

The Information Have-Less: Inequality, Mobility, and Translocal Networks in Chinese Cities

*Carolyn Cartier, Manuel Castells,
and Jack Linchuan Qiu*

The “information have-less” is a social, economic, and political category for millions of rural-to-urban migrants and laid-off workers who populate the vast gray zone of China’s digital divide. Disengaged from institutions of agricultural and industrial production, the information have-less make use of such inexpensive ICT services as Internet cafés, prepaid phone cards, and Little Smart mobile phones. These low-end digital technologies are critical to enhancing labor mobility (both physical and social) and to the formation of “translocal networks.” In this paper, we conduct a preliminary assessment of ICT usage in key city-regions in China and consider the consequences of translocal network formations for evolving information inequality in China. These networks raise key theoretical issues related to regionalism, mobility, and state-firm relationships that impinge on low-end service provision, and stratified patterns of information access and utilization within the have-less populations. We view translocal networks an important socio-economic asset of the information have-less and an arena for the articulation of labor mobility in China’s industrialization process and latest wave of urbanization.

Carolyn Cartier is associate professor of geography at the University of Southern California. She is the author of *Globalizing South China* (Blackwell, 2001) and the co-editor with Laurence J.C. Ma of *The Chinese Diaspora: Place Space, Mobility and Identity* (Routledge, 2003).

Manuel Castells is Wallis Annenberg Chair in Communication Technology and Society at the University of Southern California, Research Professor at the Open University of Catalonia in Barcelona, and Professor Emeritus of Sociology and of City and Regional Planning at the University of California, Berkeley. His current research focuses on the social and economic implications of the Internet and the debate on new development strategies for the Information Age.

Jack Linchuan Qiu is assistant professor at the School of Journalism and Communication, Chinese University of Hong Kong. He co-founded and moderates the Chinese Internet Research Group, a network of researchers from the academic, policymaking, journalistic, and activist communities.

Studies in Comparative International Development, Summer 2005, Vol. 40, No. 2, pp. 9-34.

Introduction

The spread of mass media in the developing world since the 1950s is associated with periodic claims of communication technologies as “mobility multipliers” which boost industrialization, urbanization, and modernization generally in developing regions.¹ With the diffusion of information and communication technologies (ICTs), especially the Internet, such optimism has virtually culminated in a “neo-developmental” outlook that views the spread of digital media as a panacea for poverty and inequality (Mosco, 1996: 130). Yet as critics point out, whether media technologies can benefit the poor depends on how they are put to use and how power and wealth are distributed in the process, particularly between the information haves and the have-nots.² Since the 1970s, the UNESCO-sponsored New World Information and Communication Order has debated the role of information in development and critiqued hegemony of media power in the developed world, but its practical achievements have been limited (Galtung and Vincent, 1992; Barnett and Canvanagh, 1994; Sosale, 2003). Most important, across the global urban landscape, empirical findings show that although urbanization has accelerated in tandem with the remarkable growth of digital media, the emergence of “informational cities” around the world still gives rise to “dual cities” facing the challenge of the digital divide (Castells, 1989, 1999; Mollenkopf and Castells, 1991; Castells and Hall, 1994; Servon, 2002).

Is there an alternative model for the digital economy that does not increase polarization in the informational city? Can ICTs be shaped in particular ways to become “information technologies with a human face” (Castells, 1999)? By examining recent developments of relatively low-end digital media in China and their users, this analysis maintains that the possibility exists under certain social, institutional, and transformational contexts, and not by way of top-down government technology regimes or poverty-alleviation projects, but instead at the grassroots level through the materialization of a new class of information users: the “information have-less.” Like the information haves and have-nots, the information have-less is an informational—and therefore social, economic, and political—category in the evolving network society, which sensitizes us to a new set of phenomena, problems, and policy options. Unlike China’s state informatization project—which, under the direction of Ministry of Information Industry (MII), promotes development of information technology for the national economy, including internet technology (IT) industry investment and the establishment of IT policy and regulation—the technologies and practices of the information have-less are not reliably supported by the state. Indeed, the state has intermittently constrained their expansion. After decades of restricted information access in China, the MII is institutionalizing open information flow for economic development, focused on cities. In economic and theoretical perspective, the work of MII reflects China’s recognition of the importance of information as the basis of services sector industrial development in the world economy—in effect the basis of the shift to the “informational city.” Focus on the information have-less, by contrast, asks how the digital divide is opening up in China to reveal a middle ground that may mitigate some of the informational and economic polarization that has characterized the dual city.

The idea of the information have-less in China first and foremost recognizes that

hundreds of millions of rural-to-urban migrants, laid-off workers, state-sector employees, pensioners, and other low-income groups populate an expansive gray zone of the digital divide. To give some empirical shape to the phenomenon, the top 20 percent of income earners in China form the cellular market, while the middle 50 percent—some 650 million people—want wireless service but can only afford lower-cost ICTs.³ Methodologically, the information have-less is a discursive concept and an analytical trope, a metaphor consciously used to draw attention to under-examined phenomena. Linguistic and literary theories recognize how metaphors work to constrain and enable meaning and how they are integral to understanding the development of ideas, communication, and technology. The ontological metaphor, i.e., one referencing events and activities, especially plays a role in social science research, serving as “the means by which researchers construct speculative models of reality that correspond with the phenomena under investigation” and “create preconditions for articulating alternative visions for human possibilities” (Gow, 2001: 71–2). Thus, the information have-less shifts attention toward the heart of the digital divide to open up alternative lines of inquiry. The have-less is also a dialectical concept of relations between practices of have-less users and the evolution of have-less ICTs, and thus an arena of transition for and a zone of exposure to ICT use and ICT technologies.

Analysis of the information have-less and their digital media should allow for a more nuanced and empirically astute understanding of the relationship between digital technology, inequality, and social development. Where the evolving informational Chinese city is concerned, the transformational processes at stake are arguably less a bipolar process of digital divide than manifold processes of informational stratification through which presumed schisms between structure and agency, urban and rural, global and local, have and have-not, all break down into concrete everyday practices and inter-connected moments of decision-making marked by multiple scales and spaces of exclusion/inclusion.⁴ We understand the evolution of the have-less and informational stratification not only as innovative socio-technological constructions but also as conditions for the evolution of grassroots social networks. The have-less is at the center of this evolving condition of informational stratification and it is the most under-recognized condition among ICT developments in Chinese society. The task of this paper is therefore to identify the key aspects of the information have-less, analyze their social basis and networked organizational forms, the prospects and limitations of the have-less phenomenon, and the broader implications for social networking and the urban space economy in industrializing China.

As an analytical concept, the information have-less points to the distinctive features of grassroots urban and regional networks and multiple ways of bottom-up social networking among the relatively ignored urban underclass in China’s “new economy.” Indeed, have-less ICTs and have-less users emerged in China even before the state and Chinese telecom oligopolies fully acknowledged their potential. The have-less and their agentic powers need to be acknowledged because they constitute a wide swath of social fabric essential to processes of rapid urbanization, industrialization, and ICT growth. Since this paper is designed to provide keystone assessment of the subject matter, we offer discussion and propose hypotheses at the national level based on statistical sources and fieldwork in major city-regions, es-

pecially Guangzhou, Shanghai, and Beijing.⁵ The data are from 1999–2004, and thus reflect conditions of this limited period in what is a rapidly transforming information economy. Data at subnational levels will be used for illustrative purposes, while a more systematic integration of regional and municipal data remains a future goal. By stressing the information have-less, we do not deny the potential formation of “network ghettos” (Thrift, 1995) in Chinese cities or the gravity of problems facing the have-nots in the countryside. Nor do we celebrate the rise of the have-less as the end of the dual-city phenomenon or attempt to make predictions about the fate of this new urban information class. Our main argument is that the recent emergence of digital media for the information have-less reflects and further enables population mobility with a limited yet often translocal reach, whose particular materialization is contingent upon interactions in specific historical and spatial contexts among local state policies, labor-capital relationships, and the internal differentiation of the urban underclass itself.

Backdrop to the New Urban Mobility

China initiated economic reform at the end of 1978, and by the middle of the 1980s restructuring in the agricultural and industrial sectors led to considerable migration from rural areas to towns and cities. This relatively new, large migrant population cannot be understood apart from the *hukou* or household registration system, which China established during the 1950s. The *hukou* system organized socialist production by designating “peasants” and “urban residents” in association with fixed residence—peasants were legally obligated to farm and remain in rural areas, while city dwellers were assigned to municipal work units. The state enforced the policy and, with some exceptions, the *hukou* system kept people from relocating. Consequently, China did not experience the widespread rural-to-urban migration that characterized most developing countries in the middle and second half of the twentieth century.

Under economic reform, China has gradually dismantled socialist production, which allowed peasants to look for work in the rapidly industrializing cities. Since the 1980s, rural migrants have been widely seeking urban employment, taking low-wage jobs that urban residents typically shun, including assembly work, construction, and domestic service. However, the state did not simultaneously grant migrants urban citizenship rights. Official state discourse labeled migrants “floaters” and the “floating population” (*liudong renkou*), or the “unrooted noncitizens” (Solinger, 1999: 1). Rural *hukou* holders working in cities have often been living there informally and have not been able to reliably access a range of formal urban services, including housing, health services, and schools.

