Chapter 4

Poverty

Mali has democratic institutions and few restrictions on the free press. The International Research and Exchanges Board (IREX) used the Media Sustainability Index to compare three dozen Sub-Saharan African nations in 2006-7. Mali ranked 4th highest in freedom of the press, located just below South Africa, Namibia and Ghana.[1] IREX reports that legal protections of free speech are enforced, licensing of broadcast media is fair and competitive, and laws designed to prevent crimes against journalists are rigorously enforced. Even today, however, most of the population has limited opportunities to learn about the rest of the world. Mali is one of the least developed societies in West Africa, one of the poorest parts of the globe, and it is a land-locked country overlapping the Sahara, with poor transportation and few visitors. Public service TV and radio stations (ORTM) compete with more than 200 commercial and community radio stations. CNN, TV5Monde, and RTL are available on cable TV, along with sports and movies. Beyond the urban middle classes, however, relatively few homes pick up these signals; only one in seven households has a TV set.[2] The telecommunications sector was partially privatized in 2002. A population of 12.3 million has access to 82,500 mainline and 1.5 million mobile cell phones, representing 12 phones per 100 people. One of the first African national dial-up Internet services was established in Mali in 2001, including public access from a Bamako café and some hotels. The remote and dusty desert city of Timbuktu is home to ancient manuscripts and books, and also has a UNESCO-sponsored local Telecenter, a pilot project offering public access to telephones, facsimile and internet communications, and an official internet website.[3] Nevertheless today less than one percent of Malians (100,000) use the Internet. [4] There is a market for state and privately-owned newspapers and magazines, mostly published in French, such as the daily papers *L'Aurore*, *Le Republicain* and *L'Independent,* concentrated in the capital of Bamako, but more than half the population remains illiterate. Subsistence farmers living in isolated towns and villages along the Niger river constitute almost three-quarters of the population, and are largely cut off from the rest of the world.[5] Since the early-1990, therefore, the underlying conditions of democratic governance, respect for human rights, and freedom of expression have favored the development of a flourishing independent news industry in Mali, but people's lives continue to be relatively untouched by twenty first century mass communications.

[Table 4.1 about here]

By contrast, South Africa is a far more cosmopolitan society that has become an integral part of the modern globalized world. It has some similarities with Mali, both countries having about the same physical size and both became democratic in the early-1990s. There the similarities end. As Table 4.1 indicates, South Africa is a middle-income economy with far higher levels of literacy, and communication and information technologies are far more widely available than in Mali. In major cities, such as Johannesburg and Cape Town, the media landscapes are similar to those in more affluent post-industrial societies. People can choose from an array of news and information, including daily newspapers, public service radio, programs, commercial news and talk radio programs, online sources, websites, and emails, and the evening TV news, documentaries, and current affairs programs. More than half of all households possess a TV set and public service, commercial, and pay TV are available in multiple languages. SABC, the public service broadcaster, comprises four television channels - three of them free-to-air and the fourth pay-TV. The free-to-air channels (paid for by license fees and advertising) attract more than 17.5 million adult viewers daily, reaching 89% of the total adult TV-viewing population. It is committed to educate, inform and entertain, the Reithian trilogy, including providing multicultural, multiracial and multilingual programs for various sectors, regions, and age-groups. [6] SABC Africa broadcasts across the continent and SABC News International, a 24-hour news channel, is available in several countries. The country is well integrated into global markets in cultural trade; in 2002 UNESCO estimates that South Africa exported about US $57m worth of cultural products (such as books, newspapers, recorded media and audiovisual media) and imported about $309m worth.[7] The 29th Durban international film festival featured over seventy South African feature films, documentaries and shorts, as well as movies from many other countries.[8] Internet use remains relatively low but South Africa has ten times as many users per capita as does Mali. The World Economic Forum's 2007 Network Readiness Index ranked South Africa 51st out of 127 countries, above such countries as China, Greece, Russia, and Mexico.[9] This context provides major urban areas, where the majority of people live, with 24/7 access to real-time headlines from SABC, CNN International, and Google news. Fewer communication resources can be found in the rural areas and the shanty towns of South Africa, but radio is a popular and cheap resource for news, music and commentary. On average, there is almost one telephone per person, and a modern well-equipped telecommunication sector provides a reliable domestic and international service. In short, South Africa is a cosmopolitan society that is fully integrated into global communications networks.

There are striking differences between these media landscapes. As we shall demonstrate, the evidence indicates that Mali is not an exceptional case; similar patterns of information poverty exist in

many of the world's poorest societies.[10] UNDP estimates that half a billion inhabitants – almost one tenth of the world's people-- live in the 25 nations characterized by low human development.[11] Lack of connectivity limits the capacity of global communications to reach isolated communities. The cultural convergence argument assumes that use of information and communication technologies has gradually percolated down to almost all contemporary societies. This thesis assumes that exposure to Western/American-produced popular entertainment and news information will gradually transform indigenous values in developing societies and thereby threaten traditional ways of life. If television and the internet gradually penetrate previously-isolated communities – even remote places such as Timbuktu - then logically this process could potentially undermine local cultures. But the argument under-estimates the persistence of enduring patterns of social exclusion, and the growing gap between rich and poor parts of the world in access to nearly all types of ICTs. The combined forces of the leading multinational media corporations – the brand-name products typical of the Disney Corporation, Sony, and Microsoft -- have flooded the market in OECD nations but they have they not yet penetrated the poorest societies such as Mali to any great extent. This is not a novel claim; during the past decade numerous studies have highlighted the global digital divide in internet connectivity, and the broader phenomenon of information poverty—generally viewing it as a negative phenomenon.[12] What has been neglected in previous discussions, however, are the consequences of these well-known and growing disparities for limiting the capacity of global communications to touch lives in isolated societies.

What evidence supports this argument? This chapter documents patterns of access to information and communication technologies. We start by considering the reasons for growing concern about the global digital divide and we compare trends in the diffusion of the internet and telecommunications, as well as levels of access to television sets, radios, and newspapers.[13] To understand some of the underlying reasons for these cross-national disparities, we compare media access across countries with different levels of economic development, establishing relative and absolute level of inequality.[14] In addition, even within affluent nations, substantial disparities exist among social sectors both in access to ICTs and in regular use of the news media as an information resource. We draw upon the 2005-2007 World Values Survey to estimate the size of these differences and to analyze how far these gaps are shaped by four factors: *socio-economic resources* (occupational class, household income, work status, and household savings); *cognitive and linguistic skills* (measured by education and the language used at home); *demographic characteristics* (including gender, age, and urbanization); and *motivational factors* (such as political interest and trust in the press and television).

The conclusion summarizes the results and considers their interpretation. Two key findings emerge.

First, cross-national comparisons suggest that generalizations about the perceived threat of global communications to cultural diversity in the developing world are often exaggerated, and a more cautious interpretation of developments would be appropriate. *Societal*-level barriers in access to information remain substantial. In particular, the diffusion of ICTs has been strong among the better-off sectors living in middle-income emerging economies, such as in South Africa, Taiwan, Mexico, and Hungary. These nations are characterized by free trade across national borders, democratic governments and freedom of the press, as well as rapidly-growing public access to a diverse array of modern communication technologies. At the same time, persistent patterns of exclusion from access to ICTs persist in many of the world's low income societies. There is not simply a digital divide in internet access but a broader and more enduring phenomenon that does not seem to be fading away. Levels of access to the internet, telephones, television, and even radio have been characterized by deepening inequality between rich and poor countries during recent decades, not gradual convergence.

In addition, as others have reported, substantial information gaps remain among sectors and individuals living *within* societies. The individual-level models suggest that the primary drivers of patterns of media use for news and information about society and the world include the importance of the cognitive skills that come with education, the material resources required to purchase TVs, computers and internet access, and motivational interest. The news audience does not reflect the general population; it has a clear skew towards educated and affluent segments of the population. This imbalance is clearest for users of the internet and newspapers, media with the highest demands for cognitive skills and literacy, while the audience for radio/TV news is slightly broader although still socially biased towards the haves more than have-nots. Before examining the impact of attention to news on attitudes and values, we therefore need to control for the demographic and social characteristics of the audience. These models help to identify some of the most important variables that will be incorporated into the analysis of potential media effects in subsequent chapters.

Concern over the digital divide and information poverty

What first catalyzed growing concern about gaps in access to information in recent years? As use of the internet surged during the mid-to-late-1990s, it became evident that many developing countries -- and the poorer people within these societies - were left behind in this process and thus excluded from the potential benefits that were expected from what has been termed the 'information

society' or the 'knowledge-based economy'. [15] The internet was launched in 1969, under the U.S. Defense Advanced Research Projects Agency (DARPA) research project, transferring interlinking packet networks between computers.[16] This initiative facilitated file sharing and email, but early access was limited to elite circles of scientific researchers, financial institutions, and commercial users, located in the United States. The internet evolved within the technological community over the next two decades but widespread use among the general public only took off after the invention of hyper-text in 1989, the launch of the first point-and-click web browsers with embedded graphics a few years later (Mosaic in 1993, Netscape in 1994, Internet Explorer in 1995), and thus the birth of the World Wide Web. Globally the Internet population proliferated from an estimated 3 million users in 1994 to over 330 million by mid-2000.[17] Less than a decade after the creation of hyper-text, ITU figures estimate that in 2007 roughly 1.4 billion people—representing one fifth of the world's population - use the internet.[18]

The early internet era generated immense optimism, and a good deal of hyperbole, about the transformative capacity of technology for the way that people communicate, live, work, consume, network, and socialize. This raised concern about the existence of the digital divide, which excluded some from participating in the fruits of this new era. Numerous studies suggest that information and communication technologies contribute to economic growth, particularly by integrating societies and businesses into the global marketplace for commodities, manufactured goods, and services, raising levels of productivity in the service sector, and providing new sources of employment, income and wealth. [19] ICTs represent another development tool that can enable enterprising firms and local communities to address economic and social challenges with greater efficiency; in poorer villages and isolated rural communities, for example, access to local tele-centers or cell phones, like use of communal wells or irrigation pumps, can provide essential information about storm warnings and crop prices for farmers.[20] Local governments connected electronically to official records can help villagers to locate medical information, birth and marriage certificates, and legal documents for land claims. [21] Moreover the broader potential of ICTs for strengthening innovative forms of good governance, democratic participation, and civic engagement has also attracted considerable interest, for example, the use of ICTs for electoral administration and management, for connecting transnational and local networks of NGOs working in civil society, as well as for facilitating government consultation processes, public debate in the 'blogosphere', and the interaction of virtual communities.[22] Much effort has also gone into enlarging the deployment and use of specific software applications that address public sector challenges, such as the efficient and effective delivery of public services in health care and schooling, as well as more transparent and competitive process of contract procurement in local government. [23]

