Routledge
Taylor & Francis Group

ARTICLE

Policy capacity and Singapore's response to the COVID-19 pandemic

J. J. Woo

Singapore

ABSTRACT

Despite its excellent public healthcare system and efficient public administration, Singapore has been severely affected by the COVID-19 pandemic. While fatalities in the city-state remain low and contact tracing efforts have been largely successful, it has nonetheless experienced high rates of infection and the emergence of large infection clusters in its foreign worker dormitories. This paper analyses this dual-track policy outcome – low fatalities but high infection rates – from a policy capacity perspective. Specifically, the policy capacities that had contributed to Singapore's low fatality rates and effective contact tracing are identified while the capacity deficiencies that may have caused its high rates of infection are discussed. In doing so, I argue that the presence of fiscal, operational and political capacities that were built up after the SARS crisis had contributed to Singapore's low fatality rate and contact tracing capabilities while deficiencies in analytical capacities may explain its high infection rate.

Introduction

Given its renowned healthcare system and its historical record in managing the 2003 SARS crisis, Singapore had been expected by many to overcome the COVID-19 pandemic with relative ease (Barron, 2020; Bociurkwi, 2020; Cowling & Lim, 2020; Hodge, 2020; Rapoza, 2020). Indeed, its early efforts at contact tracing and isolation had been described as the 'gold standard of near-perfect detection' (Niehus, Salazar, Taylor, & Lipsitch, 2020). Yet despite these expectations, COVID-19 infection levels have soared in Singapore and it now is one of the most severely affected countries in the world. This paper seeks to address the paradox of high rate of COVID-19 infection in Singapore despite the government's high healthcare policy capacity.

As of writing, Singapore has more than 38,000 confirmed cases of COVID-19, which translates to more than 6,500 Covid-19 cases per million inhabitants; as a point of comparison, the United States has more than 1.8 million Covid-19 cases but its Covid-19 cases per million inhabitants stands at 5,724 (Armstrong, 2020). At the same time, Singapore's Covid-19 fatality rate in late April 2020 was 0.85 deaths per 1,000 infections; in comparison, United States reported 56 deaths per 1,000 infections (Sim & Kok, 2020).

This presents a paradox. Why has a country that is capable of maintaining such low levels of Covid-19 fatality also been plagued by high rates of Covid-19 infections?

Taking a policy capacity approach, this paper finds that Singapore's low levels of COVID-19 fatalities as well as its ability to trace and isolate infected persons are due to the presence of several key policy capacities that were established in the aftermath of the 2003 SARS crisis. At the same time, its high level of COVID-19 infections and the emergence of several large and interlinked infection clusters are attributable to deficiencies in other capacities.

In taking a capacity approach to understanding Singapore's mixed COVID-19 policy outcomes, this paper focuses on the competencies and resources that are crucial for managing pandemics and other health-care crises. At the same time, it also discusses the negative implications that can arise from deficiencies in certain policy capacities. Certainly, the very nature of black swan events such as pandemics make them hard to predict and pre-empt. However, a capacity approach can allow policymakers to build up a stock of resources and competencies that can be drawn upon in times of crisis.

Yet, as I will also discuss below, this requires building up excess capacity or 'slack' in ordinary times. The presence of such excess capacity that may be underutilised in ordinary times goes against the grain of New Public Management (NPM) thinking, which emphasises efficiency and resource optimisation. These considerations suggest a need to rethink the ways in which policy resources and competencies are built up, conserved, and deployed during crises. Taking a capacity approach can therefore contribute to such efforts to rethink the ways that governments can respond to pandemics and other unanticipated shocks.

In the rest of this paper, I will first provide a brief review of the existing policy capacity literature. This is followed by a more in-depth discussion of the policy capacities that have facilitated Singapore's efforts to manage the COVID-19 pandemic as well as the deficiencies that have impeded its ability to accurate assess and respond to its large infection clusters. These sections will therefore assess the presence and deficiencies of Singapore's different policy capacities, and how these have impacted its COVID-19 policy responses. I will then conclude this paper with theoretical and policy implications, as well as potential avenues for future research.

Policy capacity

The idea of capacity in a state's policymaking processes is not new. Early efforts to understand state capacity were focused on capacity as the state's ability or 'strength' in ensuring economic growth (Evans, 1995; Skocpol & Finegold, 1982; Weiss & Hobson, 1995; World Bank, 1997). There is therefore at the heart of capacity notions of economic performance and strength. This is reflected in the developmental state literature, which emphasized economic performance as both barometer of state strength and source of political legitimacy (Douglass, 1994; Evans, 1989; Johnson, 1982; Leftwich, 1995; Woo-Cumings, 1999).

Indeed, the East Asian developmental states have often been held up as paragons of high-capacity states (Chu, 2016; Hellmann, 2018; Woo, 2018), or by virtue of their ongoing efforts to expand or enhance their capacities, 'capacity-enhancing states' (Evans, 2014). As I will discuss below, this link between developmentalism and capacity

is particularly relevant for the case of Singapore, with economic growth featuring heavily in government's efforts to manage the COVID-19 pandemic.

Aside from economic development, state capacity has also featured heavily in international relations and security studies. Much of this draws from Weber's definition of the state in terms of its monopoly over the legitimate use of force or violence within defined territorial boundaries. Military and policing capabilities therefore take centre stage in these studies of capacity (Fearon & Laitin, 2003), particularly in realist perspectives that place a strong premium on 'state strength' as a means of securing domestic policy objectives (Holsti & Holsti, 1996; Krasner, 1976; Volgy & Bailin, 2003; Waltz, 1954).

These insights are highly relevant for the case of Singapore, which takes a realist, or 'siege mentality' approach to managing crises (Leifer, 2000), with external crises (actual or anticipated) often giving rise to extensive capacity-building efforts. The mobilisation of military and policing capabilities to manage the Covid-19 crisis further lends credence to Singapore's realist approach to capacity-building.

More contemporaneous definitions of capacity have focused on the various aspects or stages of the policy process, such as decision-making and the ability to assess multiple policy alternatives (Bakvis, 2000; Painter & Pierre, 2005), horizon scanning and the setting of strategic directions (Howlett & Lindquist, 2004) or the appropriate application of knowledge in policymaking (Parsons, 2004). Others have sought to take a more organisational and administrative perspective, capacity is often thought of in terms of public agencies' ability to coordinate and implement public service delivery (Holt & Manning, 2014; World Bank, 2012, 2014).

