

# Multilevel Responses to Risks, Shocks and Pandemics:

Lessons from the evolving Chinese Governance Model

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## I. Introduction

The novel Corona-virus (Covid-19) has exposed the weaknesses in both the health care systems as well as the fault lines in multilevel finance in most countries around the world. The Chinese case is hugely informative, including the challenges faced and responses by local officials and the central government. Gao and Yu (2020) provide a vivid description of the information asymmetries and incentives facing different agencies in Wuhan that led to delays in fully appreciating the magnitude of the problem at the national level<sup>2</sup>. This paper focuses on the role of local and subnational governments and entities in relation to national efforts to prepare for pandemics, identify the virus, react, and recover from both the health care and economic impacts.

Section II discusses the impact of the pandemic on health outcomes and prevention options, with the risk of spread of the virus and potential mortality affecting confidence. Health care and employment prospects are seen to be closely interlinked. Disease prevention and mitigation of the economic impact both present policy options at national and sub-national levels.

Multilevel public actions are needed to prepare for, manage and effectively react to major disasters, both man-made, such as with subnational debt crises, pollution and climate change, and natural catastrophes, such as earthquakes, tsunamis and pandemics. Local actions in supporting a strong “pandemic-suppression strategy” include the testing, tracking and tracing measures needed to prevent infections, protecting the most vulnerable, as well as establishing clinics to identify those needing hospital care, and setting up field hospitals for expanded emergency care. Quarantined individuals and the unemployed have to be taken care of and fed. Clearly, cities and localities bear the brunt of the damage, adjustment costs and dislocation when disaster strikes. Delays in coordinated response have led to catastrophic overwhelming of even the most advanced health care facilities in the richest countries and metropolitan areas of the world, e.g., Italy, and the cases of New York and Miami came close. But, the delays in implementing a strong suppression strategy have in themselves led to economic devastation in several European countries, as well as the US, showing that the disease suppression-jobs tradeoff is false.

Section III places the Chinese response to Covid-19 in terms of its evolving governance model. While best-practice fiscal instruments and institutions have been established at the national level, since the mid-1990s especially on the revenue side, and the reforms on the spending side

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<sup>2</sup> Although the popular perception is that the virus originated in the Wuhan wet-market in December 2019, an assessment of the waste systems in Northern Italy (Turin and Milan) suggests that the virus was already present there in December 2019.

are far from complete, especially at the local levels. Consequently, China is not much different from many emerging market economies in relation to the flows of information and decision-making at the sub-national/local levels (Ahmad 2019). Some of the delays in local horizontal decision making (*kuai*-functions) affected vertical information flows (*tiao*) functions. But these overlapping capabilities were important in enabling a rapid and coordinated response once the magnitude of the problem was clear to the State Council. The disincentive effects of the local *kuai*-functions are due largely to the incomplete fiscal transformation and need to be addressed also in the context of the recovery from the pandemic and in addressing the serious risks associated with the growing debt overhang and climate change.

As the health crisis stabilizes, the focus must return to protecting jobs, as stressed in the May 2020 NPC, by shifting from exports to domestic consumption and providing new opportunities by rebalancing towards clean and compact cities in the interior. This sustainable urban transition, reinforced by a strengthening of the *tiao-kuai* relationships, will be a critical element in future sustainable growth, minimizing the risks from pandemics, climate change as well as financial liabilities (Ahmad, 2019).

The experiences with the pandemic for a wide range of emerging market and developed economies with very different political and institutional systems are discussed in Section IV. These countries include Italy and Spain which had some of the most robust healthcare systems in the world, that were in danger of being overwhelmed, and emerging market countries including in South Asia, Africa and Latin America, with very weak health systems and huge reliance on informal sector activity and supply chains. These issues are magnified in the war-torn countries in the Middle East and North Africa, with refugee camps at particular risk.

Section V argues that, regardless of the governance models in different countries, similar coordinated responses are needed between the national and sub-national governments in order to respond both to the pandemic and to the risks associated with climate change. The ongoing global coordination efforts with respect to the SDGs and climate change, e.g., UN events, G20 and the rescheduled COP 26, could usefully be extended to also cover coordinating responses to health emergencies, as the two interventions are likely to be closely linked in the medium-term.

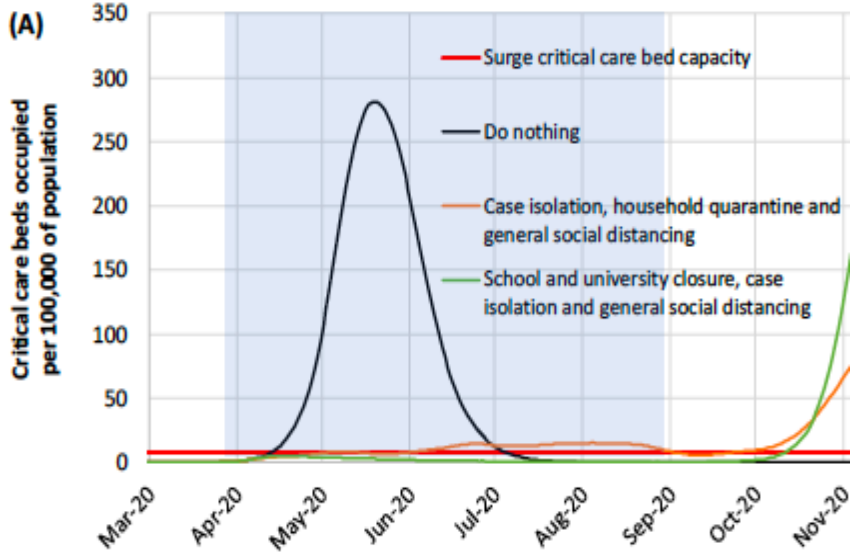
## II. The pandemic—modeling health and economic effects