A loose coalition of agencies and bureaus of the United Nations became involved in this issue, including divisions within UNESCO, UNDP, UNDESA, the World Bank, and the International Telecommunications Union (ITU). These organizations collaborated with bilateral donors, national and local stakeholders, philanthropic foundations, and non-governmental organizations, as well as developing private-public partnerships in conjunction with technology companies, including Microsoft, Google, Cisco, and Sun Microsystems.[24] Various programs were designed to expand the technological infrastructure and to strengthen skills, to facilitate access and network readiness, and to shrink the global disparities in internet connectivity. Concern about the digital divide generated a series of reports that called for governments, corporations and the non-profit sector to address inequalities in access to ICTs. In 1998, UNESCO argued that economic divisions between the global North and South were exacerbated in a situation where most of the world's population lacked access to a telephone, let alone a computer, leaving poorer societies increasingly marginalized at the periphery of communication networks.[25] The following year, the UNDP Human Development Report warned that productivity gains due to ICTs would widen the economic gap between the most affluent nations and those that lacked the skills, resources, and infrastructure to invest in the information society: "*The network society is creating parallel communications systems: one for those with income, education and literally connections, giving plentiful information at low cost and high speed; the other for those without connections, blocked by high barriers of time, cost and uncertainty and dependent upon outdated information.*."[26] The 1999 *World Development Report* issued by the World Bank emphasized that OECD nations were benefitting from substantial productivity gains through ICTs, expanding their exports in global markets, and that emerging economies, such as Taiwan, Malaysia, Brazil, and India, had the capacity to leverage themselves profitably into niche ICT products and services. At the same time, the report warned that many poorer societies lagged far behind in internet access, lacked the investment resources, telecommunications and computing infrastructure, and the skill capacity to benefit from new ICTs, which could cause them to fall farther behind economically in the long-term.[27] At the Lisbon Council in 2000, European Union heads of states and government pledged to turn the EU into the world's leading knowledge-based economy and to ensure that no citizens were excluded from the information society.[28] Heads of state at the G8 meeting a few months later in Okinawa echoed similar concerns.[29] World leaders came together to address this issue in a series of international meetings culminating in the World Summit on the Information Society (WSIS) meeting in Geneva in 2003 and Tunis in 2005.[30] The WSIS charter pledged to create an inclusive and development-centered information society: "where everyone can create, access, utilize and share information and knowledge, enabling individuals,

communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life."[31] The charter established specific development targets for ICT infrastructure and access, at national, household and individuals levels, designed to be met by 2015, with concrete indicators of progress. To measure performance indicators and goals, the WSIS spurred new work on developing and monitoring internationally agreed information and communication statistics. [32]

After the dot-com bubble burst in 2001, international stock-markets punctured the inflated value of many start-up Silicon Valley ventures, and skepticism has grown about the developmental benefits of costly investments in ICTs rather than in basic infrastructure such as agriculture or health care. [33] In recent years it has become more fashionable to dismiss the importance of addressing the digital divide, on the grounds that the social and global gaps will gradually fade away, as costs fall, technologies become more user friendly, and markets do their work.[34] Other urgent problems have also recently grabbed the international headlines, from the security challenges of terrorism and internal conflicts, to the environmental threat of climate change, the economic effects of soaring oil prices, and problems of food security. Since 2001, the changing international agenda has lowered the priority devoted to ICTs for development. On balance, however, the bursting of the dot-com bubble and other subsequent developments, facilitate a more realistic and dispassionate analysis of what ICTs can, and cannot, do. The digital divide attracts less attention in the news headlines, but many development and telecommunication agencies within the international community, such as the ITU, as well as many governments and civil society organizations, continue to support interventions designed to address social exclusion and to expand internet connectivity, as well as seeking to strengthen the independent media sector and professional standards in news journalism.[35] It is therefore important to examine trends in access to ICTs over time, and to analyze the reasons for any persistent and growing global disparities, in order to identify the implications of future trajectories.

Cross-national trends in access to information

Is there evidence that social and global inequalities in access to information are gradually closing over time, as mass communications diffuse more broadly-- or do substantial disparities continue to exist, or even deepen? In analyzing and understanding trends, we need to go beyond the issue of the digital divide in internet access and use. This represents an important issue, but it is only the most recent manifestation of the broader phenomenon of information poverty. [36] Across and within societies, as we shall show, enduring and widespread disparities exist in access to all forms of information and

communication technologies, including the audiovisual sector (radio, television and films), telecommunications, and the print sector, as well as dial-up and broadband connections to the internet. Moreover today it makes little sense to focus only on the digital divide in computing technology because industries that once were regarded as distinct sectors are increasingly converging into multimedia enterprises; I-phones access DVD movies, the New York Times video can be watched on Tivo-enabled televisions, while cell phone snaps of breaking events appear on network TV. Indeed even the conventional notions of 'news' and 'the news media', or 'access to the internet', once clear-cut, have fuzzier boundaries today.

To address these issues and clarify trends, we will start by comparing national indicators based on official statistics, standardized by international agencies such as UNESCO, the International Telecommunications Union, OECD, Eurostat, and the World Bank, based on time-series data for all countries where data is available. These sources are limited in certain important respects, however, including problems of systematic bias in missing data, whether measurements relate to availability or use, and deciding upon the most appropriate unit of analysis for comparison.

Missing data is most prevalent in the least developed economies. For example a third of these societies have no recent official statistics monitoring the proportion of households that have a radio or TV set.[37] Missing data can arise from the absence of a recent official household or market research survey monitoring ownership of consumer durables. National statistical offices in the least developed economies often lack the capacity and resources to conduct reliable and comprehensive household surveys and censuses, and surveys are also problematic in fragile post-conflict states that contain a highly mobile population of displaced persons and refugees. As a result, estimates of the worldwide distribution of ICTs contain a systematic bias in missing data, potentially inflating these estimates.[38] Rapid changes in the use of ICTs also make it important to have up-to-date annual estimates and decennial population censuses are insufficient for this purpose. Some major ICTs indicators are now more than five years out of date, or suffer from poor reliability and incomplete time-series. UN agencies, including UNESCO, are currently taking steps to improve the international comparability and accuracy of statistical indicators for communication and information technologies, but these initiatives will take time to bear fruit.[39] There have also been attempts to generate comprehensive multidimensional indicators. For example, since 2001 the World Economic Forum has published a composite Network Readiness index for 127 countries, providing benchmarks to monitor the economic environment, technological infrastructure, and patterns of usage.[40] Given serious limits of missing data in many developing

countries, however, and systematic biases that can arise from their exclusion, more reliable and comprehensive coverage is provided by analyzing separate indices. [41]

There is also greater emphasis on gathering ICT statistics measuring the availability of technological products than in collecting more complex data on their use and impact. While counting the physical number of radio or television sets or personal computers in households is relatively straightforward, it is more difficult to assess levels of use, for example whether the location for internet access is located at work, at home, or elsewhere, such as for use in public libraries, cafes, or community tele-centers. Some people have 24/7 WiFi and fast broadband connections; others may access a particular website once a week or once a month. Some may use the internet intensively every day for research and education, email and file sharing, financial transactions, online gaming, and entertainment, while others send an occasional text message. Are all these people equally 'internet users'? The convergence of ICTs, and the rapid development of new functions for ICTs, complicates the measurement and comparisons over time. For example, YouTube was invented in a Menlo Park garage in February 2005; just a few years later, in a Fall 2007 survey, almost half of all American internet users (48%) reported that they had used YouTube or other video sharing websites. This figure rose to almost three-quarters (70%) of the younger generation (under thirty year olds). [42] The available surveys monitoring access and use of ICTs have improved in reliability over time, but we are still a long way from standardizing these measures.

The unit of analysis also needs consideration, for example official records document the number of SIM cards that are issued by the telecommunications industry for mobile cell phone accounts, or the number of cell phones sold, but this does not tell us the number of individual users.[43] Many people may have multiple SIM cards, exchanging them to gain coverage in different areas or countries, or separate mobiles for use at home and at work. Convergence across sectors has also complicated the estimates of trends, for example, official statistical offices maintain records of newspaper sales and circulation figures, but this does not take account of the millions of online readers. The number of television sets per household is also a poor proxy for the number of viewers, not simply because of time-displacement technologies such as VCRs and Tivo, but also because of cross-national variations in social patterns of TV viewing and in the average size of households.[44]

Bearing these important qualifications in mind, the available international data provide the best available estimate of trends over time and comparisons across countries and global regions. For a cross-check, however, we can compare the estimates provided from official statistics by international agencies

with the aggregated national-level results from self-reported media use available in the firth wave of the World Values Survey, carried out in 2005-2007. If the estimates from both sources are strongly correlated, this will increase our confidence in the estimates. Conversely, if they differ substantially, then we will need to consider the potential reasons for the disparity.

Trends in access to the internet

Has access to the internet gradually broadened to include most of the population in developing societies or do deep-rooted inequalities persist? During the 1990s, many interpretations of the digital divide envisaged the necessity of distributing personal computers and wired broadband connections (DSL, cable) to access the internet and email – and thus the need for reliable electricity sources, keyboard skills and computer literacy, landline telephone infrastructure, and the like. But recent years have witnessed important technological innovations in this field that have reduced some of the technological hurdles to information access in poorer societies, by-passing some of the obstacles. This includes the availability of wind-up radios, solar power batteries, wireless connectivity (WiFi, WiMax), $100 rugged laptops, internet cafes, community telephone and Internet centers, and cell phones with data services, email, and text messaging.[45] All these development may help to close the global digital divide. At the same time, some observers suggest that the core inequalities in information poverty have persisted and may even have deepened.[46] Post-industrial societies and emerging economies that invested heavily in advanced digital technologies have reaped substantial gains in productivity. This may encourage them to build on their success and expand this sector of the economy still further. Moreover it still remains the case that, beyond isolated pockets of innovation, many of the poorest societies in the world continue to lack the basic infrastructure and resources to connect their rural populations to global communication networks and markets.