However, in many of these cases, policy capacity is related to successful policy outcomes. Certainly, effective policy implementation or adroit decision-making reflects the presence of some policy capacities. In cases where capacities are built up in anticipation of potential policy issues or crises; however, this focus on policy outcomes may not accurately account for such 'excess capacity' that may or may not be utilized. A more relevant approach would be to think of capacity in terms of its different forms and components. Different forms of capacities that have been identified in the existing literature include political, economic, ideational, technical, infrastructural, military and fiscal capacities (Cummings & Nørgaard, 2004; Nelissen, 2002; Savoia & Sen, 2012).

A more recent stream of research on policy capacity has sought to understand capacity as the 'set of skills and resources – or competences and capabilities – necessary to perform policy functions' (Wu, Ramesh, & Howlett, 2015, p. 166). In this body of work, policy capacity is conceptualised in terms of skills and competencies – analytical, operational and political – at the individual, organizational and systemic levels (Wu, Howlett, & Ramesh, 2018; Wu et al., 2015). As Wu et al. have further noted, taking this competence-based understanding of policy capacity allows for a broader analysis that covers the entire policy process, rather than a particular policy function or task.

This broad and integrated approach is particularly relevant for the case of Singapore, which has taken on a 'whole-of-government' approach to managing COVID-19. This paper therefore draws on this set of research by focusing on analytical, operational and political capacities in Singapore's efforts to manage COVID-19. It also includes a fourth type of capacity, fiscal capacity. I will next discuss Singapore's response to the COVID-19 pandemic in terms of these four capacities.

Policy capacity and Singapore's COVID-19 response

As a small island city-state comprising 5.6 million people, Singapore's well-defined borders, small population and limited geographical size have made it relatively easy for its policymakers to monitor and restrict the movements of its people. This is compounded by the high levels of political centralisation in Singapore, which has allowed the government to pass bills quickly and ensured a high level of social compliance among citizens and residents. Such political centralisation is largely attributable to Singapore's single party-rule, tough laws and extensive co-optation of political and business interests, all of which have also contributed to its reputation as a 'soft authoritarian' state (Barr, 2014; Bell, 1997; George, 2007; Rodan, 2008; Tan, 2012).

Political centralisation and soft authoritarianism aside, Singapore's experience in managing COVID-19 also draws from its efficient public administration (Haque, 2009; Jones, 1999; Quah, 1995, 2010; Woo, 2014), particularly in its public healthcare system (Ramesh, 2008), and high levels of governing and policy capacity (Cheung, 2008; Guo & Woo, 2016; Lee, 2009; Woo, 2016; Woo, Ramesh, Howlett, & Coban, 2016). However, these capacities do not exist in a vacuum, nor were they the sole work of a particular leader or administration. Rather, Singapore's policy capacities, especially those that I will discuss below, are the result of a cumulative process of capacity-building efforts over time.

Indeed, much of the policy capacities that have contributed to Singapore's ability to manage COVID-19 fatalities as well as and carry out extensive contact tracing stem from the government's experience with SARS. As Singapore's Prime Minister Lee Hsien Loong has noted, 'we [the Singapore government] have been preparing for this [COVID-19] since SARS, which was 17 years ago' (Lee, 2020). At the same time, Singapore's struggle to grapple with its high levels of infection also stem from certain deficiencies in its policy capacities.

In the rest of this section, I will discuss the various policy capacities that were mobilised during the COVID-19 pandemic as well as the deficiencies within each category of policy capacity that have impeded Singapore's ability to manage its COVID-19 infection levels.

Operational capacity

At the heart of Singapore's operational capacity is its healthcare system. Ranked among the top in the world, Singapore's healthcare system has been described as 'high quality, low cost' (Haseltine, 2013). Of particular importance to operational capacity is the availability of hospital beds and resources for treating infected patients. In the early phases of both the SARS and COVID-19 outbreaks, designated hospitals were tasked with receiving and treating infected patients. Tan Tock Seng Hospital was therefore designated as the 'SARS hospital' while the National Centre for Infectious diseases (NCID) played a similar role for COVID-19 (Tan, 2003).

Completed in May 2019, the NCID is a 330-bed purpose-built medical facility that is, according to its executive director Leo Yee Sin, 'designed to manage an outbreak on the scale of SARS' (Kurohi, 2019). Prior to the COVID-19 outbreak, the NCID was involved in detecting and treating major food poisoning cases, and conducting research on infectious diseases (Kurohi, 2019). The NCID can therefore be thought of as a form of

excess medical capacity that could be tapped on during the outbreak of an infectious disease, but which would otherwise be left to focus on research activities rather than active clinical work.

Such excess capacity, also known as 'organisational slack', has long been recognised in the business administration literature as a possible source of competitive advantage and organisational flexibility (Chen, Li, & Lin, 2013; Moreno, Fernandez, & Montes, 2009; Stock, Greis, & Fischer, 2017), although interest among public administration scholars in organisational slack has often been curtailed by the efficiency-centred New Public Management movement that has come to dominate the public administration scholarly literature (Busch, 2002). Paradoxically, Singapore has also been known to be a strong NPM proponent, with its outsourcing and privisatisation of public services driven by considerations of resource optimisation and efficiency (Haque, 2002; Lee & Haque, 2006).

The building of excess capacity such as the NCID therefore represents a slight departure from its traditional NPM approach, with a greater willingness to forego some extent of resource optimisation for capacity-building. This has likely arisen from Singapore's experience with the SARS crisis, which had served as a stark reminder of how easily healthcare resources can be overwhelmed by a pandemic. However, even such excess capacity would not be enough, with the rapid increase in COVID-19 cases requiring the government to tap into other hospital and medical facilities for the isolation and treatment of infected patients.

In a bid to preserve hospital capacity, the Ministry of Health announced on 23 March 2020 that COVID-19 patients who are clinically well but continue to test positive for the virus would be transferred to private hospitals such as Concord International Hospital, Mount Elizabeth Hospital and a community isolation facility that was set up at a holiday resort facility in Eastern Singapore (Chong, 2020a). The Singapore Expo, an exhibition and convention centre in Eastern Singapore, was subsequently converted into a second community isolation facility for COVID-19 patients who are recovering or exhibit mild symptoms (Tee, 2020a).

However, emergence of large infection clusters among Singapore's foreign workers would render even these facilities inadequate. Housed in cramped and densely-populated dormitories, these foreign workers are typically employed on 'work permits' in the construction, cleaning and essential services sectors. Foreign employees who serve in more 'white collar' industries such as banking and finance are issued 'work passes' instead.[1] In any case, the rise in foreign worker infections would prompt the government to rehouse many healthy workers in other facilities, such as schools, military camps, university student accommodations, and vacant public housing projects, so as to prevent further spread of the virus among foreign workers as well as to reduce the high levels of density within which these workers were living in the first place (Phua & Ang, 2020).