Data on migrants is based on estimates from population censuses and formal migrant-registration procedures and does not capture the actual total. For example, in 2005 the national Family Planning Bureau announced that the migrant population had doubled from 70 million in 1993 to 140 million in 2003, which represented 10 percent of the national population and 30 percent of the rural labor force.⁶ These figures update the 2000 census, which counted 121 million migrants. But, like elsewhere, it is difficult to accurately count migrants, and complications of the census led to under-counting; neither does any particular government office have a full

count of the migrant population (see Liang, 2004). Unofficial estimates report up to 200 million migrants in China nationwide.

Migration patterns reflect the uneven geographical development of the Chinese economy. The general trends are from the interior to the coastal provinces, and from rural villages to small towns and then from small towns to large cities. Based on the 2000 census, in descending order, the greatest numbers of inter-provincial migrants originated in Sichuan, Anhui, Hunan, Jiangxi, Henan, and Hubei, which together accounted for 59.3 of the total. Migration flows were greatest to the provinces or provincial-level cities of Guangdong, Zhejiang, Shanghai, Jiangsu, Beijing, and Fujian, which together received 68.5 percent of the total. Guangdong Province in south China, which includes three of the four original special economic zones (including the largest one, Shenzhen, on the Hong Kong border), has been the leading migrant destination since the onset of reform. The proportion of migrants in the population of the three provincial-level cities, Beijing, Shanghai, and Guangzhou, is now relatively high, officially making up at least 17 to 20 percent of the total population. Complicating this landscape is the fact that inter-provincial population flows accounted for just 35 percent of the total, which means that intra-provincial flows represent an even denser map of mobility (Liang, 2004).

Hukou reform is taking place, but the process has been slow and geographically uneven, i.e., it has not been systematic in scope, and different towns, cities, and provinces have adopted different *hukou* reform policies (see Solinger, 1999). Moreover, policy does not guarantee implementation. Part of the problem is the Chinese bureaucracy: undercounting the migrant population reflects the maze of formal procedures and arbitrary fee structures migrants have faced in order to obtain temporary residence certificates (Solinger, 1999). Temporary migrants have often found it simpler to avoid the whole process altogether. Nevertheless, a combination of pressures, especially the realities of long-term migrant residents in urban areas, their undeniable significance in the labor force and high profile cases of migrant abuse, has compelled the state to address the *hukou* problem. In 2001, the central government mandated that towns and small cities under 100,000 inhabitants grant urban *hukou* to migrants who could demonstrate fixed local residence and stable employment for at least one year, but these criteria exclude many migrants. These policy changes also encompass several large cities, but they have been allowed to tailor *hukou* reform to local concerns. As in Jinan, Shandong Province, almost all the large cities involved have confined reforms to designated areas just inside the cities' administrative periphery, i.e., urban *hukou* status in most cities remains spatially constrained. On the other end of the economic spectrum, major cities including Beijing, Shanghai, and Guangzhou have implemented commodified *hukou* schemes, i.e., *hukou* for purchase, for wealthy migrants who buy flats in designated development areas, and for some members of the professional class (Cartier, 2001: 251–53).

Overall, the trend of *hukou* reform is toward leveling the distinctions between “rural” and “urban” citizens. Yet no matter the effects of recent reforms, the vast majority of China's estimated 200 million migrants has faced relatively uncertain circumstances and considerable discrimination from municipal authorities and urbanites. The reforms have only begun to ameliorate a social structure that has denied “national treatment” to rural inhabitants. Against this backdrop, personal

mobility is an evolving phenomenon, and holds particular implications for the adoption of ICTs.

Have-Less ICTs: The Key Development

At the core of understanding China's informational stratification process is the emergence of have-less ICTs, in a cluster of empirical phenomena situated in localized frameworks of public policy, state-firm connections, and class relationships. These ICTs share three important characteristics. First, these are inexpensive technologies and services for have-less populations, including manufacturing and low-end service sector workers, laid-off or unemployed laborers, and pensioners, as well as young people with low incomes, and some members of the new urban middle class who retain old consumption habits. The cost advantages of these ICTs are crucial for both consumers and providers. Captured by the media discourse of China's informatization regime and the discourse of informationalism generally,⁷ many of the more entrepreneurial migrants and laid-off workers attempt to take part in the new economy by providing digital media. But, constrained by the availability of financial and social capital, such entrepreneurs are limited to selling prepaid phone cards and inexpensive mobile handsets, or at most setting up Internet cafés, all of which appeal to residents in low-income communities.

Second, while ICTs are typically associated with mobility, have-less ICTs offer more limited mobility with low functional choice, often constrained in a particular time and space. They are not the latest global high-technology ICTs that promise to keep everyone connected anytime, anywhere. Access to these ICTs often requires proximity to fixed points of connection, which are typically located in more densely populated areas of the have-less populations. Venturing beyond the radius of access risks loss of service or compromised service quality. This problem especially characterizes the urban periphery of the major metropolitan regions, the Yangtze River delta surrounding Shanghai, or the Pearl River delta surrounding Shenzhen and Guangzhou. Discriminatory government policies, prejudiced corporate strategies, and biased perceptions and practices among the urban elite have at times created additional barriers of access, producing an unreliable ecology of cultural and institutional settings that threaten the service quality and growth of these digital media. These issues are discussed below.

Third, despite limited functions and socio-structural constraints, have-less ICTs are able to perform critical informational functions. These are tools of communication that keep migrants connected with hometowns and family members as well as new friends and contacts, facilitating information flows about migratory experiences, job conditions, and business opportunities. In so doing, they help build and sustain translocal networks, i.e., networks between places, for China's new industrial labor force, which is becoming increasingly mobile, as well as among other low-income urban groups that are threatened by the atomizing and disenfranchising processes of privatization and economic globalization. From this perspective, mobility of the have-less is more than the traditional notion of population mobility or social mobility because it has, most crucially, an *informational* dimension—the commingling of critical information across time and space—which almost always contextualizes and conditions the movement of people, goods, and services. Cer-

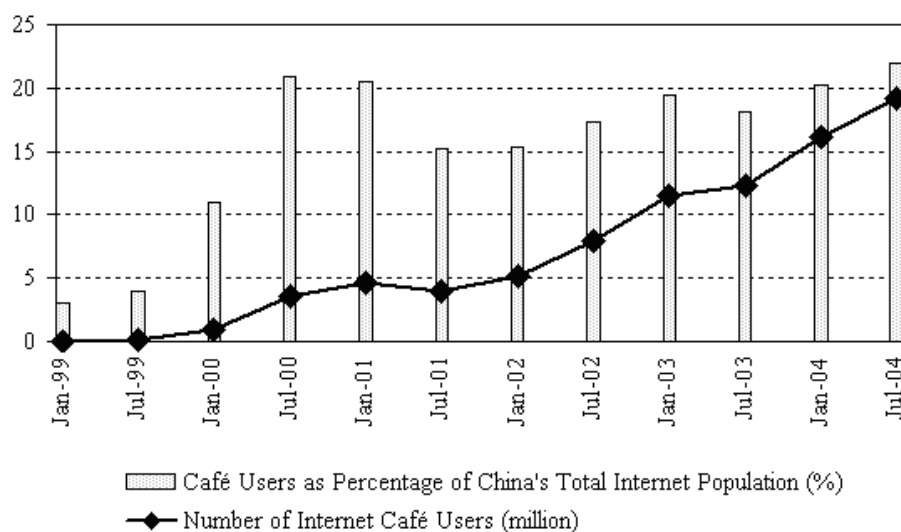
tainly, ICT use among the have-less depends on particular institutional setups and local market dynamics and is spatially uneven. But the drawbacks and variations do not undermine the opportunities introduced by low-end ICTs and their profound consequences for social networking, particularly given the speed and scale of their proliferation and manifestations, and the fact that state and corporate players have not reliably promoted these ICTs.⁸ On the contrary, certain government agencies and telecom oligopolies have attempted to limit or eliminate low-end digital services. Yet the targeted ICTs have survived and expanded, demonstrating considerable vitality and flexibility among have-less users and providers.

The Internet Café

The Chinese government has repeatedly attempted to restrain the growth of the Internet café through national-level legislative and administrative measures as well as repeated crackdowns at the local level. The central government's campaigns reflect concerns about social order and control, including Internet access to critical international news media and political discussion in chat rooms, as well as surveillance over pornography and gaming, which urbanites widely perceive to be contributing to problems of the new youth culture. Together with the urban elite discourse against "black Internet cafés" (*heiwangba*), unfavorable state policies have achieved some stifling effects by dramatically enhancing entry barriers, increasing operational costs and taxation, and imposing unpredictable penalties ranging from fines and license revocation to the confiscation of equipment.⁹ However, such restrictive policies have only slowed the growth of Internet cafés nationwide (Figure 1). Demand for and establishment of Internet cafés has outpaced state licensing schemes.

According to Xinhua News Agency, approximately 110,000 Internet cafés existed in China as of February 2003.¹⁰ Analysis of official statistics shows that the

Figure 1. The growth of Internet cafés in China, 1999–2004.



Source: CNNIC (1999–2004).

total number of Internet café users has been rising quickly from 0.06 million in January 1999 to 19.14 million in July 2004. Its percentage as China's total user population surged from 3 percent in January 1999 to 21 percent in July 2000. Since then it has been at a relatively stable level of 15 to 22 percent. More frequent and severe crackdowns since 2001 caused a reported drop of 5 percent, but the proportion then increased to 22 percent in July 2004, the most recent period of data examined for this study.¹¹ The upward trend is likely to continue.

