Universal Telecommunications Service in China: Trade Liberalization, Subsidy, and Technology in the Making of Information Equality in the Broadband Era

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I. INTRODUCTION

In the Information Age, promoting access to communications technology is the primary policy tool to enable citizens to participate in economic, political, and social activities. At the 2000 Asia-Pacific Economic Cooperation (APEC) meeting, the major concern expressed by developing economies was their inability to take advantage of emerging info-communications technology. This inability underscores the importance of greater “digital inclusion,” defined as...

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1 Signs of the Times, ASIAWEEK, Nov. 24, 2000, at 16.
bridging the gap between individuals and groups, as well as among economies. Similar concerns have been addressed in other regional organizations, such as the Association of Southeast Asian Nations (ASEAN), which in 1999 formed the E-ASEAN task force to develop advanced communications technology and narrow the “digital divide” between ASEAN members and non-ASEAN developed countries. Indeed, mechanisms have been employed to promote greater access to communications technology on international, regional, and national levels. This article is a theoretical discussion and empirical analysis focusing on one of the most digitally divided nations in the world, China, and its “promoters” of tele-density: international economic law, Chinese domestic regulations, and new technology.

As of today, a “universal service” obligation for telecommunications service providers has not been completely established in China. How should China “transplant” universal service regulations from foreign jurisdictions? To what extent should China do so? These are challenging questions, especially since the concept of universal service obligation is dynamic. In fact, it has changed over time, and will continue to do so. The term “universal service” was the justification used by AT&T for promoting an interconnection policy that would lead to a single monopoly network. The concept has since evolved to mean offering basic telecommunications services to all customers at an affordable price supported by subsidies in a competitive market. This article explores the way universal service is understood in China. It offers an analysis of how market-driven competition, the subsidy mechanisms under the universal service policies, and the emerging wireless broadband network can function together to promote affordable telecommunications services in China.

Telephone/internet penetration gaps in China are affected by a complex array of factors and must be investigated with rigor and caution. Part II of this article discusses one of the most pressing challenges facing the Chinese government in the Information Age: the tensions between “closing the digital divide” and “centralized control over information.” Part III constructs an analytical framework to better understand, from a Chinese perspective, the role of the World Trade Organization (WTO) Agreement on Basic Telecommunications, the Chinese Telecommunications Regulations, and their respective roles in the establishment of information equality in the broadband era. Finally, Part III also considers the digital divide in China with a specific emphasis on three possible legal and technological solutions: market-driven competition, a universal service subsidy, and third generation wireless technology.

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3 “One Policy, One System, Universal Service” is a slogan coined in 1907 by Theodore Vail, the President of AT&T/Bell Systems. At the time, Bell Systems controlled almost the entire telephone system, having a monopoly in long distance service and telephone equipment, and more than half of the market share in local service. Vail intended for “universal service” to end competitive wars with independent telephone companies, claiming that the telephone system was a natural monopoly, and that Bell can “fund” Universal Service by cross-subsidization—keeping local rates artificially low and setting long distance rates artificially high. THOMAS G. KRATTENMAKER, TELECOMMUNICATIONS LAW AND POLICY 350-51 (2nd ed. 1998). *See generally id.* at 463-70 (examining U.S. legislative responses to “universal service”).
II. DEFINING THE “COMMUNICATION EXCLUSION” IN CHINA

A. The Dilemmas

All over the world, countries are enthusiastically at work constructing both internal and external telecommunications infrastructure. Governments have played an essential role in the spread of modern communications innovations and, for its part, the Chinese government is striving to ensure that China capitalizes on, and implements, the most recent advancements. As digitization revolutionizes telecommunications networks, however, China also faces several dilemmas. New communications technologies empower people, and at the same time, reduce the power of the state. Thus, rapid development of the Chinese telecommunications industry raises tensions between “closing the digital divide” and “centralized control over information,” and between a “monopoly-based” telecommunications policy and a “market-driven” competitive scheme.

Over the last few centuries, China’s technological lag has prevented it from achieving superpower status. By all accounts, up until the Ming Dynasty (1368-1644 A.D.), China had been technologically superior to the West for centuries. With the Industrial Revolution, however, the western world catapulted past China and built the foundations for what would later become the “Dot com” information revolution. Meanwhile, China remained a “closed door” isolationist, which caused its economy to lag behind for decades. Now, information

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4 Taiwan’s Directorate General of Telecommunications (DGT), for example, has been working actively to liberalize the telecommunications market with the aim of accelerating broadband network construction by opening markets. In addition, the DGT is speeding up the opening of public land to be used by telecommunications operators for network construction, in order to accelerate the construction of broadband networks. See generally THE ANNUAL REPORT 2001, Directorate General of Telecommunications (DGT), Ministry of Transportation and Communications, ROC. Moreover, in the case of Japan, the government began to privatize the government-owned NTT (Nippon Telegraph and Telephone Company) in 1986. As part of the nation’s telecommunications deregulation package, government becomes a minority shareholder of NTT and foreigners are allowed to purchase shares. Canada, as another example, has been liberalizing its telecommunications sector over the last decade. Restrictions on obtaining licenses to submarine cables have been removed and Teleglobe’s monopoly (Canadian telecommunications carrier on overseas service) was eliminated in 1998. See Shin Cho et al., Competition and Deregulation: An APEC Perspective, in UNFINISHED BUSINESS: TELECOMMUNICATIONS AFTER THE URUGUAY ROUND 155 (Gary Hufbauer et al. eds., 1997) [hereinafter Shin, Competition].

5 In 1836, Thomas Carlyle wrote “he who first shortened the labor of copyists with the device of movable types was disbanding hired armies and cashiering most kings and senates, and creating a whole new democratic world.” Cherie Steele & Arthur Stein, Communications Revolutions and International Relations, in TECHNOLOGY, DEVELOPMENT, AND DEMOCRACY 35 (Juliann Emmons Allison ed., 2002).

6 See generally JOHN KING FAIRBANK & MERLE GOLDMAN, CHINA A NEW HISTORY, 88-107 (1998). “[F]rom 1000 to 1500 A.D. ‘no comparison of agriculture productivity, industrial skill, commercial complexity, urban wealth, or standard of living (not to mention bureaucratic sophistication and cultural achievement) would place Europe on par with the Chinese empire.’” Id. at 2 (quoting Paul S. Ropp).

7 See id. at 2-3.

8 Jesse Parker, The Lotus Files: The Emergence of Technology Entrepreneurship in China and India, 26 FALL FLETCHER F. WORLD AFF. 119, 121 (2002).
technologies and their interactions are creating a growing “knowledge-based economy,” where information has become the major source of sustainable long-term competitive advantage. A report by the Organization for Economic Cooperation and Development (OECD) estimates that more than half of the total GDP in the economies of developed nations is now knowledge-based. In the Information Age, without due emphasis on promoting modern information technologies, China will once again fall behind the developed world and seriously temper the economic boom begun in the 1980s. The Chinese government has focused on maintaining rapid economic growth and raising standards of living as the nation's ultimate economic goals. However, neglecting the development and proliferation of communications technology will both hinder China’s ability to maintain rapid economic growth and ensure that China remains technologically inferior to the western world. The need for advanced communication technology in China is obvious: New telecommunications technologies enable individuals and communities to participate in society, provide a strategic advantage in the new information-driven economy, reduce inequality of social change, and offer individuals the opportunity for a higher quality of life. In the information era, “accessibility to” and the “availability of” technology is the key to bettering the lives of China’s 1.3 billion people.

China’s transition into the information era, however, poses significant challenges. While technological advances improve lives, at the same time, modern information technologies have a demonstrated democratizing effect. The political, economic, and cultural landscape of China is undergoing dramatic changes through millions of mouse-clicks. The Internet, which provides a public space for debate that is beyond state control, may be viewed as an instrument of communication with great potential for promoting free speech and other democratic principles.


15 For further analysis of the “democratizing effect” of the Internet, see ACLU v. Reno, 929 F. Supp. 824, 881 (E.D. Pa. 1996). “It is no exaggeration to conclude that the Internet has achieved, and continues to achieve, the most participatory marketplace of mass speech that this country-and indeed the world-has yet seen.” And, “individual citizens of limited means can speak to a worldwide audience on issues of concern to them.”