As I will discuss below, the high numbers of foreign worker infections stem from deficiencies in Singapore's analytical capacities, with the government not cognizant of the infection risks that these densely-populated dormitories would pose during a pandemic.

---

[1]Work passes are typically issued to highly-paid and relatively better educated foreign professionals, managers and executives (PMEs). It also comes with a requirement that the work pass holder must be earning a salary of at least SG $3,600 per month. Work permits are issued to unskilled foreign manpower, typically from the construction, manufacturing, and marine sectors, as well as services. While there are no minimum salary requirements for work permit holders, there are levies and quotas for firms that hire work permit holders.

In any case, the excess operational capacities that were built into Singapore's healthcare system were barely sufficient to deal with the unexpectedly high levels of COVID-19 infections that had suddenly emerged. However, the use of non-medical facilities to house clinically-well COVID patients suggests that the availability of physical infrastructure is therefore crucial to ensuring operational capacity.

While its healthcare infrastructure such as hospitals and clinics had allowed Singapore to house and treat infected persons, the availability of other physical infrastructure that can easily be converted into patient-care and isolation facilities, such as hotels, military barracks, and convention centres, have also contributed immensely to its ability to maintain operational capacity in the face of rising infection rates. Such infrastructure can therefore be thought of as another set of excess capacity, that though not purpose-built for dealing with a pandemic, can nonetheless be mobilised during such a crisis.

Aside from hospital and medical facilities, a second source of operational capacity lies in Singapore's ability to conduct extensive contact tracing. In response to questions about the sources of Singapore's success in managing COVID-19, Prime Minister Lee noted that:

> "As the cases started to come in, we were able to identify them, because we said treatment and testing for COVID-19 will be free. We were able also to contact trace and find the contacts of the people who had come in and isolate the contacts, so that we slow down the spread within the population" (Lee, 2020).

Initially drawn from the Ministry of Health (MOH) and subsequently incorporating personnel from the Singapore Police Force and the Army, contact tracing teams are tasked with identifying the close contacts of infected persons and ensuring that these close contacts are isolated and quarantined to prevent further spread.

The contract tracing process begins in the hospital, where a warded patient is asked to construct an 'activity map' that details the activities that he or she has carried out and people that he or she has met over the past two weeks; this is followed by an investigative process whereby contact tracing teams call up all the people that the patient has interacted with, in order to determine whether a person is a close contact and hence at risk of an infection (Khalik, 2020). Close contacts who are clinically well are then quarantined for 14 days, while close contacts with coronavirus symptoms are hospitalised.

Put another way, an operational capacity that can prove crucial during a pandemic is the number and expertise of contact tracers that can be mobilised to identify and notify close contacts of confirmed COVID-19 cases. This would help curb community transmission early on. Certainly, it would not be feasible to maintain such a pool of contact tracers in ordinary times. As Singapore's experience in the early stages of the pandemic has shown, the ability to mobilise relevant personnel from other parts of the public service, such as investigative officers from the police force and military can contribute immensely to the government's contact tracing capabilities.

Furthermore, contact tracing requires the presence of established procedures detailing the contract tracing process, such that existing and new contact tracers can quickly take on their roles. In the case of Singapore, these procedures were established in the aftermath of the SARS crisis and encoded in the institutional fabrics of both the Ministry of Health and the NCID. Tangentially related to Singapore's healthcare system and contact tracing efforts is its technological infrastructure. A key example of this is the invention of the Infrared Fever Screening System by the Defence Science and

Technology Agency (DSTA) during the SARS outbreak (Tan, Teo, Ong, Tan, & Soo, 2004). The DSTA also developed a low-cost diagnostic kit that can detect the presence of the COVID-19 virus in individuals in a significantly shorter amount of time (Tan, 2020).

More recently, a contact tracing application, the 'TraceTogether app', was developed by the Government Technology Agency (GovTech) and Ministry of Health to assist in contact tracing efforts through the use of Bluetooth technology (Baharudin, 2020; Government Digital Services, 2020). GovTech has also adapted the social messaging app Whatsapp to provide citizens with daily updates on COVID-19 cases by developing an artificial intelligence (AI) translation tool and created an app-based reporting tool for monitoring individuals under quarantine (Basu, 2020).

The case of Singapore has therefore shown that operational capacities play a key role in the detection, isolation and treatment of COVID-19, with such operational capacities including physical and technological infrastructure as well as human capital in the form of contact tracers. However, while Singapore has built up significant operational capacities in its healthcare system and public service, there were also deficiencies that may have affected its ability to curb manage the large infection clusters that had emerged in its foreign worker population.

Specifically, there may not have been sufficient coordination between the Ministry of Health and the Ministry of Manpower (MOM). While the MOH was tasked with leading Singapore's COVID-19 response, the MOM is in charge of regulating Singapore's foreign worker dormitories and ensuring that these workers are housed in sanitary conditions. While the MOM conducts periodic checks of these dormitories, the potential infection risks that can arise from living in close proximity within these dormitories was not sufficiently communicated to the MOH to warrant policy action in the early stages of the pandemic.

As I will discuss below, this lack of cognizance of such infection risks in the worker dormitories represents a deeper deficiency in the authorities' analytical capacities. Before delving into analytical capacity, it should be noted that the availability of operational capacities is also predicated upon the government's financial ability to fund its programmes and mobilise more resources towards key activities such as contact tracing. Such financial capabilities are typically described in the literature as fiscal capacity.

Fiscal capacity

With its total reserves estimated to be well above SG$500 billion (US 370 USD billion) (Ng & Jaipragas, 2019), Singapore possesses a large national reserves that can be, and has been, drawn on during times of crisis. These reserves were mobilised at various points during the COVID-19 crisis. This began on 18 February 2020 with a SG$6.4 billion Unity Budget, followed by a SG$48.4 billion supplementary Resilience Budget on 26 March 2020, a SG$ 5.1 billion Solidarity Budget on 6 April 2020 and a SG$33 billion Fortitude Budget on 26 May 2020 (Lim, 2020; Tee, 2020b).

The four budgets were introduced in response to the economic needs that were expected to arise at different points of the crisis. For instance, the Solidarity Budget was unveiled right before the implementation of the 'Circuit Breaker', which was a de facto lock-down. This Budget included more pay-outs for individuals and households, in

a bid to pre-empt potential losses of income by those who may be placed on no-pay leave from work during the Circuit Breaker period.

