



E-government and the hurdle of the “digital divide”? Rethinking the responses of the underprivileged in COVID-19 Hong Kong

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Abstract

The digital divide and insufficient social capital of aging, undereducated, and low-income nonnetizens are usually explained by the underpopularization of e-government. This review article moves beyond the mainstream concern over resources and technicalities and seeks to explore the reasons for reluctance, from digital vulnerabilities to e-service. We examine the varying responses to the three e-services launched by the Hong Kong government during the coronavirus disease 2019 (COVID-19) pandemic, online vaccination registration, electronic consumption vouchers, and social distancing apps in smartphones, and find that their perception of trust and security could be the major reservation of e-service users. How could we understand the “values” they harbor, and in what circumstances would they be more accepting of the new inventories? Our findings from this developed society in the Asian context might assist policymakers in pushing e-government forward in the post-COVID era.

KEYWORDS

COVID-19, digital divide, e-government, Hong Kong, underprivileged

INTRODUCTION

A number of public health policy agendas have emerged amidst the development of coronavirus disease 2019 (COVID-19) in the past 2 years. Antipandemic policies included the quarantine for inbound returnees and infected/close contacts personnel; tracking the potential virus carriers in different premises; disseminating the pandemic information and laws via publicity; distributing masks and personal protective equipments; arranging vaccinations and virus testing; and working out the strategy to recover the economy as quickly as possible. These measures in response to the pandemic push us to rethink some fundamental questions on public policy: the roles of government in services delivery, ways to arrange services, and prioritization of beneficiaries (N. W. M. Wong et al., 2022). Scholars have studied the model of antipandemic strategies in Asia (Choi, 2020; Hartley & Jarvis, 2020; Ho & Chan, 2021; Hsieh et al., 2021; Huang, 2020; Wan et al., 2020; Woo, 2020; Yuen et al., 2021); the antagonism between pandemic control and individual rights (the use of big data and information technology for the surveillance of potential virus carriers); challenges in policing and public accountability (the extraordinary policing tasks of enforcing lockdowns and social distancing legislation by police officers); unemployment/underemployment problems (business suspensions and closures); family and mental health issues (prolonged class suspensions, work-from-home arrangements, home quarantines, bans of intra/interfamily gatherings and border closures), and so on (Alcadipani et al., 2020; Brooks & Lopez, 2020; Chan et al., 2021; Farrow, 2020; Ho et al., 2020; Kyprianides et al., 2021). Findings from these emerging scholarly analyses could be important tips for policymakers to respond to the quickly transforming society in the post-COVID era. Intellectually, they also guide us to examine some taken-for-granted hypotheses under the unprecedented public health crisis. The pandemic fundamentally changed some well-developed assumptions on public and social service delivery, and the roles taken by civil societies in different regimes, such as online classes, telemedical consultation, and home delivery of merchandise, were quickly accepted after the outbreak of COVID-19 despite the general reservation and resistance before 2020. The comparative studies on selected themes of public administration and social policies also remind us of the significance of the sociopolitical context in explaining the remarkable variation in policy direction and the public response to the policy process of different regimes.

OBJECTIVES AND METHODS

In this review article, we ask a very simple research question that often gets an oversimplified answer: What are the hurdles to promoting e-government in public service delivery? Among the answers that we could solicit from the literature, the mainstream discourse may include “insufficient manpower and monetary resources of the government”; “technical incompetence in infrastructure development”; and “absence of trust toward the government.” We would like to add a further remark on top of these arguments: There is a digital divide for an underprivileged group, who are unable to comprehend the cyber instructions, harbor distrust of the digitalized platforms, and skepticism toward the e-government. They are generally more resistant to virtual exchanges and communications.

The digital divide is regarded as a major block for e-government. Computer illiteracy or “phobia” is common among elderly users who do not trust the security of cyber transactions and even exchanges of information. We noticed that most prevailing literature on the digital

divide and the promotion of e-government are published in the journals in the information technology and social work categories. Their analyses were concentrated on the technicalities and feasible solutions to remove the barriers that disabled the computer users. There is not much scholarship in the public policy or sociological angles, such as on how to strengthen the monetary and technical support to the "digitally vulnerable group," who are composed of the elderly who are literally incompetent and psychologically resistant to e-platforms; the low-income households that could not afford the ownership of a computer apparatus or payment for online services; and the disabled who are incapable of securing government services through smartphones, tablets, or desktop platforms. The thoughts of those who resist or are unwillingly excluded from government e-services are even surprisingly underresearched. Studies from social work practitioners at the frontline are available but mostly discuss the hurdle of insufficient social capital and ask the government for more monetary resources.