The main attraction of the Internet café is low cost. When Internet cafés started to appear in the late 1990s, the hourly charge was about 20–30 yuan (US\$2.40–\$3.60) in Beijing, but it quickly dropped to less than 10 yuan in most large cities. In small cities and towns, especially at unregistered Internet cafés, the cost has come down to 1–2 yuan per hour, thus yielding an affordable service in most of China's urbanizing areas.¹² The cost advantage is considerable, drawing users who might otherwise opt to acquire their own equipment, such as young professionals.

Within the services sector, Internet café investment remains a top choice for small-scale private entrepreneurs who hope to enter the "new economy" promoted by the state's informatization campaign. Growth of Internet cafés is also leading to notable market differentiation. While a few of the more successful shops target wealthy online gamers (Informants 34, 40), others also provide Internet access in other high-income locations, such as in restaurants and saunas (Informants 5, 10, 11, 35). But the overwhelming majority of Internet cafés in China are small-scale businesses catering to the needs of the information have-less (Informants 3, 4, 6, 9, 12, 20, 29, 36, 37, 43, 44, 50, 51). Opening an Internet café with 25 terminals in the inland city of Chengdu, for example, required a fixed capital investment of about 90,000 yuan (US\$10,876) in 2002 (Informant 4). In a more wealthy city in South China, the cost may be as high as one million yuan for a large shop with close to 100 computers; but this is still a relatively small-scale investment compared to other IT businesses, especially those wholly within the formal sector. It is estimated that the 110,000 Internet cafés in China provide around two million jobs.¹³

Employees of Internet cafés, including clerks and managers, tend to be migrants, laid-off former state-sector workers, or underemployed young adults. These people run day-to-day business operations; they are poorly paid and work long hours with no employment benefits. For example, in Xichang, a small city in China's southwest, a 21-year-old who lost his job after a local chemistry factory shut down became a shopkeeper for an Internet café with fifteen terminals, about the average size in the city. Working eleven hours a day seven days a week, in 2002 he earns a monthly salary of 300 yuan (US\$36.30). He has little job security and no paid leave or medical insurance. But he finds the job to be acceptable because the boss provides food and on-site housing in a back room, and his peers who were also laid off from the factory are envious because he has the option of spending much time online (Informant 3).

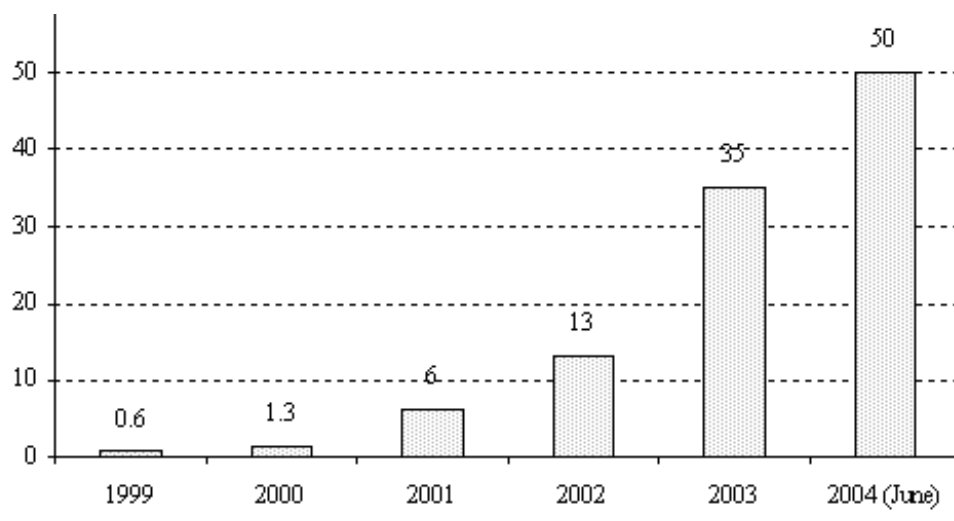
The following vignette also relates common conditions. In a larger Internet café in Chengdu, the capital of Sichuan Province, the shopkeeper, also 21, used to be a bartender. After being unemployed for a couple months, he found an Internet café job on a website for local job information. In 2002, he worked a 12-hour shift from 8 am to 8 pm and was paid 900 yuan (US\$108.90) per month, but rent and food

were not covered. As in the previous case, the only employment benefit he received was free Internet use. His job duties were flexible and comprehensive: watching over and cleaning the shop, collecting payments from consumers, providing technical support, selling snacks and online game cards, and enforcing use regulations. He complained that he had no time to run his own errands. When asked what would happen if he became seriously ill and could not work for several days, he grinned: "Then I'd better not come here any more" (Informant 4). Given the number of job seekers, he could easily be replaced. The lack of job security and employment benefits was prevalent among all of the Internet café clerks and managers we interviewed across China. On the basis of this type of flexible labor, the Internet café serves as a large low-end services sector employer for young adults lacking more skilled training.

The physical location of Internet cafés is usually within or near areas where the information have-less tend to concentrate. Low-income consumers cannot afford to travel long distances across the city on a regular basis, and migrants without temporary residence permits will not risk exercising unnecessary mobility. Thus, for example, in Shenzhen, the Special Economic Zone (SEZ) adjacent to Hong Kong, many Internet cafés are located on the first floor of buildings in so-called urban villages, where Maoist-era local villages have been able to maintain collective control over land and build high-rise flats to earn property income, in part by renting housing to migrants. In Zhuhai SEZ, Internet cafés cluster together not far from the local labor market, meeting the informational needs of job seekers. Many of these users are experienced enough with online employment ads that they are able to identify false or misleading job information.¹⁴ Where local state regulation becomes stringent, Internet cafés tend to spread to the outskirts of urban centers, a movement that is the main avenue of market expansion in recent years. One reason for the sprawl is that most middle—and upper-middle-class urban families are equipped with home computers, and they tend to discourage their only-child teenagers from patronizing Internet cafés.¹⁵ The proliferation of Internet cafés does not characterize the central city.

Little Smart

Little Smart, or *xiaolingtong*, is a low-end mobile phone service that has become the most representative ICT in the have-less wireless market. It provides mobile service within limited geographic areas for the price of a fixed line. Little Smart technology was initially imported from Japan in 1996 by UTStarcom to help China's fixed-line state monopoly, China Telecom, increase mandated telephone penetration in small cities in mountainous areas. Yet since 2000, Little Smart has grown significantly, entering medium-sized cities, provincial capitals, and finally the major city-regions of Beijing and Shanghai (Figure 2). In 1999 it had only 0.6 million subscribers. In five years, the number climbed to 50 million, which is more than ten percent of China's urban population. In 2003 alone, 22 million users were added and the annual sales volume was US\$2 billion. This speed of growth dwarfs the diffusion of regular cell phone service, which took seven years to grow from less than 1 million to 50 million (1993–2000).¹⁶

Figure 2. The growth of Little Smart subscribers in China, 1999–2004 (in millions).

Source: Liu (2004).

The Little Smart technology is a personal access system (PAS), limited-mobility extension of the fixed-line phone network. It uses wireless local loop technology of the public telephone copper wire network and connects via base stations placed on rooftops around the city. It is sometimes described as a personal handyphone system (PHS), but UTStarcom adapted the original PHS concept to operate without switches, and then developed a soft-switch multi-service platform to allow the system to migrate to a next generation Internet protocol-based platform using the same handsets and base stations. This is an advantage over standard PHS systems, which cannot migrate to Internet protocol (IP) because of the use of the telecoms switch. With an existing connection to the public telephone network and another connection to the IP network, the public telephone service providers, including China Telecom, can now slowly migrate to the IP-based network.

Little Smart is inexpensive: an average handset sells for 150–200 yuan (about US\$20), approximately one-tenth of an ordinary cellular device. Subscribers are charged a monthly fee equivalent to US\$3, and a 10-minute call averages about 12 cents. Since Little Smart is regulated as a landline, receiving calls does not entail a charge. Little Smart is also city-specific, i.e., it cannot operate outside the city of registration, which eliminates roaming charges. One-way charges and the absence of roaming cuts the operational cost to between a quarter and one-third of ordinary cellular services (Informant 52). However, Little Smart's low technology has meant space/time limitations: it is effectively an intra-urban device. In addition, it does not work well in high-speed moving vehicles and has a less reliable signal than regular mobile phones. But these problems are being overcome as the network migrates to the IP-based platform.

Providers also experience the cost advantages of Little Smart. The low handset price means less investment for small shops carrying these devices. The system

itself also has several low-cost technical advantages. First, its PAS network requires little modification to the basic landline system. Second, it is scalable to fit areas of different user density, which varies greatly within and around Chinese cities. Third, it is relatively easy to set up; deploying Little Smart in a large city of 10 million to 12 million potential users normally takes three to four months.¹⁷ And from the consumer's perspective, Little Smart also serves as a more than adequate "positional good." By the end of 2003, there were over 100 models of Little Smart phone on the market, made by 25 different manufacturers, and the high-end models are still far cheaper than many other handset types, such as global system for mobile communications (GSM) and code division multiple access (CDMA), yet still have the latest features, including color screens, cameras, and polyphonic ring tones.