Taken together, the four budgets comprise an expected outlay of SG$100 billion, with SG$52 billion to be drawn from past reserves (Lim, 2020). Past reserves are essentially reserves that have been accumulated during previous terms of Government, with any draw-down from past reserves requiring the approval of both Parliament and a directly elected President. The four budgets focused largely on cash pay-outs to individuals and households, subsidising workers' wages, and business tax reliefs. The budgets were therefore focused on managing the economic impacts of COVID-19, especially in terms of ensuring business continuity. Of particular importance to businesses was the government's decision to subsidise 75% of the first SG$4,600 of monthly wages for all local workers.

In sum, Singapore's ability to manage the economic fall-out of COVID-19 depended heavily on its ability to draw on its large national reserves. These reserves therefore form a crucial component of Singapore's fiscal capacity. Aside from its past reserves, Singapore's current reserves have also been mobilised to address the pandemic. More specifically, Singapore possessed the fiscal capacity to provide free COVID-19 testing and medical care for all its citizens. This in turn contributed immensely to Singapore's analytical capacity, since citizens were willing to turn up for testing as well as seek medical care for COVID-19 symptoms, without being encumbered by the possibility of high medical costs.

Indeed, much of the operational and analytical capacities that have bolstered Singapore's efforts to manage the COVID-19 pandemic depended heavily on fiscal capacity. The expanded contact tracing teams and medical staff who would now need to work for longer hours to manage the higher patient-load would have to be paid for overtime work, while the greater need for monitoring and surveillance systems required costly expenditures into both hardware and software. Information does not come cheap.

Analytical capacity

While the capacities discussed so far tend to focus on mobilising resources towards crisis management after the onset of a pandemic or healthcare crisis, there are also other capacities that can be built up *before* a crisis emerges. These largely take the form of analytical capacity. In the case of Singapore, much of the analytical capacities that were mobilised to manage the COVID-19 crisis were established after the 2003 SARS crisis.

In report that was published by the government's Centre for Strategic Futures in 2017, pandemics were described as 'a black elephant', i.e. a problem that is visible to everyone but which no one wants to address, that governments fail to take precautions against (Centre for Strategic Futures, 2017, p. 8). Any effort to pre-empt and prepare for a future pandemic necessarily draws on specific and highly technical activities such as strategic foresight and horizon scanning, all of which involve extensive collection and processing of data in order to separate the 'signal' from the 'noise', in the parlance of futurists and foresight specialists.

At the heart of such analytical capacities is the government's Centre for Strategic Futures (CSF), a strategic foresight and horizon scanning unit situated within the Prime Minister's Office.

As noted by the CSF:

"One important idea is for resilient governments to have a small but dedicated group of people to think about the future systematically, who will identify contingencies to be planned for, and emerging risks over the horizon to be managed. The skill sets needed are different from those required to deal with short-term volatility and crisis. This group should be allocated the bandwidth to focus on the long term without getting bogged down in day-to-day routine. By improving the ability to anticipate such shocks, governments might reduce their frequency and impact" (Centre for Strategic Futures, 2017).

A key aspect of the CSF's role includes 'building capacities, mindsets, expertise and tools for strategic anticipation and risk management' (Centre for Strategic Futures, 2020). The CSF is therefore tasked with building the tools and capacities for addressing future crises, with pandemics often included as a major high-risk event in the CSF's annual reports (Centre for Strategic Futures, 2017).

Beyond pre-empting future pandemics, analytical capacities are also crucial in the sort of information collection and processing that is often necessary for contact tracing and quarantine management during a pandemic. In a post-SARS presentation to the World Health Organisation (WHO), the Ministry of Health's then-Director of Medical Services (and the government's current Chief Health Scientist) Chorh Chuan Tan (2003) noted that Singapore's successful containment of SARS depended on three factors:

- A broad-based and sensitive surveillance system.
- Rapid and effective contact tracing.
- Low threshold for enforced quarantine during an outbreak.

As I have discussed above, contact tracing has from the initial emergence of COVID-19 in Singapore been a crucial component of the city-state's efforts to contain the spread of the virus. This involves the role of contact tracing teams in conducting extensive interviews with confirmed COVID-19 cases as well as their immediate contacts. The number of contact tracing teams were expanded from 3 to 20 on 25 March 2020, when the number of confirmed cases doubled from 266 to 558. According to Health Minister Gan Kim Yong, with the expanded number of teams, the government 'can trace up to 4,000 contacts each day, and will continue to scale up our contact tracing capacity as needed' (Mahmud, 2020).

Upon identification by these contact tracing teams, close contacts of infected individuals or potential infection risks are required to serve a 14-day quarantine. Contact tracing also allows for the explication of linkages within and across infection clusters. For instance, contact tracers managed to establish a link between three clusters, Grace Assembly of God church, The Life Church and Missions and a Chinese New Year family gathering at Mei Hwan Drive, through serological testing and extensive tracing of the initial infected persons' movements and contacts (Goh, 2020).

The importance of rapid contact tracing, especially the identification and isolation of confirmed infection cases, in containing the spread of the COVID-19 coronavirus is

further underscored by a study that randomly tested blood samples from the general population, with no signs of COVID-19 infections found in all of the 774 samples that were tested (Chew, 2020). This reflects a relatively low level of community transmission, with infected persons often identified through contact tracing and quickly quarantined or isolated before any secondary infections could take place.

Given this focus on data processing, technological tools also form an important component of analytical capacity. This includes movement tracking apps, such has the TraceTogether app, which was developed by GovTech and relies on Bluetooth technology to keep track of the people whom an individual comes into contact with on a daily basis, with contact tracers able to retrieve this data, should the individual be found to be infected with the COVID-19 coronavirus (Government Digital Services, 2020).

However, the TraceTogether app was not widely downloaded by the Singaporean population. As of April 2020, only 1 million people had downloaded the app (Chong, 2020b). This is about one fifth of Singapore's total population. This suggests a lack of technological literacy among some quarters of the population but more likely, concerns over data privacy and a lack of trust in the government's ability to safeguard individuals' personal data. This suggests some level of deficiency in political capacity, which will be discussed in the next section.

Other technological means of surveillance include a GovTech-designed SafeEntry app, a 'national digital check-in system' that allows workplaces, malls, restaurants, supermarkets and other public venues to keep track of the individuals who enter their premises, by requiring individuals to 'check-in' to a premise by scanning a QR code (GovTech, 2020). Existing technologies such as WhatsApp have also been used to keep track of individuals who have been placed under quarantine or stay home notice.

