

The Digital Divide: Issue Framing and Policy Responses

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The paper considers the various policy responses that are available to address the problem, and develops a multi-pronged policy implementation approach to ameliorate this issue. The digital divide is a multifaceted issue that requires a comprehensive policy response. We cannot hope to address such a complex phenomenon with any single policy approach, but rather a coordinated effort of several distinct and separate policies aimed at small businesses, NGO's, and easing government regulation implemented contemporaneously. Developing multiple policies designed to individual entities and implementing them simultaneously by various stakeholders will increase the outcome success rate.

INTRODUCTION - THE DIGITAL DIVIDE

The advent of the web browser in 1994 made access to the Internet possible through a few clicks of a mouse for many people. But what about those who have not gained access to this ever-growing informational and educational resource? In 1995, the National Telecommunications and Information Administration (NTIA) published the first in a series of reports entitled, "Falling through the net: A survey of the "Have Nots" in rural and urban America." This report revealed inequities in access to personal computers and the Internet. Some segments of the population whom are less likely to have access to the Internet are the elderly, nonwhite race and ethnic groups, and low-income (Watson, Bell, Kvedar, & Grant, 2008). This disparity of access to information and communications technology (ICT) has commonly been referred to as the "digital divide" (DiMaggio & Hargittai, 2001; Eastin & LaRose, 2000; Selwyn, 2004; Warschauer, 2004). This lack of access can be classified into four areas: 1) lack of any digital experience, 2) no possession of computers and network connections, 3) lack of digital skills, and 4) lack of significant usage opportunities (van Dijk & Hacker, 2000).

These groups listed above are also more likely to be socially disadvantaged in areas such as economically, poor job prospects, and education levels. Therefore, being more negatively disadvantaged through a lack of accessibility to valuable electronic information and education will continue to further the gap between the haves and the have nots. Studies have demonstrated that high-income, younger, and persons with higher levels of education are more likely to be on-line (Agarwal, Animesh, & Prasad, 2009). Thus, the global digital divide is primarily determined by income (Chinn & Fairlie, 2004).

Does this inequity in access to information constitute a market failure worthy of government interference? In order for a condition to qualify as a public policy issue, there must be something at stake for the broader society (Mossberger, Tolbert, & Stansbury, 2003). This paper argues that the digital divide

does constitute a market failure considerable enough to warrant government interventions. Policies must be implemented in various areas of the political system simultaneously in order to narrow the digital divide. These initiatives include reducing government regulations to encourage more companies to begin offering Internet services and personal computers to consumers in disadvantaged areas. Also, governments should provide incentives for NGO's to begin working to ameliorate this problem through grants or other funding initiatives. By encouraging competition in the private sector, while simultaneously encouraging non-profits to focus on this issue, the digital divide will begin to shrink rather than continue to grow and further disadvantage an already overlooked population.

Some argue that the digital divide is a public policy issue because computers and the Internet are tools for participation in the economy and the political arena. Differences in Internet access across different groups affects their ability to participate and benefit from the growing information and communications technology available to many (Hoffman, Novak, & Schlosser, 2000). Furthermore, some social scientists note that technology disparities merit policy attention because they have important implications for normative issues such as equality of opportunity and democracy. Information technology and access are public goods in the sense that they have positive externalities associated with economic growth and democratic governance. Economists justify government intervention in the case of positive externalities, or effects that ripple beyond the individuals who are directly involved in a transaction; where with the market unregulated, commodities that would lead to positive externalities will likely be under produced (Mossberger et al., 2003). Therefore, government intervention in the form of public provision or public subsidy is more efficient in the sense that it is able to better capture the spillover benefits for the greater society. However, some argue that the proper role of the government with regard to information technology is less clear and that it is advisable to wait and see whether the market is able to essentially close the gap (Mossberger et al., 2003).