The seminal Ferguson et al (2020) Imperial College model for the UK and US simulated the effects of different response strategies to handle the novel corona virus, for which there is no known cure, and a likely vaccine for general use is at least 18-months away. An extreme case “do nothing

scenario” led to a catastrophic projection of 2.2 million deaths in the US for a 4-month period to August 2020, and the corresponding figure for the UK was 500,000+. Of course, these were hypothetical scenarios, and death rates were not meant to be actual projections, but to act as a wake-up call to the UK and US governments, among others such as Brazil and Pakistan, that were not taking the pandemic seriously. While the UK government initially took the view that the doing nothing “herd immunity” strategy was appropriate, a more serious lock-down was initiated subsequently, but this led to the highest infection and mortality rates in Europe.

The “mitigation strategy” is based on various options that include *inter alia* closing schools and universities and placing the population aged above 70 in home quarantine (see Chart 1). None of these on its own achieves a sufficient reduction in the rate of spread of the disease, or “flattening of the curve” of people that need hospitalization. Although these “milder” options are designed to avoid economic disruption, it is likely that the magnitude of the rate of spread will play havoc with activity levels, particularly in the service sectors, such as tourism, airlines, hospitality and restaurants, and face to face services that have become major components in value added in most countries.

Chart 1. Mitigation and suppression strategies



Source : Ferguson et al., 2020.

The consequences for informal sector workers (e.g., construction, retail) are severe, especially with likely disruptions in supply chains, with a corresponding impact on employment, made worse by disruptions in food and basic supplies with price spikes that would put basic necessities beyond the reach of a large number of vulnerable people. Thus, keeping activities going to

protect jobs in the face of the pandemic is likely to be counterproductive. Uncertainty can lead to a loss of economic confidence as the health care system is challenged, and supply chains are permanently disrupted. Unless the first wave of infections is effectively controlled, the expectation is that the second wave likely in the Autumn of 2020 (see Chart 1) will repeat the process with greater economic devastation.

Although based on extreme “do nothing scenarios”, the work by Ferguson et al (2020) was instrumental in persuading the **British government to shift to a more robust suppression strategy in the affected regions with mandated social distancing, albeit with a costly delay**. This coordinated strategy of social distancing is something that “federal” countries like Brazil, and the US have not decided on, six months after the announcement of a pandemic by the WHO. However, in most of these “Federal” countries, many state and city level governments have taken the lead to address the pandemic, by imposing strict lockdowns, but sustained effective operations are not possible without central government coordination, financing and support.

## 1. Suppression strategies

The main advantage of a proactive “**suppression**” strategy introduced at first evidence of disease formation is that **this is the primary mechanism for preventing transmission to other areas, enabling the eradication of viral infection**. Ferguson et al (2020) emphasized that this also **buys time to build more complex hospital care facilities to minimize fatalities**. However, the strategy requires ramping up both the local testing and referral capabilities, as well as support networks for the population that is effectively confined to homes. In countries that lack formal social protection mechanisms and very limited coverage of the income tax (that limits cash payments through a negative income tax or direct transfer), provisions would be needed for an emergency supply of food and essentials to the sequestered population. While these response mechanisms would need **local implementation, national coordination and policy is essential, including financing and maintenance of supply chains**. Centrally managed and financed actions are typically needed for a rapid expansion of beds, additional intensive care capacity, including respirators and protective equipment, and bringing in medical personnel from less badly affected regions and the deployment of military personnel. Delays in implementing the suppression strategy with a national focus can lead to rationing of critical beds and ICU support, as was the case in Italy (see below).

**Delays in implementing a nationally coordinated local response strategy can overwhelm even the most advanced health care systems**. Northern Italy was the center of the outbreak in Europe (recent evidence from examination of waste materials suggests that the virus was present in Milan and Turin in December and the disease may have been seeding undetected for several

weeks) but also had the most advanced health care facilities in the country. Italy has some of the best hospitals in Europe, as the health system has been improved over the past two decades, but local health facilities, community clinics and rehabilitation or the simpler first response systems were neglected. Patient 1 was discovered in Lodi in Lombardy on February 21. All cases went straight to the hospitals, as there are no local clinics or referral capabilities, but there were relatively few empty beds, and the system was quickly overwhelmed. Consequently, testing was restricted only to people displaying symptoms (unlike in China, where it was clear that the infection could be spread by silent carriers, see below). And since there were insufficient beds, as numbers of infected people were doubling every couple of days, patients who tested positive but were not very ill were sent to “assisted living” facilities for the elderly. It was like “throwing a lit match onto a haystack...the biggest mistake we made was to admit patients with Covid-19 into hospitals throughout the region...we should have immediately set up separate structures exclusively for sick people with coronavirus” (Borghetti, 2020)<sup>3</sup>.

**Once there is a “flattening of the disease curve” and a reproduction ratio of  $< 1$ , caution is needed, along with continued national-local vigilance,** to prevent new “imported cases in areas that have been cleared of the virus, and also to prevent an expected “second wave” in late 2020/early 2021.