These technological tools can therefore be thought of as another form of analytical capacity that can be used to enhance the government's ability to collect and analyse large amounts. Certainly, Singapore is not the only country that has recognised the importance of technological analytical capacities. Similar apps have also been developed and are widely used in China and South Korea.

Yet despite these analytical capacities, Singapore's high infection rates suggest deficiencies in its ability to detect COVID-19 infections early enough to prevent the emergence of the large clusters that had driven these high infection rates. This is particularly the case with the clusters that had emerged in Singapore's foreign worker dormitories. This rapid escalation of infections among the foreign worker community has been attributed to the government's over-focus on Singapore citizens and residents in its initial testing and control measures (Nortajuddin, 2020).

The emergence of the foreign worker infections can therefore be seen a 'black elephant' event, i.e. an unexpected shock (similar to a black swan) that has arisen from an already-known systemic problem that policymakers and society are unwilling to address (akin to an 'elephant in the room') (Centre for Strategic Futures, 2017; Ho, 2008). Black elephant and black swan events are typically the result of insufficient analytical capacities, especially in terms of the channels and mechanisms through which information on worker dormitory infections could have been passed on to policymakers.

Certainly, the state of these foreign workers' living conditions are not new to the public. The cramped and densely populated conditions of many foreign worker dormitories had previously been documented and made public, whether by the media or by

non-profit organisations such as Transient Workers Count Too (CNA 2018, Transient Workers Count Too, 2020). The inability to translate this knowledge into 'actionable intelligence' for preventing COVID-19 infections within these dormitories therefore reflects some deficiency in analytical capacity.

Much of this has to do with the inability of non-profit and civil society groups to sufficiently gain the attention of policymakers and political leaders, which is in turn a consequence of Singapore's developmental state model of governance (Woo, 2018). Hence, while information on foreign worker dormitory conditions resided within non-profit groups, there were insufficient channels of communication between policymakers and civil society, in order that this information could be brought to policymakers' attention. This is somewhat related to Singapore's political capacity, which is discussed next.

Political capacity

There are two aspects of political capacity that are relevant to the case of Singapore. The first comprises political trust and legitimacy, while the second involves political communications. Furthermore, the two forms of political capacity are interlinked, with the public's willingness to accept the government's policy announcements dependent on the presence of political trust and effective political communications further building up this trust and hence contributing to the government's political legitimacy. Both communications and trust are crucial for ensuring public compliance with policies and regulations.

Certainly, much has been written about political trust and legitimacy in Singapore. As an archetypal East Asian 'developmental state' that operates on the basis of performance legitimacy and which has systematically reduced civil society's role in public discourse, Singapore exhibits a significant level of socio-political trust, much of which is predicated upon the state's continued ability to generate economic growth and ensure social stability (Huff, 1995; Liow, 2011; Perry, Kong, & Yeoh, 1997; Woo, 2018). This performance legitimacy is perhaps further enhanced by Singapore's success in managing past crises and pandemics, such as the SARS crisis and the 2008 global financial crisis.

In any case, the prevalence of performance legitimacy as source and driver of political trust, coupled with the Singaporean state's hitherto ability to overcome crises and continuously generate economic growth, means that political trust has thus far been relatively high. Certainly, some of this can also be attributed to the Singaporean state's 'semi-authoritarian' approach to governance and its low tolerance for dissent (George, 2007; Rodan, 2008; Tan, 2012, 2016). In any case, the Singaporean state has managed to maintain relatively high levels of political trust and policy compliance, both of which have contributed to its political capacity.

Certainly, these forms of capacity played a key role in ensuring public compliance with COVID-19 control and prevention measures. While there have been several well-publicised instances of citizens breaching circuit breaker rules, the Singaporean population has by and large exhibited a high level of compliance with the government's prevention and control measures.

Aside from issues of trust and legitimacy, public communications have also played a key role in ensuring public compliance. Singapore's efforts to communicate its policies to the general public, particularly during the early phases of the COVID-19 pandemic,

has received much favourable attention. Much of this has been attributed to the government's clear and concise policy directions and advice that were delivered through traditional and social media on a near-daily basis (Hsu & Tan, 2020; Sagar, 2020).

As noted by PM Lee during an interview:

> "I think the key thing is people must understand what we are facing and must support what we are doing, cooperate with us, and have confidence in the government. We put a lot of effort into explaining to them what is happening, speaking to them and I have done it a few times directly on television, so people know that we are level and we tell it straight. We are transparent – if there is bad news, we tell you. If there are things which need to be done, we also tell you. I think that you have to maintain that trust because if people do not trust you, even if you have the right measures, it is going to be very hard to get it implemented" (Lee, 2020).

This emphasis on trust and transparency in public communications was also evident during the SARS crisis, with the government granting World Health Organisation (WHO) officials full access to its information and all data and information presented in a daily conference chaired by the Director of Medical Services and attended by key public officials and WHO observers (Centre for Strategic Futures, 2017, p. 14). This practice of daily information sharing has therefore been extended to the COVID-19 crisis, with the Multi-Ministry Taskforce on COVID-19 sharing updates and information with the public through frequent press conferences.

However, there remains one key deficiency in Singapore's political capacity that may have negatively impacted its COVID-19 response efforts. Specifically, insufficient communication between the state and Singapore's NGOs, particularly those that deal with the foreign worker welfare, had prevented policymakers from gaining awareness of the cramped and unsanitary living conditions that many foreign workers were made to live in by the employers. These living conditions would naturally give rise to high levels of COVID-19 infection among Singapore's foreign workers, particularly those who live cheek-by-jowl in these dormitories.

Conclusion

This paper has provided a broad overview of the policy capacities that have contributed to Singapore's response to the COVID-19 pandemic, as well as the capacity deficiencies that have given rise to its high infection rates. As I have discussed above, the presence of several key fiscal, analytical, operational and political capacities, most of which were built up in the aftermath of the 2003 SARS crisis, had allowed the Singaporean state to launch a strong early response to the COVID-19 outbreak. These efforts have culminated in Singapore's low levels of COVID-related fatalities and minimal community transmission within its citizen and permanent resident community.

However, deficiencies in Singapore's analytical capacities had also resulted in the state's inability to accurately assess and address the infection risks that came from its densely populated and often badly managed foreign worker dormitories. This has led to a curious outcome of a dual-track COVID-19 response, with overall Covid-19 fatalities as well as infection levels among citizens and permanent residents relatively low but infection levels among foreign workers and other work permit holders soaring rapidly. More importantly, these capacity deficiencies explain how a hitherto high-capacity state

such as Singapore could still have ended up with a suboptimal outcome of high infection rates.