Beyond low cost, the success of Little Smart has to be understood in the context of China's telecom industry restructuring. In order to enhance the competitiveness of its telecom operators, in advance of entry into the WTO, the Chinese government separated the mobile communication division of the market incumbent, China Telecom, and made it the independent China Mobile. Consequently, China Telecom lost its mobile phone license, although it still monopolized the country's largest fixed-line networks. Since mobile communication has larger profit return and higher growth rate than fixed-line, it was all but coincidental that China Telecom would promote this quasi-mobile service. At first, China's mobile license holders, China Mobile and China Unicom, sought to impede the growth of Little Smart, and the MII temporarily sought to ban wireless activity in the 1,900–1,920 megahertz frequency range where Little Smart operates. It settled on a compromise policy that approved operation in provincial markets as long as it kept out of the big cities, the market base of the cellular providers. China Telecom successfully launched Little Smart in one small city after another, taking advantage of its traditional ties with local governments, making the entry into larger and larger cities appear inevitable. The central government was hesitant to take a position on use and regulation of what had become the "poor man's mobile phone." After service started in Beijing, the MII recognized Little Smart as "the people's choice."¹⁸ If China Telecom had not been stripped of its mobile license, and if it had not enjoyed close informal relationships with the local state, it would have been difficult for Little Smart to materialize at such remarkable speed and scope, and, in its consumer capacity, from the local scale of the grassroots.

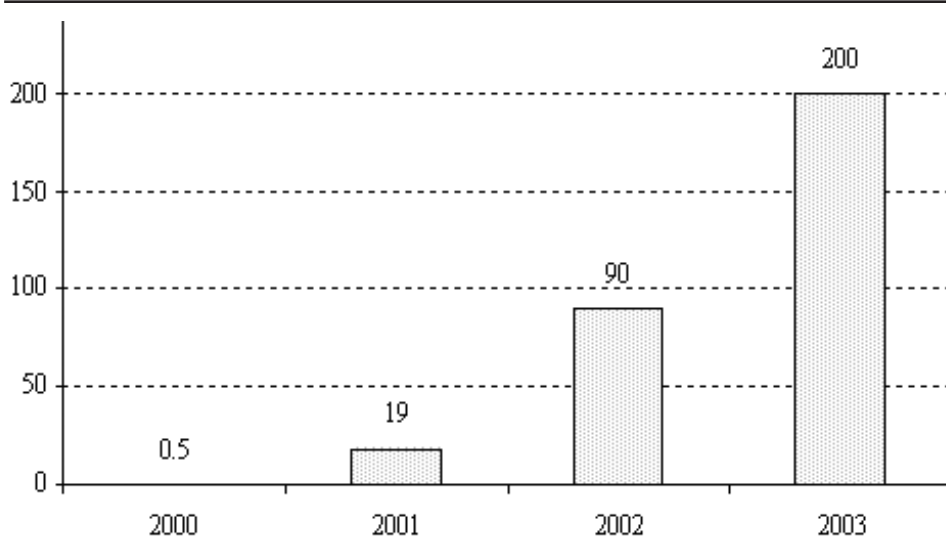
It is crucial to note that none of the major players in Little Smart, whether China Telecom, UTStarcom, or state telecom regulators, foresaw its potential. UTStarcom's initial role was to purchase PHS handsets and network equipment from Japan, sell them to China Telecom and help install the system (Informant 52). UTStarcom was otherwise focused on optical communications and narrowband access technologies, but as Little Smart's commercial value became obvious, UTStarcom focused research and development effort on the access capacity of the public telephone network. Thus, the success of Little Smart is not a project deliberately designed by state or commercial players but rather a post-hoc response to China Telecom's crisis after the loss of its mobile service license. It coincidentally meets the informational needs of the have-less, whose demand and usage practices transformed it into a leading low-cost ICT.

Short Message Service

According to the MII, mobile phones, which reached 280 million subscriptions in 2003, account for more than half of the telephones in China. This means that approximately 22 percent of China's total population and 60 percent of the urban population have mobile phones—a figure that does not include Little Smart, because it is counted as part of the fixed-line business. Because a large portion of the 280 million users have limited budgets and the two-way charge system artificially maintains a high cost for voice phone calls, short message service (SMS) has emerged to become the strongest growth point in the regular mobile phone market.

SMS is an important have-less ICT; without it, its users would not have been able to afford mobile phone service, especially before the spread of Little Smart and in areas where Little Smart coverage has remained unreliable. In the context of informational stratification, the SMS phenomenon is also more inclusive compared to other have-less ICTs because SMS usage is common among the younger generations of the upper and upper-middle classes, and it is a mark of status attainment among low-income youth groups.¹⁹ A migrant worker in Guangzhou, for example, bought a cell phone with an entire year's savings (about 2,500 yuan or US\$302) in summer 2002 (Informant 55).²⁰ The phone worked as a positional good: in the context of his peer group, he felt the cost was worth it. But with a monthly income of 800 yuan (US\$96.70), he could not use it much for voice phone calls. Instead, he used the SMS function most of the time, which rationalized the operational cost. Heavy usage of SMS is quite common among low-income youth in South China, which was confirmed in focus group discussions among young female migrant workers in Shenzhen: one of the participants complained that her roommate in the

Figure 3. The growth of SMS traffic volume, 2000–2003 (messages in billions)



Source: Jiang (2003).

factory dormitory was using SMS “every night and every weekend” while “completely ignoring others” (Informant 56).

The rapid diffusion of SMS has major business implications for Internet portals, which provide content for mobile phone subscribers, such as news and stock information (Clark, 2003). Thus, the mobile operators, China Mobile and China Unicom, provide the infrastructure and collect SMS charges as part of the phone bill, but the main content drive comes from smaller-scale dotcoms such as Sohu, Sina, and Netease. In order to increase SMS circulation, these content providers have teams of “SMS authors” (*duanxin xieshou*) who write jokes, hoaxes, erotica, and congratulatory greetings, many of which cater to the consumer tastes of lower-income groups.²¹ In this process, SMS leads to new markets for telecom operators and content providers by reaching migrants in semi-urban areas as well as middle-class urban users.

SMS has obvious constraints, especially input limitations. It requires a certain level of skill and persistence to both type and read the messages, even though they are limited to 150 characters. Customer service is typically poor and the threat of a stolen handset is constant in low-income communities. Unscrupulous individuals and organizations also use SMS to offer fake deals or jobs. Such problems are more serious with prepaid telecom services.

Prepaid Telecom Services

When have-less groups adopt mobile service, prepaid service is popular for both consumers and providers: users gain greater budget control, and telecom providers can sell service to consumers lacking stable income, permanent address, or credit history. Prepaid service is widespread globally, and also accounts for an increasingly important part of China’s mobile business. According to China Mobile, the country’s largest mobile operator, in January 2004 it had 144 million subscribers, including 51 million fixed-term contract subscribers and 93 million prepaid subscribers. The proportion of prepaid plans was even higher among new subscribers added that month, when only 15,200 new users signed fixed-term contracts by comparison to 233,000 subscribers who chose the prepaid plan (Liu, 2004: 19). The ratio of fixed-term to prepaid subscription is therefore about 1:2 overall and 1:15 among new subscribers. Since the early 1990s, China’s national and local telecom providers have issued prepaid cards for fixed-line telephones, dial-up access (the “get-online card” or *shangwangka*), and gaming cards (the “play card” or *youxika*). The real convenience for the information have-less is flexibility in deciding when to access the ICTs, which is a fully usage-driven pattern of ICT consumption.

The large number of companies issuing cards and the variety of services have precluded systematic data on prepaid services. Most local branches of nationwide operators issue prepaid cards, as do regional telecom firms like Guoxun Inc., which offers “get-online cards” in the Guangdong Province cities of Shenzhen, Dongguan, and Guangzhou. Prepaid cards are sold at newsstands and in long-distance bus stations and convenience stores, and Internet cafés are increasingly carrying prepaid game cards as a “value-added” service (Informant 32). Since it requires no special license and little investment, retailing prepaid cards is an accessible option for have-less entrepreneurs who buy cards in bulk at wholesale prices and then sell

them at face value. Because there are so many retailers concentrated in low-income neighborhoods, small discounts on the cards are common depending on market demand and the quality of the prepaid service. We encountered an impressive scene in Chengdu, where a migrant worker was biking through the local “bar street,” shouting “Phone card! Phone card!” A cardboard sign flapping above his back wheel offered several kinds of phone cards at significant discounts.

Prepaid cards are also inconvenient. Calculated on a per-minute basis, prepaid phone cards can be more expensive than fixed-term services. Like the geographical constraints of Little Smart, prepaid cards issued by city-level companies can only be used within the city. Prepaid cards designed for landline telephone and Internet access entail cumbersome checking of access and PIN numbers, which may be separated between different city-level companies, even those belonging to the same corporation. These conditions result in considerable comparison shopping for the most convenient and cheapest cards, and during fieldwork we found that getting a particular card was a hit-or-miss issue despite the variety of cards on the market. Finally, security can be a problem. As we learned from focus groups, public phone booths were notorious among migrants in Shenzhen, Zhuhai, and Guangzhou because migrant workers frequently had the PIN number of their prepaid cards stolen while using the pay phones—and not by pickpockets, but by thieves who peep at the pay phone’s keypad, sometimes through a telescope from a window nearby. The congested built environment, poor infrastructure, and low security protection in have-less areas create numerous problems in the usage of prepaid telecom cards, all of which reflect systematic negligence at the institutional level that involves local state agencies as well as the telecom corporations.