2. Economic impact—can it be lessened with “herd immunity”?

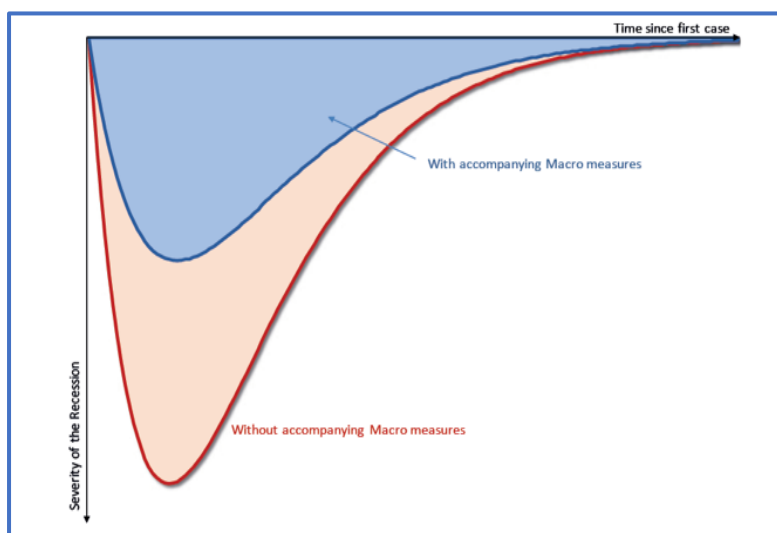
**The economic impact of a pandemic will be severe.** The key policy question is whether to opt for a hard “suppression” that leads to a sharp contraction of activities in the short run, or to try and keep the economy going by ignoring the effects of the pandemic on health outcomes in the hope of “herd immunity” (Sweden) or “learning to live with Covid-19”, or pretending that it will “magically disappear” (US) or that it is no different from the flu (Brazil). However, the loss of confidence has an economic impact. Gourinchas (2020) argued that the negative economic effect could be offset by appropriate macroeconomic policies—by maintaining effective demand (Chart 2).

Baldwin and di Mauro (2020) extended the argument to a conclusion that the “suppression” or containment policies would deepen the immediate recessionary impact and argue for “flattening the “recession” curve.” Following a macro recession, a V-shaped recovery would be possible, with the duration shortened by a counter-cyclical stimulus, utilizing both fiscal measures, as well as financing from the central bank, including for the financial sector.

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<sup>3</sup> Vice Premier of the Lombardy region, Carlo Borghetti, CBS News April 2.

Chart 2. Flattening the “recession curve”



Source: Gourinchas (2020)

The IMF’s Spring 2020 World Economic Outlook (WEO)<sup>4</sup> incorporated the assumption of a strong V-shaped recovery, including for the US. However, this projection did not adequately account for the loss in confidence and disruptions to global value chains, or the fact that many countries may not be able to control the spread of the virus in the first phase, before the expected second phase during the winter of 2020/21. This poor understanding of the links between the spread of the virus, business and consumer confidence, and the impact on economic performance has led many countries to attempt a “business as usual” approach during the pandemic—this includes the US, Brazil, Pakistan and initially the UK. This was partly driven by electoral considerations, as in the US with the approaching general election that led the federal government to pressure states to relax distancing measures to prematurely “restart the economy.” A more pessimistic estimate was presented by the IMF in June 2020.

### III. The Evolving Chinese Governance Model and response to Covid-19

**Health spending per capita in China prior to the pandemic was much below the level of other middle-income countries in the region, such as South Korea, Thailand or Singapore, and did not**

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<sup>4</sup> The IMF WEO (IMF 2020a) projection was repudiated by Managing Director Georgieva in an interview with BBC on April 24. As discussed below, the estimates have been revised downwards significantly for most countries (except China) on June 21, 2020 (IMF 2020b).

even come close to that in the advanced countries like Germany or the US. And China faced many other problems that are more common in emerging market economies, including an underdeveloped and evolving fiscal infrastructure, as well as financing arrangements.

Given the controversy about who knew what and when about the origins of the pandemic, it is useful to begin with a discussion of “fiscal space” especially at the local levels, and patterns of information flows, incentives, and decision-making practices that constitute the “governance framework”.

China has over the millennia **relied on an “administrative progression” arrangement** where high quality administrators are appointed by Beijing, and then rotated and rewarded according to performance. There is a huge difference with the US and Western European countries that rely on electoral (or yardstick) competition to keep local officials “honest”, and also in the nature of information that is available and how it is used by different levels of government. Thus, what is known in a hospital in Brooklyn this morning, might well be relayed to the Governor of New York within minutes and be part of his televised briefing to the nation on CNBC by the afternoon. Whether or not the US Federal Government reacts is an issue discussed below. But that is not the typical flow of information in China, nor does it reflect on how the Chinese central government might react, and indeed has done in the case of Covid-19, and this is part of the global record.

As pointed out in Ahmad (2018), the **Chinese Governance Model is not static** but has changed rapidly with the shifts in the “fiscal space” following the 1993/4 tax and revenue sharing reforms that raised the tax/GDP ratio to sustainable levels. This shifted the fiscal arrangements from upward revenue-sharing with collections and distributions by local officials, to the more standard top-down arrangement that is common in most advanced countries using wide area taxes such as the VAT and the Corporate Income Tax and national tax administrations. Spending remains largely decentralized, including social security. With the integration of the local business tax on services with the VAT in 2015, all major tax bases are administered by the State Taxation Administration. While subnational operations are financed by shared revenues and transfers, these do not constitute “own-source revenues” for the local governments and cannot form the basis for access to subnational bonds or private finance (Ahmad, Stern, Xie, 2020).