Certainly, much more research is needed for a clearer understanding of these capacity deficiencies. This would include their origins and the causal mechanisms between these deficiencies and cluster formation. The ongoing and evolving nature of the COVID-19 pandemic has in no small part prevented the formation of a definition understanding of these issues, with new policy implications emerging on a near-daily basis.

Lastly, a few caveats are in order. While the case of Singapore has yielded good insight into the policy capacities that can be, and have been, established to deal with pandemics, Singapore's unique socio-political and demographic context may limit the applicability of these lessons to larger countries or countries with different socio-political contexts and demographic profiles. Given the relatively small size of its population and physical territory, Singapore's experience in managing COVID-19 may be more relevant to city-level governments and other small states, rather than federal governments that oversee larger territories.

Singapore's highly centralised approach to policymaking, its ready access to residents' private data as well as the harsh penalties that it has meted out for breaches of laws and regulations may also not be acceptable in many other countries and polities. Lastly, the various fiscal measures that were implemented are only possible in countries that similarly possess large reserves and sufficient fiscal space. Nonetheless, the capacity deficiencies that were identified in this paper can serve as a useful indicator of how insufficient capacity in certain areas can lead to negative policy outcomes.

All this points to a need for further research into the role of policy capacity in driving the COVID-19 policy responses of different countries and cities across the world. This will hopefully allow for the development of a more comprehensive understanding of the policy tools and capacities that can be built up and drawn upon for managing future pandemics and crises. While it is often impossible to predict the emergence of black swan events such as pandemics, it is nonetheless possible to build up the necessary policy capacities ahead of time.

As I have discussed in this paper, such a capacity-driven approach may need a significant rethink of our existing approaches to public policy and administration. In particular, there may be a need to dial back on the efficiency and resource optimisation of NPM approaches and focus on building up and conserving policy capacities that may not be needed in the short term, but which can certainly come in handy during the onset of an unexpected crisis such as a pandemic.

Disclosure statement

Notes on contributor

J. J. Woo is a policy researcher and consultant. He has held faculty and research positions at the Education University of Hong Kong, Nanyang Technological University, Singapore University of Technology and Design, and the Harvard Kennedy School. J.J. received his PhD from the Lee Kuan

Yew School of Public Policy, National University of Singapore. His research interests include policy design, urban governance, and the political economy of development.

References

Armstrong, M. (2020). Infographic: COVID-19 cases per million inhabitants: A comparison [online]. *Statista Infographics*. Retrieved from https://www.statista.com/chart/21176/covid-19-infection-density-in-countries-most-total-cases/

Baharudin, H. (2020). Coronavirus: S'pore government to make its contact-tracing app freely available to developers worldwide [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/singapore/coronavirus-spore-government-to-make-its-contact-tracing-app-freely-available-to

Bakvis, H. (2000). Rebuilding policy capacity in the era of the fiscal dividend: A report from Canada. *Governance*, *13*(1), 71–103.

Barr, M. D. (2014). *The ruling elite of Singapore: Networks of power and influence*. London: I.B. Tauris.

Barron, L., 2020. Coronavirus lessons from Singapore, Taiwan and Hong Kong | Time [online]. *Time*. Retrieved from https://time.com/5802293/coronavirus-covid19-singapore-hong-kong-taiwan/

Basu, M. (2020). Exclusive: How Singapore sends daily Whatsapp updates on coronavirus | GovInsider [online]. *GovInsider*. Retrieved from https://govinsider.asia/innovation/singapore-coronavirus-whatsapp-covid19-open-government-products-govtech/

Bell, D. A. (1997). A communitarian critique of authoritarianism: The case of Singapore. *Political Theory*, *25*(1), 6–32.

Bociurkwi, M. (2020). What the US can learn from Singapore's coronavirus strategy (opinion) - CNN [online]. *CNN*. Retrieved from https://edition.cnn.com/2020/03/13/opinions/coronavirus-what-the-us-can-learn-from-singapore-hk-bociurkiw/index.html

Busch, T. (2002). Slack in public administration: Conceptual and methodological issues. *Managerial Auditing Journal*, *17*(3), 153–159.

Centre for Strategic Futures. (2017). *Foresight*. Singapore: Prime Minister's Office Singapore.

Centre for Strategic Futures. (2020). Who We Are [online]. *Prime Minister's Office Singapore*. Retrieved from https://www.csf.gov.sg/who-we-are/

Chen, Y.-C., Li, P.-C., & Lin, Y.-H. (2013). How inter- and intra-organisational coordination affect product development performance: The role of slack resources. *Journal of Business & Industrial Marketing*, *28*(2), 125–136.

Cheung, A. B. L. (2008). The story of two administrative states: State capacity in Hong Kong and Singapore. *The Pacific Review*, *21*(2), 121–145.

Chew, H. M. (2020). Low community transmission of COVID-19 in Singapore as of end-March: Study [online]. *CNA*. Retrieved from https://www.channelnewsasia.com/news/singapore/low-community-transmission-of-covid-19-in-singapore-march-ncid-12687112

Chong, C. (2020a). Patients who are well but still testing positive for Covid-19 to be moved to community isolation facility to preserve hospital capacity [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/singapore/patients-who-are-well-but-still-testing-positive-for-covid-19-to-be-moved-to-community

Chong, C. (2020b). About 1 million people have downloaded TraceTogether app, but more need to do so for it to be effective: Lawrence Wong, [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/singapore/about-one-million-people-have-downloaded-the-tracetogether-app-but-more-need-to-do-so-for

Chu, Y. (2016). The Asian developmental state: Ideas and debates. In Y. Chu (Ed.), *The Asian developmental state* (pp. 1–25). New York: Palgrave Macmillan US.

Cowling, B. J., & Lim, W. W. (2020). Opinion | They've contained the coronavirus. Here's How. - The New York Times [online]. *The New York Times*. Retrieved from https://www.nytimes.com/2020/03/13/opinion/coronavirus-best-response.html

Cummings, S. N., & Nørgaard, O. (2004). Conceptualising state capacity: Comparing Kazakhstan and Kyrgyzstan. *Political Studies*, *52*(4), 685–708.

Douglass, M. (1994). The 'developmental state' and the newly industrialised economies of Asia. *Environment & Planning A*, *26*(4), 543–566.

Evans, P. B. (1989). Predatory, developmental, and other apparatuses: A comparative political economy perspective on the Third World state. *Sociological Forum*, *4*(4), 561–587.