16 See Rod Allen & Nod Miller, *Panaceas and Promises of Democratic Participation: Reactions to New Channels, from the Wireless to the World Wide Web*, in TECHNOLOGY AND INEQUALITY 47-56 (Sally Wyatt et al., eds., 2000). In the case of broadcast media, bandwidth limitations have constrained access to the airwaves, and
Therefore, the communication revolution poses a clear challenge to the state. E-mail, fax transmission and the Internet will open the floodgates of information and let “uncontrolled sources” flow across the “boundary” of the state. Direct and unfettered access to foreign news will ultimately force the Chinese government to confront potentially sensitive issues. The collective memory of the role modern communications technology played in the 1989 Tiananmen Square Incident—the demonstrators made use of fax machines to transmit information—remains poignant, and it explains why the Chinese government now fears a far more powerful information technology tool—the Internet. The fact is that the Chinese people can now obtain information more freely than ever—they no longer need to rely exclusively on the government for news. The decentralization of information implied by modern communications technology means that it is more difficult for the state to exercise central control, and the population has increasing access to independent sources of information. Although the government still retains some control over online communications, the Chinese government’s periodic blockage of the websites of the New York Times, CNN, and the U.S. Embassy demonstrates that the Chinese government recognizes that its information monopoly is eroding. One example of diminished government control is the that the Chinese people can now watch the government suppressing Falun Gong on their computer monitor screens.

Another dilemma the Chinese government faces is the clear conflict between encouraging foreign investment in the telecommunications sector and maintaining state-monopoly control over the telecommunications infrastructure. First, the need to maintain residual power over media of communication must be reconciled with the State’s desire to promote the penetration of information technology. A more centralized telecommunications infrastructure is better suited to the Chinese government’s need for surveillance and censorship, given that the government routinely restricts the flow of information to the general public. Foreign management and therefore new media technologies have tended to be dominated by commercial or state interests. In the case of the Internet, however, it is possible for all citizens to be producers, provided that they have access to a computer that is connected to an internet service provider. Id.

17 See generally Steele & Stein, supra note 5.

18 Currently, Chinese authorities are still blocking thousands of Internet sites linked to dissidents, Taiwan, Tibet, and other subjects such as U.S.-based news webpages. See, e.g., China Blocking Thousands of Websites: Study, BUS. TIMES (SING.), Dec. 4, 2002, available at 2002 WL 103213307.

19 As the Internet has grown in its use and complexity, there has been a corresponding rise in the development of filtering and firewall technologies, which regulate access to information in the network to only authorized users. The technology is used by the Chinese government to regulate access to the Internet to only those sites that are approved by the state. New York Times, CNN, and Human Rights Watch are inaccessible in China.

20 Falun Gong, consisting of meditation and gentle exercises that are similar to Tai-chi, was introduced to the Chinese general public in 1992 by Mr. Li Hongzhi. The practice spread rapidly throughout the country. However, a core of Communist Party officials consider the popular Falun Gong a challenge to their ruling power. Human rights groups report that thousands of Falun Gong practitioners have since been killed. Information about Falun Gong is tightly controlled. For more information, see Fa Lun Da Fa Information Center, at http://www.faluninfo.net (last visited Jan. 19, 2003).

operation of the telecommunications service infrastructure will work, to some degree, against that need. Second, although the State needs to invest in a large-scale telecommunications service infrastructure, and foreign capital is more than readily available, openness to foreign investors and additional competition in the telecommunications industry may result in increased geographical inequality. The Ministry of Information Industry (MII) indicated in 2000 that as a whole the information industries would invest about U.S.$24.1 billion in infrastructure. This number, however, is significantly below both the rate of investment in the United States and the worldwide pace for increases in bandwidth. There is therefore little doubt that China needs an injection of foreign capital into the telecommunications infrastructure. However, market-driven competition will likely further asymmetric development—competing companies will concentrate their efforts on the profitable coastal regions and ignore the interior. Outlying areas, such as Xinjiang, have fewer customers over which to spread fixed costs and thus have inherently higher service costs. As a result, outlying regions of China are the least likely to be profitable in an exclusively competitive market-driven system. Wary of exacerbating existing disparities, the central government maintains that competition should remain an administrative or institutional development, not an uncontrolled, market-driven phenomenon.

B. The Digital Divide in China: From the Internal, Regional and International Perspectives

The “information explosion” has been widely publicized in China, and the media has

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22 See infra Part III.A.2.

23 China faces the problem of uneven development in different regions. It is possible for a tourist to mistakenly categorize China as a “developed country” by judging the nation from the magnificent skyline of Shanghai. However, while the eastern area of the country has rapidly developed during the last twenty years, the western region has lagged far behind. For general information about the disparity between east and west China, see http://www.chinaembassy-org.be/eng/11998.html (last visited Feb. 9, 2003).

24 Brace T. McIntyre, Let a Hundred Modems Bloom: The Internet in Today’s China, in CYBERPATH TO DEVELOPMENT IN ASIA: ISSUES AND CHALLENGES 73 (Sandhya Rao & Bruce C. Klopfenstein eds., 2002).

25 Id.


27 The Chinese government believes that competition should remain an administrative or institutional development. The government is suspicious, if not hostile to, truly autonomous social forces. See Mueller & Lovelock, supra note 21, at 743.
noted that China is now living in the “Information Age.” New technologies, however, may bypass some communities and regions of China, leaving a huge population of unconnected people beyond the margins of the information society. Currently, those who are connected to the Internet in China are part of an elite class of information “haves.” Given the unevenness of telephone access, the primary type of internet connection in China, most internet users live in the economic core of Beijing, Shanghai, Guangdong, and other coastal regions. The discrepancy between the coastal economic core and the interior continues to widen the economic and technological gap between the two regions.

The demographics of Chinese internet users and the glaring geographic disparities clearly demonstrate the increasing distance between information haves and have-nots. A July 2000 survey based on more than 24,000 randomly selected households in nine Chinese cities showed that the average Chinese home internet user is male, approximately thirty years old, and university-educated. As of January 2001, the core region, which has only 2% of the land and 8% of the population, accommodated more than 31% of China’s internet users. In the city of Shenzhen in Guangdong province, the average telephone penetration in 2000 exceeded 130 phone lines per 100 households (130%) while the average telephone penetration for the whole of China was approximately 20 lines per 100 households (20%).

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28 The Chinese government believes that competition should remain an administrative or institutional development. The government is suspicious of, if not hostile to, truly autonomous social forces. See Mueller & Lovelock, supra note 21, at 743.

29 See Bowie, supra note 14, at 37.

30 A demonstration of the uneven telephone access in China may be found in the government’s five-year plan announced in May 1994, which sought to increase the number of telephone lines to 120 million, serving 30% of urban and 5% of rural dwellers by the year 2000. Erika Wada et al., Telecommunications Services in the Asia Pacific Countries, in UNFINISHED BUSINESS: TELECOMMUNICATIONS AFTER THE URUGUAY ROUND 197 (Gary Hufbauer et al. eds., 1997).

31 For graphic material on the distribution of internet users in China, see Qiu, supra note 26.


33 The term “core region,” as used here, refers to the most urbanized, industrialized, and densely populated areas of China: namely Beijing, Shanghai, and Guangdong.

34 Qiu, supra note 26, at 166.

35 Shenzhen, China’s first Special Economic Zone (SEZ) established in 1979, is in the top ranks among mainland Chinese cities in terms of comprehensive economic power. From 1980 to 2001, the average annual GDP and average annual industrial output of Shenzhen increased 29.5% and 45.4%, respectively. For more information about Shenzhen, see Shenzhen, The Start of China’s Economic Reform, at http://www.sz.gov.cn (last visited Feb. 9, 2003).

36 Qiu, supra note 26, at 165.
Guizhou, telephone penetration stands at a mere 6%. While Shenzhen has been successfully constructing broadband villages, most provinces in southwestern China are still struggling to build the basic “village-village telephone interconnection project.”