[Figure 4.1 about here]

Despite a substantial surge in access to mobile cell phones with data services, the available evidence on the distribution of internet users suggests that the relative size of the gap between rich and poor societies worldwide has widened in recent years, rather than narrowed. Figure 4.1 illustrates the trends in access to the Internet from 1990 to 2007, based on data from the International Telecommunications Union measuring the average number of users per 100 inhabitants in each society. The graph compares high, medium and low income economies worldwide, based on per capita levels of GDP, with data from the World Bank measured in constant international dollars at purchasing power parity. The graph illustrates the restricted size of the online population from 1990 until 1996, when use

suddenly accelerated steadily and rapidly in high income nations, continuing in the series until 2007, when the majority of the population living in these countries was online. Nevertheless substantial variations remain even among these nations; for example, within the European Union only one fifth of all households in Bulgaria and Romania were connected to the internet in 2007, compared with more than three-quarters of all households in the Netherlands, Sweden and Denmark.[47] The graph shows that the diffusion of the internet among middle income economies accelerated later than in richer nations and most of these societies continue to lag far behind in internet connectivity. By 2007, the latest year for which figures are available, just over one quarter of the population (29%) was online in middle income societies, compared with almost twice as large a share of the population (58%) in high income societies. In rapidly-growing emerging markets that are large consumers and producers of ICT goods and services, such as Brazil, China, Russia, South Africa and India, internet access and email has spread most widely among the professional urban middle classes, often by data services via smart mobile cell phones rather than by traditional computers.[48]

By contrast, despite these trends, the populations living in the least developed societies around the world, such as Mali, continue to lack internet access, including connectivity via computers with fast broadband connections as well as data service cell phones. The starkest contrasts are in Africa and Asia. Thus, the International Telecommunications Union estimates that fewer than five out of every 100 Africans used the internet in 2006, compared with one out of every two people living in the G8 nations.[49] As Figure 4.1 illustrates, according to ITU estimates, internet use has expanded only modestly in low income societies during recent years, increasing from 0.06% of the population in 1997 to 6% a decade later. This is a large proportional increase, but the absolute level remains low. As shown in Table 4.2, the size of the global gap can be calculated to summarize the difference in the proportion of internet users in the low and high income societies; although the relative size of the gap diminished, the absolute size of the gap quintupled from almost 10 percentage points in 1997 to 53 points in 2007. Access is gradually growing in most poor nations; places such as Mali are not untouched by these developments, but they lag far behind the rapid rate of diffusion of PCs, laptops and smart phones with fast wireless and LAN broadband connections common in most affluent post-industrial nations, along with the related digital technologies through I-pods, Tivos, PDAs, and similar devices.

[Table 4.2 about here]

To gain some insight into whether these estimates are reliable, we can compare the ITU data on the proportion of internet users in a country in 2007 with the proportion of self-reported users of the

Internet from the 5th wave of the World Values Survey. In the survey, people were asked: "People use different sources to learn what is going on in their country and the world. From each of the following sources, please indicate whether you used it last week or did not use it last week to obtain information…Internet, email. " The result of the comparison for the 51 countries where information is available from both sources, illustrated in Figure 4.2, shows a striking correlation between the two series (R=.864 Sig. 001, R^2 cubic .783). The cubic regression slope is illustrated, with virtually all countries falling within the 95% confidence interval. The scatter-plot confirms how the affluent societies show much higher use of the internet, although a few of the relatively affluent medium-income countries such as Malaysia, Slovenia and South Korea, also fall into this category. Most middle-income countries, such as Brazil, Thailand and South Africa, show moderate internet access. Finally, the poorest countries show low levels of internet use, although there are differences within this category such as those between Morocco, India and Burkina Faso. Given the differences in the methodology used by the ITU and the WVS, and in light of our discussion about the complexity of assessing internet use, the strong correlation found between the results from these two sources increases one's confidence in these estimates.

[Figure 4.2 about here]

Access to land-line and cellular telephones

Access to the internet used to be limited by the availability of personal computers and the need for dial up connections through landline telephones. This represented a major bottleneck; in particular state controlled telecommunication monopolies in Central and Eastern Europe, Africa and Asia often failed to provide universal services to many remote rural areas, and the demand for land lines lagged far behind supply.[50] Today WiMax and WiFi connections have reduced the need for land-line connections for internet access, and the surge in the use of mobile cell phones, many of which provide data services, has been dramatic. Nevertheless, although mobile cell phones have reduced the barriers to internet use, and although they represent a cheaper technology, they have not totally eliminated global inequalities in internet access or in telephony. The global disparities between rich and poor societies show a familiar pattern, with affluent countries expanding connectivity at the fastest rate. Figure 4.3 shows the trends in the per capita number of total telephone subscribers from 1975-1999, the latest available year for the annual time-series, combining both fixed landline and mobile cellular subscribers. The comparison shows the substantial disparities between high and low income economies, that gradually widened during the 1970s and 1980sand then expanding rapidly during the 1990s.

[Figure4.3 about here]

Since then, however, these disparities may be changing, as the number of fixed telephones lines in OECD countries largely stabilized from 2000-2006, while the number of land lines grew in developing societies.[51] Moreover the spectacular growth in mobile cellular phones has transformed the market. The 2008 World Summit on the Information Society reports that there were 3.3 billion mobile subscribers at the end of 2007—an increase of more than a billion users during the two-years since 2005.[52] India, Brazil, Russia, and China each added many millions of users. Mobile cell phones are important for inter-personal communication and for extended social networks, especially in developing societies that lack the infrastructure for reliable and affordable landline telephones. Cell phones with data services facilitate email, SMS texting, gaming, music, photo and videos, and mobile access to websites, by-passing the need for keyboard skills and expensive computing equipment. With small screens and limited speeds, however, they are most useful for brief information updates using the internet, such as for checking weather, bank accounts, flight departures, social networks, email, or map directions, and they are still not as flexible, effective, or fast as personal computers and laptops for surfing the internet for extended periods of time. Nielsen Mobile, tracking usage in 16 countries, found that in mid-2008, nearly 40 million Americans (16% of all US mobile users) used their handset to browse the web, twice as many as in 2006, as higher speed connections and unlimited data packages spread. [53] The UK, Italy and Russia were the next highest in usage. But in Indonesia, Taiwan, India, and New Zealand, for example, less than 2% of mobile subscribers used their phone handset to surf the web. Moreover Nielsen Mobile found that while PC users surfed about 100 individual websites sites per month, mobile users visited about 6 domains. The most popular websites were Yahoo Mail, Google Search and The Weather Channel. Data connections speeds will be faster with third generation (3G) connections, once network footprints for this service expand. It is also difficult to estimate the exact number of individual customers who have mobile phones, since many people have duplicate SIM cards as noted earlier.[54] The ITU estimates that mobile penetration is now over 100 percent in Europe. Nevertheless even with the aggressive surge in cell phone, global disparities in access persist. In the poorest countries, such as Burundi, Ethiopia, Sierra Leone, and Niger, in 2007 less than 3% of the population subscribed to a mobile phone.[55] On average, in 2007 there were 152 telephone subscriptions per 100 people in high income societies (including fixed and mobile accounts at home and work), compared with 31 in low income societies. Again, poorer developing countries have indeed expanded their telephone connectivity, but they started from a very low base, and the absolute gap between rich and poor nations has grown over the last three decades.

Access to radio, television and newspapers

How do these trends compare with the diffusion of radio and television sets (whether connected via terrestrial, cable or satellite signals), as well as the circulation and sales of newspapers? Figure 4.4 illustrates comparable trends from the mid-1970s until 2003 in the per capita distribution of television sets. As an older technology, it might be expected that the diffusion rate should be flatter over time than for new ICTs, and indeed this is what the trend indicates. In high income societies, from 1975-2003 the average proportion of television sets roughly doubled, from 31 TVs for every 100 people in the population to 60 TVs. Middle income societies saw a tripling in the per capita number of TV sets, rising from 8 to 24 per 100 people in the population. But both absolute and relative inequalities in access persisted; in low income societies, there were only 6 television sets per 100 people. The absolute global gap, (summarizing the difference between the proportion of television sets in low and high income societies) almost doubled from about 30 percentage points in 1997 to 53 points in 2007.

[Figures 4.4, 4.5 and 4.6 about here]

Radios are one of the most important ways that people in developing societies learn about the world. Figure 4.5 shows that with this older electronic technology, the rate of diffusion is less dramatic than for TVs, telephones or the internet. In high income societies, there is an increase in the number of radios as a proportion of the population, but this rise stabilized in the 1990s as the market became saturated, with roughly 83 radios per 100 people. From 1975-1999 the proportion of ratios tripled in medium income societies, from 7 to 25 per 100 people. A modest rise in the availability of radios also occurred in low income societies, but according to the latest available figures, on a per capita basis, almost five times as many radios are available in rich as in poor societies.

UNESCO gathers statistics on the number of outlets and the distribution, circulation and sales of printed daily newspapers and periodicals. When standardized on a per capita basis, the trends illustrated in figure 4.6 show that this is the only media where there has been growing convergence between high and low income societies. But this is not due to a significant expansion of readership or circulation figures in the low or medium income countries; it reflects an erosion of newspaper circulation figures in the high-income countries ever since the mid-1980s (predating the rise of online newspapers on the internet). Even with this closure, the gap in newspaper circulation between rich and poor nations remains substantial. Multiple readers may compensate somewhat for the contrasts in sales and circulation, but on a per capita basis, one newspaper per 100 people is sold in low-income countries, compared with 26 per 100 in rich countries. Rising levels of literacy in developing societies

have not substantially increased sales of daily papers. Evidence comparing the distribution of published books and periodicals show similar disparities.

Individual-level inequalities in access to information

In addition to these cross-national disparities, a related and even more complex form of inequality exists; even within affluent post-industrial economies, such as the United States, some citizens have far greater access and use of information sources than others. Even among those with access, people differ significantly in their regular exposure and attention to mass communications and news sources, and this pattern usually reflects social and demographic groups within each country. The *'social information gap'* refers to individual-level disparities that are closely associated with socio-economic resources (measured by levels of household income, household savings, work status and occupational social class), cognitive skills (measured by education and language), demographic characteristics (age and gender), and motivational factors (such as interest and trust in the media). During the early 1970s, the 'knowledge gap' was first noticed by scholars, in which a group of better-educated people, who already have more information, also acquire more information from the media. By contrast, those with low education, who already know less, acquire less information.[56] Educational and socioeconomic differences are thereby thought to be reinforced over time, not mitigated, by attention to the news media.