Thematic study on the antipandemic E-services in Hong Kong

We explored the undersatisfying achievement of digital service popularity among the group members by examining their rationality toward the e-government agenda. We found that the reasons for their distrust could be the value and logic of trust and security nurtured by their personal experience. How could we understand the "values" they harbor, and in what circumstances and at what threshold would they "surrender" and be more accepting of the new inventories? The findings must be very useful tips for policymakers who push forward e-government in the post-COVID era. We have performed secondary-source analysis based on media reports and small-scale studies conducted by social service providers, examining the responses from the underprivileged communities in response to the e-government initiatives that were introduced by the Hong Kong government since the outbreak of COVID-19. We have selected three major policy measures incorporated by the e-government in Hong Kong: (1) The social distancing apps, that is, "Leave Home Safe" apps; (2) the vaccination registration platform developed by the Center for Health Protection; and (3) the stimulation of the economy, that is, the cash-payout scheme. These three items are selected as all residents of Hong Kong are the policy recipients. They are also indiscriminately and immediately benefited or bothered by the policy with limited possibilities to "opt-out." Also, the three policies were introduced in different stages of the COVID-19 pandemic in Hong Kong and had varying implications if the digital divide personnel were involuntarily excluded from legal sanctions, threat of personal well-being, and deprivation of benefits. We browsed and scanned the reports regarding the concern and difficulties of the digital divide elders, visually impaired persons, and low-income parties who are nonsmart handset users and netizens. We found that the "hurdles" in Hong Kong are conditional and that the "digitally vulnerable elders" are possible to clear in some circumstances, after making appropriate public policy interventions and adding support from civil societies.

As the pandemic is still ongoing, it prevents us from having extensive face-to-face interactions with the target respondents due to the antipandemic regulations. Paradoxically, the study of the digital divide definitely could not be conducted via an online survey by means of self-completion questionnaires to the target respondents, who are technologically challenged. We principally examine the figures and statements released by the Hong Kong SAR (HKSAR) government and the survey results publicized and analyzed by the academic and nongovernment organization (NGO) participants and the newspaper reports and stories. We



noticed that a limitation of the research methodology was relying on secondary sources of media information, but we believed our primary analysis from the reflection would enlighten us on the way to conduct more sophisticated designed studies on the best way ahead for e-government, particularly the strategy for relieving the minority but significant groups who desperately need IT support in the new era of public service delivery.

LITERATURE ON E-GOVERNMENT AND DIGITAL DIVIDE

E-government has been widely discussed in the academic literature for decades. The e-government creates a transparent and accountable government (Pérez-Morote et al., 2020), reduces administrative costs (Hall & Owens, 2011), better communicates with service users (McNeal et al., 2003), and provides more efficient services. In addition, the e-government has flattened the hierarchical structure and reduced street-level discretion in delivering public services (Asgarkhani, 2005) due to the e-government providing uniformity in service delivery (Reddick, 2005). The digitalization of e-government has definitely changed state–society relations (W. Wong & Chu, 2020), in which users find convenience and satisfaction in using services (Hall & Owens, 2011). Nevertheless, it leads to a question about the digital divide among the underprivileged population.