The significant digital divide that exists in China should dampen optimistic thinking on technological empowerment in the country. The Internet is touted as a powerful means to level the disparities and inequalities that afflict people inside China, reducing the gap that separates the have from the have-nots in education, health, and income. The assumption is that internet can facilitate closer integration between the Chinese people and the West, thereby allowing the country to catch up with the developed world. But the reality is that most Chinese people still cannot access digital tools. Technology exclusion reduces the capacity of individuals to contribute to, and benefit from society and the economy in the digital world. In China, it is not information haves versus have-nots, but rather “cans” and “cannots.”

The income disparities among China’s different geographical regions and social classes have been growing, and the Internet further aggravates these disparities. To some extent, the digital divide is simply deepening existing forms of exclusion. As one commentator states “[t]hose who are unemployed, poor, housebound, disabled, less educated, members of cultural and ethnic minorities—and in many countries, women—are all likely to have restricted access to digital technologies, just as they are less likely to have access to other services and goods.” An industry insider notes that “[a] gap in the availability of internet access will have a multiplier effect and create an even more significant divide in critical areas such as education, job training, literacy, public health and economic prosperity.” From a regional perspective, Greater China, although integrated by economy, culture, and to some extent politics, is digitally divided. For example, in 2002 China averaged a 2% broadband penetration rate, while in Taiwan and Hong...
Kong the average broadband penetration is 25.3%.46 The following table illustrates this problem:

<table>
<thead>
<tr>
<th>Economy</th>
<th>Number of Millions</th>
<th>% of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>384.97</td>
<td>6.36%</td>
</tr>
<tr>
<td>People’s Republic of China</td>
<td>22.50</td>
<td>1.77%</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>2.6</td>
<td>37.92%</td>
</tr>
<tr>
<td>Republic of China (Taiwan)</td>
<td>6.26</td>
<td>28.84%</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.20</td>
<td>29.87%</td>
</tr>
</tbody>
</table>

This table demonstrates that China has a long way to go to catch up with its neighbors and bridge the digital divide within Greater China—Singapore, Taiwan, and Hong Kong. In addition to regional disparities within Greater China, the statistics also demonstrate a significant digital divide on the global level. By the end of 2001, OECD countries had more than 100 internet hosts for every 1000 inhabitants.48 The OECD estimates that 95.6% of the world’s internet hosts in 2000 were in its member countries. 49 Although the “World Wide Web” may no longer accurately be called the “World White Web,”50 as demonstrated in China and in many other developing countries, access is still far from universal. Pursuing universal telecommunications service in China is a challenging task, and the ultimate question is how to maximize the impact of trade liberalization, universal services subsides, and wireless technology in pursuing this goal. The next section explores these issues.

46 Chen Huifen, Wireless Technology Can Narrow the Digital Divide, BUS. TIMES (SING.), June 24, 2002, (citing to Strategic Intelligence’s white paper).


50 The “World White Web” description is used as one of the chapter titles in David Bolt’s work. Bolt is a documentary film producer with over fifteen years of experience and has worked on the cutting edge of technology and social issues. BOLT & CRAWFORD, supra note 41, at 97-120.
III. UNIVERSAL TELECOMMUNICATIONS SERVICE IN CHINA: LEGAL MECHANISMS FOR CLOSING THE DIGITAL DIVIDE

A. Is Competition a Solution? When the Free Trade Principle Confronts Traditional Universal Service Mechanisms

1. From Monopoly (and Cross-Subsidization) to Competition (and Market Forces)

The term “universal service” has a somewhat different meaning today than in 1908 when it was coined by Theodore Vail, the chief architect of the Bell system. Since Vail first advocated “one policy, one system, universal service,” the term “universal service” has been conceived as a single provider offering a single network to which all customers are connected. Cross-subsidization within a monopolized market has long been the traditional means of funding universal service activities. In the traditional scheme, the losses incurred on less lucrative activities are financed by income earned on more profitable ones—as the Bell system did in the United States.

Recent rapid changes in both telecommunications technology and policy, however, have liberalized markets in most countries. According to Vail’s model, competition will naturally flourish in high profit service areas, in turn generating the funds that support cross-subsidization. The price reduction for service in less-profitable areas, however, may eventually erode the funds to sustain cross-subsidies for universal service. Under the cross-subsidy system, the telecommunications enterprise is vulnerable if prices in low profit areas are not rebalanced to competitive levels. This vulnerability means that the modern tide of deregulatory changes may pose a significant threat to universal service. Cross-subsidies are in peril of being squeezed out of the rate structure because of robust competition. Without government aid, today’s have-nots...

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51 Peter W. Huber et al., Federal Telecommunications Law 12 (2d ed. 1999) [hereinafter Huber, Federal Telecommunications Law]. See also Gerald W. Brock, Telecommunication Policy for the Information Age: From Monopoly to Competition 63-66 (1994). Initial telephone service occurred under the Bell telephone patents. Service was not provided in the smaller towns or rural areas, nor was it provided outside of the densely populated core of the major cities. The fundamental Bell patents expired in 1893 and 1894, leading to the entry of many new competitors. Theodore Vail took control of the Bell System in 1908 and began an aggressive program to restore Bell dominance through “patent control, purchase of independent telephone companies, and support of limited regulation as a substitute for competition.” Id. at 65.

52 Id. at 12.

53 Krauttenmaker, supra note 3, at 349-50.

54 Japan, for example, agreed to remove long-standing foreign equity limits on Type I carriers and radio-based services in 1996, leaving only two companies, KDD and NTT, with foreign equity limits. Shin, Competition, supra note 4, at 210. South Korea, as another example, permitted competition in wire-based telephone services in 1997. Id. at 218.

55 Generally, the cost of providing service per subscriber is lower in more densely populated areas. Under the regime of “cross-subsidization,” the losses incurred in some areas are offset by income earned in other profitable areas. However, in a competitive environment, profit-motivated telecommunications carriers would be forced to charge high rates in rural areas. In addition, telecommunications carriers will focus on serving high-usage...
will eventually be excluded from the Information Age because telephone companies will supply service only to high-income areas.

In fact, if Vail’s model holds true, the emerging trend of industry liberalization seriously threatens universal service. Competition and the traditional method for pursuing universal service are fundamentally at odds with one another. The National Association of Regulatory Utility Commissioners (NARUC) uses a metaphor to describe the inherent incompatibility between competition and the traditional method to finance universal service: “regulators are like the captain of a ship with a universal service engine propelling the ship in one direction, while a competition engine pushes the ship in another direction.” While cross-subsidies function by maintaining prices below economic costs (in some areas), the principle virtue of competitive market forces is that prices are ultimately driven to an economic equilibrium through the unaided operation of the invisible hand. Because of this inherent incompatibility of competition and cross-subsidization, legislators and regulators are forced to choose between fundamentally different policy regimes.

Does increased competition offer China a solution to its digital dilemma? Can competition, as requested by WTO’s developed member countries, foster rather than erode universal telecommunications service in China? To what extent can telecommunications liberalization result in lower prices for telephone/internet access and thereby promote universal service in China? Should the Chinese government rely exclusively on market mechanisms to promote the diffusion of basic and advanced telecommunications services? The following sections will attempt to respond to those concerns.

2. The WTO Agreement on Basic Telecommunications: The Trends of Telecommunications Trade Liberalization

The establishment and growth of the WTO is intended to promote economic globalization and trade liberalization. The WTO, responding to the reality of increased economic interdependence, is actually the globalization of economic regulation. The telecommunications industry, of course, is not free from the coercive forces of globalization. The WTO Basic Telecommunications Agreement is the first multilateral agreement geared toward global liberalization of the telecommunications industry. Talks concerning the Basic businesses in dense urban areas (the “profitable cream” of telecommunications customers), not rural areas or low-usage households. This is the so-called “cream-skimming” or “cherry-picking” effect. See generally Stuart M. Benjamin et al., Telecommunications Law and Policy 631-32 (2001).

See id.


See infra Parts III.A.2 and III.B.2-3.