Broader patterns of selective exposure to news are not simply linked to education and social class, however, as there are also generational and age-related patterns of news consumption. For example, cell phones with data services and wireless handheld PDA devices are particularly common among the younger generation in the U.S. These devices facilitate on-the-go texting and email communications, sharing digital photos, and viewing YouTube videos, Accuweather forecasts, or GPS maps, in coffee shops, airports, and traffic jams. But this does not necessarily mean that the younger generation has become heavy consumers of online news from traditional media sources, such as CNN and the *New York Times*.[57] Readership of newspapers is usually found to be skewed towards the older population, as has viewership of television, due to the sedentary nature of this activity. A comparative study of newspaper readership in European societies since the early-1970s found that social background continued to be an important predictor of who does, and does not, regularly read the press, although educational and gender differences diminished gradually over time. [58] The same study reported that the social profile of who watches the news in Europe also widened over the same period, as the audience expanded in size. Race-related patterns of news consumption have also been widely documented in the

United States, while there are continuing debates about the role of race and ethnicity in determining the contemporary use of the internet. [59]

Most of the recent evidence concerning these issues has been derived from studies of internet access in post-industrial societies, especially the United States and Europe. During the 1990s, for example, the US Department of Commerce generated a series of reports, *Falling through the Net*, drawing attention to patterns of exclusion among the African-American and rural communities.[60] It was claimed that some of these social gaps had closed over time, although this interpretation was subsequently challenged by other studies.[61] Similar concerns about the digital divide became common in other affluent post-industrial societies, for example the OECD and the European Union reported parallel social disparities in computer and internet access, reflecting differences in income, social class, and employment status, education, generation, ethnicity/race, gender, and urbanization.[62] Debate during the 1990s focused on whether the social gaps in the online population would persist as a permanent feature of information societies, with social and employment status determined by levels of technological connectivity and skills, or whether these differences in the online population would gradually fade away over time, or 'normalize', as costs fell and the technology became more user-friendly, for example once text messaging and web browsers became more easily available and cheaper through smart cell phones. [63] Tracking surveys conducted by the Pew Internet and American Life project since 2000 have documented a gradual closure of the gender gap in internet use in the US, but the persistence of a 10-point gap between black and white populations, and a massive 55-point generational gap between the under-thirties and the over-65s.[64] Scattered research has explored similar disparities in other countries, but it remains to be seen whether they reflect a general pattern.[65]

We therefore need to explore not just patterns of internet access but also reported use of the broader range of news media. Identifying the most effective public policies designed to overcome the global and social information gaps, and predicting the future direction of trends, requires a careful examination of the underlying drivers behind this phenomenon. What are the most plausible explanations of these disparities? During the last decade, research in the scholarly literature and in the policy community has focused attention on understanding the reasons for lack of connectivity to new ICTs, including the economic, political and sociological drivers.[66] In understanding the drivers, as an analytical strategy it helps to distinguish between explanations of the digital divide in access to new ICTs (typically focused on indicators such as the distribution of internet hosts and users, the availability of hardware such as laptops, PCs, smart phones, and the price and availability of broadband or wireless

connectivity) and explanations that seek to understand broader patterns of information inequality across a wide range of media sources. [67] If global inequalities are confined to access to new ICTs, then the most appropriate explanation (and the most effective policy interventions) might rest on factors closely related to this medium. Thus, one might focus on the cost of computer hardware, software and Internet Service connection charges; the telecommunication infrastructure supporting dial-up, broadband (such as DSL, cable, fiber), and 3rd generation (3G) wireless (WiFi/WiMax) connections; the regulatory environment in telecommunications and bottle-necks arising from government policies and lack of market competition; the need for computing and literacy skills so that people can use these technologies effectively, including creating their own community websites, networks, and blogs; and the predominance of English-language contents, which characterized much of the World Wide Web during the early years, limiting non-English speakers.[68]

But if lack of connectivity to ICTs closely reflects disparities that persist across and within societies in access to other more traditional mass communication channels -- including radio and television sets, the sales and circulation of newspapers, magazines and books, as well as use of telephones and the audience for movies -- then this suggests that the causes are not specific to the medium itself.[69] For one doesn't need keyboard or literacy skills to switch on a radio or TV. Instead, information inequalities in poorer societies may be attributed to more deep-rooted problems of economic development -- such as endemic poverty, low level of educational and cognitive skills, not to speak of the lack of a reliable electricity supply, which would also hinder access to traditional mass media such as television.[70] Major utilities supplying power grid and transmission lines often fail to serve remote areas; in Ethiopia, for example, less than 1% of the rural population, and only 13% of all households, has access to electricity.[71] The growth in population is outstripping the growth in connections, increasing the proportion of Ethiopians without electricity. Half the population cannot read. Innovative projects, such as distributing $100 laptops, free wind-up radios, and solar-powered flashlights, will not solve these basic developmental problems. Unless broader social and economic inequalities are addressed, it will remain difficult for the flow of information and news about the world to penetrate beyond elites in poorer societies and to affect public opinion more generally. It may well be the case that journalists, politicians, diplomats, and business leaders in Dubai, Kuala Lumpur, and Addis Ababa are densely networked via laptops and smart phones, and informed about world affairs from headline stories in CNN International, Google news, and BBC World. But this does not mean that poorer people in these countries will have affordable access to these resources.

How do we explain these disparities? To examine these issues, for the individual-level analysis we draw upon the 5th wave of the World Values Survey, which monitored regular use of a variety of news and information sources in a wide range of 51 societies. As discussed in chapter 2, this data allows us to construct an overall summary media use scale, generated by summing self-reported weekly use of newspapers, radio/TV news, the internet, books and magazines as information sources "*to learn what is going on in your country and the world*", with the mean 5-pt score standardized to 100-points for ease of comparison. This evidence allows us to compare four types of individual-level factors accounting for use of the news media in high, medium and low income societies. Demographic characteristics include age (in continuous years) and gender. Socio-economic resources include household income, household savings, work status, occupational class and urbanization. Cognitive skills are measured by highest educational qualification and language (whether English is used at home). And motivational factors are indicated by political interest and trust in newspapers and television. Appendix A provides a description of the coding and construction of all variables.

[Table 4.3 about here]

The results in Table 4.3 demonstrate that among these individual-level factors, education is one of the strongest predictors of news media use, being significant across all societies, with the strongest impact in low income societies. This relationship is to be expected since education is closely related to literacy, essential for newspaper and use of the internet, as well as providing the cognitive skills and background knowledge that helps to process complex information about current events and public affairs in the news. After education, household income proved strong and significant across all types of society; as already observed, resources are necessary to buy TVs and radio sets and to access cable, satellite and pay TV services, as well as to subscribe to the internet and to buy newspapers on a regular basis. More affluent households are more likely to be able to afford these services. Among the demographic predictors, the age effect proved significant and negative across all types of economies, reflecting the fact that the younger generations were more likely to use the news media than are older people. The gender gap reversed by type of economy, with women predominating in the news media audience in the rich countries, but men predominating in poorer societies. Social class, however, demonstrated a more complex pattern; it played a significant role in predicting news use in medium and low income nations, but not in more affluent societies. This pattern suggests that the class disparities in use of the news media are greatest in countries where access is relatively limited, but that once access diffuses more widely throughout the population, then class differences in use of the news media may

fade. Finally, both political interest and trust in the news media have a significant in all societies, and in the expected direction, with high levels of interest and trust being linked with high media use—with one exception: in low income nations, the relationship between trust and media use was reversed. The overall fit of the models indicated by the adjusted R^2 suggest that social and demographic characteristics (especially education, income and occupational class) proved the strongest predictors of news use in low income societies, with all these factors playing less important roles in high income societies.

[Table 4.4 about here]

How does this pattern vary by type of media? Table 4.4 shows similar models for use of newspapers, radio/TV and the internet, adding level of economic development (per capita GDP measured in PPP) as a further control and using logistic regression due to the binary dependent variables. The results confirm the importance of education and the cognitive skills associated with it: education had a significant and strong impact on all types of media use, especially newspapers and the internet. Figure 4.7 illustrates this pattern graphically; in each figure the most educated have the highest news media use but the disparities between high and low income groups are particularly strong within the poorer societies. By contrast, in more affluent societies, there is a flatter educational profile for newspaper readers and the TV and radio news audience. The age profile, also illustrated in Figure 4.7, shows the familiar pattern that has been widely observed for affluent societies: while newspapers and TV/radio news draw on an older readership, internet use is skewed towards the younger generation. But by contrast in low income societies, the younger generation is more likely to access all forms of news media information than the older age groups, including newspapers and TV/radio news as well as the internet. This suggests that the rapidly rising levels of primary and secondary schooling, literacy, and access to higher education that accompany human development in poorer societies have probably strengthened the cognitive skills, and thus media use, of the younger generation more than their parents and grandparents. Familiarity with the English language was also linked with use of the internet and newspapers, but not audiovisual media, which are more likely to be available in local languages. The material resources of household income and savings were also related to use of all types of media, while social class was also significant across most categories, with higher class being particularly closely linked with greater use of newspapers and the internet. Men were more likely than women to use newspapers and the internet, while there was no gender gap in using TV/radio. Lastly political interest was also significant, and trust in newspapers and TV was linked with use of these media. The overall fit of the

model suggests that these social characteristics are better at predicting internet and newspaper users, while radio/TV attracted a broader and more socially-diverse audience. The general pattern suggests that the social profile of newspaper readers and internet users is relatively similar in its resources, motivation, and skills, with the most important difference in affluent nations linked with age. The strong similarity across use of these two media suggests that similar factors are driving usage in both cases, and that we do not need to focus on factors that are unique to the nature of the internet, such as the cost or availability of broadband ISP service, keyboard skills or the availability of computers.

[Figure 4.7 and 4.8 about here]

Discussion and conclusions

Inequalities in access to information are important for many reasons. In this book, we focus on its consequences for limiting the penetration, and thus the impact, of global communications on cultural change. Our core model hypothesizes that inequalities in access to information operate in a sequential filtering process, operating as one of the main barriers that limit the impact of global communications on national cultures (see figure 2.1). Earlier chapters discussed how states actively restrict what can be seen or read within given societies; the autocracies that Reporters sans Frontiéres rates worst in press freedom, such as Eritrea, Belarus and North Korea, control state monopolies of TV broadcasting and newspapers, repress independent reporters, journalists, and bloggers, and use software filters to censor online websites and ISP servers.[72] Less draconian protectionist barriers at national borders also act as bottle-necks on cultural imports, through common practices such as trade tariffs, customs regulations, and telecommunications policies.

This chapter has demonstrated that even in cosmopolitan societies with permeable trade borders and widespread respect for freedom of expression, the impact of foreign ideas and information can also be severely curtailed if patterns of social exclusion limit equitable and affordable access to the channels of mass communications. Isaiah Berlin emphasized the classic distinction between negative and positive liberty.[73] Negative liberty represents constraints on the individual that explicitly restrict certain fundamental freedoms and human rights, for example where states actively curtail opportunities for expression, movement, or assembly. Legal and constitutional guarantees of freedom of the press are a necessary condition for facilitating a pluralist and independent news media industry, but this is insufficient by itself to ensure equitable and inclusive access to mass communications. Positive liberty, on the other hand, requires active interventions so that people have the opportunity to achieve their goals. In this regard, communication policies, NGOs, and private-public partnerships implement

programs that are designed to remove important obstacles in access to information, such as the lack of investment in the telecommunication infrastructure, the availability of affordable equipment, or the lack of cognitive and technical skills. Thus, many countries have policies specifying that telecommunications companies have an obligation to provide universal service, spreading the costs of connectivity across all customers, so that remote areas are guaranteed to have an affordable service. Licensing policies requiring national broadcasters to provide a certain proportion of programming in minority languages, or for specific cultural regions and groups, also reflect these principles. In the same way, policies designed to overcome problems of exclusion from information and communication technologies require active intervention required to address these issues.