REVIEW OF THE LITERATURE

The digital divide is a phenomenon that has a significant impact on human and social capital. The digital divide not only encompasses access to computers and the Internet, but also the value added output created from its use. One study consisting of a survey of 18,439 Americans demonstrated that high-income and higher-educated persons were more likely to have adopted the Internet prior to 2001; however, lower-income and lower-educated persons spent a larger amount of time on-line (Goldfarb & Prince, 2008). The authors argue that variables such as the value of leisure time, overall amount of leisure time, and usefulness of on-line activities contribute to this disparity. Due to the pricing structure of Internet access, low-income persons are more likely to spend more time using the Internet participating in inexpensive on-line activities rather than participating in other more expensive leisure activities (Goldfarb & Prince, 2008).

In 2009 the American Recovery and Reinvestment Act authorized approximately \$30 billion to create a national system of electronic healthcare records for hospitals and physicians. This initiative is intended to improve health outcomes by increasing efficiencies and reducing errors. However, as some hospitals are unable to implement electronic health records (EHRs), the digital divide is infiltrating other areas of society's well being. Hospitals that care for a disproportionate number of low-income patients are lagging behind in adopting EHRs (Jha et al., 2009). Large financial barriers also inhibit implementing technology in community health centers, public hospitals, and some unaffiliated public hospitals (Miller, D'Amato, Oliva, West, & Adelson, 2009). These healthcare providers are more likely to serve persons who are low-income, low-education levels, and minorities.

It is important to note that the digital divide produces negative externalities not only in developed countries, but also in less developed and developing countries as well. For example, Africa makes up more than 14% of the world population, but accounts for only 2.6% of all Internet users worldwide (Fuchs & Horak, 2008). This number is dramatically lower than approximately 70% of the U.S. population which uses the Internet (Watson et al., 2008). One reason for this low level of Internet usage may be a result of the high cost of Internet access in Kenya and Nigeria. In 2002 the average cost of a

dial-up Internet account in Kenya and Nigeria was approximately \$60 per month, which is more expensive than the average cost in the United States (Oyelaran-Oyeyinka & Adeya, 2004). This supports the conclusions concerning Internet usage and the price of leisure presented by Goldfarb and Prince.

Further examination of the digital divide globally has demonstrated that developing countries have been slower in the diffusion of PCs and the Internet (Dewan, Ganley, & Kraemer, 2009). Contrary to previous studies, the authors argue that although the diffusion rate has been slower in developing countries, evidence exists to indicate that the digital divide will in fact narrow in the future and not widen. This is due to the complementary nature of technologies found with PCs and the Internet. To further narrow this gap, developing countries need to utilize a systems approach to technology access and use by bundling low-cost systems with access to the Internet (Dewan et al., 2009).

Some developing countries have initiated policies to narrow this digital divide. In 2000, New Delhi in partnership with an information technology company, provided computer access to the city's street children in an initiative titled "Hole-in-the-Wall" (Warschauer, 2002). This project consisted of volunteer manned computer kiosks located in one of the most impoverished slums in New Delhi. The purpose of this initiative was to provide 24-hour access to computers and the Internet to youths residing in this area without formal educators. This minimally invasive education model designed for youths to teach themselves basic computer skills can lead to an accelerated learning of such skills, and youths seldom want formal computer education (Mitra, 2000). However, the reality of this program included little implementer organization, no community groups involvement, language barriers, unreliable Internet connection, and the majority of the youths spent their time at the computer drawing with basic graphic programs and video games (Warschauer, 2002).

Some argue that the measurement of the digital divide, relative versus actual, is in fact part of the overall problem. The relative divide is the ratio of information technology stock in developed countries divided by the stock in developing countries; where the absolute divide is the stock of information technology in developed countries minus by the stock in developing countries (James, 2009). By using this methodology the author demonstrates where the absolute divide can increase while the relative divide appears to decrease. This can lead to the perception that the problem is shrinking when in fact it has worsened. Overcoming the relative digital divide can be relatively easier in developing countries due to the fact that their technology base starting point is very low (James, 2009).

Caution must also be taken is comparing developed and developing countries with regards to the digital divide. Demographic variables and population distribution have demonstrated to be contributing variables in Internet access and PC usage. Most developing countries have substantially more persons residing in rural areas than in the US, and developing countries are also comprised of a higher population of children (Chinn & Fairlie, 2004). If these developing countries mirrored the age and population distribution of the US the digital divide gap would be 6.1 to 13.7 percent larger (Chinn & Fairlie, 2004).