The WTO Basic Telecommunications Agreement, was enacted as the Fourth Protocol to the General
Telecommunications Agreement concluded in February 1997 and spawned new commitments and reaffirmed old obligations for members in their basic telecommunications sectors.\(^{61}\) The Agreement consists of a series of commitments by the WTO members to open their markets for basic telecommunications services and to abide by the General Agreement on Trade in Services (GATS) principles for each sector of the market in which they have made commitments.\(^{62}\) In the agreement, each country submitted its offer for a schedule of commitments listing the service sectors it commits to open, including limitations on market access or national treatment, or exemptions from Most-Favored-Nation (MFN) treatment.\(^{63}\)

Sixty-nine WTO members made market access commitments under the agreement, representing approximately 95% of telecommunications revenues worldwide.\(^{64}\) The commitments of fifty-five countries included the reference paper on pro-competitive regulatory principles, which are designed to prevent anticompetitive conduct, to make licensing criteria publicly available, to allocate and use scarce resources including frequencies in a transparent and nondiscriminatory manner.\(^{65}\) The major proponent of the telecommunications annex was the United States, whose goal was to open the world market to U.S. carriers and service providers, and through open markets, to foster greater competition.\(^{66}\) This goal was not particularly surprising given that trade officials typically serve their nation’s commercial interests by guarding domestic markets while pressing for a more level competitive playing field elsewhere, including the reduction of barriers or impediments to market access.\(^{67}\) Given the nature of the industry, the Telecommunications Agreement is at once both a telecommunications policy issue and a trade-in-services issue.\(^{68}\)

\(^{61}\) Id.

\(^{62}\) Id.

\(^{63}\) Id.


\(^{65}\) The WTO Reference Paper was designed to curtail anticompetitive practices. It highlights the following principles: (1) Competitive safeguards to ensure the dominant suppliers do not engage in anticompetitive cross-subsidization; (2) Interconnection to ensure that competing service providers can interconnect with the dominant operator (former monopoly); (3) Universal Service; (4) Transparency of licensing criteria; (5) Independent regulator; (6) Allocation and use of scarce resources. Negotiating Group on Basic Telecommunications, http://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm (Apr. 24, 1996) [hereinafter Reference Paper].


\(^{67}\) See Mark Naftel & Lawrence J. Spiwak, The Telecoms Trade War 123-46 (2000).

\(^{68}\) Harvey Zuchman et al., Modern Communications Law 431 (1999).
In China, telecommunications policy and international trade policy are very closely intertwined. Despite China’s enormous demand for capital to build its telecommunications infrastructure, China’s telecommunications services sector was closed to foreign direct investment during the 1990’s. Although the Chinese government recognized the importance of information and telecommunications services to China, it imposed the world’s tightest restrictions on foreign investment in telecommunications services, banning foreign businesses from owning, operating, or managing telecommunications services in China.\(^\text{69}\) China’s closed-door policy in telecommunications services played a major role in its negotiations to enter the WTO. Member countries made the opening up of telecommunications services a major point of contention.\(^\text{70}\)

In 1999, following Prime Minister Zhu Rongji’s visit to the United States, China agreed to partially open its telecommunications services sector to foreign investment. In Chinese domestic basic telecommunications services, including voice services, packet-switched and circuit-switched data transmission services, foreign service suppliers are now permitted to establish joint venture enterprises without quantitative restrictions and to provide services in and between the cities of Shanghai, Guangzhou, and Beijing.\(^\text{71}\) However, according to China’s deregulation schedule, foreign investment in telecommunication joint ventures shall account for no more than 25% of total investment within three years after China’s accession to the WTO.\(^\text{72}\) Within five years after China’s accession, the areas open to foreign investment will be expanded to include services in and between Chengdu, Chongqing, Dalian, Fuzhou, Hangzhou, Nanjing, Ningbo, Qingdao, Shenyang, Shenzhen, Xiamen, Xi’an, Taiyuan and Wuhan. In these areas, however, foreign investment shall be no more than 35%.\(^\text{73}\) Within six years after accession, there will be no geographic restriction on foreign investors, but foreign investment shall be no more than 49% of total investment in China’s telecommunications industry.\(^\text{74}\)

As IBM President Lou Gerstner has stated, the first goal of governments seeking to bridge the digital divide should be to liberalize their telecommunications infrastructures and actively endorse the WTO’s basic telecommunications agreement.\(^\text{75}\) Arguments by western businessmen such as IBM’s Lou Gerstner are founded upon the assumption that the government-

\(^{69}\) Mueller, supra note 21, at 732.

\(^{70}\) Id.


\(^{72}\) China-Schedule of Specific Commitments, supra note 71.

\(^{73}\) Id.

\(^{74}\) Id.

owned telephone companies are being privatized and confronted with the threat of entry from new competitors, thereby forcing these monopolies to become more efficient. Such an argument suggests that free competition rather than a monopolized system is the most appropriate structure to ensure the maintenance or expansion of universal service objectives. Contrary to the proponents of the long-standing cross-subsidy model, recent scholarly examinations tend to argue that, in fact, competition has not impeded service availability. Actually, many scholars suggest that increased competition has improved service availability in China; as evidence they point out that in the wake of greater competition between telecommunications operators, penetration rates have not declined.

A report from the International Telecommunications Union (ITU), the agency of the United Nations that is responsible for worldwide communications regulation, found that almost fifty million people in the world were on the waiting list for telephone service, with an average waiting time of more than eighteen months. Proponents of market-driven competition argue that this demonstrates the failure of cross-subsidization when it comes to expanding local networks. An influential report by the National Telecommunications and Information Administration (NTIA) report argues this point, stating that, “pro-competitive policy recommendations are superior to current monopoly-based policies in furthering our advanced universal service goals.” The NTIA report further points out that increased competition in telecommunications markets, including entry into local exchange markets, will help achieve universal service goals by spurring innovation in services and reducing the prices that most customers would otherwise pay. The conclusion of this argument is that, because technology development and the business environment in the private sector change faster than the public sector can regulate, unleashing competition entirely will deliver the maximum amount of goods.


80 Id.

81 “[T]he task is impossible [for the FCC]. Gathering all of the necessary information, processing it, and making the right decisions, expeditiously—and then doing it again and again, as technology and/or economic conditions change—is simply not possible for any organization with respect to any efforts to ‘manage’ something as extensive and technologically complex as the spectrum. Further, a cautious, bureaucratic environment with constant...
Indeed, the experience in the U.S. supports the hypothesis that telecommunications liberalization, whether in the form of increased competition or privatization, promotes tele-density.\textsuperscript{82} The U.S. experience suggests that liberalization actually boosts network penetration and the availability of services to the population. Generally, developing countries that have privatized their telecommunications sectors have seen their networks expanding more quickly than those that have remained under state monopolies.\textsuperscript{83} In fact, “[a] comparison of competitive and noncompetitive cellular markets in Asia and Latin America clearly shows that competitive cellular phone markets have achieved much higher network penetration than those with monopoly cellular markets.”\textsuperscript{84} Similar lessons can be drawn from the experiences of developed countries.\textsuperscript{85} Ben Petrazzini notes:

An analysis of the twenty-five OECD member economies found that provision of new lines in competitive countries outpaced that in closed nations, growing 21 percent from 1990 to 1994 in countries with competitive telecom markets, while installation of new lines dropped by 28 percent in countries with non competitive markets.\textsuperscript{86}

Can competition driven by market forces actually deliver universal service better than monopoly-based governmental promotion? Professor Huber argues that many goods, such as flushable toilets, which are essentials of life to the rich and poor today, began as luxuries, not universal staples.\textsuperscript{87} Huber comments: “The theory is that telecommunications will evolve that way, too, if market forces are unleashed.”\textsuperscript{88} Advocates of the new paradigm believe that competition pressure will impact the affordability of telephone service and they therefore propose the following “universal hamburger” argument: “McDonald’s and Burger King, competing head-to-head, have distributed hamburgers far more universally than any government cafeteria in Romania. . . . Experience teaches that the most universal hamburger—the Big Mac—was supplied by the market. The best and most universal meat in Moscow today is served under political pressures is not one that would generally encourage innovation and pioneering.” Lawrence J. White, Propertyzing the Electromagnetic Spectrum: Why It's Important, and How to Begin, 9 MEDIA L. & POL’Y 19, 26 (2000).

\begin{itemize}
  \item \textsuperscript{82} Shin, Competition, supra note 4, at 158-59.
  \item \textsuperscript{83} See GLOBAL TELECOM, supra note 78, at 38.
  \item \textsuperscript{84} Id.
  \item \textsuperscript{85} GLOBAL TELECOM, supra note 78 at 39.
  \item \textsuperscript{86} Id.
  \item \textsuperscript{87} HUBER, FEDERAL TELECOMMUNICATIONS LAW, supra note 51, at 550-51.
  \item \textsuperscript{88} Id.
\end{itemize}
golden arches, not the red flag.”

