japan's telecommunications deregulation and liberalization.

E. DSL Unbundling

In addition to the NTT restructuring and other market reforms, the Japanese government was determined to promote telecommunications development by setting specific targets for high speed internet access, known as “e-Japan strategy”.¹¹² The target specified that there should be 30 million DSL and cable modem households and 10

¹¹¹ The Reference Paper provides a set of common regulatory principles for countries to follow to promote liberalization. Specifically, the Reference Paper addresses six areas of telecommunications regulation: (a) competitive safeguards, (b) interconnection, (c) universal service, (d) public availability of licensing criteria, (e) independent regulators, and (f) allocation and use of scarce resources.

¹¹² This was changed to a u-Japan strategy around 2005 to emphasize the government's focus on creating a Ubiquitous Network Society. Ministry of Internal Affairs and Communication web site http://www.soumu.go.jp/menu_02/ict/u-japan_en/new_outline01.html, visited April 15, 2008.

million fiber to the home (FTTH) households by 2005.¹¹³ In response to these targets, the Ministry of Internal Affairs and Communication (MIC) became very active in formulating policies and interacting with NTT to ensure a favorable market environment for new entrants.

In 2000, the MIC recommended that NTT develop administrative and technical procedures to facilitate entry by rival ADSL service providers. For example, in August 2000, NTT opened its central offices to allow entrants to install DSL multiplexers, which modulated signals onto local phone lines, without the help from NTT technicians. Before, entrants have claimed that NTT had deliberately delayed this work and had charge large amounts for the work. In December 2000, the line-sharing charges were lowered to ¥187 per line per month (less than \$2) from ¥800 in 1999.¹¹⁴ In December 2000, NTT began offering entrants the opportunity to lease its unused fiber trunks. A final breakthrough occurred in January 2001, when the regulation was abolished that had required licensed NTT technicians to install ADSL modems. Since such installation did not require any special technical skills, the lifting of this regulation reduced the delay new subscribers would experience between requesting and receiving service.

A prominent player in the development of Japan's DSL policies was the founder of eAccess, Sachio Semmoto, who had 30 years of experience in telecommunications industry starting as an engineer at NTT. Together with Eric Gan, a Goldman Sachs analyst, Semmoto launched eAccess, which became one of the most prominent DSL providers in Japan.

¹¹³ The actual achievement was 46.3 million DSL and 35.9 million FTTH households. MIC web site http://www.soumu.go.jp/menu_02/ict/u-japan_en/new_outline01.html, visited April 15, 2008.

¹¹⁴ eAccess, Ltd. 2005 President and Fellows of Harvard College. Harvard Business School Case No. 9-805-117, page 5.

F. The Political Context

As in most countries, the political context in Japan affected its development of telecommunications policies. According to Kushida (2006), Japan's approach has been path dependent: "political bargains create actors, institutions, and particular market configurations. The institutions and market configurations shape the actors' interests. The interaction of these actors, institutions, and interests shapes subsequent political bargains." Path dependency would hardly appear to be unique to Japan, but it does point to the need to examine the political context for Japan's policy changes.

According to Suda (2005), Japan is like most countries in that the regulatory agency, the industry, and the consumers are all players in the policy process. But Suda believes that consumers are not effective players. "According to the logic of collective action, users are much less capable of pursuing their common interests than the industry is. Since users make up an extremely large group, the fraction of the total benefit a single member receives is too small to induce anyone to act for the interests of the group as a whole."¹¹⁵ It is therefore reasonable to conclude that telecommunications policy results from bargaining between the government and the telecommunications industry and that the resulting policy will favor the regulated industry over users." (Suda 2005) (Footnotes in original)

Suda (2005) also observes that the politics of telecommunications regulation in Japan did not follow the ways that had been predicted before. (Suda, 1999) He states: "First, MPT telecommunications policy does not necessarily reflect NTT's preferences. On the contrary, the MPT has attempted to weaken the power of NTT. Second, large

¹¹⁵ Mancur Olson, *The Logic of Collective Action* (Cambridge, Mass.: Harvard University Press, 1965), pp. 44–50.

users of telecommunications — such as internationalized manufacturers and financial institutions — are organized as the Japan Federation of Economic Organizations (Keidanren).¹¹⁶ Large business users thus are able to overcome the problem of collective action and further their collective interests, i.e., lowering telecommunications charges.” (Suda 2005)

G. Conclusions Regarding Japan

Compared with agencies in the United States and the United Kingdom, the focus of the Ministry of Internal Affairs and Communication has not been on quantitative measurement using concentration ratios, Herfindal indices, or SSNIP tests. Rather, WTO requirements and re-alignment of political pressures led to an incremental approach to reform. Nevertheless, the techniques and tools utilized in the US and UK could certainly be applied to the Japanese market.