Other factors have also been implicated in an individual's decision not to use the Internet. One such variable in determining individual choice to abstain from accessing the World Wide Web is social influences radiating from the individuals neighborhood or region (Agarwal et al., 2009). In an effort to explain wide variations of Internet usage throughout the US the authors examined the peer effect using data from approximately 56,000 households in 2001 and 2003. This study demonstrated that those individuals who are surrounded by person who choose to not access the Internet are themselves less likely to do so (Agarwal et al., 2009).

The majority of the literature examining the digital divide has examined the effects on the adult population. Access to technology by children and young adults can have tremendous social benefits. For persons within the age ranges of 9-11 and 18-19, Internet non-users are more likely to be from working class households, where only half of the non-users have access at school and only a small minority have home access (Livingstone & Helsper, 2007). This lack of on-line usage by youths can partially be explained by the overall lack of access.

THE FEDERAL RESPONSE AND ISSUE FRAMING

There are essentially two theoretical approaches underlying the notion of policymaking. The first is termed the “rational actor model,” in which individual behavior is interpreted as rational decision: individuals consciously formulate goals, gather information about alternative means to achieve them, evaluate the alternatives, and choose the one most likely to succeed. Related to this perspective on individual behavior is the assumption that information is neutral and unbiased. In terms of this perspective, policymaking “is a straightforward, technical exercise conceived of as agenda setting, followed by policy formulation, adoption, implementation, and assessment” (Courtright & Robbin, 2001).

The agenda-setting model emphasizes the values dimension that motivates and drives human behavior. Of particular relevance here is the social construction of knowledge and the ways in which ideas and images influence human perceptions and inspire individual and collective action. Based on this perspective, the agenda-setting model sees the struggle over ideas as the essence of political conflict. Ideas are said to be a powerful medium of exchange and mode of influence. Shared meanings motivate people to action and meld individual striving into collective action (Stone, 1988). In terms of the agenda-setting model, policymaking “is an iterative process, characterized by three components: whether a problem exists, and if so, what it consists of; what must be done; how it must be done” (Courtright & Robbin, 2001).

Consistent with the agenda-setting model is the idea that social problems such as the digital divide are not objective phenomena; rather they are social constructs. Though we know that the digital divide is a real phenomenon, the course of action the policy should accept in combating the problem will depend largely on how we define and conceptualize it. Furthermore, the values we espouse are directly related to the definitions we formulate. An important point to note is that there is no universal definition of the digital divide. Rather, various stakeholders have framed the issue differentially. As a result, the solutions proposed by various stakeholders to address the problem, vary considerably.

Defining and setting the parameters of a particular problem aid in including or excluding specific parties and stakeholders. Thus, how the issue of the digital divide is framed largely contributes to the selection of resources called upon as part of the solution. Some argue that a degree of moral responsibility needs to be woven throughout the question of the digital divide. For example, Keniston and Kumar (2004) suggest that the question should include consideration to how technologies can be used to ensure the fulfillment of basic human needs and further basic human rights.

In the United States the issue was partially framed in response to the 1995 NTIA report entitled, “Falling through the net: A survey of the “Have Nots” in rural and urban America.” Due to this report, the Telecommunications Act of 1996 extended telecommunications policy beyond issues of phone service to new digital media (Mossberger et al., 2003). The Telecommunications Act constituted the first government response to the issues outlined in the report. This Act framed the problem of the digital divide as one of access (Mossberger et al., 2003). As a result, “access concerns predominate in programs as well as research addressing the technologically disadvantaged” (Mossberger et al., 2003). Based on the Act, the E-Rate program was established. The E-Rate, which is the largest federal program, provides significant discounts on telecommunications technologies to schools and libraries throughout the United States (Carvin, Conte, & Gilbert, 2001). This program, which began in 1998 as part of the 1996 Telecommunications Act, is administered by a nonprofit organization known as the Universal Services Administrative Corp., and is overseen by the Federal Communications Commission (FCC).