Previous studies revealed that the digital divide correlates with users' different capacities, such as age, level of education, and income (Fang et al., 2019; Friemel, 2014; Ramsetty & Adams, 2020; J. Wang et al., 2021; Hall & Owens, 2011) further highlighted that the people who live in urban areas have more resources in accessing information and communication technologies (ICTs) than the people who live in rural areas. Jun (2020) and Quibria et al. (2002) particularly examined the digital divide in Asia and addressed its impact on the development of e-government. Hong Kong shares a similar situation in using ICT. Level of income, education, and age are social groups that have disparities in using technology in their daily lives (Kwong & BSS, 2015; Shen et al., 2017; M. P. Wang et al., 2014) and find difficulties in accessing the internet and other ICT devices. For instance, the access-to-internet rate was 71% for families with a monthly household income below HK\$10,000, compared to 94% of households accessing the internet in Hong Kong (Lam, 2020). However, the outbreak of COVID-19 and the implementation of ICT-related public services have further increased the barriers to ICT adoption among the underprivileged group (e.g., Aissaoui, 2021; Eruchalu et al., 2021; Lai & Widmar, 2021; Ramsetty & Adams, 2020). Those discussions mainly focus on the e-skills disparity among different groups, but van Deursen and Andrade (2018) pointed out that the attitude toward using technology creates digital access disparities. People with less internet experience feel anxiety about using computers and lower motivation in accessing digital gadgets.

The pandemic has worsened the digital divide due to the underprivileged group being unable to access timely information, such as the development of COVID-19 and the updated measures from the government; social distancing also hinders the underprivileged group from obtaining social network support. Regarding the rationalities of accessing technology, we highlight the motivation for using pandemic-related e-platforms among the elderly in this article. We expect to further draw attention for the policymakers to think about the motivation of accessibility and competency of using digital public service delivery for different groups of people.

THE “DIGITAL VULNERABILITIES” AND THREE E-SERVICES FOR ANTICOID-19 IN HONG KONG

The HKSAR Government embarked on e-government services in 2001. It was first launched under the Digital 21 Strategy, with “publishing information online” and “enabling e-transactions” as initial policy objectives. The Office of Government Chief Information Officer was established in 2004 to coordinate the development of e-government services. Since 2014, the government has launched “multiplatform government services,” and citizens can obtain access to information and services and enjoy more personalized and customized e-services provided by the government with their computer devices. The latest figures show that 730 of 900 government services have accepted online applications in Hong Kong (HKSAR Government, 2022a). However, there was a general perception in the early days of the government's launch of e-service that the progress of development was not satisfactory and that certain e-government services were “neither user-friendly nor convenient to the public” (Research Office The Legislative Council Secretariat HKSAR Government, 2017).

The official figures from the Hong Kong government in 2021 showed that 19.1% of the population in Hong Kong is aged 65 or above, but only 49.5% of them expressed that they have experience using a personal computer, and 65.9% have regular access to the internet. While 68.1% of them have their own smartphone in use, only 9.4% have used mobile payment (Census & Statistics Department, HKSAR Government, 2021). Apparently, there has been an increasing but not particularly high internet and smartphone penetration rate among elders who are not illiterate but are not regular e-government service users for a number of reasons.

Our study selected three public service programs in Hong Kong during COVID-19, as mentioned in the introductory paragraph, that are related to e-government and have digitally vulnerable groups as policy recipients: The community vaccination program, the “Leave Home Safe” apps and the cash-payout scheme, which have been introduced by the government to contain pandemics and stimulate the economy. The three programs are all incorporated into the specific e-service platform developed by the government, and citizens must obtain access to that platform to apply for and consume the services.

Vaccination registration

When the government launched the mass vaccination program in February 2021, there was overcrowding in the booking system, and citizens rushed to make reservations for vaccinations. Outcries from the elders who could not manage to book services through the e-platform set up by the government were widely reported. The registration platform was criticized as “too complicated” and unfriendly to nonnetizens, in which the majority are elderly nonsmartphone users. There was no on-site registration or walk-in service for them; therefore, they had to approach the duty staff in community service centers, home affairs offices, and post offices for assistance (On. CC, 2021). The authorities were challenged for ignoring the needs of the digitally vulnerable citizens. The situation reversed when the first death after vaccination was reported, and the local infection rate was kept in very low figures in late 2021 (Hong Kong Council of Social Services, 2021).

An utmost concern of the health chiefs and their advisors after the outbreak of the Omicron variant in January 2022 was the relatively low rate of vaccination among elders in the territories, only approximately 77.24% for the group aged 70–79 and 49.34% for those over 80

(HKSAR Government, 2022b). Lack of access to information about vaccination drives anxiety among the elderly (Lin, 2021), such as the side effects of vaccination (Zhao, 2021). In addition to a special walk-in quota for the unvaccinated elders in government vaccination centers, the nonprofit sector also responded to the appeal from the government to cater to the needs of the digitally vulnerable elders. For example, the University of Hong Kong set up a temporary community vaccination centre on campus to target those elders who found difficulty in online reservations (The University of Hong Kong, 2022).