Actually, while competition delivers telecommunication “abundance,” it spreads it unequally. Consequently, the potential outcome of market liberalization in China is still uncertain. The new market-driven system may even broaden the digital divide, depending on how the Chinese government introduces new mechanisms to finance universal service. In order to promote affordable access to telecommunications in China, the challenge for the government is how to utilize competition to maximize access while enforcing universal service regulations to minimize geographic inequalities.

3. After the Break-up of the China Telecom Monopoly

In 2002, the Chinese government began to transform its telecommunications sector from a monopoly-based, cross-subsidy scheme to a more market-driven orientation. The first step towards preparing the telecommunications sector for foreign competition was the dissolution of the state-owned monopoly—the fixed-line carrier China Telecom. The break-up of China Telecom finally occurred in May 2002, resulting from China’s commitments to the WTO. The dissolution of China Telecom created two new telecom operator groups that will divide the Chinese market on a geographical north/south basis. China Telecom (South) will take over the dissolved China Telecom’s networks in twenty-one provinces in the south and west, and China Netcom Group will take over existing networks in ten provinces in the north, while merging with two other operators, China Netcom and JiTong Communications. The main impetus for this change was the desire to prepare the domestic industry for competition from foreign service providers following China’s entry to the WTO. This restructuring of the industry is attributable, in large part, to the government’s desire to stimulate the telecommunications service market and strengthen domestic providers.

Although the restructuring of China Telecom will change the landscape of service in China, it does not necessarily herald an era of greater competition. Currently, the Chinese telecommunications market is shared by six corporations: China Telecom South, China Netcom Group, China Mobile, China Unicom, China Satcom and China Railcom. Instead of one monopoly, the current system creates several smaller regional monopolies. Since the major telecommunications business groups will not be in competition with one another, as they each operate primarily in different regions, it is unlikely that the restructuring process will lead to

89 HUBER, LAW AND DISORDER, supra note 76, at 140-1. Although this analogy was originally construed in the context of the Soviet Bloc, it is also applicable to China.


91 Id.

92 Id.

93 Id.

94 Id.
greater competition in the marketplace. By incorporating China Netcom and Jitong into China Telecom North (China Netcom Group), the Ministry of Information Industry (MII) is effectively suppressing any competition that might have existed in China.\textsuperscript{95} The aftermath of the China Telecom split remains to be observed.

The dissolution of China Telecom demonstrates that the pace of liberalization will likely be gradual and limited. In addition to the enormous hidden barriers to market entry,\textsuperscript{96} China’s market access commitments under the WTO accession agreement are based on a graduated schedule for deregulation. China is slowly opening its telecommunications sector to greater competition. Some, however, argue that the majority of Chinese people will not see any benefits from the enhanced competition until the government fully lifts the ban on foreign investment.\textsuperscript{97} Ironically, because foreign telecommunications service suppliers will initially be permitted to establish joint venture enterprises and to provide services in and between the already developed cities of Shanghai, Guangzhou and Beijing, China’s telecommunications havees will be the first to benefit from greater competition.\textsuperscript{98} Cities like Nanjing will open their telecommunications markets to foreign investment in the second phase—2006.\textsuperscript{99} The remaining cities, including most rural areas of China, will not open to foreign investment until 2007.\textsuperscript{100} In other words, although the Chinese government’s agreement to allow foreign investment into the Chinese telecommunications services market was widely applauded as a step in the right direction, for most of the country, real “competition” will not occur overnight.

Will increased competition close China’s digital divide? Although competition is necessary for promoting communications technology in China, competition alone will not meet the needs of China’s information have-nots. To close the digital divide, market-driven competition and government regulation have to work together. In order to boost network penetration, China must liberalize market forces and at the same time impose universal service obligations on the telecommunications carriers.

B. Is the “Universal Service” Subsidy a Solution? The Establishment of a Universal Service Fund

\textsuperscript{95} Id.

\textsuperscript{96} Foreign investors in China often found that even after doing careful market research, there remained many surprises, e.g., the difficulties of getting bureaucratic approvals, and the local officials’ policy swings. See generally JOHN DIXON & DAVID NEWMAN, ENTERING THE CHINESE MARKET: THE RISK AND DISCOUNTED REWARDS (1998) (providing a detailed discussion of the risks involved in transacting business in China).

\textsuperscript{97} See Bill Savadove, Winds of Reform Slow to Blow Throughout Sector, SOUTH CHINA MORNING POST, Nov. 15, 2002, LEXIS, News Library, SCHINA File.

\textsuperscript{98} China–Schedule of Specific Commitments, supra note 71.

\textsuperscript{99} Id. Foreign investment on basic telecommunications service will be allowed in Chengdu, Chongqing, Dalian, Fuzhou, Hangzhou, Nanjing, Ningbo, Qingdao, Shenyang, Shenzhen, Xiamen, Xi'an, Taiyuan and Wuhan by 2006. Id.

\textsuperscript{100} See Impact of WTO Entry, supra note 71.
1. *Universal Service Mechanisms in the Chinese Telecommunications Regulation*

By breaking up China Telecom, the Chinese government took the first step towards creating “abundance.” The question now is how to spread the “abundance” more equally. Increasing competition in China may bring new telephone lines to metropolitan areas where the demand for service is high, but it will take a long time to contribute to the expansion of networks in the western rural regions. China, therefore, must change the way it pursues universal service. When operating as a monopoly system, cross-subsidies are an accepted state practice to fix prices and thereby average the costs of supply geographically. In the face of increasing competition and the possible emergence of new service providers, constructing a reliable and responsive framework to replace the cross-subsidization system is an increasingly important issue.

In a competitive Chinese telecommunications market, one concern has been that competitive pricing might result in rates rising to unaffordable levels for rural customers, or alternatively, in the failure of local exchange companies to make the investments necessary to upgrade high-cost systems. The introduction of a “universal service fund,” also known as a high-cost fund, can help minimize geographical inequality while market forces maximize access. Today, the concept of “universal service” means the availability of basic local telecommunications services for all customers at an affordable price supported by subsidies in a competitive market. Provided that “universal service” is not delivered in the form of cross-subsidization, competition and universal service need not be mutually exclusive or conflicting. While competition can foster affordability by reducing costs and prices in profitable areas, a “universal service fund” can assist in ensuring that basic services are provided to unprofitable

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101 A common belief is that profit-maximizing private firms will not find it worthwhile to serve rural areas because those users cannot generate sufficient revenue to pay for the requisite infrastructure.

102 The intensified competition will likely stimulate telecommunications businesses to concentrate their investment in the eastern and urban areas where the returns are higher. See Craig S. Smith, *Taming the Chinese Hinterland: Beijing Tries to Lift Economic Standards in its West*, N.Y. TIMES, Nov. 7, 2000, at C1. “The multinationals are looking at the risks and asking, ‘Do I invest in Shanghai or Chengdu?’; and the answer now is probably Shanghai.” *Id.* (quoting Bruce Murry, who represents the Asian Development Bank in China).