Spending remains largely decentralized, including social security, financed largely through contributory pools at the district/metropolitan levels, and the provision of health care. During the SARS epidemic in 2002-3. it was observed that “China’s once vaunted health care system”, managed and financed largely at the local levels, had deteriorated below sub-Saharan standards (Schwartz 2012). Of course, by the time of the SARS epidemic, the fiscal situation had been



ameliorated to a great extent, with the establishment of a modern tax administration that reflects best practice.

China began to establish modern budget and treasury systems, also reflecting international standards with the Treasury Single Account and the IMF's GFSM2014 standards and associated balance sheets consistent with the Revised System of National Accounts. This was implemented initially at the central and provincial levels, as it is a much harder task to roll out the framework to lower levels of administration, given the size of the country.

**The 1993/4 reforms increased the tax/GDP ratio from 10% to around 20%. This created** increasing “fiscal space,” **permitting the central government to mount a response to economic shocks and pandemics alike.** This was seen early during the Asian debt crisis in the late 1990s, and then the SARS epidemic in 2002-3. Again, during the global economic crisis, China made a huge contribution by adopting counter cyclical policies to dampen the global downturn. While most of the resources were held by the central government, the counter-cyclical actions had to be at the local (subnational) level as the spending tools, particularly investment, are largely local. Although local governments were not at the time permitted to borrow directly<sup>5</sup>, an exception was made during 2008-10 as the center authorized direct bank borrowing by local governments for the stabilization measures. This has led to a local government debt overhang that persists. The further centralization of tax bases in 2015 (as the local business tax on services was integrated with the VAT collected by the (central) State Taxation Administration, removed the last major tax handle at the sub-national level, with local financing through shared revenues and transfers. This is relevant because there is increasing fiscal pressure on the sub-national governments, as spending responsibilities remain largely decentralized and national taxes were cut in response to the trade shocks in 2018/19 and subnational governments had difficulties in meeting expectations on service delivery, especially education, and also protecting firms and workers that were issues of high national priority after the economic shocks—as they are in the Western countries at the present time.

**A simplified structure of basic multilevel overlapping relationships** is described in Table 1 (based on Yang 2019). All revenue administration is now centralized in the STA, even for shared revenues, such as the VAT and Income Taxes. Thus, subnational finances are largely based on shared revenues, a general purpose “equalization transfer” system, and earmarked transfers that are determined in consultation with the Ministry of Finance and the NDRC (for capital spending),

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<sup>5</sup> Local governments borrowed indirectly through Urban Development Investment Corporations via off-budget Local Government Financing Vehicles, on the assumption that this would follow the “golden rule.” The lack of transparency of this mechanism has led to poor information available to the central government on the true magnitude of local debt (Ahmad and Zhang 2020).

but largely managed by specific line Ministries, such as Education or Health. This is the horizontal or *kuai* relationship at the central government level.

Table 1. China: Horizontal (*kuai*) and vertical (*tiao*) responsibilities and information flows

Level of Government						
Central government	State Council/ Cabinet	Ministry of Finance	NDRC (Planning)	Ministry of Education	Other Ministries	Ministry of Health
State Council		←—————				
Provincial government	Governor	↓	↓	↑		↑
Metropolitan government	Party Sec	↓	↓	↑		↑
County government	Mayor	↓	↓	↑		↑

Note: This description builds on Yang (2019). The light arrows reflect the flows of funds, and instructions including at the departmental level. This shows a simplified version of three tiers of China’s five-tier administrative structure. The dark arrows reflect the flows of information. Note that the Ministry of Health responds directly to the State Council, and does not go through the agencies indicated (e.g., Ministry of Health). Additional reporting by the Ministry is to the Ministry of Finance on the budget allocations and performance and to the NDRC on meeting plan targets, but these are not shown in the diagram.

Until recently, funding has passed through Provincial Governments<sup>6</sup>, including the revenue shares and equalization transfers to lower levels. In principle, the centralization of the business tax in 2015 was designed to be revenue neutral, with a higher share of the VAT and income taxes accruing to the lower levels. But even some capital cities experienced reductions in their shared revenues, and lower levels of government were even harder pressed as resources tended to “stick” at higher levels of sub-national government (see Xiao, 2018 for a discussion of Guangdong).

The local responses are complex with nested horizontal (*kuai*) relationships between the city administration and government departments at that level, and horizontal relationships between the county departments reporting vertically (*tiao*) to parent departments in the provinces and in

<sup>6</sup> Hubei province with around 58 million inhabitants, or almost as many people as in Italy, is larger than many countries in Europe, and Wuhan with around 11 million people is just a bit larger than greater London.

Beijing. There are a number of problem areas, but also considerable strengths, as we discuss below.

One of the main issues that has been under discussion in China for several years relates to the incentives facing local officials and the incomplete information on how monies are used at the local level, including earmarked transfers as well as shared revenues. Indeed, these concerns led to the modernization of the central treasury system in the late 1990s, and the introduction of a Treasury Single Account System, attempting to consolidate the budget systems, as well as the adoption of the IMF's GFSM standards. However, as pointed out in Ahmad, Niu and Xiao (2018) full implementation at the sub-national level has not been easy and is far from complete. Further, amendments to the budget law in 2015, with advice from international agencies, to permit local governments to borrow directly have only had a limited impact, as seen in the lack of accuracy in the information on the buildup of liabilities (Ahmad and Zhang, 2020).