Consumption voucher scheme

To stimulate the economic rebound, particularly in the retailing and catering industries, the HKSAR Government announced the “consumption voucher scheme” in February 2021 to disseminate a \$5000 electronic consumption voucher to all permanent citizens who were aged 18 or above. This was not the first example of the government distributing money to citizens directly. There was a “\$6000 scheme” in 2011 and a “\$10,000 scheme” in 2020. Eligible parties could make the registration through the e-government platform, the banks in Hong Kong or tender their paper submission by post or through the counter in the Home Affairs Office. The sum was banked into the bank account of successful applicants (HKSAR Government, 2020). The consumption voucher scheme in 2021, however, showed a slight but significant difference in the means of “money dissemination.” Consumption credits would be disseminated only to the eligible applicants through one of the local mobile payments, Tap and Go, AliPay, or Octopus; a savings account was no longer accepted as a designated outlet, as in the previous two cash-payout schemes. To promote e-government, the financial secretary also announced that the voucher would be credited to the registration through the e-government service platform a month earlier than that of the paper submission (HKSAR Government, 2021).

Similar outcries from the digital divide clusters, particularly among elderly nonsmartphone users, emerged from the community. Doubt was cast on the unfairness for the nonnetizens for the “delayed payment,” and more appeals could be seen for the technological assistance to the nonnetizens for online registration, in which the platform was regarded as not user-friendly (not easy to fully comprehend the sophisticated procedures throughout the registration process) for the cyber freshmen despite their willingness to make attempts (Zheng, 2021). Similar to the circumstances in both the vaccination registration and “Leave Home Safe” app installment, some elders sought help from the government office and even the staff of convenience stores. However, the assistance hotline was fully occupied when the elders sought help for the scheme (Zheng, 2021), and some were required to queue up for hours on the street to register for the consumption voucher scheme (Lin, 2021). The Society for Community Organization criticized the scheme implementation as being an inconvenience to the elderly and suggested using the Old Age Allowance account for registration (Chen, 2021).

“Leave Home Safe” apps and vaccine passports

The government introduced social distancing legislation soon after the outbreak of COVID-19 in early 2020. An app was developed to record the itinerary of activities of an individual and thus facilitate the work of epidemiologists to trace infections. The app named “Leave Home Safe” was initially not mandatory for citizens but was advised by the government for all

netizens to install their handsets and check-in when visiting dining places. After the third wave of the outbreak in November 2020, the use of apps was mandatory for the patrons of some types of restaurants, and the regulations were further extended to all government premises (including markets, post offices, libraries, and sports facilities) in November 2021. In February 2022, the "vaccine passport" was incorporated into the app and is mandatory for the entry of most indoor public spaces for all citizens who are aged 12 or above (Center of Health Protection, HKSAR Government, 2022). In other words, smartphones are not only for information accessibility or personal entertainment but also a basic necessity for life in Hong Kong. The ownership of individual handsets, the ability to get them online and the correct application of the "Leave Home Safe" app become the "skills" for which digital vulnerabilities desperately look. The underprivileged in the community who cannot afford a smartphone or those who are disconnected from the digital world would be in difficulty. Only those aged 15 or younger could have an exemption from vaccine passports and app check-ins for any visits to indoor premises in a public arena. The reservation of society toward the mandatory use of apps is concentrated on the privacy and trust of the authorities for the appropriate use of personal information. For the digitally vulnerable groups, their concern is far more about practical enforcement rather than conceptual justice. Nonnetizens, nonsmartphone users, and visually impaired persons could be expelled from markets, hospitals, and even police stations in an emergency.

The Hong Kong Jockey Club Charities Trust made a donation of HK\$27 million in December 2021 to collaborate with 12 NGOs operating 74 District Elderly Community Centers & Neighborhood Elderly Centers and 4 mobile network service providers. Leave Home Safe-compatible smartphones with free mobile SIM cards were distributed to 20,000 elders in need. The beneficiaries also were provided with user training for the practical skills in using smartphones and mobile applications (The HKJC Charities Trust, 2021). The beneficiaries are nonresident elders aged 65 and older who are nonsmartphone users and receive Comprehensive Social Security Assistance from the government. The training given by the NGO, however, mainly focuses on the digital competence among the elderly, and the acceptance of using digital public service, such as building trust in the ICT, is still deficient among the vulnerable community.