A number of services are covered by E-rate including Internet access and high-speed data connections. However, a host of other services such as computer hardware and electrical upgrades are not covered. “Two other federal programs, the Technologies Opportunity Program (TOP) and the Community Technology Centers (CTC), assist communities with other needs such as hardware, software, content development, and training. Together, the TOP and CTC programs only constitute 5% of the amount allocated to the E-Rate program.

The problem statement with regards to the digital divide varies even between developed nations. For example, in the United States the problem of access has largely been defined as a lack of infrastructure or

equipment (PC, telephone, modem, etc.) and specific demographic characteristics (rural, urban, Hispanic, etc.); where in European Union the problem of access has been more broadly defined as a lack of access to services or information for their entire population, which calls upon a more broad base of stakeholders such as the states and the public (Stewart, Gil-Egui, Tian, & Pileggi, 2006). Leading to the US response of relying more heavily on the forces of the free market to increase competition and lower the costs of access to the end-user.

Caution should also be taken in the classification of “haves” and “have-nots.” This oversimplification can lead to solutions that do not ameliorate the root of the problem. Previous studies have generalized solutions for the digital divide as simply providing “have-nots” with access to ICT and their education, health, and income will become improved (Cecchini & Scott, 2003).

ISSUE DEFINITION

According to Mossberger et al, “an issue definition based primarily on access contains an implicit assumption that the policy problem is affordability rather than ability to use technology (Mossberger et al., 2003). In a similar vein, Di Maggio and Hargittai, propose that the digital divide should be defined more broadly than access (DiMaggio & Hargittai, 2001). They propose that there are essentially five categories of inequality that are relevant to the digital divide. These include, for example, Inequality in technical apparatus, which refers to the manner in which hardware, software and connections, limit the ways in which different kinds of users can utilize the Internet. “As bandwidth increases and more and more Web sites require late-model browsers to display java applications, sophisticated graphics, or streaming audio and video, to what extent can users without access to expensive systems access the full range of Internet content?” (DiMaggio & Hargittai, 2001). Inequality in autonomy of use refers to the location at which people access the Internet e.g., from their homes, business or libraries. Location influences, for example, the hours at which an individual can access the Internet as well as the filters that serve as technical impediments to access.

The third refers to the inequality in skill that people bring to their use of the Internet. Internet skills involve, for example, how to conduct searches, download information, and integrative knowledge about the manner in which the Web is structured so as to enable users to navigate more effectively. According to Servon, federal efforts to date have focused on getting computers and Internet into the schools, not on developing IT skills through training (Servon, 2002). She notes that IT literacy the ability to use IT for a range of purposes is an important component of the digital divide. Servon also points out that another dimension of the digital divide has to do with content. “When disadvantaged groups log on, they often find there is no content there. The kind of information they seek – information that is directly related to their lives and communities and cultures – does not exist” (Servon, 2002).

It is interesting to note that Courtright and Robbin conducted research to uncover the extent of consensus that exists among a sample of policy stakeholders regarding the issue of the digital divide (Courtright & Robbin, 2001). Policy stakeholders were identified through news stories and opinion pieces published in 5 US newspapers during the year 2000. The term digital divide was included in the headlines or lead paragraphs of these newspapers. Most of the stakeholders defined the digital divide as a lack of access to computers and Internet. However, some of the groups disputed the existence of a digital divide. Still others agreed that a digital divide exists but they claimed that skills and education are either more or equally as important as access. Lastly, two stakeholders noted that a lack of useful Internet content was an important component of the digital divide.

POLICY RESPONSES

There are four main policy responses to the problem of the digital divide. One potential solution involves allowing the free market to address the issue through the laws of supply and demand. In 2001 the then Chairman of the Federal Communications Commission, Michael Powell, publically stated that he was strongly committed to creating policy that is centered around market economics (Stewart et al.,

2006). Within this framework, the role of the government should entail nurturing competition and funding basic research. The United States has been on the forefront of global telecommunications deregulation policy, leading to increased private sector competition (Shaw, 2001). Examples of the market approach include the proliferation of free Internet access companies such as NetZero, Juno and DotNow.com (Kuttan, 2003). As the business models of Internet access shift from a monthly payment service, to advertising based revenue stream, the cost of consumer access has fallen dramatically.