Affluent countries with a pluralistic free press and with open borders to cultural imports --such as the United States, Australia and Sweden -- continue to have significant inequalities in the extent to which various groups and social sectors are connected to new information and communication technologies. Marked disparities by age, class, and education characterize access to personal computers, the Internet, mobile cell phones, PDAs, and related electronic devices. But the digital divide is not a new phenomenon; as we have seen, these patterns reflect broader disparities in access to traditional media channels, including television, radio, landline telephones, and daily newspapers and magazines. In poorer societies, community radios are an important resource, especially in rural areas, and subscriptions to mobile cell phones with data services are rapidly growing in popularity. Nevertheless, widespread illiteracy limits the circulation and readership of the press outside the educated professional middle classes living in major cities. Household ownership of TVs also remains restricted in size, with an even smaller market for paid subscriptions to cable and satellite services. Relatively few fixed land-line telephones are available and service is often expensive and unreliable. Despite the recent surge in use of data-enabled wireless mobile cell phones, access to the internet remains even more restricted. Lack of media access insulates these groups and many traditional national cultures from modern values—whether one considers exposure to them good or bad. Evidence considered in this chapter leads to three main conclusions about these matters.

First, in *absolute* numbers, recent years have seen a remarkable surge in access to communication and information technologies, especially in post-industrial societies. The worldwide expansion of the online population has obviously been most striking; the first working prototype for the World Wide Web was built in 1990; today, an estimated 1.4 billion people use the internet.[74] There has also been rapid growth in adoption of mobile cell telephones; today the International

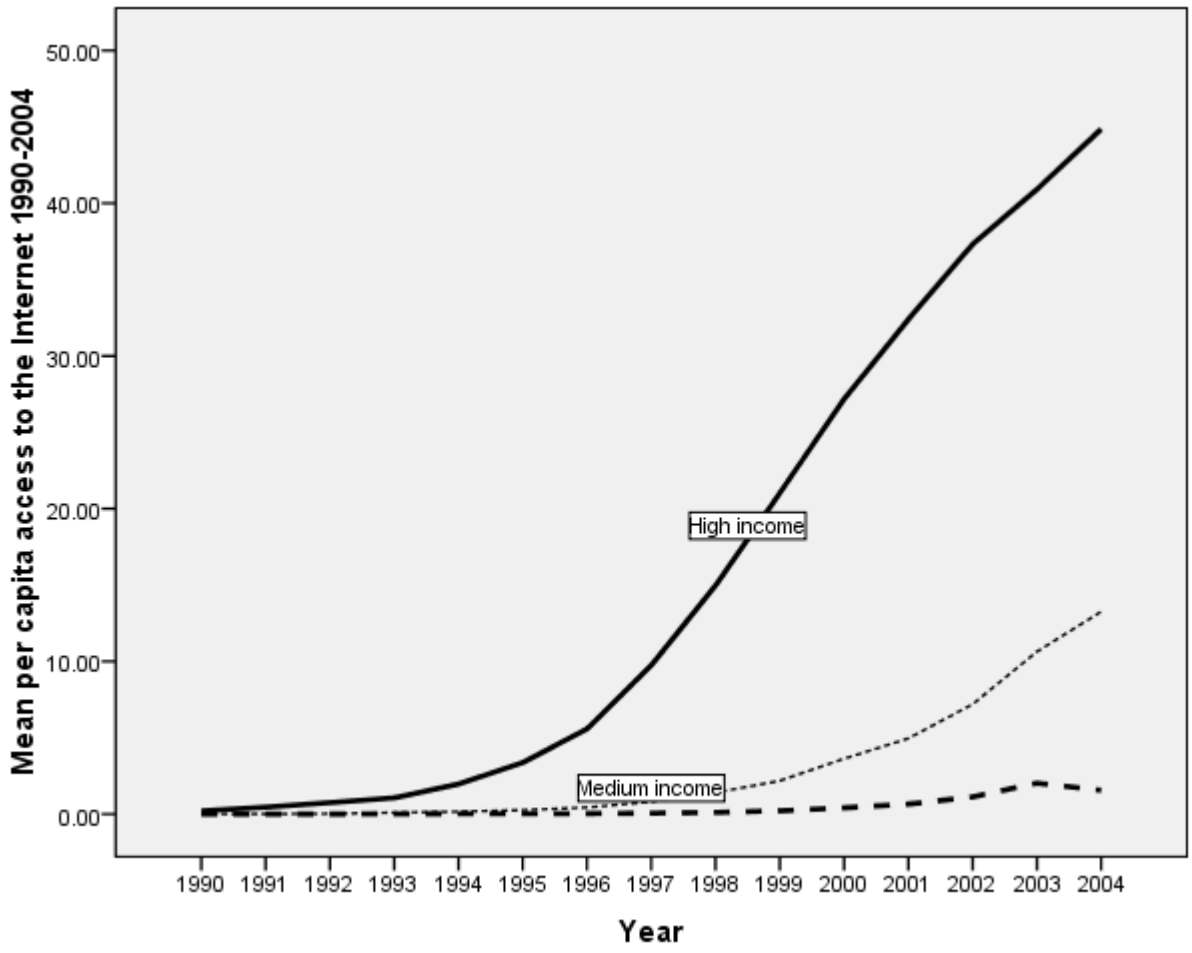
Telecommunications Union estimates that there are about 3.3 billion mobile cell phone subscribers, in a world of about 6.7 billion people.[75] Cell phones expand social networks and communications, and those with data services facilitate flexible access to email, text messages, and the internet. Major emerging markets, such as Malaysia, Russia, China, Brazil, and India, have registered some of the most substantial gains in connectivity, but growth has also been relatively rapid across Africa. In affluent post-industrial societies and in many emerging middle-income economies such as South Africa, growth has occurred in the availability of many other related ICTs, including landline telephones, household radios and TVs, facsimile and DVD machines, personal and laptop computers, dial-up, broadband, and wireless internet connections.

Secondly, despite these important developments, far from catching up and gradually closing over time, we demonstrate that the *absolute* gap in levels of access to mass communications and information technologies, which divides the richest and poorest societies, has expanded in recent years. Advanced industrialized economies have pulled further ahead of the rest of the world in information access, as they started the technology race with greater financial resources available for investment in high-tech industries, a deeper and wider pool of people with technical and scientific skills, and an established telecommunications infrastructure. The public has relatively little access to information and communication technologies in the least developed and poorest countries in Africa and Asia. Nevertheless, many of the new digital information and communication technologies have only become widely available during the last decade and in the longer term, patterns of technological diffusion, societal development, and generational turnover may help to close the global and social information divides. But there is little evidence from the available international statistics that this process is already underway, even with access to the old media such as radio, TV, and newspapers. In recent decades, the poorest nations have not been catching up; they have been falling further behind.

Lastly, social inequalities in access to ICTs also persist in recent years, and most show no signs of diminishing, even within the richest nations, such as the United States, Sweden, and Australia.[76] Many recent technological accounts imply that information gaps are confined to the use of personal computers and the internet, but the evidence indicates that these inequalities apply to other kinds of media exposure and reflect more deep-seated social inequalities based on cognitive skills, socio-economic resources and motivational attitudes. The models presented here help to identify some of the most important variables, including education, income and age, that will be incorporated in subsequent analyses of the strength of media effects on social and political attitudes and values.

Based on these related observations, we conclude that the perceived threat of global communications on cultural diversity in developing societies has often been exaggerated, and a more cautious interpretation of developments is more appropriate. If modern ideas and images from Google, Disney-ABC Television, or the Murdoch newspaper empire do not actually reach poorer people living in isolated places such as Timbuktu and Thimpu -- regardless of any effects arising from state restriction on freedom of expression, trade barriers, or social psychological filters -- then the multinational media corporations are unlikely to pose an immediate threat to traditional life-styles, values, or beliefs in these communities. It is possible that there could be indirect effects, as ideas gradually percolate down from the more affluent and educated groups with access to ICTs, until they eventually penetrate the society. One does not need media access to be aware of the messages reflected in advertising bill-boards and posters, and deregulation of broadcasting in recent decades has generated a substantial expansion in the number of commercial radio stations. In the long-term, processes of economic development do gradually expand public access to the mass media more broadly throughout societies, and this process can be accelerated, as shown by the rapid social shifts transforming communications in cities with concentrations of high-tech industries, such as Bangalore, Seoul, and Shanghai. But the persistence of substantial global and social inequalities in access to information during recent decades has been underestimated. It reflects deep-rooted disparities in resources. And it suggests that the more heated claims about the threat of either cultural convergence or polarization may have been over-stated.

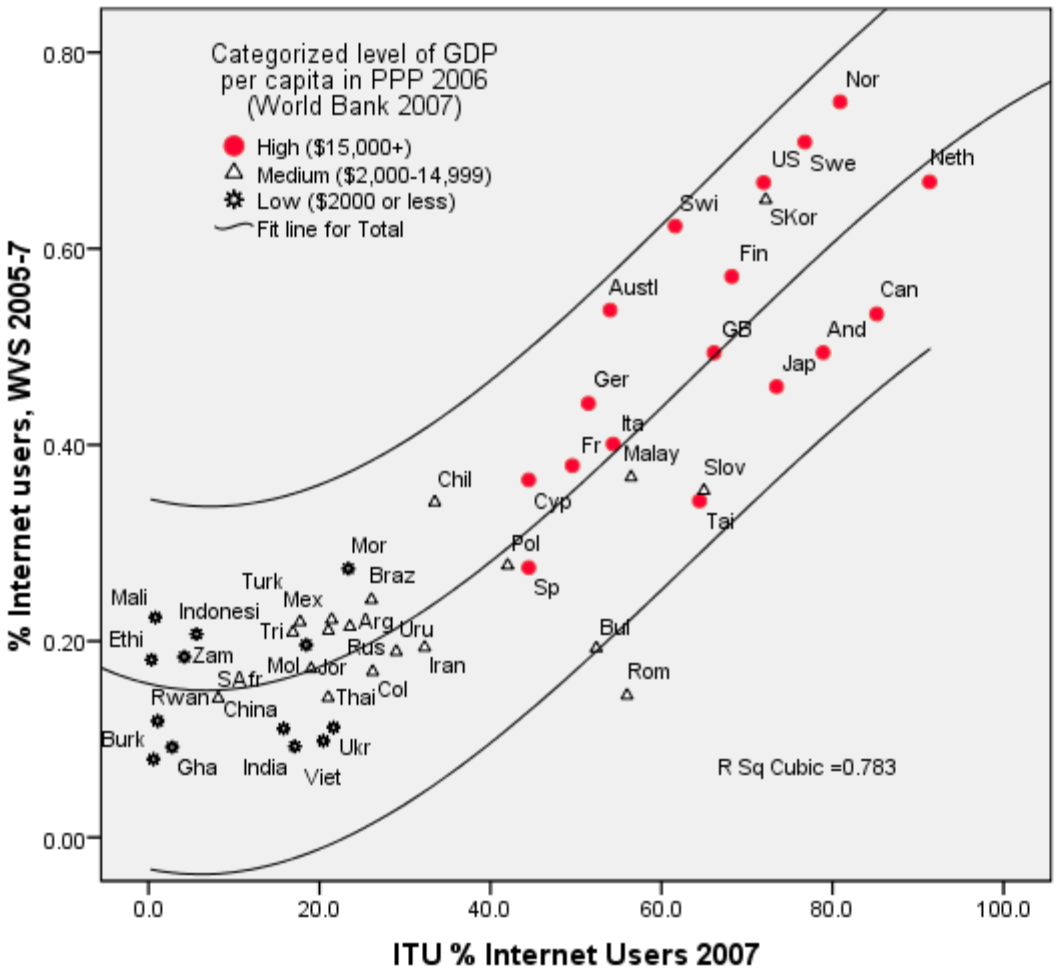
Figure 4.1: The global gap in access to the internet, 1990-2004



Notes: Societies worldwide are classified by per capita GDP in constant international $ Purchasing Power Parity. Low income = less than $1999 per capita income. Medium income =$2000-14,999. High income = $15,000+.