While it is prudent to develop modern Public Financial Management (PFM) practices and instruments, unless the incentives to use them are also aligned, PFM structures *per se* are not likely to be as effective as hoped. A principal consideration, in any emerging market country, is that while a system of local government bonds is needed for financing infrastructure for long term development, it cannot be sustained by reliance on shared revenues and transfers, as the incentives will remain to shift liabilities to the central level. This disincentive is accentuated by the absence of full balance sheets of assets and liabilities especially at the county/city level where much of the local infrastructure must be located. This also restricts the ability to use subnational investments as part of a national counter-cyclical fiscal agenda. The previous attempt in China to do so during the 2008-10 global economic downturn has led to a debt overhang that remains a problem.

In the Chinese case, despite the attempt to move the evaluation criterion for local officials from a simple growth criterion, applying a more reasonable subset of manageable functional responsibilities will take time. For instance, in the case of health care outcomes, a reasonable responsibility for mayors would be to manage local testing facilities that could become a network of primary care facilities. Yet there has been a policy focus on building hospitals, as these are noticed for promotion. Together with other explicitly articulated national priorities, with increasing budgetary pressures, have resulted in the relative neglect of preventive clinics in the smaller counties, as well as a build-up of "hidden" liabilities.

Given the importance of local testing for Covid-19, and information flows as well as support mechanisms for quarantined persons, these essentially local functions would need to be clearly articulated in the on-going reassessment of functional responsibilities. And a basic precondition

for healthy outcomes is clean water, sanitation and clean air—encompassing both the climate change and the SDG agenda. Thus, the local functions are linked across department, and the ability to manage joint outcomes has to be strengthened at the horizontal or *kuai* level. The local actions would need to be supported by laboratories that might serve several cities, perhaps managed and co-financed by the provinces or even the central government. This process also involves financing arrangements, particularly own-source revenues, as the ability to generate “hidden” liabilities destroys the incentives to manage functions effectively given a “softening of budget constraints”, together with extraordinary financing to compensate for shortfalls in shared revenues and additional spending constituting the fiscal shock. The buildup of debts affecting ability to provide public services in smaller and interior cities is seen in the failure to encourage firms and workers to move inland in the Western Development Strategy from the early 2000s, or the rebalancing away from the coast that has been place since the 2008/10 global economic crisis (Ahmad and Zhang, 2020).

### Wuhan in the context of post-Covid urban transformation

Wuhan is one of the **best examples of the “rebalancing” to the interior, as well as transformation to an ecologically friendly city.** Since 2004, it has been the focal point of the “Rise of the Central China Plan”. It is located in the center of the central province in China, at the confluence of the Yangtze and Han rivers, and has perhaps the best connectivity possible—being at the central point of China’s impressive high speed and motorways networks, river traffic as well as airports. It is interesting that Wuhan grew through the amalgamation of three towns: Wuchang, Hankou and Hanyang in 1927. Following the 2008/9 economic crisis, there was a huge investment in Wuhan, with a 30% increase in population in 2010. Resembling Chicago, it now has a modern and diversified economy, with an agricultural base, steel and automobile manufacturing among a range of industrial products, high quality universities and research labs leading to high-tech innovation, IT and finance. During much of the past decade it has had a higher rate of migrant inflows than either Shanghai or Guangzhou (Ahmad, Niu, Wang and Wang 2020). **The expansion of Wuhan, like other metropolitan areas, has been driven by land sales in contiguous areas,** largely leading to an expanding built up area, and satellite towns becoming effectively part of the metropolitan area.

**The expansion of Wuhan has largely followed the recommended ecological playbook.** It has a huge metro network of 9 lines over 300 km, carrying 1.22 bn passengers annually (2019), with a number of additional lines under construction (but frozen since January 2020). It had one of the largest bike-sharing programs in China, but which has run into difficulties, as in Beijing and Shanghai. Many of the modern buildings, including some of the tallest skyscrapers in China, are constructed taking ecological considerations into consideration (e.g., in the Wuhan Greenland

Center). Traditional flooding in Wuhan has been largely controlled. The celebrated (CNY 20.7 bn/\$3 bn) Sponge City Program “has shown that green and blue infrastructure can be employed both quickly and cost-effectively to increase the resilience of urban areas to climate change....with reduced carbon emissions, improved public health, enhanced natural cooling and improved biodiversity” (Oates et al., CUT 2020). Combined with green spaces, and huge expenses on hospitals (with more beds per capita than Shanghai or Guangzhou) Wuhan met all the desired characteristics of a model clean and connected city.

**But the process was not fiscally sustainable and buckled with the Covid-19 onset.** The influx of migrants (also at the high end of the income scale), but particularly lower income floating workers, left the overall working population with a relatively low coverage for unemployment insurance (18% versus 67% in Shanghai or 55% in Guangzhou); and only 30% eligible for medical coverage (versus 70% in Shanghai or 45% in Guangzhou). Increasing deficits and buildup of contingent liabilities have left the Metropolitan Government prioritizing “high profile” projects, like curative hospitals, as well as supporting industries and workers affected by the trade disruptions during much of 2018/19, to the detriment of mundane preventive care and support.

Because of the **local government monitoring and reporting delays** described in Gao and Yu (2020), a **“hard lockdown” was necessary**, completely shutting down Wuhan City of 11 million people (the size of Metropolitan Greater London) and Hubei province—a province of 60 million and a critical center of manufacturing value chains in China, along with tight monitoring and restrictions in all parts of the country. This permitted the Central Government to move medical teams to Wuhan and Hubei, while preventing “seeding” of the virus elsewhere. While the “hard lockdown” was not easy to implement, it reduced the spread of the disease and associated mortality, and also permitted a relatively safe and quick reopening, and is discussed further below.