Keys to Japan’s successes appear to be removal of barriers to entry and lowering interconnection and DSL line fees. The reform of the interconnection fees and the participation in the WTO agreements on telecommunication were partly in response to the U.S. pressure. The overall driver of Japan’s reform on interconnection was from the global market pressure. One implications of this is that globalization may give an impetus to regulatory reform. Even though a comprehensive cross-sectoral comparison is beyond the scope of this paper, Japan has “moved furthest in areas in which market pressures are

¹¹⁶ Keidanren was amalgamated with the Japan Federation of Employers’ Association (Nikkeiren) in May 2002 into the Japan Business Federation (Nippon Keidanren).

the greatest.”¹¹⁷ With the market globalization and its prolonged economic recession, Japan is likely to continue to accelerate its market reforms.

VI. Conclusion

The FCC and Ofcom decisions provide an interesting contrast in regulators’ approaches to analyzing market competition. Both regulators depended on the traditional approach -- first defining the market, then analyzing the competitiveness of the market, and lastly structuring appropriate remedies. In addition, both used similar analytical tools. Yet they differed in how precedents affected their decisions and in the nature of their investigations.

Consider the two cases. For the FCC, many of the decisions that it needed to make to decide whether AT&T was non-dominant had been made in earlier proceedings that were not focused on AT&T. Decisions on market definition, on the definition of dominance, and on the appropriate regulatory response to a finding of non-dominance had been made in proceedings that had focused on AT&T’s rivals, where the FCC’s primary interest was in developing policies that would allow these rivals the flexibility needed to compete with AT&T. However it does not appear that making key policy decisions in that context had a negative impact on the FCC’s decision making. In contrast, even though Ofcom had previously considered the question of whether MCT was competitive, it constructed new analyses for defining markets, identifying SMP, and creating appropriate remedies.

¹¹⁷ Steven K. Vogel, “The Crisis of German and Japanese Capitalism: Stalled on the Road to the Liberal Market Model?” *Comparative Political Studies* 34:10 (December 2001), p. 1129.

In one sense the policies that the EU had been developing on MCT and on SMP in general might have guided Ofcom in the same way that the FCC's previous decisions had guided its process; however there was a difference in how the regulators treated their situations. The FCC examined whether there was evidence that it should change any of its previous decisions. This approach reflected the FCC's independence and its tendency to not change policy without evidence that facts had changed. In the case of Ofcom, it needed to fully consider all of its decisions because the EU's policies were developed based on considerations beyond the U.K. market and because Ofcom needed to develop its own factual foundation for its decision.

The two regulators also had different situations with respect to the stakeholders in their cases. Both had situations where significant industry players had opposing perspectives. In the U.S. case, AT&T's rivals and the BOCs had views that differed from those of AT&T. In the U.K. case, BT as a fixed line operator was a significant purchaser of MCT. However, the exact natures of the industry player interests were different in the two countries. In the U.S., the BOCs had a strong interest in demonstrating that the U.S. long distance market was not competitive to bolster their cases for being allowed to compete with AT&T. AT&T's rivals, while desiring to keep AT&T under some degree of regulatory control so as to limit the company's ability to compete, nonetheless had to be careful in how they made their case so as to avoid developing a case for the government to release the BOCs to enter the interLATA long distance market. In the U.K., while it could be argued that BT might have had an interest in an Ofcom finding that terminating calls is a competitive market, BT appeared to act primarily as a consumer in the proceeding.

The Japanese case, although of a different type than the AT&T or Ofcom cases that we review, has many features in common with these other cases. Barriers to entry played a key role in all three cases. Removal of these barriers set the stage for AT&T's non-dominance and for the significant number of entrants in Japan. In contrast, in the U.K. case, Ofcom specifically noted that the persistence of barriers to entry in the MCT market led the regulator to conclude that the market was not competitive at the time of the review and was unlikely to become so in the near future. Restructuring played prominent roles in both the U.S. and the Japan case. The breakup of AT&T had left the company with no bottleneck facilities with which to affect competitors and this fact was important in the FCC's finding that the company was no longer a dominant provider of carrier services. The restructuring of NTT, although much less severe than the AT&T divestiture, nonetheless was an important policy for MPT. It allowed the country to get past some policy roadblocks, such as NTT's entry into international markets. While it is clear that a significant number of new entrants formed about the time of the NTT restructuring, more detailed analysis would be needed to determine the precise role that the restructuring played in promoting entry.

Another lesson from these cases is that liberalization can be "path-dependent". Unique historical features and national priorities shape the evolution of competition policy. The technological opportunities today (and the particular technological platforms available to incumbents and entrants) affect the strategies of stakeholders. The context which constrains policies today differs from that in the 1980s and 1990s. Wireless, broadband, and other innovations create new landscapes for those developing and

implementing policy. However, the fundamental issues of market definition and market dominance are unchanged.

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