Sources: International Telecommunications Union; The World Bank *World Development Indicators 2008*.

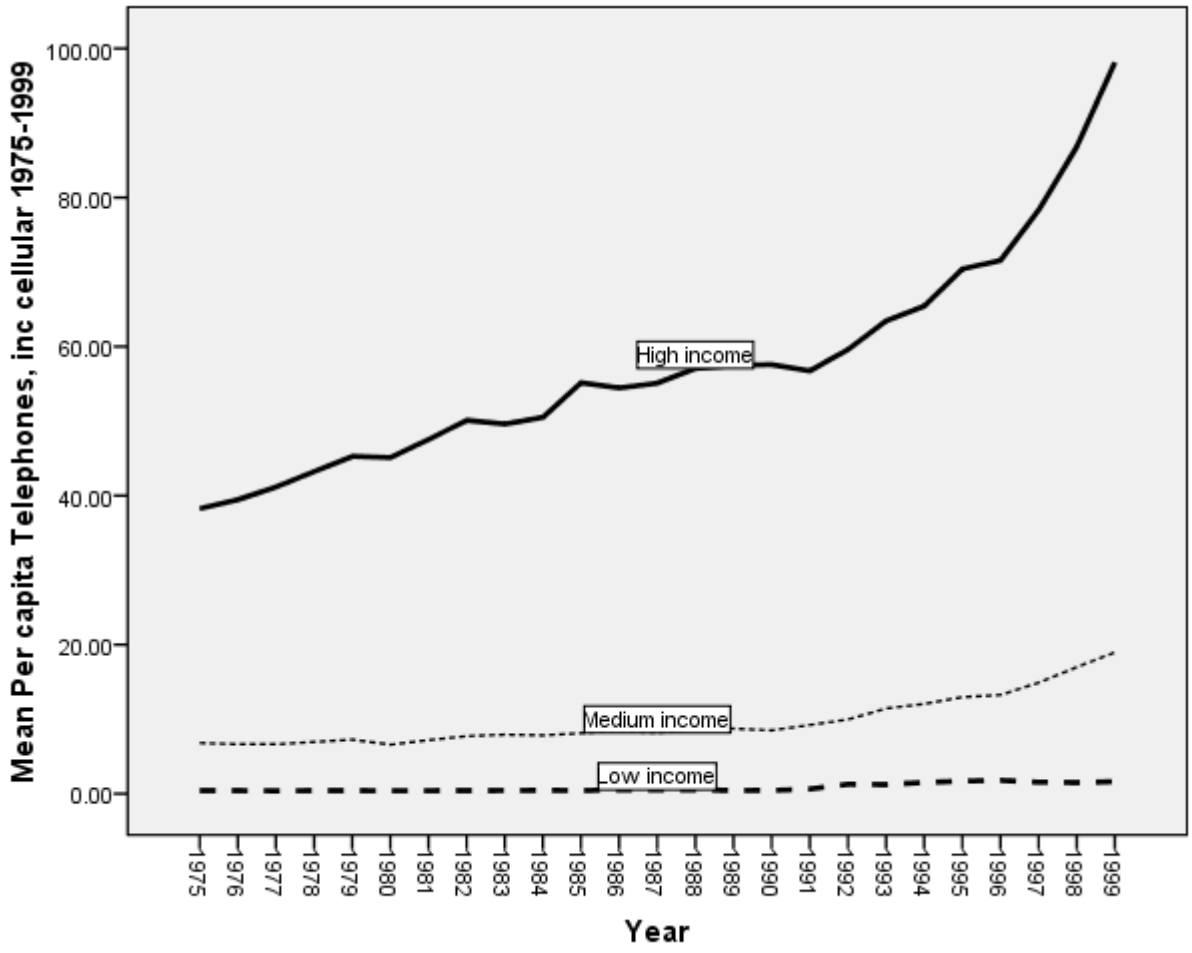
Figure 4.2: The proportion of Internet users estimated from the ITU and WVS



Notes: Societies worldwide are classified by per capita GDP in constant international $ Purchasing Power Parity. Low income = less than $1999 per capita income. Medium income =$2000-14,999. High income = $15,000+.

Sources: International Telecommunications Union; The World Values Survey 2005-7.

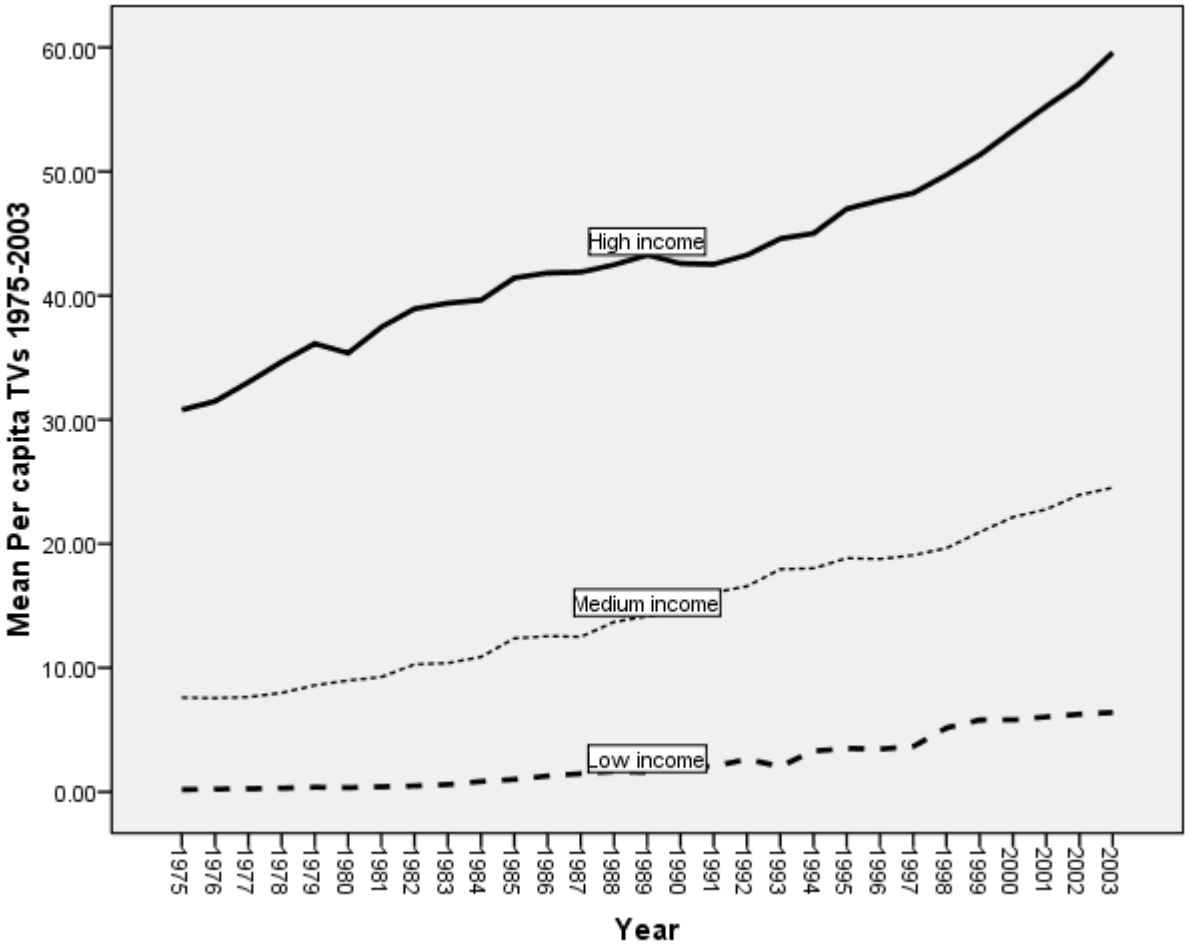
Figure 4.3: The global gap in telephone access, including cellular, 1975-1999



Notes: Societies worldwide are classified by per capita GDP in constant international $ Purchasing Power Parity. Low income = less than $1999 per capita income. Medium income =$2000-14,999. High income = $15,000+.

Sources: Arthur S. Banks *Cross-national time-series dataset 1815-2007*;The World Bank *World Development Indicators 2008*.

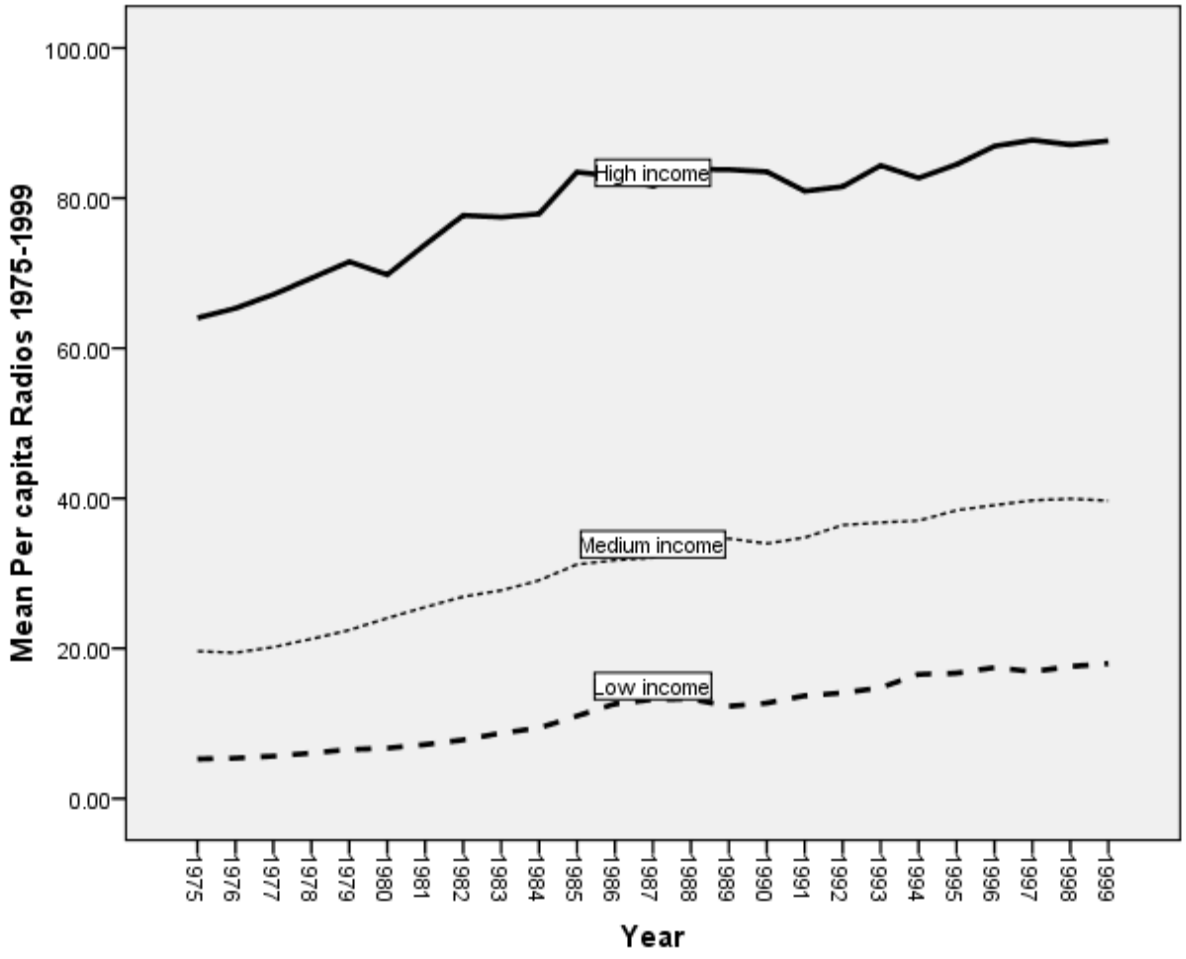
Figure 4.4: The global gap in access to television, 1975-2003