**The inconsistencies in the responses at the local level affected the speed of national response and will be a constraint in the national recovery plan.** At present there is little incentive for local authorities to optimize outcomes, especially for sectors that receive earmarked funding, and managed vertically by “tiao” departmental system. Thus, the Wuhan Health Commission reports to the National Health Commission, and the Wuhan authorities were content to let the flow of information to remain primarily vertical while they tackled the important aspect of potential job losses arising from the trade shocks during 2018/19, and increasing tariffs particularly in the US. This has led to the lags in information flowing to both the Wuhan metropolitan government as well as the State Council in Beijing, via the National Health Commission and CDC. However, once the information was received and verified, the actions at the national level were prompt and decisive, and taken in a matter of days, as seen in Chart 3.

Chart 3 Hubei and Wuhan *kuai-tiao* suppression strategy

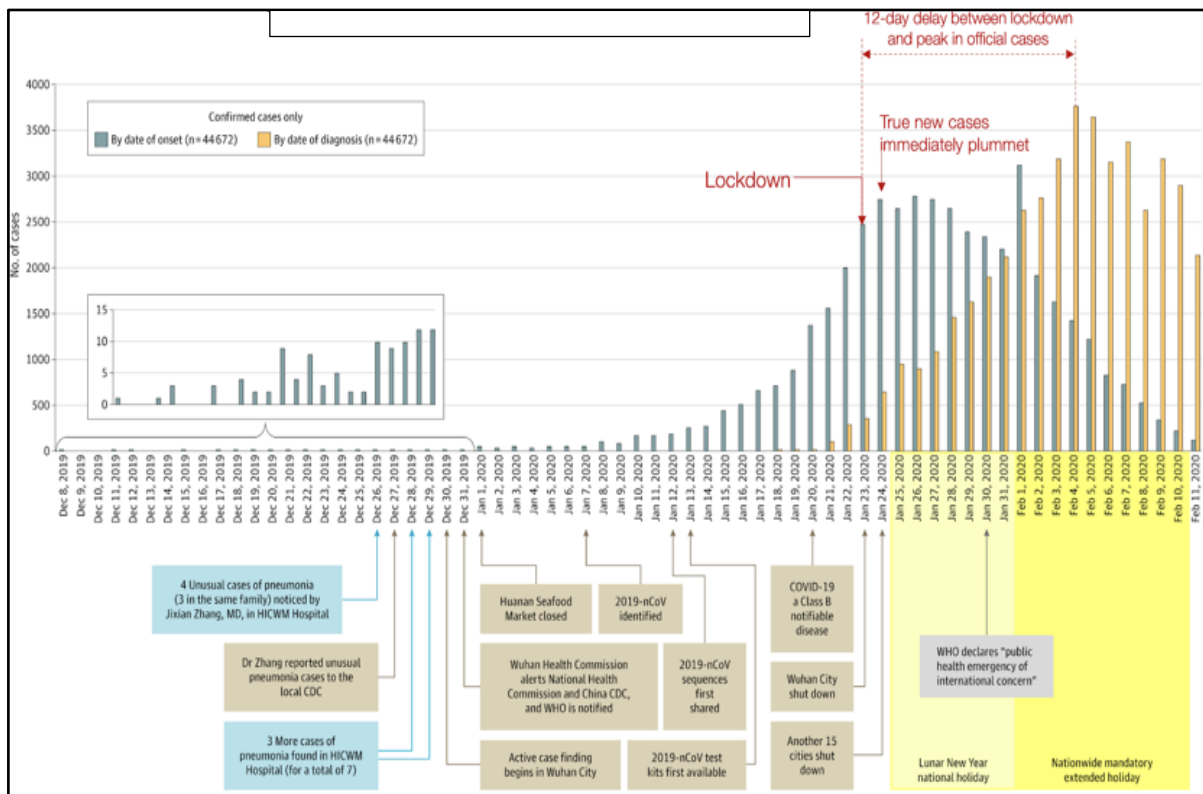


Chart 3 shows the local *kuai* or horizontal responses in detail, as 4 cases (three in the same family) of unusual pneumonia appeared in the HICWM Hospital around 26 December 2019. And another 3 appeared on December 29. The rapid response was triggered by the *tiao* system, as the Wuhan Health Commission notified the National Health Commission on December 31, and also the CDC and WHO were informed. The Huanan Seafood Market was identified as a possible source and closed on January 1.

Given the high-tech capabilities in medical research in China, scientists identified the novo virus Covid-19 by January 7, and had decoded the genome by January 12, and test kits were available on January 13. It was classified as a Class B notifiable disease on January 20, and the *tiao* functions were initiated rapidly, given the impending Chinese New Year Holiday, when tens of millions of people travel across to country to their families. Given the large number of migrants in Wuhan, and from Wuhan in other If unchecked, this migration would have spelt a calamity for China. Wuhan was “locked down” on, and another 15 cities on January 25. Nationwide action was put in place on January 31. Despite the disruption that it would cause to activity levels in China, given that Hubei is the center of a great deal of the manufacturing value chains, the Central Government strategy was to limit the spread of the virus to Wuhan in a “strong suppression

approach”. By all accounts, the damage was limited to Hubei, and to a lesser extent, the neighboring province of Henan, but also the coastal provinces of Zhejiang and Guangdong, which host many migrant workers from central China, including Hubei. The pattern of new cases outside Hubei had been virtually brought to zero by mid-March, and restrictions in Hubei, including Wuhan, were slowly removed by end-March/early April. The rest of China, which experienced various degrees of lockdown, got off relatively lightly.