Translocal Connections at the Grassroots

Recent developments in China concerning Internet cafés, Little Smart, SMS, and prepaid services suggest a number of issues about urban society and development, which we assess here in preliminary terms and identify for further analysis. So far, no systematic studies have been undertaken on ICT usage patterns through Internet cafés, Little Smart, or prepaid services. While, for example, some commercial surveys show that SMS is used mostly for communication among acquaintances, for entertainment, and to a lesser extent, for work-related tasks and news and information gathering, these studies have made no distinction between income groups or residential status.²² The main arguments in this section analyze the widespread emergence of the ICT have-less phenomenon in relation to local-level social networking and their translocal conditions in urbanizing China.

Inequality and Informational Demand

The growth of have-less ICTs in China reflects the country’s economic boom since the 1980s, which is characterized by increasing income inequality.²³ As demonstrated in the previous sections, ICTs are never a “gift” of the political economic elite to the have-less. Nor are they cheap or convenient in absolute terms. On the contrary, the urban underclass usually overcomes more barriers, faces more threats, and tolerates more discriminatory policies in order to get connected, which demonstrates significant informational demand at the local level.

Structural inequality and institutional constraints can systematically keep the have-less from accessing regular and high-end ICT services. For example, in focus group discussions among migrant workers in Shenzhen, we learned that management commonly bars workers from using company phones during business hours. One restaurant required employees to pay a fee every time they used the work phone (Informant 57). In two other instances, migrant workers were allowed to receive but not make phone calls (Informants 58, 59). An interview with a clerk at a large insurance company revealed that the firm installed an exclusive firewall system to prohibit employees at the lower ranks from reading personal email (Informant 60). Such discriminatory policies isolate the have-less from their social networks during working hours and pressure them to acquire personal communication devices or purchase prepaid telecom services in order to keep connected.

We understand informational demand as a general psychological and behavioral orientation to access ICTs, and the inadequacy of traditional media channels to meet such needs as the provision of news and entertainment, instrumental material for work or education, communication about scarce resources, and maintenance of social contact. Under economic reform, forces of industrialization, privatization, and economic globalization have been tearing through China's traditional work-units and residential communities, widely compelling people to relocate, and dispersing central city neighborhoods to high-rise flats on the urban periphery. Under state planning, central cities have been rebuilt as commercial developments for the new services sector. These processes arguably widen the gap between informational demand and communications channels for the have-less. The same residents who have had to relocate may also be workers laid off by newly privatized state-owned enterprises, or people forced to retire, often without sufficient pension funds, and sometimes as early as the age of 45. What they have in common with farmers migrating in search of urban jobs is that they all have little choice but to rely on their personal and professional networks to solve problems by sharing information and offering mutual support. They have little assistance from state or private institutions or direct influence over state policy and corporate decisions, even as their informational demands shape materialization of multiple digital media forms. Instrumental information is in especially high demand among the have-less because the mainstream media and state information channels do not meet their needs, catering instead to the interests of the elite, the new middle class, and multinationals. Thus, recent ICT developments support social networking and offer new opportunities to transcend the constraints of the developing physical environment. Their use is an indication of the capacity of the have-less to organize informational resources and meet informational demands. Only by so doing can they obtain information sufficient to operate effectively in an evolving high-mobility society, of which they are an integral and defining part.

Mobility and Translocal Networks

Geographical and personal mobility are among the central characteristics of contemporary Chinese society, for the elite as well as the have-less. Since people began to migrate for work in the 1980s, millions of rural and small-town migrants have gained new geographical mobility. While one of the popular terms for rural-to-

urban migrants is “floaters” (*mangliu*), which implies blind and aimless movement from city to city, the reality is that exchange of information usually precedes and accompanies human movement, and in so doing, it maintains and extends existing networks of social relationships. In China, these social relationships are not new; indeed they are historic forms of social organization characteristic of Chinese society. We argue instead that existing social relationships and their characteristic networks are enduring and transforming in the context of have-less ICT use and among have-less ICT users. In many cases they are becoming more articulated, extensive, and numerous; in others, they are breaking down. Whatever the conditions of transformation, ICT use is a significant means by which people are building their networks and negotiating change.

Analyzing the centrality of social networks as the main organizational structure and most important socioeconomic asset of the information have-less depends on understanding these social forms in historic context and through state-society relations. First, both domestic and international migration in China have historically exhibited organized networks based on interpersonal relationships such as consanguinity, common dialect, and home-town associations (*tongxianghui*).²⁴ The major city-regions surrounding Beijing, Shanghai, and Guangzhou, which tend to have high population mobility today, are traditional as well as contemporary destinations of domestic migration, and their migrant communities have commonly settled in proximity on the basis of such common ties. Second, the state constrains formalization of such social networks. Traditional non-governmental organizations such as hometown associations, surname associations, alumni associations, trade unions, and labor unions cannot register as formal “civil organizations” (*mingjian zuzhi*) with the Ministry of Civil Affairs.²⁵ Lack of legal status for these organizations does not fundamentally curtail their activities; on the contrary, it centralizes the role of informal ties in maintaining their activities. Third, since China’s mainstream mass media and telecom corporations do not adequately address the informational needs of the have-less, such networks serve as conduits for informational exchange and socio-economic ties in this era of surging population mobility and informational demand at the grassroots.

Given the historical and institutional conditions of networked social organization in China, the new mobility leads to the formation of *translocal* networks, or networks that reflect multiple place attachments resulting from migratory lifepaths. Traditionally maintained through face-to-face communication, postal mail, and telegraph, translocal networks in China find convenient and more efficient expression via have-less ICTs. In the context of translocal networks, the convention of traditional *guanxi* connections—relations and obligations built up between people over time—are both extended and transformed through ICT-based communications among the information have-less. The new digital communication channels also foster new connections, for example, through online chat rooms and SMS. Such associative ties among the urban underclass remains a sensitive topic, but the state can only dampen the emergence of such communications.

These are, at the present stage, spontaneous formations of grassroots connections, whose participants may share common lifepath experiences and extend them to new places of settlement. With increasing population mobility and the help of

have-less ICTs, sharing and maintaining connections becomes more regular and extensive—with translocal reach—both within a given city, between cities, and internationally. Most of these exchanges are small-scale occurrences at the personal level, but their total volume is tremendous.

Working-Class Providers

The idea of the translocal network expresses the organizational logic of the have-less not only as an assembly of consumers but also as ICT providers. Providers of have-less ICTs specialize in hardware, content, and access services, and despite limitations in functions, scale, and service quality, these technological configurations are responses to the informational demands of the have-less in particular time-space configurations, growing out of local communities. For this reason, have-less providers are the critical “last mile” link in the chain of goods and services targeted at the have-less.

Providing have-less ICT services takes place in the context of state control and monopoly over the most lucrative segments of the ICT market. UTStarcom’s introduction of Little Smart was an exceptional intervention in this system. Otherwise, small-scale entrepreneurs prevail over the have-less ICT market, and the employees who provide low-end services do not have many alternatives in this medium range of the information-services sector. Working-class ICT entrepreneurs and the daily operators they hire often trade conversation about the “new economy” and the tremendous business opportunities brought by digital media, which results from China’s media bombardment about the historic inevitability of the “Information Age” since the mid-1990s. It also reflects that providers of working-class ICTs are not average members of the urban underclass, but are the more ambitious and risk-taking people at the grassroots.

Relatively low-cost technology and operational costs play an essential role in the commercial viability of working-class ICTs. But even the relatively low barriers to entry often exceed the capacity of one individual or family. In order to start an Internet café, for example, the owner commonly borrows investment capital from family and close friends and gets help from neighbors to secure a good business site. Since commercial banks and local government almost never assist these small “risky” businesses, the low-end ICT entrepreneurs have no choice but to rely on translocal networks for financial, personnel, and technical support.²⁶ Meanwhile, in the face of state and urban middle-class discontent with Internet cafés, operators have attempted to connect with each other to address mutual goals.²⁷ These attempts, however, are preliminary and have yet to yield influence.

The Rise of the Have-Less?

What, then, are the implications of working-class ICTs and translocal networks among the have-less from both user and provider perspectives? Is the emergence of the information have-less equivalent to an effective solution for the problem of information inequality, and therefore a new model for the urban space economy in the informational city? The answer is both yes and no.

Power, Profit, and the Persisting Specter of Polarization

Through multifaceted processes of consumption/production, the development of have-less ICTs not only helps meet informational needs but also creates new business and employment opportunities. In so doing, these ICTs help sustain, reinforce, and extend translocal networks among the urban underclass. The have-less have emerged as a new informational class clearly recognizable in the ICT marketplace. In this sense, what we have observed is not merely a by-product of elite-led informatization projects; it is instead, an important market development and a critical technological materialization with profound social, political, and economic implications.

However, the emergence of the information have-less as a consumer market does not mean that they have gained full urban citizenship with necessary cultural and political power. It is true that have-less users, and particularly providers, now have more control over parts of the hardware and distribution system. But the technological pursuits of the have-less are seldom connected to the state's modernization goals.²⁸ As a result, there is little institutional support for development of low-end digital media, or protection against crime associated with these media. The local state could, for example, provide institutional support for adult education, through which migrants and laid-off workers could learn skills and update their knowledge base. Large numbers of small computer and Internet training centers have sprouted up, attracting laborers who want to move beyond their manufacturing jobs,²⁹ but these schools and their educational resources are, so far, still local and scattered. They are another grassroots phenomenon meriting future research.