DISCUSSION

In this study, we adopted the responses from policy recipients to explore a very topical public policy agenda in recent years: The promotion of e-government. The digitalization of public service platforms is no longer a new or innovative attempt in the second decade of the millennium. However, it is still a difficult issue to resolve the digital divide of vulnerable communities, mainly nonnetizens, elders, and physically impaired persons (W. Wong & Chu, 2020). Our study found that they have been increasing their acceptance of the e-service and platforms, as primarily shown by the consistent rise of handset ownership and internet accessibility of senior citizens in Hong Kong from 2010 to 2020 (Census & Statistics Department, HKSAR Government, 2021). This is simply not in line with the popular thought among the policymakers who believed in the general resistance or at least reluctance of the seniors toward the acquisition of services through cyber platforms. Despite the increasing level of acceptance of the e-service, seniors apparently expected to obtain individualized support for technicalities. It is fine for those who have family and social capital that they can get quick and trustworthy help next to their hands. Obviously, timely and appropriate interventions from the NGOs, if not from the government directly, are deemed quite crucial for pushing forward the policy.



By the end of 2021, there were only 12,650 cases and fewer than 220 deaths in Hong Kong, but the number of reported cases has soared to more than 60,000 after the outbreak of the Omicron variant brought by cabin crews and resident returnees from quarantine hotels in early January 2022 (Center for Health Protection, HKSAR Government, 2022). A Hong Kong-based medical expert has argued that the initial “success,” paradoxically, lulled people into a sense of false security. People generally believe that Omicron causes less severe symptoms and that they can recover in a few days. Less than one-third of the elders who are above 65 are fully vaccinated, and many panicked when the situation became aggravated. Medical professor consultants of the Hong Kong Government on COVID-19 control argued that their vaccine hesitancy could result from the limited number of severe cases, low trust in the authorities following the political unrest in the past 3 years, and little or no incentive provided for people who get vaccinated (strict social distancing measures applied to everyone in dine-in service, cinemas, sports grounds, and even private gatherings with more than 2 people) (LKS Faculty of Medicine HKU, The University of Hong Kong, 2022).

The three inventions we studied also provided tips for policymakers and their implementation bureaucrats promoting e-government. We noticed anxiety and reservation from the digitally vulnerable groups when all three policies were introduced. However, the level of their resistance and worries looked significantly different; the internet booking platform for vaccination got only short-lived and little negative feedback, and the mandatory use of “Leave Home Safe” apps got a larger echo, while the online registration for the cash payout had the loudest outcries from the underprivileged communities. The varying responses are apparently closely related to the immediate impact on the daily livelihood and benefits of the beneficiaries. The elders might not feel the pressing need for vaccination in the first wave of COVID-19, but they care more about their mobility and daily convenience without smartphones and “Leave Home Safe” apps. The cash voucher registration is certainly regarded as the privilege they worry about being deprived of due to the digital divide. Paradoxically, their reactions toward these e-platforms gradually changed with the development (aggravation) of the pandemic in Hong Kong. The rapid increase in infection figures and government launch of vaccine passports caused further inconvenience to unvaccinated parties as well as non-Leave Home Safe users. We noticed that the outcries for technical assistance from the government or NGOs, rather than for policy exemptions, have been louder from the digitally vulnerable groups. Apparently, the immediate threat to their health and livelihood provided the “breakthrough” to cross over the hurdle of the digital divide and successfully pushed a remarkable step for e-government.

The dramatic transformation of attitudes among vulnerable personnel provides an anecdote to rethink the common belief that e-government could be successfully promoted by investment in social capital and networks for digitally vulnerable clusters. Our tiny study hints that technical competence and availability of resources, in which the most common suggestions involve when the policymakers work out their strategy for e-government, might not be as detrimental as expected. Instead, examining the rationality among the digitally vulnerable groups seems far more important to drive them to be recipients of e-services. While there are some arguments highlighting the gradual loss of public trust toward the government and its “elitist” leadership in explaining the resistance and skepticism to the antiepidemic measures, and while some argued that the latest chaos in February 2022 was due to the loss of civil society, which effectively called for mutual help in the first wave of the COVID outbreak in early 2020, it seems that the immediate threat of benefits and personal well-being are the likely reasons explaining the increasing anxiety and fear of the digitally vulnerable to change their mind Table 1.