**The crux of the Chinese response to Covid-19 was aimed at limiting the spread of the infection,** complicated by the time elapsed between the initial outbreak and the central government moving to respond. This involved both **horizontal actions at local and higher levels, as well as vertical support, in an effective *kuai-tiao* interaction in crisis mode,** designed to limit the damage. Given that the disease can be transmitted easily by asymptomatic individuals, and is highly contagious when the symptoms appear, it was not sufficient or appropriate to just treat those with clear symptoms in regular hospitals.

**Local level “*kuai*” actions were needed to test a wide proportion** of the population, including the relatives and contact of people who had symptoms, place those with positive results in **isolation**, those with symptoms in specially prepared hospitals out of contact with regular patients, and then establish ICUs with oxygen and ventilators. Local actions were also needed to **feed those in isolation**. Both e-commerce platforms, and big data helped in this regard to ensure a continuation of supplies and support to the “locked down” population. The recent development of e-commerce in many parts of China helped greatly in this regard, facilitating the supply of fresh and cooked food directly to households, and also protected the agricultural supply chains.

**Further, the ability to track movements, and contacts, together with techniques of managing big data, provided the platform for isolating and testing** potential carriers at the local level before they begin to display symptoms, and create bigger problems in other densely populated areas. This method was also used effectively in South Korea, which also observed the first signs of the virus at about the same time as the US (in late January), but has managed to contain the disease effectively by quick actions that included immediate “lockdowns” and widespread testing, building on the Chinese experience. The virus was effectively contained by mid-March in Hubei. It has not been necessary to opt for hard province-wide lockdowns—as seen recently with the intelligent “lockdowns” adopted in the outbreaks in Beijing’s wholesale food market, and another South of Beijing in June.

**Vertical “*tiao*” actions were needed** in China to: (1) coordinate horizontal *kuai* responses in all provinces and to send a strong signal that influenced local and individual behavior; (2) finance

the additional spending incurred; (3) facilitate the provision of testing kits, rapid building of dedicated hospitals, and provision of PPEs and ventilation machines, and (4) requisition medical personnel from less affected provinces to help in the major centers of the outbreak: Hubei province and Wuhan in particular. The “fiscal space” and strong performance on fiscal reforms over the preceding 25 years, particularly regarding the tax agenda and streamlined budget processes, permitted the central government to quickly allocate almost 2% of GDP in providing financing in support of the provincial and metropolitan/city level responses.

**The national response in China, with a full suppression strategy, together with widespread testing, tracking and tracing contacts to isolate the virus was critical**, given the experience during the SARS epidemic during which the health facilities were described as worse than in many African countries, and the New Year migrations involving tens of millions of people would have spread the disease throughout the country. Given that the disease is transmitted also by “silent carriers” and other that might succumb to the disease but do not display symptoms for a couple of weeks, the widespread infection in China would have had catastrophic effects.

An assessment of the **pattern of morbidity and mortality in Wuhan** during the Covid-19 pandemic has **implications concerning the patterns of urbanization and public policy interventions during the recovery period**. You, Wu and Guo (2020) find that **increasing density and use of mass transport is associated with worse health outcomes**. Interestingly, contiguous built-up areas (as opposed to small towns, like CCCs, but separated by agricultural fields) are also more susceptible to disease. While green areas within metropolitan zones are often recommended, these apparently increased the probability of disease, as social distancing is hard to achieve in these desirable spaces.

#### IV. Different governance models and responses across the world

The relevance of a coordinated national-local response to deal with this pandemic is seen in the differing experiences, its impact on the economy, as well as possible future occurrences. Many of the policy errors apparent in different political systems are due to a fundamental misunderstanding of the nature of the pandemic (“it’s no different from the flu” and will “magically melt away with warmer weather”), or the close linkages with the behavior of households, workers and firms that impact on both health and economic outcomes. National coordination and financing is needed together with sub-national information generation, testing and tracking as well as local support mechanisms in order to address the pandemic, and also to lay the foundations for a sustainable response to the economic and environmental risks and challenges that arise in the short-to-medium term.



Several East Asian countries, including South Korea, Viet Nam, and Cambodia, also used the **timely national coordination combined with pro-active local actions**, using lessons learnt from the SARS epidemic, and took early preventive measures in the Covid-19 crisis to limit cross-border travel, and instituted widespread testing, tracking and quarantining infected people and their contacts. This could be implemented quickly with a well- organized and financed local government system with clear responsibility. The measures have **limited the spread of the infection and related deaths to the lowest in the world**. Thus, South Korea’s response, which has been celebrated as an **“intelligent lockdown”** also facilitated a relatively limited economic impact at the outset, and given the **proactive and early response, a hard lockdown was not necessary**.