It is no coincidence that have-less ICTs associated with upward social mobility are largely neglected in public policy and corporate telecom circles, where concerns focus on profitability and higher-end investments. The information have-less lack participation in these processes and are vulnerable to the vicissitudes of the market as well as unfavorable state policies, which is ultimately detrimental to their material interests. The state's elite construction of technology threatens to reproduce and perpetuate existing information inequality and, in so doing, reduces have-less ICTs to an apparatus of the market—or worse, a status marker of the have-less.

Institutional constraints on the formation of networks beyond the scope of informal relationships and associations fundamentally disempower the have-less. The combination of state regulation on individual expression and the absence of NGO activities results in low level political awareness among the have-less.³⁰ But unlike the urban middle class, who can articulate shared experiences with ICTs across lines of internal differentiation (See Zhao, 2004, and Castells et al., 2004), little common-identity basis exists for the have-less to recognize themselves as a group of ICT users and providers. Although certain dramatic events, such as a severe Internet café crackdown, will result in have-less ICT providers sharing their hardships or posting their grievances, these efforts are of little practical consequence. The various online and offline institutional constraints mean that it remains difficult for the have-less to scale up action and draw public attention to their concerns.

With inadequate collective articulation and coordinated action, it is rare for the urban underclass to exert deliberate influence over the structural conditions that shape their ICT usage patterns. As a result, the level of collective efficacy is usually

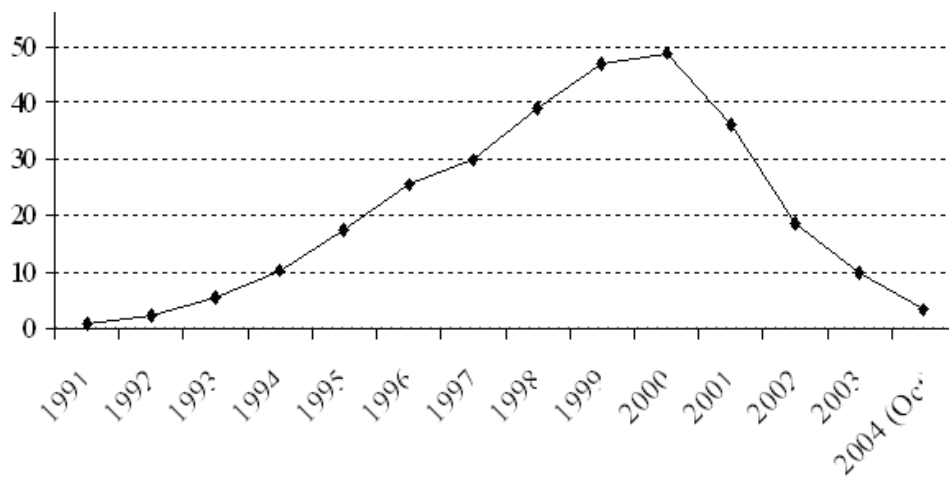
low, a situation that is exacerbated by the labor flexibility of the have-less population. While increasing population mobility can produce more opportunities for laid-off workers and migrants, it can also make it more difficult to organize around such shared goals as improved customer service by telecom operators and employment security in the IT sector. While translocal networks allow people to sustain existing relationships, they may also distract people's attention from local problems. Mobility and translocal networks therefore may not always work in the long-term interests of the have-less, as the socio-political consequences of have-less ICTs almost always depend on specific power relationships at the grassroots as well as the content conveyed on these networks of connections.

Under the current situation, in which many of the have-less are low-end consumers but not urban citizens in the full sense, the rise of the information have-less as a commercial and technological category is marked by inequitable conditions. Have-less ICTs, as a mode of informational development, may extend and reinforce existing dependency relationships. This suggests that the emergence of the have-less can be a temporary phenomenon because decision-makers at higher social strata may choose to further marginalize or abandon these ICTs, especially if denial of access works in favor of telecom oligopolies. The specter of polarization and the dual city is therefore still lurking despite the rapid and large-scale development of the information have-less in China.

The Sudden Decline of the Pager

On this cautionary note, it is worth observing the development trajectory of the pager, an older have-less ICT, including its impressive diffusion during the 1990s and its sudden demise since 2000–2001. As shown in Figure 4, it took ten years for the number of China's pager subscribers, mostly city dwellers, to grow from less than 1 million in 1991 to 48.8 million in 2000, representing the world's largest pager market at the time.³¹ Yet subscription numbers dropped dramatically after 2000, and less than four years later, in October 2004, there were no more than 3.4 million pager users nationwide. China Unicom, the country's largest pager operator, was reportedly suffering from high disconnection rates and low profit margins. Like herd behavior on a stock downturn, local pager companies reacted and abandoned the business, sometimes without prior notification to subscribers. Shutdown of pager services was so rampant in some parts of the country, such as Guangdong Province, that state regulators had to intervene by requiring pager operators to get government approval before ending service.³² However, this effort appears to have had little effect in slowing the decline of pager use, as reflected in the rapid shrinking of the subscriber population.

The decline of pager service in China is commonly attributed to the "backwardness" of this "outdated" technology. But pager sales revenue in the United States increased between 1998 and 2002 as users found the technology cheaper and less conspicuous with better coverage and greater control than the mobile phone (Castells et al., 2004: 57).³³ Although the rise of SMS was on a much larger scale in China than in the US, thus creating a different set of market dynamics, these examples question the logic that the appearance of new ICTs automatically renders older ones obsolete. The real issue underlying the decline of the pager is therefore not the

Figure 4. The growth and decline of pager service in China, 1991–2004.

Source: Ministry of Information Industry, People's Republic of China (2005).

choice between old and new technologies but the decision about whose interests prevail. What we have seen in this case is that when new services come out, telecom corporations tend to first withdraw low-end services so that capital can be “freed up” to pursue higher profits. By redirecting resources from established service, the telecom operators effectively force pager subscribers to substitute with the newer and more expensive mobile phone.

The case of the pager does not mean that history will repeat itself. In fact, it could be argued that Internet cafés, Little Smart, SMS, and prepaid services all differ from the business model of the pager by giving both users and providers more control over distribution and even content production. Rising mobility and increasing influence of translocal networks also suggests that technological conduits are probably better established than ever before to host collective actions concerning ICTs.

Conclusion

Assessing China's have-less ICTs reveals that the information have-less are looming on the landscape of China's digital cities as a middle ground between the information haves and have-nots, in ways that are technological as well as economic and socio-political. Assessing the rise of the information have-less, under a complex system of institutional constraints, leads to an alternative framework for understanding the processes of informational stratification. It shows that the actual pattern of differentiation can be more refined than the idea of the digital divide; and that the informational city is not necessarily a dual city if the user/provider environment accommodates the growth of have-less ICTs.

In sum, three qualities characterize these ICTs in relation to translocal networks. First, they entail less investment and lower operational costs than their high-end counterparts, e.g., home Internet access and regular mobile voice telephony, and so encourage individuals to use have-less ICTs to get and stay connected. Second, they are limited in terms of geographical scope, type, and quality of service, and/or the protection of subscriber interests in the broad sense (i.e., concerning user privacy) but still facilitate mobility; indeed, they play a unique role in providing informational functions for the have-less in an era of rising population mobility and extensive translocal networks. Finally, more critical than the growth of have-less ICTs is the realization that most of their technological improvements are not achieved as a consequence of state or industry planning. Rather, improvements result from informational demand of have-less user populations and the entrepreneurial potential in low-income communities.

Translocal networks among the have-less take different forms. Some have strong historic roots and are lifepath dependent, while others are more spontaneous and informal. Have-less ICTs, as digital media that can be shaped for a variety of local market conditions, facilitate these different social formations. The flexibility of ICTs to meet local needs is, however, also their key weakness. Lack of formal institutional and industrial structure means that the information have-less usually have little influence on state regulators and telecom oligopolies. Although have-less users constitute the largest proportion of China's ICT consumer market, and although low-end telecom providers and their employees probably outnumber the suppliers servicing the upper-income group, they are more likely to suffer from lack of control over the processes of technical configuration and content distribution and be left out of sharing economic gains. The lack of power and its consequences for the structural setup of have-less ICTs are evident in the sudden decline of pager service, which shows that the sheer size of the market does not guarantee the survival of low-end digital technology. On the contrary, the superimposed mode of technology "upgrading" not only hurts the material interests of have-less consumers but also reproduces unequal power relations by forcing them to abandon one digital technology and adopt another. The rise of the information have-less is, in this sense, an incomplete process because the grassroots potential of translocal networks has been largely kept at bay and the more important agenda of structural social reform remains out of sight.

Finally, this article leaves open several key issues, including internal differentiation among the have-less, usage patterns for leisure and instrumental goals, and long-term sociopolitical purposes, as well as cultural expressions that may facilitate collective identity formation through low-end digital media. Another issue is the transformation of have-less ICTs over time, both technologically and in terms of the functions they fulfill as an equalizing medium in society. The question of equality becomes in some ways more pressing when China's urban underclass achieves limited informational access. Digital media may help bridge the social schisms at stake, but they may also deepen them when public and private players continue to disenfranchise the lower socio-economic strata. Only by allowing the have-less to have more control over ICTs can the phenomenon of the information have-less become sustainable in the long run. In the process, a viable alternative model for the dual city as an informational city may emerge.