104 KRATTEMKAKER, *supra* note 3, at 349.

105 See BENJAMIN, *supra* note 55, at 768-84.


107 *Id.*
rural areas.\textsuperscript{108}

Increased competition coupled with a domestic universal service fund may provide China with the best opportunity for achieving the goal of universal service. As evidenced by a provision of the \textit{GATS Reference Paper on Telecommunications Services} (Reference Paper), such a strategy conforms to international agreements and is well within China’s rights as a member country. Section 1 states:

Any Member has the right to define the kind of universal service obligation it wishes to maintain. Such obligations will not be regarded as anti-competitive per se, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member.\textsuperscript{109}

Here, the Reference Paper stipulates that the universal service scheme should be administered in a transparent, nondiscriminatory, and competitively neutral manner that is not unnecessarily burdensome. In order to comply with this mandate, when implementing a universal service fund China should specify that such a fund will be financed by all telecommunications operators, regardless of whether they are domestic, foreign or Sino-foreign joint ventures. China does, however, have wide latitude in designing a policy that works towards universal service.

According to the terms of the Basic Telecommunications Agreement, WTO member states are free to impose self-defined universal service obligations on service providers and effectively achieve their universal service objective. In China’s case, preserving universal service in an increasingly competitive environment and operating within the parameters of the WTO regime is a challenging task. Despite recent efforts by the Chinese government, official statistics show that in the first quarter of 2002, China’s rural areas saw an increase of only 2.81 million telephone users, and revenue from rural telephone business dropped 6.4% from the same quarter of 2001—losses amounted to 150 million yuan (US $18.12 million), up 15.4% over the first quarter of 2001.\textsuperscript{110} Given the poor telecommunications coverage in many rural areas of China, the goal of universal service becomes an imperative.\textsuperscript{111}

A universal service mechanism will have to fit into China’s evolving regulatory framework. However, existing Chinese domestic regulation regarding universal services is far


\textsuperscript{111} See supra Part II.B
from adequate. Until September 2000, the Chinese government created and modified the regulatory framework through policy statements, rather than legislation. The 1993 Telecommunications Statement issued by the State Council established China’s national telecom policy of the 1990s. The State Council’s statement was superseded in September 2000, by the Regulations of the People’s Republic of China on Telecommunications (Telecommunications Regulation). The Telecommunications Regulation divides the industry into basic and value-added telecommunications services, requires service providers to compete with each other, and grants some rights to the public. Generally, the principles contained in the Telecommunications Regulation appear to adhere to those created under the WTO Basic Telecommunications Agreement and are thus consistent with China’s commitments to the WTO. The Telecommunications Regulation grants the MII and other governmental agencies discretion to determine how telecom operators are to be compensated under a universal subsidy system. The statutory language is broad and vague, and therefore creates limitless power for the agencies to define and shape its own meaning. In fact, Article 44, Paragraph 1 of the Telecommunications Regulations is written in rather imprecise language—the terms “universal service duty” and “measures of compensation” are left undefined: “The telecommunications carrier must carry out a universal service duty. The universal service duty borne by the telecommunications carriers shall be determined by the MII by means of either designation or bidding.”

Although the mandate for universal service is vague, the Chinese government appears committed to the task. In January 2002, the Chinese government announced its intention to introduce a universal service fund. Currently, China is working to set up a universal service fund.

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114 See id. (citing The State Council’s Notice of Approval and Transmission of the Opinions of the Ministry of Posts and Telecommunications on Further Strengthening the Management of the Telecom Markets, June 30, 1993 (P.R.C.).)

115 P.R.C. TELECOMMUNICATIONS REGULATIONS STATE COUNCIL ORDER No. 291 [P.R.C. TELECOMMUNICATIONS REGULATIONS] (P.R.C.).

116 Id. The difference between basic and valued-added telecommunications services depends on whether the service is facility-based or not.

117 The Measures of Compensation for Universal Telecommunications Service Cost (Measures) will be established by the MII in conjunction with the Financial Department and Price Department of the State Council. After being approved by the State Council, the Measures will be enacted. P.R.C. TELECOMMUNICATIONS REGULATIONS, supra note 115, art. 44, para. 2.

118 P.R.C. TELECOMMUNICATIONS REGULATIONS, supra note 115, art. 44, para. 1.

fund to subsidize telecommunications networks, specifically in rural areas. The basic scheme is to force telecommunications operators, both foreign and local, to subsidize network construction in the under-developed western regions—up to 3% of operator revenues will be earmarked for this endeavor. It is certain that the fund will be financed by sub-charges levied on telecommunications service providers, but the detailed rules governing the fund are still being worked out.

Given its geographic orientation, the new China Telecom (South) will likely be the main recipient of subsidies from the universal service fund. As a result of its breakup, China Telecom (South) inherited operations in twenty-one provinces in the south and west of the country, where the majority of the rural population is based. According to Article 44, Paragraph 1 of the Telecommunications Regulation, “[t]he universal service duty borne by the telecommunications carriers shall be determined by the MII by means of either designation or bidding.” It is expected that the MII will designate the new China Telecom (South) to carry out the universal service obligation within the next two years. In that event, China Telecom will be responsible for providing basic services to unprofitable rural areas, and its losses will be subsidized by the universal service fund. If fully implemented, this mechanism should effectively promote tele-density in rural areas.

1. **A Lesson from the U.S. Telecommunications Act of 1996**

The experience of the United States offers guidance to China during its construction of a comprehensive universal service scheme. The U.S. Telecommunications Act of 1996 (Telecommunications Act) was drafted in recognition of the fact that cross-subsidization funding mechanisms could not survive under the new competitive regime. The Telecommunications Act employs funding mechanisms financed through equitable contributions, which are established under recommendations of the Federal-State Joint Board, by all service

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121 *China MII, supra* note 119; Hui, *supra* note 112.

122 See id.

123 *China MII, supra* note 119. When China Telecom monopolized the telephone market, it covered its universal service obligations by subsidizing rural services with income from its more profitable urban branches. Now that the monopoly is being broken up, the country can no longer depend on this method to finance rural services. Id.

124 Id.

125 P.R.C. TELECOMMUNICATIONS REGULATIONS, *supra* note 115.


127 See BENJAMIN, *supra* note 55, at 768; see also KRATTENMAKER, *supra* note 3, at 464.
Every telecommunications carrier that provides interstate telecommunications services contributes, on an equitable and nondiscriminatory basis, to the universal service support mechanisms. An eligible telecommunications carrier can receive support from these mechanisms for the provision, maintenance, and upgrading of facilities and services within the scope of the universal service policy.

The intentionally vague language of the Telecommunications Act offers a fair degree of interpretive flexibility. Neither “universal” nor “service” are self-defining terms. Furthermore, as technology evolves, defining these terms becomes increasingly difficult. Much of the debate about universal service in the United States focuses on what should be included under the definition of universal service. One specific question is how, and to what extent, the universal service support mechanism can assist the deployment of advanced services.

While telecommunications service was once a limited concept—referring only to telephone service—changing concepts and expectations have provoked much discussion about how to define universal service in the modern era. What features should it have? Should it include internet access and other data communications? In the United States, universal service essentially refers to the nondiscriminatory provision of “minimum” telecommunications service to all Americans at an affordable price. The “minimum” is defined as something people actually want. Broadband, for example, is not the mandated service to all, as the service has yet to be “substantially developed.” When enacting the 1996 Telecommunications Act, Congress considered expanding the new definition to reflect current technologies in response to

128 Id. at 466.
129 Telecommunications Act § 254(b)(4).
130 Telecommunications Act § 254(e).
131 HUBER, LAW AND DISORDER, supra note 76, at 137.
132 Id.
135 See id.
137 See HUBER, LAW AND DISORDER, supra note 76, at 138.
138 See generally BENJAMIN, supra note 55, at 768-92; KRATTENMAKER, supra note 3, at 463-80.
the global digital revolution. Resulting legislation, therefore, wisely allowed considerable flexibility to the states and the Federal Communications Commission (FCC) to enable them to find ways to achieve the national goals of making affordable service accessible to all Americans.

The U.S. Congress codified a clear commitment to universal service in section 254 of the Telecommunications Act. It requires that the FCC form a Federal-State Joint Board to recommend changes to the legislation, including definition of the telecommunications services that need support. The Act suggests the Federal-State Joint Board consider the extent to which such services (1) are essential to education, public health, and safety; (2) have been subscribed to by a substantial majority of residential consumers; (3) are being deployed in public telecommunications networks by telecommunications carriers; and (4) are consistent with public interest, convenience, and necessity.