**TABLE 1** Comparison of the three e-government service programs and responses from the digitally vulnerable in Hong Kong

E-government program	Hurdles of digital divide persons	Alternative for digital divide persons and support from the NGOs	Responses from the vulnerable
Vaccination Registration	Online registration only	Walk-in option is provided in community vaccination centers to the elders afterwards Preferential service in private clinics for the walk-in elders for vaccination On-site vaccination for the disabled	Little shout in the early days of the vaccination program until the mass outbreak of the Omicron variant in January 2022
Consumption Voucher Scheme	Online registration, advance payment for online applicants, must have mobile payment	Paper registration is accepted, but the payment is deferred for a month longer than that of online registration	Considerable grievance is seen for the “unfair treatment” of non-e-registration applicants, but the grievance soon subsided
Leave Home Safe App & Vaccine Passport	Smartphone users only, check-in through the app when visiting designated premises, and have to incorporate the vaccination record	Paper registration has been allowed for those aged 65 or above, but the exemption has ceased Actions from NGOs were noted, including the donation of handsets and online services for the elders, tailored-made training programs for the elderly users	Stronger outcries and reactions due to the immediate impacts on all nonproficient smartphone users, appeals for technical assistance have emerged

Abbreviation: NGO, nongovernmental organization.

Source: Center of Health Protection, HKSAR Government (2022); LKS Faculty of Medicine, The University of Hong Kong (2022); The Hong Kong Jockey Club Charities Trust (2021).

CONCLUSION

The “zero virus” and “coexisting with virus” were two mainstream strategies adopted by different regimes in the encounter with COVID-19 in 2022. There are endless debates on the merits and limitations of either approach, developed by totally contradictory rationalities in public health management. However, there is unanimous agreement among scholars arguing the impact of COVID-19 on the transformation of both the organization and operation of public service delivery. The recentralization of public service delivery is noticed in some countries, and their public sectors are quickly expanded in size, capacity and authority. The health crisis



also significantly modified the policy process and catalyzed some policy agendas that have been highly controversial and uneasy to implement in normal circumstances in electoral democratic regimes. The digitization of government services is among them. There were normally a number of unresolved “hurdles,” including the digital divide, underprivileged populations, concerns over privacy and skepticism over the state’s extended authorities. The immediate threat and anxiety brought by the pandemic outweighed these hurdles, also apparently reducing the resistance to the digitization of government service. Instead of social capital, we argued that the digital divide groups also are highly rational and that their threshold of reluctance or resistance to switching to e-service platforms was clearly reduced in the public health crisis. The incentive-driven promotion strategy previously launched by the government, paradoxically, seems incomparable to the threat of the pandemic.

The COVID-19 pandemic has changed our way of delivering public services, such as the health care and economic relief measures in this study, and we suspect that the adoption of digital services not only widens the digital divide but also creates the controversy of surveillance of citizens, as the integration of technology moves on in the e-government era to manage complicated social and health care issues (Ramsetty & Adams, 2020). These services are defined by decision makers for meeting institutional and political purposes (W. Wong & Welch, 2004). The principle of small government and large market has been fully adhered to by the HKSAR Government in social service delivery. The government has heavily relied on civil society organizations and the private sector for delivering social services, such as voluntary medical insurance schemes and elder care services. The government took the COVID-19 pandemic opportunity to recentralize public services through technology (N. W. M. Wong et al., 2022). Access to these technology-related services must be carefully examined, and the population must be well informed about their benefits, during the crisis. In addition to technological support and monetary incentive, our study let us rethink the importance of realizing the thought of the digital divide cluster: What are they worrying about and how could the policymakers alleviate their anxiety in joining the e-service provided by the government. The lesson in COVID-19 Hong Kong showed that “fear and trust” are the greatest hurdles for the advocacy of e-government but not only the technical issues as widely expected.

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