Appendix: Informants

- Informant 1, official, Women's Federation, Xichang, Sichuan, May 27, 2002
 Informant 3, clerk, Internet café, Xichang, Sichuan, May 28, 2002
 Informant 4, clerk, Internet café, Chengdu, Sichuan, May 29, 2002
 Informant 5, owner, Internet café, Chengdu, Sichuan, May 30, 2002
 Informant 6, clerk, Electronics Plaza, Chengdu, Sichuan, May 30, 2002
 Informant 7, official, provincial informatization office, Guangdong, June 30, 2002
 Informant 8, clerk, Internet café chain store, Guangzhou, Guangdong, June 8, 2002
 Informant 9, manager, Zhongshan Library, Guangzhou, Guangdong, June 9, 2002
 Informant 10, manager, Internet café chain store, Guangzhou, Guangdong, June 9, 2002
 Informant 11, manager, Internet café chain store, Guangzhou, Guangdong, June 10, 2002
 Informant 12, clerk, Internet café, Shenzhen, Guangdong, June 12, 2002
 Informant 13, official, city informatization office, Shenzhen, Guangdong, June 12, 2002
 Informant 16, manager, China Unicom, Dongguan, Guangdong, June 21, 2002
 Informant 17, manager, Guoxun Telecom Co., Dongguan, Guangdong, June 22, 2002
 Informant 19, official, city science and technology bureau, Nanhai, Guangdong, July 19, 2002
 Informant 20, owner, Internet café, Nanhai, Guangdong, July 19, 2002
 Informant 22, CEO, local telecom access provider, Foshan, Guangdong, June 24, 2002
 Informant 26, CEO, local telecom access provider, Zhongshan, Guangdong, June 27, 2002
 Informant 29, manager, Internet café, Zhuhai, July 29, 2002
 Informant 30, official, municipal informatization office, Shanghai, December 17, 2003
 Informant 32, manager, Internet café chain store, Shanghai, December 18, 2003
 Informant 34, clerk, Internet café, Shanghai, December 19, 2003
 Informant 35, clerk, Internet café, Shanghai, December 19, 2003
 Informant 36, manager, Internet café, Jiaxin, Zhejiang, January 9, 2004
 Informant 37, owner, Internet café, Jiaxin, Zhejiang, January 10, 2004
 Informant 39, official, city informatization office, Ningbo, Zhejiang, December 25, 2003
 Informant 40, manager, Internet café, Ningbo, Zhejiang, December 25, 2003
 Informant 42, official, provincial informatization office, Zhejiang, December 21, 2003
 Informant 43, clerk, Internet café, Hangzhou, Zhejiang, December 21, 2003
 Informant 44, manager, Internet café, Hangzhou, Zhejiang, December 22, 2003
 Informant 46, owner, phonecard store, Hangzhou, Zhejiang, December 21, 2004
 Informant 47, official, city informatization office, Suzhou, Jiangsu, January 4, 2004
 Informant 48, manager, China Telecom, Suzhou, Jiangsu, January 5, 2004
 Informant 50, clerk, Internet café, Suzhou, Jiangsu, January 3, 2004
 Informant 51, manager, Internet café, Suzhou, Jiangsu, January 3, 2004

Informant 52, manager, UTStarcom, Hangzhou, Zhejiang, November 14, 2004
 Informant 53, pensioner, Ningbo, Zhejiang, December 26, 2003
 Informant 54, unemployed migrant worker, Zhuhai, Guangdong, July 30, 2002
 Informant 55, migrant worker, fertilizer factory, Guangzhou, Guangdong, June 5, 2002
 Informant 56, migrant worker, electronics factory, Shenzhen, Guangdong, August 2, 2002
 Informant 57, waitress, restaurant, Shenzhen, Guangdong, August 5, 2002
 Informant 58, waitress, restaurant, Shenzhen, Guangdong, August 5, 2002
 Informant 59, waitress, restaurant, Shenzhen, Guangdong, August 5, 2002
 Informant 60, clerk, insurance company, Shenzhen, Guangdong, December 15, 2004
 Informant 62, labor organizer, Shenzhen, Guangdong, (interview conducted in Los Angeles) August 19, 2004

Notes

1. The phrase "mobility multiplier" was coined by Daniel Lerner (1958: 59) and used extensively in studies of communication and national development (Rogers, 1962, 1976; Schramm, 1964; Mody, 1992).
2. See Schiller (1996), Thussu (2000), and International Commission for the Study of Communication Problems (1981), also known as the McBride Report.
3. Kuo, Kaiser, "Little Smart 'cell' phone very, very smart in China," *Asia Times*, Mar. 11, 2004. Available: <http://www.atimes.com/atimes/China/FC11Ad02.html>.
4. For more discussion on informational stratification in China, see Qiu (2002).
5. Since 1996, we have conducted fieldwork regarding ICT developments in Beijing, Hubei, Sichuan, and particularly in the Pearl River Delta in Guangdong during summer 2002 and the Yangtze River Delta including Shanghai and the surrounding areas during December 2003–January 2004. Multiple qualitative and quantitative methods were used, including interviews, focus groups, participant observation, archive research, and small-scale surveys. These research efforts, however, are preliminary in terms of their analytical value for our understanding of the information have-less and working class ICTs. A more systematic phase of fieldwork is planned for 2005 and beyond to address the questions raised in this paper.
6. "China's floating population exceeded 10% of total," *China News*, Jan 5, 2005. <http://www.chinanews.cn/news/2004/2005-01-06/772.shtml>.
7. For more discussions on informationalism in general, see Castells (1996). Qiu (2004b) provides an overview of the media discourse on informationalism in China.
8. In most cases, working-class ICTs are unintended consequences of state policy and/or corporate strategy. This is a finding we observed in multiple locations with regard to multiple ICT services, including the Internet café, Little Smart cell phone, and prepaid phone card.
9. See Brendan Murray (2003) for specific penalties on Internet café owners as required by regulatory ordinances and Qiu and Zhou (2005) for the enforcement of these measures nationwide.
10. Xinhua News Agency, "Internet cafés still subject to strict controls," 21 February 2003. It is unclear if this total number includes Internet cafés that are not registered with the government.
11. The incident that deserves particular attention is the deadly fire on 16 June 2002 in a Beijing Internet café that killed 24 young people, mostly college students. This tragedy led to a public outcry and the most severe nationwide crackdown on Internet cafés. See Xinhua News Agency, "All Beijing Internet cafés closed for 'rectification' to guarantee safety," 16 June 2002; Xinhua News Agency, "Internet cafés still subject to strict controls," 21 February 2003; and Murray (2003).
12. Observations from our fieldwork in Sichuan during summer 2002. See more findings from Central and North China in Guo (2003).
13. Kang Guoping, "*Wangbaye niandu shida* (Top Ten news of the Internet Café Industry)." Available: <http://www.blogchina.com/new/display/61011.html> December 24, 2004.

14. Focus group of migrant workers in Zhuhai, Guangdong Province, July 2002.
15. Focus group of teenage Internet users in Chengdu, Sichuan Province, conducted with Professor Bu Wei, Institute of Journalism and Communication, Chinese Academy of Social Sciences.
16. *Zhongguo tongji nianjian (China Statistics Yearbook), 1993–2000*. Beijing: China Statistics Publications.
17. Frost & Sullivan (2003). *The “PAS” Phenomenon: Revolutionizing Local Wireless Telephony*. Frost & Sullivan White Papers, p. 7.
18. Kuo, Kaiser, “Little Smart ‘cell’ phone very, very smart in China,” *Asia Times*, Mar. 11, 2004. Available: <http://www.atimes.com/atimes/China/FC11Ad02.html>.
19. Survey results from Guangzhou, Shenzhen, and Zhuhai (Qiu, 2004a).
20. Such purchases arguably account for the difference between the top 20 percent of the population who can afford cellular phones and the 22 percent who actually own them.
21. Long, Chen, “*Wojiushi duanxinwenhua de muhouheishou* (I am a Backstage Manipulator of SMS Culture),” Guangzhou: *xinzhoukan (New Weekly)*, July 15, 2002, p. 39.
22. According to Sohu-Horizon Survey (October 2003, available: <http://it.sohu.com/2004/02/19/96/article219129623.shtml>), SMS is used mostly for chat with friends (74.9%), contact families and relatives (68.9%), communication with significant others (51.8%), entertainment (50.8%), work-related tasks (19.6%), and getting news and other information (16%).
23. For further discussion, see Yao (1996, 2004); World Bank (1997); Bhalla et al. (2003).
24. Cartier (2001, 2002); Ma and Cartier (2003); historical migration flows were commonly organized through blood ties and hometown associations (e.g., Goodman 1995; Douw, Huang, and Godley, 1999).
25. A search through the list of registered civil organizations at the MCA website yields no hometown associations (*tongxianghui*) and only two schoolmates associations (*tongxuehui*) for overseas Chinese. This institutional constraint limits the capacity of grassroots networks to function at the national scale by denying them formal legal status.
26. This is a phenomenon that we learned from multiple Internet café interviews in South China and East China (Informants 10, 12, 20, 34, 50, 51).
27. The Internet Café Operators Association (*wangba yingyunshang lianmeng*) was established on June 3, 2004, in Beijing (see <http://games.sina.com.cn/zt/netbarciw/index.shtml>). This was followed by the High-Level Forum on the Operation and Development of Internet Café in China (*zhongguo wangba jingying fazhan gaofeng luntan*), held on June 16, 2004 (see <http://www.ccnet.com.cn/htm/wblt/>).
28. There are some articulations of the strategic importance of Internet café, for example, in Jiang Qiping’s “wangba wangyou jiuzhongguo (Internet Café and Online Gaming Save China),” www.blogchina.com, May 2004. Such arguments, however, rarely gain publicity in the mass media or even mainstream Internet portal sites. Except for Internet cafés, there is little articulation for other types of working-class ICTs. There is little indication either that any of the telecom operators support this more grassroots-oriented approach.
29. Fieldwork in Shenzhen, December 2004.
30. At the present stage, NGOs in China could barely meet the basic needs of the working class in areas such as salary, injury protection and gender equality. Few have worked on issues related to the right to communicate. This is our observation in the fieldwork and interviews conducted in Beijing during January 2004 and interviews with labor organizers from South China conducted in Los Angeles during August 2004.
31. Ministry of Information Industry. 2001. *Zhongguo tongxinye fazhan niandu tongji baogao (Annual Statistical Report on the Development of Telecommunications in China)*. Also see Qin, Haibo, “Yonghu daliang liushi xunhutai fenfen daobi (Users Departure in Large Quantity, Many Pager Stations are Closed Down),” *Beijing Morning Post*, April 3, 2002.
32. Wu, Wei, and Shi, Yi. 2001. “Guangdongshen jinzhi xunhutai zaiwan tuzhanshizong (Guangdong Province Forbids Pager Stations to Suddenly Disappear).” *Nanfang Daily*. November 11, 2001. For specific regulation see “*Wuxian xunhuye jingying guanli guiding (Regulation for the Operation and Management of Wireless Pager Service)*” issued by the Guangdong Provincial Telecom Regulatory Bureau in November 2001.
33. According to Euromonitor (2003). *Cellular and wireless communications systems in the USA* (July 2003). Market Monitor Research, revenues from pager sales in the US have increased by