Consistent with the Act, in 1997, the Federal-State Joint Board recommended that telecommunications services be supported by universal service support mechanisms including: (1) voice grade access to the public switched telephone network; (2) touch-tone or dual tone multi-frequency signaling; and (3) access to emergency, operator and inter-exchange services and directory assistance for low-income consumers. But, of course, the scope of universal service remains dynamic. It is "an evolving level of telecommunications service" which must be defined and regulated in each country according to its specific needs and circumstances.

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139 Krattenmaker, supra note 3, at 463-80.

140 Telecommunications Act § 254(b) reads as follows:

UNIVERSAL SERVICE PRINCIPLES. The Joint Board and the Commission shall base policies for the preservation and advancement of universal service on the following principles:

(1) QUALITY AND RATES. Quality services should be available at just, reasonable, and affordable rates.

(2) ACCESS TO ADVANCED SERVICES. Access to advanced telecommunications and information services should be provided in all regions of the Nation.

(3) ACCESS IN RURAL AND HIGH COST AREAS. Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including inter-exchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

(4) EQUITABLE AND NONDISCRIMINATORY CONTRIBUTIONS. All providers of telecommunications services should make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service.

(5) SPECIFIC AND PREDICTABLE SUPPORT MECHANISMS. There should be specific, predictable and sufficient Federal and State mechanisms to preserve and advance universal service.

(6) ACCESS TO ADVANCED TELECOMMUNICATIONS SERVICES FOR SCHOOLS, HEALTH CARE, AND LIBRARIES. Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services as described in subsection (h).

(7) ADDITIONAL PRINCIPLES. Such other principles as the Joint Board and the Commission determine are necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with this Act.

141 Id. § 254(a)(1).

142 Id. § 254(c).

143 See Benjamin, supra note 55, at 778.
services” that the FCC and the Joint Board must periodically revisit and reevaluate.\(^\text{144}\)

Should the definition of universal service evolve toward a higher standard of service as technology improves and the demand for advanced services increases? On this issue, consumer groups oppose mandating advanced telecommunications services as part of the definition of universal service. A representative from the Consumer Federation of America expressed the general sentiment: “I don’t want to be forced to pay for the interactive video games or movies on demand of my neighbor down the street.”\(^\text{145}\) Many public advocates, however, argue that advanced telecommunications services should be included in the definition of universal service.\(^\text{146}\) Such advocates believe that information directly translates into economic and social political power.\(^\text{147}\) If substantial segments of the population are denied access to advanced networks, America will be divided into a technologically wealthy upperclass and a technologically disadvantaged underclass. After all, “affordability” is subjective in nature, and individual consumers determine his/her own spending on telecommunications service.\(^\text{148}\)

It is clear that the meaning of the so-called “Evolving Level of Telecommunications Services” as defined in the U.S. Telecom Act is intentionally vague. This rather flexible mandate to update universal service in order to meet the needs of a changing political, technological, and economic environment could result in a broad and costly expansion of the program, which would conflict with other goals of the Act. Consumer needs are heterogeneous across the population, especially in a country like the United States. Some consumers demand sophisticated communications service while others do not. As telephone services evolve into more complex telecommunications services such as internet access, distance learning, and interactive conferencing services, the discussion of universal service policy shifts to whether subsidies are necessary for these new services. Of course, everything that lies ahead in the broadband era even is more complicated.

In regards to the current expansion of the meaning of universal service, in July 2002 the Joint Board recommended that the FCC should make no additions to the telecom universal service entitlement.\(^\text{149}\) The Joint Board stated that it would not be in the public’s interest to fund

\(^{144}\) \text{Id. at 769.}\n
\(^{145}\) \text{Groups Demand Easy Access to Information Superhighway, AMERICAN MARKETPLACE, Jan. 13, 1994 (quoting Bradley Stillman of the Consumer Federation of America).}\n
\(^{146}\) \text{Bob Rowe, Strategies to Promote Advanced Telecommunications Capabilities, 52 FED. COMM. L.J 381, 395 (2000). Wisconsin’s universal service rules are illustrative here. The state’s rules set deadlines for deployment of more advanced services, such as digital subscriber lines and high-speed data transmission services. If a customer has a reasonable demand for an advanced service before the deadline, and that service is not available at an affordable rate, the Wisconsin Public Service Commission can use the state’s universal service fund to serve that customer. See WIS. ADMIN. CODE § 160.035 (1996).}\n
\(^{147}\) \text{Rowe, supra note 146, at 392-93.}\n
\(^{148}\) \text{See THOMAS DUESTERBERG ET AL., COMPETITION AND DEREGULATION IN TELECOMMUNICATIONS (1997).}\n
any of the new services because none of them met statutory criteria for inclusion. First, the advanced services did not appear to be “essential for public access to internet resources” because such internet resources were readily accessible through alternative means such as dial-up connections. Second, advanced services were not subscribed to by “a substantial majority of residential consumers.” To rebut the recommendation, the FCC Commissioner Michael Copps stated that by the same logic, telephones should never have been deemed “essential” because alternative means such as telegraphs could have been used. It remains to be seen how the FCC will finally resolve this issue.

The U.S. experience offers China some good lessons as it transitions towards a more competitive telecommunications market. The Chinese government will likely proceed very cautiously. After all, the “universal service” regulation is a legal mechanism to safeguard the rights of consumers, to empower people with modern communications technology, and to promote quality in information. Some suggest that, as far as Chinese leaders are concerned, such rights and the resulting empowerment are actually “western rights,” rather than “universal rights.” Throughout history, rights-based theory and the very notion of individual rights—the core of Western political and legal traditions—have remained “foreign” to Chinese legal culture. China, in the relatively early stages of transitioning to a “rights-based” approach in its legal system, has heavily “borrowed,” or substantially “transplanted,” a great deal from the Western systems. In the realm of telecommunications policy, the U.S. experience shows that policy debates increasingly influence what shall be included under the definition of universal service. How should “universal service” be defined in China? Should it include internet and other advanced communications services? The next section will respond to this query.

2. Information Inequality in the Broadband Era: When POTS is Not Enough in Developed Countries

Comparisons between China and the United States highlight the widening global digital divide. The recent disagreement between the U.S. FCC and the Joint Board over what should be included in universal service indicates that plain old telephone service (POTS) is no longer enough for citizens in developed countries. China, on the other hand, is still in the growth and development stage. Its broadband penetration rate is only 2% for the whole country, and in rural

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150 The Board recommended against adding advanced high-speed services to the universal service entitlement. The decision drew disagreement from FCC commissioner Michael Copps, but the final decision will be made by the FCC. Actually, the FCC and the Board define advanced services in the same way: having transmission speed of more than 200 kbps in both directions. High-speed means more than 200 kbps in one direction. The Board said advanced services do not meet several statutory requirements. Joint Board, supra note 134.

151 Id.

152 Id.

153 Id.

154 SUPACHAI PANITCHPAKDI ET AL., CHINA AND THE WTO (manuscript at 155, on file with author).

155 See STANLEY B. LUBMAN, BIRD IN A CAGE: LEGAL REFORM IN CHINA AFTER MAO 19 (1999).
cities like Guizhou the POTS penetration rate is a meager 6%.\(^{156}\)

The figures above clearly show that broadband service in China is far from being “substantially developed” as defined in the U.S. Telecommunications Act. Therefore, at this time, it would be superfluous for China to emphasize anything other than ensuring the availability of POTS services to unprofitable rural areas, which otherwise would be unserved or underserved.\(^{157}\) China needs to invest in large-scale telecommunications service infrastructure; it is also a fact that capital from foreign sources is readily available.\(^{158}\) The Chinese government needs to unleash domestic market forces, welcome foreign participation, promote affordable access, enact rules for implementing the universal service goal set in the Telecommunications Regulation, and provide a non-discriminatory platform for undertaking universal service obligations.