Notes: Societies worldwide are classified by per capita GDP in constant international $ Purchasing Power Parity. Low income = less than $1999 per capita income. Medium income =$2000-14,999. High income = $15,000+.

Sources: Arthur S. Banks *Cross-national time-series dataset 1815-2007*; The World Bank *World Development Indicators 2008*.

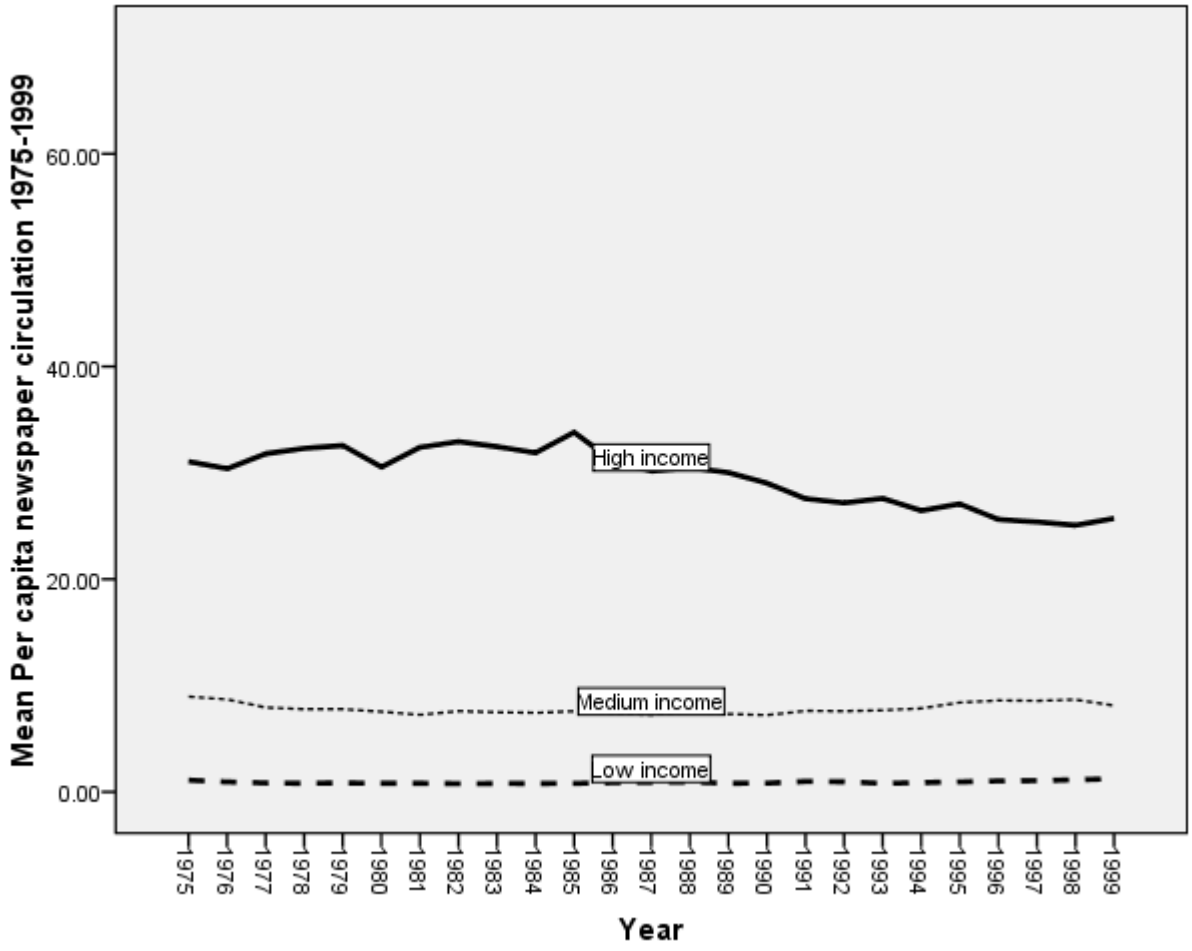
Figure 4.5: The persistent global gap in access to radio, 1975-1999



Notes: Societies worldwide are classified by per capita GDP in constant international $ Purchasing Power Parity. Low income = less than $1999 per capita income. Medium income =$2000-14,999. High income = $15,000+.

Sources: Arthur S. Banks *Cross-national time-series dataset 1815-2007*; The World Bank *World Development Indicators 2008*.

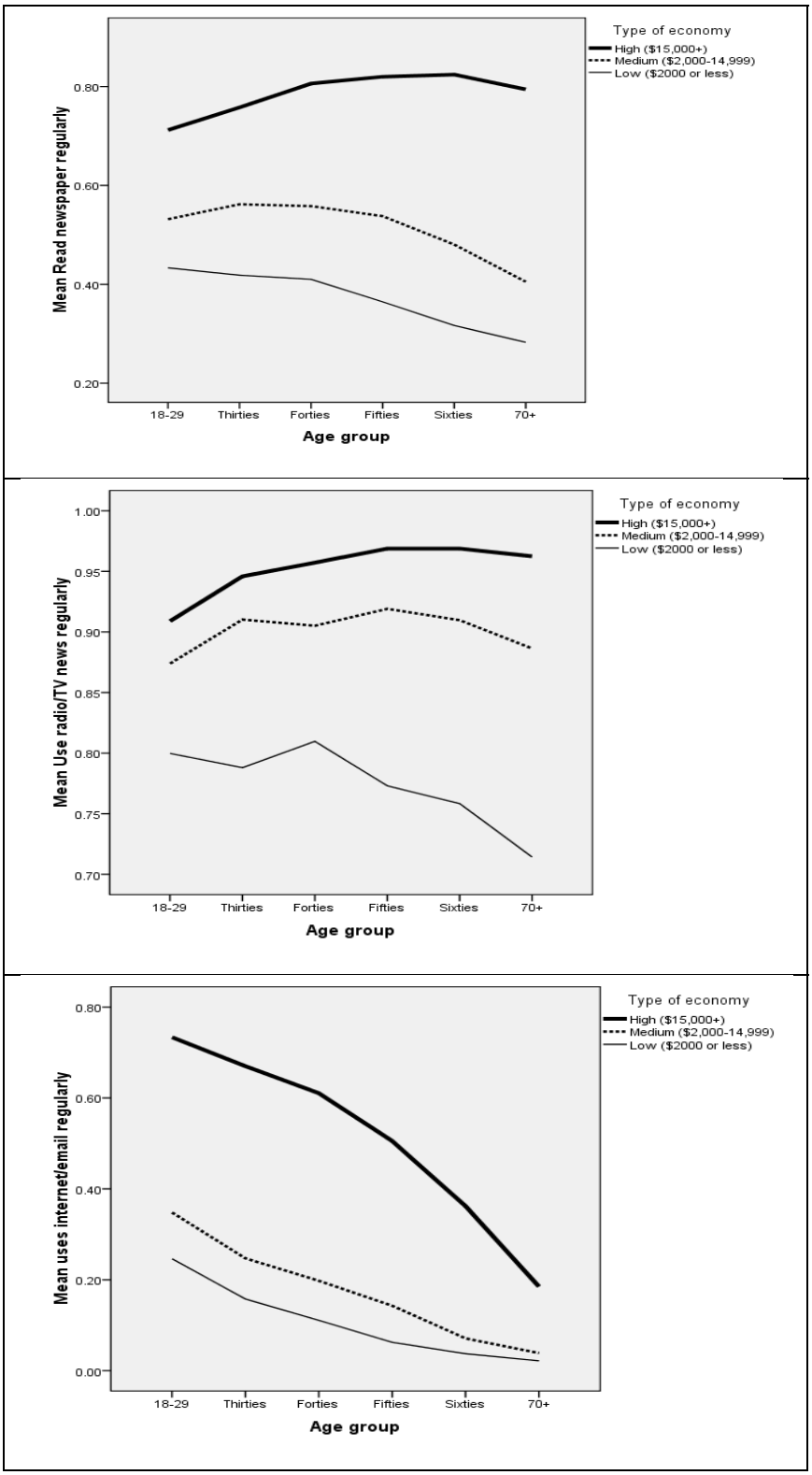
Figure 4.6: The eroding global gap in access to newspapers, 1975-1999



Notes: Societies worldwide are classified by per capita GDP in constant international $ Purchasing Power Parity. Low income = less than $1999 per capita income. Medium income =$2000-14,999. High income = $15,000+.