Evans, P. B. (1995). *Embedded Autonomy: States & Industrial Transformation* (First Edition ed.). Princeton, N.J: Princeton University Press.

Evans, P. B. (2014). The Capability enhancing developmental state: Concepts and national trajectories. In E. M. Kim & P. H. Kim (Eds.), *The South Korean development experience* (pp. 83–110). London, U.K.: Palgrave Macmillan UK.

Fearon, J., & Laitin, D. (2003). Ethnicity, insurgency, and Civil War. *American Political Science Review*, *97*(1), 75–90.

George, C. (2007). Consolidating authoritarian rule: Calibrated coercion in Singapore. *The Pacific Review*, *20*(2), 127–145.

Goh, T. (2020). Grace Assembly coronavirus mystery solved: Antibody tests linked mega cluster to 2 Wuhan tourists via CNY party and Life Church cluster in a world-first [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/singapore/grace-assembly-coronavirus-mystery-solved-mega-cluster-linked-to-2-wuhan-tourists-via-a

Government Digital Services. (2020). TraceTogether [online]. Retrieved from https://www.tracetogether.gov.sg/

GovTech (2020). SafeEntry-National digital check-in system [online]. Retrieved from https://safeentry.gov.sg/

Guo, Y., & Woo, J. J. (2016). *Singapore and Switzerland: Secrets to small state success*. New Jersey: World Scientific Publishing Co.

Haque, M. S. (2002). Structures of new public management in Malaysia and Singapore: Alternative views. *The Journal of Comparative Asian Development*, *1*(1), 71–86.

Haque, M. S. (2009). Public administration and public governance in Singapore. In P. S. Kim (Ed.), *Public administration and public governance in ASEAN and Korea* (pp. 246–271). Seoul: Daeyong Moonhwasa Publishing Company.

Haseltine, W. A. (2013). *Affordable excellence: The Singapore healthcare story: How to create and manage sustainable healthcare systems*. Washington, D.C.: Brookings Institution Press.

Hellmann, O. (2018). High capacity, low resilience: The 'developmental' state and military–bureaucratic authoritarianism in South Korea. *International Political Science Review*, *39*(1), 67–82.

Ho, P. (2008). *Governing at the leading edge: Black Swans, Wild Cards, and Wicked Problems*. Singapore: Prime Minister's Office.

Hodge, A. (2020). Singapore early intervention offers a blueprint for success against coronavirus [online]. *The Australian*. Retrieved from https://www.theaustralian.com.au/world/singapore-early-intervention-offers-a-blueprint-for-success-against-coronavirus/news-story/979f8852b7bf6b989d1aeefe50421482

Holsti, K. J., & Holsti, K. J. (1996). *The state, war, and the state of war*. Cambridge, U.K.: Cambridge University Press.

Holt, J., & Manning, N. (2014). Fukuyama is right about measuring state quality: Now what? *Governance*, Research Note.

Howlett, M., & Lindquist, E. (2004). Policy analysis and governance: Analytical and policy styles in Canada. *Journal of Comparative Policy Analysis: Research and Practice*, *6*(3), 225–249.

Hsu, L. Y., & Tan, M.-H. (2020). What Singapore can teach the U.S. about responding to Covid-19. *STAT*. https://www.statnews.com/2020/03/23/singapore-teach-united-states-about-covid-19-response/

Huff, W. G. (1995). The developmental state, government, and Singapore's economic development since 1960. *World Development*, *23*(8), 1421–1438.

Johnson, C. A. (1982). *MITI and the Japanese miracle: The growth of industrial policy, 1925-1975. 1 edition*. Stanford, California: Stanford University Press.

Jones, D. S. (1999). Public administration in Singapore: Continuity and reform. In H. K. Wong & H. S. Chan (Eds.), *Handbook of comparative public administration in the Asia-Pacific Basin* (pp. 1–22). New York: CRC Press.

Khalik, S. (2020). Coronavirus: How contact tracers track down the people at risk of infection [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/singapore/health/how-contact-tracers-track-down-the-people-at-risk-of-infection

Krasner, S. D. (1976). State power and the structure of international trade. *World Politics*, *28*(3), 317–347.

Kurohi, R. (2019). Centre to boost infectious disease management. *The Straits Times*, *17*(Jan), B3.

Lee, E. W. Y., & Haque, M. S. (2006). The new public management reform and governance in Asian NICs: A comparison of Hong Kong and Singapore. *Governance*, *19*(4), 605–626.

Lee, H. L. (2020). PM Lee Hsien Loong's interview with CNN [online]. *Prime Minister's Office Singapore*. Retrieved from http://www.pmo.gov.sg/Newsroom/PM-interview-with-CNN

Lee, J. (2009). Developmentalism, social welfare and state capacity in East Asia: Integrating housing and social security in Singapore. *Journal of Asian Public Policy*, *2*(2), 157–170.

Leftwich, A. (1995). Bringing politics back in: Towards a model of the developmental state. *Journal of Development Studies*, *31*(3), 400–427.

Leifer, M. (2000). *Singapore's foreign policy: Coping with vulnerability*. London: Routledge.

Lim, Y. L. 2020. $33b set aside in Fortitude Budget, bringing Singapore's Covid-19 war chest to nearly $100 billion [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/politics/parliament-33-billion-set-aside-in-fortitude-budget-bringing-covid-19-war-chest-to-nearly

Liow, E. D. (2011). The neoliberal-developmental state: Singapore as case study. *Critical Sociology*, *38*(2), 0896920511419900.

Mahmud, A. H. (2020). COVID-19: Singapore expands contact tracing teams to prepare for surge in cases [online]. *CNA*. Retrieved from https://www.channelnewsasia.com/news/singapore/covid-19-singapore-contact-tracing-teams-coronavirus-cases-12574284

Moreno, A. R., Fernandez, L. M. M., & Montes, F. J. L. (2009). The moderating effect of slack resources on the relation between quality management and organisational learning. *International Journal of Production Research*, *47*(19), 5501–5523.

Nelissen, N. (2002). The administrative capacity of new types of governance. *Public Organization Review*, *2*(1), 5–22.

Ng, J. Y., & Jaipragas, B. (2019). Singapore's giant reserves: A taxing question for Heng Swee Keat [online]. *South China Morning Post*. Retrieved from https://www.scmp.com/week-asia/politics/article/2186409/singapores-giant-reserves-taxing-question-its-next-prime-minister

Niehus, R., Salazar, P. M. D., Taylor, A., & Lipsitch, M. (2020). *Quantifying bias of COVID-19 prevalence and severity estimates in Wuhan, China that depend on reported cases in international travelers | MedRxiv*. Cambridge, M.A.: Harvard T.H. Chan School of Public Health, Pre-Print.