Another possible solution involves government action on a federal, state and local level. Advocates of government action argue that the public goods nature of the problem, justifies government involvement. For example, the E-Rate is the largest federally funded program to address the problem of the digital divide. Servon notes that while a formal evaluation of the E-Rate program has not yet been conducted, a number of preliminary studies suggest that the program has several accomplishments (Servon, 2002). This program has encouraged states to promote and invest in telecommunications technologies for schools and libraries. As a result, the percentage of public schools, classrooms and libraries connected to the Internet has mushroomed over the years since the onset of the E-rate program. This has helped defray the costs of telecommunications equipment for underserved educational institutions in the United States. A number of positive spillover effects have been observed from the program such as greater parental involvement in children's learning as well as an increased community interest and investment in the Internet, prompted by the presence of access points created in public schools. Based on the success of the E-Rate program, this paper recommends that federal funds should continue to be allocated for the program.

These improvements caused by technologies being introduced and/or enhanced in the classroom have not been experienced in developing countries. One reason is due to the lack of years that youths spend in educational institutions. For example, the average number of years of school in Sub-Saharan Africa is 3.7, compared to 12.1 years in the US (Chinn & Fairlie, 2004).

A third perspective argues that outside of the free market and government action, the digital divide can be bridged through community efforts and philanthropy. Bill Gates' donation of \$1 billion to fund minority scholarships in technology fields is a good example of individual philanthropy. An example of corporate philanthropy includes the fact that Ford Motor Company provides most of its employees with a computer, printer and Internet access for \$5.00 a month.

The last perspective focuses on private/public partnerships. This involves building collaboration between the government, nonprofit and business sectors in order to address the digital divide. For example, PowerUp is an amalgamation of business, nonprofits and government agencies. The goal of the program is to establish community-level computer and Internet centers across the US. The program is funded by donations from AOL, philanthropic foundations as well as the states of Illinois and Virginia (Kuttan, 2003).

CONCLUSION

Based on the information presented in this paper it is evident that the digital divide is a multifaceted issue. As a result, the policy response must be comprehensive in order to address the various aspects of the problem. It is the opinion of this paper that we need to consider all the potential responses outlined above. We cannot hope to address such a complex phenomenon with any single policy approach, but rather a coordinated effort of several policies implemented contemporaneously.

Government regulations in developing countries must be structured to provide incentives for organizations to develop lower cost alternatives to access digital media. This includes implementing statutes and a firm legal framework to aid in protecting intellectual property. Additionally, local governments must work to ensure that many agents are incentivized to provide Internet access and computers to consumers. Assuring that no single company is in the position to grow into a monopoly can prevent prices above market equilibrium and encouraging rapid growth in the industry. By taking these steps, innovation and research and development will be encouraged, thus leading to cost reductions and

increased efficiencies. The business community can play an important role towards ameliorating the problem of the digital divide.

In addition to these steps the government must play a role in encouraging collaboration with the business and nonprofit/philanthropic sectors. To date, government responses have mainly addressed the access dimension of the problem. It is essential, however, that greater funds be allocated to address other dimensions, such as skills/education, Internet content and computer ownership/home Internet access. Investments in human capital, as well as the telecommunications and regulatory infrastructure can aid in advancing both PC and Internet use (Chinn & Fairlie, 2004). For example, as noted above, the TOP and CTC programs only constitute 5% of the amount allocated to the E-Rate program. Therefore, increased funds need to be allocated to these programs. Furthermore, it is imperative that the government partners with grassroots organizations such as CDC's and other local nonprofits in order to effectively implement these programs. By incentivizing NGO's to join in improving the digital divide they can reach a population who will most likely be overlooked by the private sector.

It is important that public policy efforts do not stifle efforts to lessen the digital divide. A comprehensive policy response that addresses the various dimensions of the digital divide is needed to nurture the strengths of both the public and private sectors.

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