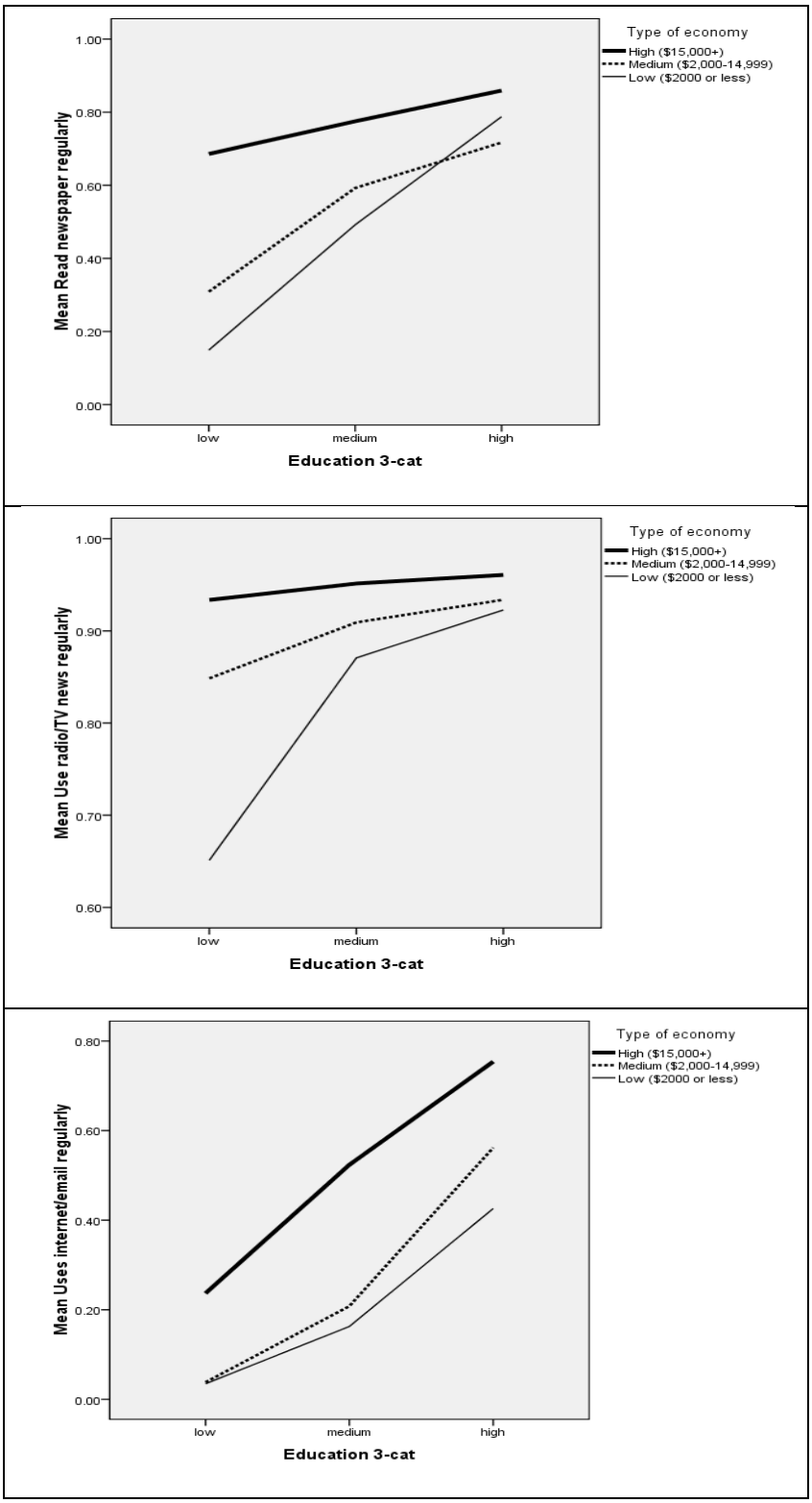
Sources: Arthur S. Banks *Cross-national time-series dataset 1815-2007*; The World Bank *World Development Indicators 2008*.

Figure 4.7: News media use by age group and type of economy



Note: Type of economy classified by per capita GDP in PPP (World Bank 2007). Regular use of newspapers, radio/TV and the internet/email media for information, World Values Study 2005-7.

Figure 4.8: News media use by education and type of economy



Note: Type of economy classified by per capita GDP in PPP (World Bank 2007). Regular use of newspapers, radio/TV and the internet/email media for information, World Values Study 2005-7.

Table 4.1: ICTs in Mali and South Africa

	Mali	South Africa
Physical size total	1.2 million sq km	1.2 million sq km
Population (million) 2006 (World Bank)	13.9m	47.4m
Per capita GDP in US$ PPP 2007 (World Bank)	$250	$3,562
Literacy % (World Bank)	46.4%	86.4%
Urban % (World Bank)	31.0%	59.8%
Press Freedom 100-pt index (Freedom House)	76	73
Globalization 100-pt index (KOF 2008)	40	63
TELEPHONES		
Fixed telephone lines total 2006 (ITU)	82,500	4.7 m
Cellular telephones subscribers total 2006 (ITU)	1.5 m	39.7 m
Total telephones per 100 people 2007 (ITU)	12	94
RADIOS		
Radio broadcast stations	AM 1, FM 230 (27 regional and government stations, and 203 private stations), shortwave 1 (2001)	AM 14, FM 347 (plus 243 repeaters), shortwave 1 (1998) SABC - state broadcaster with 20 regional and national services in 11 languages. YFM 702 Talk Radio
Radio sets total # 2004 (ITU)	1.6m	11.3m
Radio sets per 100 people 2004 (ITU)	12	24
TELEVISION		
Television broadcast stations	2 (plus repeaters) and 2 cable channels (2007) *ORTM* – state broadcaster; *Multi Canal* – cable multichannel ; *Tele-Kledu* - cable multichannel	556 (plus 144 network repeaters) (1997) *SABC* - state broadcaster, three national TV networks, two pay-TV channels; *e.tv* - free-to-air commercial network; *M-Net* - pay-TV
% of households with a television set (2000-4)	14.5	56.8
NEWSPAPERS		
Newspaper circulation 2004 (UNESCO)	n/a	29.6
Newspaper titles 2004 (UNESCO)	9	18
INTERNET		
Internet hosts 2007 (ITU)	28	1.1 m
Internet users total 2007 (ITU)	100,000	3.96 m
Internet users per 100 people 2007 (ITU)	0.81	8.35
Computers per 1000 people2005 (World Bank)	3.3	84.6

Table 4.2: Indicators of information gaps between rich and poor societies

	Low income societies (i)	Middle income societies (ii)	High income societies (iii)	Gap between low and high (i)-(iii)
% of Internet users				
1997	0.06	0.81	9.74	**9.68**
2007	6.27	28.69	58.78	**52.51**
% of all telephone subscribers, including cellular				
1975	4.22	68.08	38.27	**34.03**
2007	31.20	97.48	152.54	**121.34**
Number of television sets per 100 people				
1975	0.19	7.60	30.79	**30.60**
2003	6.40	24.50	59.58	**53.18**
Number of radios per 100 people				
1975	5.26	19.63	64.04	**58.78**
1999	17.99	39.69	82.60	**64.61**
Newspaper circulation per 100 people				
1975	1.10	8.96	31.05	**29.95**
1999	1.22	8.11	25.71	**24.49**

Notes: Societies worldwide are classified by per capita GDP in constant international $ Purchasing Power Parity. Low income = less than $1999 per capita income. Medium income =$2000-14,999. High income = $15,000+.

Sources: Arthur S. Banks *Cross-national time-series dataset 1815-2007*; The World Bank *World Development Indicators 2008*.

Table 4.3: Explaining individual-level patterns of media use in high, medium and low income societies

	High income economy				Medium income economy				Low income economy			
	B	SE	Beta	Sig.	B	SE	Beta	Sig.	B	SE	Beta	Sig.
Demographic characteristics												
Age (years)	-.041	.012	-.029	***	-.040	.001	-.062	***	-.172	.012	-.090	***
Gender (male=1)	-1.81	.369	-.036	***	1.145	.023	.013	N/s	1.23	.372	.022	***
Socio-economic resources												
Income	1.08	.078	.112	***	2.05	.005	.114	***	1.59	.089	.121	***
Work status	3.07	.409	.061	***	1.05	.028	-.037	***	-.472	.432	-.008	N/s
Professional/managerial	-.047	.546	.000	N/s	4.15	.047	.076	***	8.57	.692	.095	***
Other non-manual class	-.265	.511	-.004	N/s	6.06	.045	.095	***	9.61	.751	.091	***
Skilled manual class	-1.552	.535	-.023	**	.819	.030	.048	***	2.69	.603	.032	***
Cognitive skills												
Education	2.67	.097	.234	***	4.04	.007	.307	***	5.25	.087	.436	***
Language (English=1)	-1.10	.428	-.019	**	9.84	.040	.100	***	16.88	2.17	.049	***
Motivational attitudes												
Political interest	5.49	.203	.205	***	2.79	.012	.084	***	2.64	.186	.093	***
Trust in newspapers & TV	.519	.139	.027	***	.779	.007	.080	***	-.377	.112	-.022	***
Constant	27.7				2.10				5.52			
Adjusted R^2	.177				.256				.348			
N. respondents	16,222				24,822				16,347			

Note: The results of individual-level OLS regression models with the 5-point media use scale (combining use of newspapers, radio/TV, the internet, books, and magazines for information) as the dependent variable. All models were checked by tolerance tests to be free of any multi-collinearity problems. See appendix A for details about the measurement, coding, and construction of all variables. Sig. *=.05 **=.01 ***=.001

Source: World Values Survey 2005-7.

Table 4.4: Explaining individual-level patterns of use of newspapers, radio/TV and the Internet, all societies

	Newspapers			Radio/TV			Internet		
	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.
Economic development									
Log Per capita GDP in PPP	.346	.007	***	.255	.010	***	.600	.009	***
Demographic characteristics									
Age (years)	.007	.001	***	.014	.001	***	-.041	.001	***
Gender (male=1)	.264	.019	***	-.004	.029	N/s	.286	.022	***
Socio-economic resources									
Income	.111	.006	***	.046	.007	***	.149	.005	***
Professional/managerial	.377	.034	***	.234	.057	***	.437	.034	***
Other non-manual class	.535	.033	***	.361	.056	***	.409	.032	***
Skilled manual class	.297	.026	***	.325	.042	***	-.190	.032	***
Cognitive skills									
Education	.247	.005	***	.186	.007	***	.311	.006	***
Language (English=1)	.191	.037	***	.077	.064	N/s	.255	.035	***
Motivational attitudes									
Political interest	.266	.010	***	.205	.015	***	.206	.012	***
Trust in news media	.057	.006	***	.115	.009	***	-.045	.008	***
Constant	-5.8			-2.74			-7.49		
Nagelkerke R^2	.272			.114			.410		
% correctly predicted	71.4			89.6			78.9		
N.	58,301			57,570			57,177		

Note: The results of individual-level binary logistic regression models with each of the indicators for use of newspapers, radio/TV, and the internet, as the dependent variables. All models were checked by tolerance tests to be free of any multi-collinearity problems. See appendix A for details about the measurement, coding, and construction of all variables. Sig. *=.05 **=.01 ***=.001

Source: World Values Survey 2005-7.

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[4] International Telecommunications Union. 2008. *Facts and Figures.* http://www.itu.int/ITU-D/connect/africa/2007/bgdmaterial/figures.html

[5] http://www.irex.org/programs/MSI_Africa/2007/MSI07_mali.pdf. For comparison, Mali is about twice the physical size of Texas.

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