C. Is 3G Technology a Solution? The Development of Wireless Broadband Technology

It has been suggested that wireless communications hold the key to the promise of universal service.\(^{159}\) The president of AT&T-China estimates that China’s telecommunications market will double in size by 2005, and approximately 40% of the market will be wireless.\(^{160}\) Emerging wireless technologies may allow the have-not nations to narrow the digital divide. Although the cost of wire networks increases as population density decreases, wireless technology easily reaches deep into rural and undeveloped areas.\(^{161}\) This fact may ultimately be the telecommunications savior of developing nations. The President of Kenya recently urged players in the telecommunications sector to lower the cost of mobile phones, with the idea of making them affordable to Kenyans.\(^{162}\) In return, the Kenyan Government will consider requests

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\(^{156}\) Qiu, supra note 26, at 166.

\(^{157}\) Cf. Bonnett, supra note 57, at 106 (“The ‘information have-nots’ may lack other important resources that impede their economic advancement, such as literacy, education, and work experience. If so, then the substantial cost of subsidizing interactive broadband access to their homes may actually divert the public’s attention and financial resources from other policies that would materially improve conditions for these persons in a shorter time. It may be counterproductive as well as foolhardy to oversell the ability of the information highway to cure social ills.”). Id.

\(^{158}\) Mueller, supra note 21, at 732.

\(^{159}\) Press Release, ChinaOnline, Mobile Internet in China, http://wwwchinaonline.com/estoreNew/IT_Telecom/Sector_Reports/BDA120_PR.htm. “China will boast over 70 million mobile subscribers and 21 million internet subscribers by the end of 2000. BDA [BDA (China) Limited] forecasts strong growth as the two industries converge, reaching 236 million wireless subscribers and 120 million Internet users by 2004.” Id.

\(^{160}\) Rachael Abramson, Catching Flies With Chopsticks: China’s Strategic Leap into Wireless Telecommunications, 11 MINN. J. GLOBAL TRADE 1, 35 (2002).

\(^{161}\) A good example here is the direct broadcast satellite (DBS), which reaches Wyoming at exactly the same cost as it reaches a high-rise in New York. Huber, Law and Disorder, supra note 76, at 137.

\(^{162}\) See President Urges Companies to Reduce Cost of Mobile Phones, BBC Summary of World
by mobile phone providers to reduce duties levied on imported sets. This illustrates how developing countries are increasingly turning to cellular and other wireless services, rather than wireline technology, to provide services to rural areas. Indeed, such a strategy may help connect rural China to the rest of the country and the world.

The development of third generation wireless systems (3G technology) will help foster a synergy between the wireless revolution and the Internet revolution. It is true that the telecommunications industry is now focusing on the convergence of telecommunications, information technology, and multimedia with 3G technology. The increase in 3G capacity—worldwide compatibility of services with internet and other multimedia applications—will have a profound impact on the network in China.

In fact, China was very active in the ITU’s 3G standards setting process. Currently, China is developing its own 3G technology, TD-SCDMA, which is a key research project in China’s ninth five-year plan. In March 2002, the ITU accepted TD-SCDMA (code division multiple access) as one of the standards for 3G technology. Thereafter, China will be on the right track to further develop 3G technology, and will enter the era of wireless broadband technology with a sure footing.

China Mobile, the country’s largest wireless carrier, controlling approximately 85% of China’s growing mobile telephone market, has set its sights on the less-developed regions of

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163 See President Urges, supra note 162.


165 In the UK, the first country to auction 3G licenses, operators have paid the government $35 billion—more than $600 for every person in the country—simply for the privilege of using a slice of radio spectrum. Id. at 616. The hype around mobile data and wireless web is ultimately driven by one thing: the next wave of revolution in commerce. Currently, most East Asian countries have paved the way toward implementing 3G as they have already issued licenses. For example, Taiwan rolled out its 3G services in 2001. Once 3G services—broadband mobile access to the Internet and data services—are fully deployed in Taiwan, internet penetration in Taiwan is expected to soar.

166 A number of proposals for the IMT-2000 3G standard were submitted to the ITU during 1998. “The Operators Harmonization Group (OHG) has played a key role in this process, and agreed on a set of standards in May 1999. This family of standards includes one GDMA-based standard with three optional modes: Multi-Carrier (Mc) Direct Spread (DS) and Time Division Duplex (TDD), and one TDMA-based standard (EDGE). The Multi-Carrier (Mc) mode is also called cdma2000 Mc; and the Direct Spread (DS) Mode is also called WCDMA.” TD-SCDMA Forum, 3G Standards, http://www.tdscdma-forum.org/nenglish/tdscdma/3gprin.html (last visited Feb. 22, 2002).

167 China Mobile is listed on both the New York Stock Exchange (CHL) and the Hong Kong Stock Exchange (2545.HK).

168 GLOBAL TELECOMMUNICATIONS LAW AND PRACTICE, supra note 113, at 4215. Although China predominantly uses GSM technology to provide the 2G mobile voice services, China Unicom and China Mobile
the country.\textsuperscript{169} As of May 2002, however, customers in western China account for only 10% of the company’s total subscribers.\textsuperscript{170} In a bid to balance the digital divide between eastern and western regions, China Mobile has announced it will invest an additional RMB 50 billion (U.S. $6 billion) in western China over the next three years to build new mobile phone networks.\textsuperscript{171}

3G technology could offer the greatest opportunity for countries with low rates of wireline telephone/internet penetration to participate in the Information Age. High tech mobile communications, which require less terrestrial infrastructure than wired broadband technology, offers a more economical means to close the digital divide. Wireless broadband technology may well be the solution to information inequality in the broadband era. Once 3G technology matures, it is likely that the vision of universal telecommunications service in China will finally be actualized.

\textbf{IV. CONCLUSION}

This article does not assume that the telephone system, much less a digital broadband network, will reach into every home with a uniform grade of service in China. Nor does this article suggest that universal telecommunications policy in China should aim to have all Chinese schoolchildren bring their own laptop computers to school. However, given the importance of information technologies in the future, the existing technological gap can produce a permanent underclass and further expand the chasm between the information haves and the have-nots. It is essential that access to powerful information technologies is provided in every classroom, library, and other places where people from all backgrounds gather.

This article has attempted to demonstrate a pattern, rather than answer the primary queries: To what extent can telecommunications liberalization result in lower prices for telephone/internet access in ways which would foster universal service in China? Should the Chinese government rely exclusively on market mechanisms to promote the diffusion of basic and advanced telecommunications services? Ultimately, it becomes clear that the policy goal of universal services can be pursued through a variety of approaches.

Some telecommunications monopolies have done a good job of providing universal service. Taiwan, for example, has a well-developed telecommunications sector with about forty main lines per 100 inhabitants, a system built by a government monopoly.\textsuperscript{172} U.S. policymakers, on the other hand, have achieved high levels of telephone connectivity through the implementation of two critical initiatives: a pro-competition legal framework and a universal service financing mechanism. The former has resulted in lower prices for consumers of

\begin{itemize}
  \item \textit{China Mobile Plans Additional USD 6 Billion Investment in Western China}, CHINA IT & TELECOMM. REP., July 5, 2002, LEXIS, News Library, ALLNEWS File.
  \item \textit{Id}.
  \item Shin, \textit{supra} note 4, at 158-59.
\end{itemize}
telephone services, and the latter has helped ensure that most Americans can enjoy affordable access.

In the case of China, when China Telecom monopolized the telephone market, it covered its universal service obligations by subsidizing rural services with income from its more profitable urban branches. Now that the monopoly is being broken up, the country can no longer depend on this method to finance rural services. The Chinese government must adopt a more economically sensible policy approach to attaining universal service. As of today, it is certain that a “universal service fund” mechanism will be introduced in China, but specifics are still being ironed out. It remains to be seen in what detail the Chinese law will design its universal service mechanism.

On the other hand, although the commitments to liberalizing the telecommunications market and to pursuing a pro-competitive legal environment for telecommunications services have been made by China under the WTO regime, through its market restructuring into China, the Ministry of Information Industry is effectively suppressing any competition that might have existed in China. It is unlikely that the restructuring process will lead to immediate competition in the marketplace. The pace of liberalization will be gradual and limited, and progress down the road towards information equality in China is likely to be slow.

\footnote{See generally \textit{National Telecommunications and Information Administration, Falling Through the Net: Defining the Digital Divide} (1999).}