17.2 percent between 1998 and 2002. Also see Mante (2002). Americans had a preference for devices that allow control over flow, such as pagers and caller ID.

References

- Barnet, Richard J. and Canvanagh, J. 1994. *Global Dreams: Imperial Corporations and the New World Order*. New York: Simon and Schuster.
- Bhalla, Ajit S., Yao, Shujie, and Zhang, Zhongyi. 2003. "Causes of Inequalities in China, 1952 to 1999." *Journal of International Development*. 15(8): 939–955.
- Cartier, Carolyn. 2001. *Globalizing South China*. Oxford: Blackwell.
- Cartier, Carolyn. 2002. "Origins and Evolution of a Geographical Idea: The 'Macroregion' in China." *Modern China*. 28(1): 79–143.
- Castells, Manuel. 1989. *The Informational City: Information Technology, Economic Restructuring, and the Urban-Regional Process*. Oxford: Blackwell.
- Castells, Manuel, and Hall, Peter. 1994. *Technopoles of the World*. London: Routledge.
- Castells, Manuel. 1999. "The Informational City is a Dual City: Can it Be Reversed?" In D.A. Schon, B. Sanyaland, and W.J. Mitchell, eds., *High Technology and Low-Income Communities: Prospects for the Positive Use of Advanced Information Technology*. Pp. 25–41. Cambridge, MA: MIT Press.
- Castells, Manuel, Fernandez-Ardevol, Mireia, Qiu, Jack L. and Sey, Araba. 2004. *The Mobile Communication Society: A Cross-Cultural Analysis of Available Evidence on the Social Uses of Wireless Communication Technology*. Los Angeles, CA: Annenberg School for Communication, University of Southern California.
- Clark, Duncan. 2003. "From the Web to Wireless." Presentation made at the conference "China and the Internet: Technology, Economy, and Society in Transition." Los Angeles, CA, May 30–31, 2003.
- China Internet Network Information Center (CNNIC). 1999–2004. *Zhongguo hulianwang fazhanzhuangkuang tongjibaogao (Statistical Report on the Development of Internet in China)*. <www.cnnic.net.cn>. Accessed 1 February 2005.
- Douw, Leo, Cen Huang, and Michael R. Godley, eds. 1999. *Qiaoxiang Ties: Interdisciplinary Approaches to "Cultural Capitalism" in South China*. London: Kegan Paul.
- Duffy, Rob, and Zhao, Yuezhi. 2004. "Short-Circuited: Communication and Working Class Struggle in China." Paper presented at "China's Media Today and Tomorrow" symposium, University of Westminster, May 14, 2004.
- Galtung, Johan, and Vincent, Richard C. 1992. *Global Glasnost: Toward a New World Information and Communication Order?* Cresskill, NJ: Hampton Press.
- Goodman, Bryna. 1995. *Native Place, City and Nation: Regional Identities and Organization in Shanghai, 1853–1927*. Berkeley: University of California Press.
- Gow, Gordon. 2001. "Spatial Metaphor in the Work of Marshall McLuhan." *Canadian Journal of Communication* 26(4): 63–80.
- Guo, Liang, ed. 2003. *Hulianwang zai zhongguo xiaochengshi de fazhan (Internet Development in Small Chinese Cities)*. Chinese Academy of Social Sciences.
- International Commission for the Study of Communication Problems. 1981. *Many Voices, One World*. UNESCO.
- Jiang, Celicia. 2003. "SMS in China." *China Digital News*. The Graduate School of Journalism, University of California, Berkeley.
- Liang, Zai, and Ma Zhongdong. 2004. "China's Floating Population: New Evidence from the 2000 Census." *Population and Development Review* 30(3): 467–88.
- Liu, Hui. 2004. *Zhongguo xiaolingtong shichang dongtai yanjiu (Research on Market Dynamics of Little Smart in China)*. Beijing: TeleInfo Institute, China Academy of Telecommunications Research, Ministry of Information Industry.
- Lerner, Daniel. 1958. *The Passing of the Traditional Society: Modernizing the Middle East*. Glencoe, IL: The Free Press.
- Ma, Laurence J.C., and Carolyn Cartier, eds. 2003. *The Chinese Diaspora: Place, Space, Mobility and Identity*. Lanham, MD: Rowman and Littlefield.

- Mante, Enid. 2002. "The Netherlands and the USA Compared." In James E. Katz, ed., *Perpetual Contact: Mobile Communications, Private Talk, Public Performance*. Pp. 110–125. Port Chester, NY: Cambridge University Press.
- Mollenkopf, John, and Manuel Castells. 1991. *Dual City: Restructuring New York*. New York: Russell Sage Foundation.
- Mosco, Vicent. 1996. *The Political Economy of Communication: Rethinking and Renewal*. London: Sage.
- Mody, Bella. 1992. "Talking to Development Bankers: Extension Workers Speak Up." *Development Communication Report* 79: 7–9.
- Murray, Brendan. "Internet Café Regulation in China: A Policy Review." *MFC Insight*, 4 June 2003. <www.mfcinsight.com/files/030604Oped3.pdf>. Accessed 8 March 2004.
- Qiu, Jack L. 2002. "Coming to Terms with Informational Stratification in China." *Cardozo Arts & Entertainment Law Journal*. 20(1): 157–180.
- Qiu, Jack L. 2004a. "(Dis)connecting the Pearl River Delta: The Transformation of a Regional Telecommunications Infrastructure, 1978–2002." Ph.D. dissertation. Los Angeles, CA: University of Southern California.
- Qiu, Jack L. 2004b. "China and the Internet: Technologies of Freedom in a Statist Information Society." In Manuel Castells, ed., *The Network Society: A Global Perspective*. Pp. 99–124. London: Edward Elgar Publishing Ltd.
- Qiu, Jack L., and Liuning Zhou. 2005. "Through the Prism of Internet Café: Managing Access in an Ecology of Games." *China Information*, 19(2): 261–97.
- Rogers, Everett. 1962. *The Diffusion of Innovations*. New York: The Free Press.
- Rogers, Everett, ed. 1976. *Communication and Development: Critical Perspectives*. Beverly Hills, CA: Sage.
- Schiller, Herbert. 1996. *Information Inequality: The Deepening Social Crisis in America*. New York: Routledge.
- Servon, Lisa J. 2002. *Bridging the Digital Divide: Technology, Community, and Public Policy*. Malden, MA: Blackwell.
- Solinger, Dorothy J. 1999. *Contesting Citizenship in Urban China: Peasant Migrants, the State, and the Logic of the Market*. Berkeley: University of California Press.
- Sosale, Sujatha. 2003. "Envisioning a New World Order Through Journalism: Lessons from Recent History." *Journalism* 4(3): 377–392.
- Thrift, Nigel. 1995. "A Hyperactive World." In Ronald Johnson, Peter Tayler, and Michael Watts, eds., *Geographies of Global Change*. Oxford: Blackwell.
- Thussu, Daya K. 2000. *International Communication: Continuity and Change*. London: Arnold.
- World Bank. 1997. *Sharing Rising Incomes: Disparities in China*. Washington, DC: The World Bank.
- Yao, Shujie. 1996. "Economic Growth, Income Inequality and Poverty in China under Economic Reforms." *Journal of Development Studies* 35(6): 104–130.
- Yao, Shujie. 2004. "Unemployment and Urban Poverty in China: A Case Study of Guangzhou and Tianjin." *Journal of International Development* 16(2): 171–188.
- Zhao, Yuezhi. (2004). "Between a World Summit and a Chinese Movie: Visions of the 'Information Society.'" *Gazette* 66(3–4): 275–280.