Nortajuddin, A. (2020). Migrant worker cluster: A Singapore nightmare [online]. *The ASEAN Post*. Retrieved from: https://theaseanpost.com/article/migrant-worker-cluster-singapore-nightmare

Painter, M., & Pierre, J. (2005). Unpacking policy capacity: Issues and themes. In M. Painter & J. Pierre (Eds.), *Challenges to state policy capacity: global trends and comparative perspectives* (pp. 1–18). Basingstoke: Palgrave Macmillan.

Parsons, W. (2004). Not just steering but weaving: Relevant knowledge and the craft of building policy capacity and coherence. *Australian Journal of Public Administration*, *63*(1), 43–57.

Perry, M., Kong, L., & Yeoh, B. (1997). *Singapore: A developmental city state*. Chichester: John Wiley and Sons.

Phua, R., & Ang, H. M. 2020. 'Dedicated strategy' to break COVID-19 spread in dormitories, including housing healthy workers in army camps [online]. *CNA*. Retrieved from https://www.channelnewsasia.com/news/singapore/covid-19-foreign-worker-dormitories-range-of-measures-12625624

Quah, J. S. T. (1995). Sustaining quality in the Singapore Civil Service. *Public Administration and Development*, *15*(3), 335–343.

Quah, J. S. T. (2010). *Public administration Singapore-style*. Singapore: Emerald Group Publishing.

Ramesh, M. (2008). Autonomy and control in public hospital reforms in Singapore. *The American Review of Public Administration*, *38*(1), 62–79.

Rapoza, K. 2020. How Singapore and South Korea deal with coronavirus quarantine measures [online]. *Forbes*. Retrieved from https://www.forbes.com/sites/kenrapoza/2020/03/26/how-singapore-and-south-korea-deal-with-coronavirus-quarantine-measures/#1ad852431921

Rodan, G. (2008). Singapore "Exceptionalism"? Authoritarian rule and state transformation. In J. Wong & E. Friedman (Eds.), *Political transitions in dominant party systems: Learning to lose* (pp. 231–251). New York: Routledge.

Sagar, M. (2020). How Singapore government's communication keeps nation moving forward in crisis. *OpenGov Asia*. https://www.opengovasia.com/how-singapore-governments-communication-has-kept-the-nation-working-through-crisis/

Savoia, A., & Sen, K. (2012). *Measurement and evolution of state capacity: Exploring a lesser known aspect of governance*. Manchester, U.K.: Effective States and Inclusive Development Research Centre (ESID), Effective States and Inclusive Development Research Centre Working Paper No. 10.

Sim, D., & Kok, X. 2020. Coronavirus: Why so few deaths among Singapore's 14,000 infections? [online]. *South China Morning Post*. Retrieved from https://www.scmp.com/week-asia/health-environment/article/3081772/coronavirus-why-so-few-deaths-among-singapores-14000

Skocpol, T., & Finegold, K. (1982). State capacity and economic intervention in the early new deal. *Political Science Quarterly*, *97*(2), 255–278.

Stock, G., Greis, N., & Fischer, W. (2017). Organisational slack and new product time to market performance. *International Journal of Innovation Management*, *22*(04), 1850034.

Tan, A. 2020. Coronavirus: Made-in-Singapore diagnostics test implemented in hospitals here [online]. The Straits Times. Retrieved from https://www.straitstimes.com/singapore/health/made-in-singapore-diagnostics-test-implemented-in-hospitals-here

Tan, C. C. (2003). *National response to SARS:* Singapore: Ministry of Health.

Tan, C. C. (2003). National response to SARS: Singapore. Singapore: Ministry of Health.

Tan, K. P. (2012). The ideology of pragmatism: Neo-liberal globalisation and political authoritarianism in Singapore. *Journal of Contemporary Asia*, *42*(1), 67–92.

Tan, K. P. (2016). *Governing global-city Singapore: Legacies and futures after Lee Kuan Yew*. New York: Routledge.

Tan, Y. H., Teo, C. W., Ong, E., Tan, B. L., & Soo, M. J. (2004). Development and deployment of infrared fever screening systems. *Proceedings of SPIE - the International Society for Optical Engineering*. XXVI

Tee, Z. 2020a. S'pore Expo 2nd facility for community isolation [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/singapore/health/spore-expo-2nd-facility-for-community-isolation

Tee, Z., 2020b. $60b help to fight Covid-19 [online]. *The Straits Times*. Retrieved from https://www.straitstimes.com/singapore/60b-help-to-fight-covid-19

Transient Workers Count Too. (2020). Facts, research, analysis. *TWC2*. https://twc2.org.sg/category/articles/research/

Volgy, T. J., & Bailin, A. (2003). *International politics & state strength*. London: Lynne Rienner Publishers.

Waltz, K. N. (1954). *Man, the state, and war: A theoretical analysis*. New York, N.Y.: Columbia University Press.

Weiss, L., & Hobson, J. (1995). *States and economic development: A comparative historical analysis*. Cambridge, MA: Polity.

Woo, J. J. (2014). Singapore's policy style: Statutory boards as policymaking units. *Journal of Asian Public Policy*, *8*(2), 120–133.

Woo, J. J. (2016). *Business and politics in Asia's key financial centres-Hong Kong, Singapore and Shanghai* (1st ed.). Singapore: Springer.

Woo, J. J. (2018). *The evolution of the Asian developmental state: Hong Kong and Singapore*. London: Routledge.

Woo, J. J., Ramesh, M., Howlett, M., & Coban, M. K. (2016). Dynamics of global financial governance: Constraints, opportunities, and capacities in Asia. *Policy and Society*, *35*(3), 269–282.

Woo-Cumings, M. (1999). *The Developmental State*. Ithaca, N.Y: Cornell University Press.

World Bank. (1997). *The state in a Changing world*. New York, N.Y.: Author.

World Bank. (2012). *Collaborating to improve the measurement of results from support for governance and public sector management reforms*. Washington, D.C.: Author.

World Bank, 2014. AGI data portal [online]. Retrieved from: https://www.agidata.org/site/#.

Wu, X., Howlett, M., & Ramesh, M. (eds.). (2018). *Policy capacity and governance: assessing governmental competences and capabilities in theory and practice*. London: Palgrave Macmillan.

Wu, X., Ramesh, M., & Howlett, M. (2015). Blending skill and resources across multiple levels of activity: competences, capabilities and the policy capacities of government. *Policy & Society*, *34* (3–4), 165–171.