The South Korean case in reality is not too different from the Chinese model of national-local reposes. The Korean cities which experienced the initial outbreaks (linked to church groups) reacted promptly with central government support and were able to identify and track potential contacts quickly. In these cases, with zero additional cases achieved in a short period, it became possible to remove restrictions and return cautiously to work in a relatively short period of time. After zero cases were reported for over a month and the economy was opened up, the flareup in Seoul and other locations in May and June 2020 following the removal of national guidelines, has led to a renewal of the restrictions in the affected areas. The response in Seoul is not greatly different from the reaction in Beijing to the outbreak from a food distribution center in mid-June 2020. In these cases, the national government has been prepared to act, along with sensitized local administrations permitting a swift implementation of “smart responses” without widespread lockdowns

The Nordic countries present an almost laboratory experiment concerning the policy responses to a pandemic. **Sweden opted for keeping activities open with the “herd immunity” option**— no restrictions on movement, restaurants or schools, and only indicative guidelines for vulnerable groups, like the elderly. On the other hand, both Norway (8788 cases and 249 deaths to June 24, 2020) and Denmark (12,636 cases and 603 deaths to June 24, 2020) <sup>7</sup>imposed a hard “suppression” with lockdowns. Both have managed to “flatten the infection curve” and eliminate the viral spread with a relatively low number of deaths and a speedy and safe opening up. However, both the number of cases and mortality in Sweden (63,890 cases and 5,230 deaths to June 24, 2020) <sup>8</sup> continue to rise. The Swedish growth trajectory for 2020 (-5.8%) is not appreciably different from Denmark or Norway (-6%) and is significantly lower for 2021 (3.9%)

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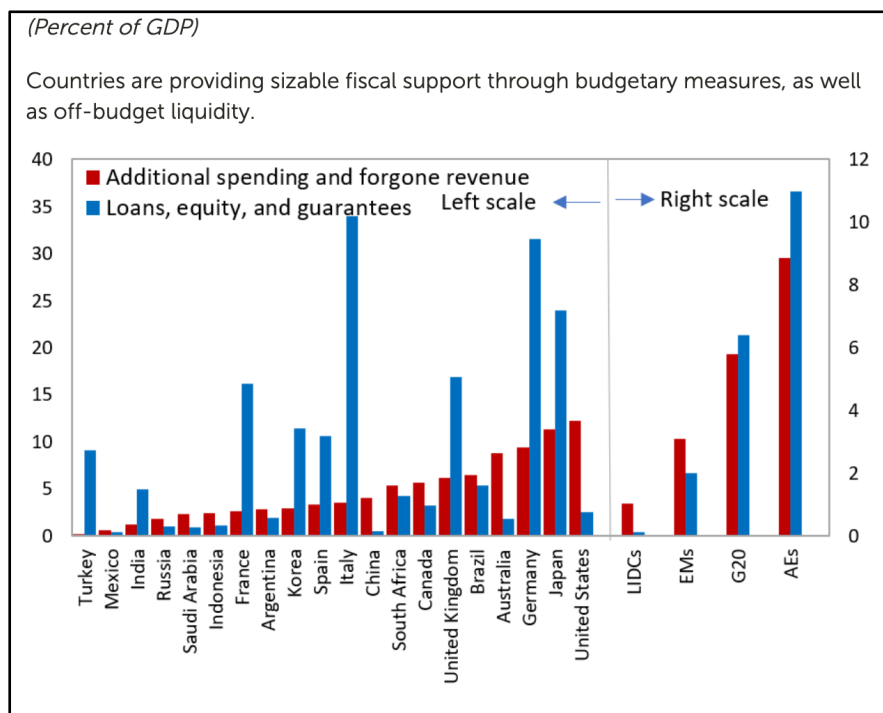
<sup>7</sup> Johns Hopkins University (JHU 2020) Coronavirus Resource Center, <http://coronavirus.jhu.edu>.

<sup>8</sup> JHU (2020), *op cit*.

versus 4.5% for the other Scandinavian countries—and actually lower than forecast for all the other European countries.

**The UK initially adopted the Swedish “herd immunity” approach** to the pandemic. But a sharply increasing incidence of infections, including the Prime Minister, and rising mortality rate forced the administration to change to a sharper lock-down. Unfortunately, the delay meant that the infection had “seeded” and was harder to control. Thus, by June 24, 2020, the UK<sup>9</sup> had the highest number of infections in Europe, at over 300,000 people, and over 43,000 deaths overtook Italy as the worst hit country in the continent. The economic consequences, despite a very substantial macroeconomic response (see Chart 4), has been the sharpest contraction since the Great Depression of the early 1930s (with growth projected to fall to -10% during 2020)<sup>10</sup>. Given the impending implementation of Brexit later in 2020, the UK Government took the risk of “opening up” the economy in mid-June, before the virus spread has been contained. The consequences of this measure are uncertain, although a similar move in the US has quickly proved to be catastrophic.

Chart 4: Counter-cyclical budgetary and financial responses to Covid-19



Source: IMF World Economic Outlook Update, June 2020.

<sup>9</sup> JHU (2020) *op cit*.

<sup>10</sup> IMF (2020b).

**The German response to Covid-19 started early in January 2020** as infections appeared in Europe, especially Italy. The actions were well coordinated and financed by the Federal Government, with the efficient implementation by the Länder (provinces) and municipal governments. This was facilitated by Germany's overlapping responsibilities that engenders a cooperative or corporatist approach to problem resolution (Spahn 2015), and a decisive response by the Federal Chancellor. The Bismarckian Social Security System and Universal Health Care have been long-standing models for other countries, including in Europe. Most importantly, there was a significant foundation of preventive health care, including a strong network of local health authorities (*gesundheitsämter*) that were able to begin the widespread testing, tracking and tracing contacts that was an essential component of minimizing the spread of the disease. While local, these bodies received strong support from the Federal Government, including deployments from the military.

Thus, Germany was able to take early and coordinated actions to test widely, and to track and trace contacts and ensure quarantines for infected people, along with social distancing rules and closure of services that require close contact: including schools, non-essential shops and restaurants. This permitted a less “intrusive lockdown” to be implemented, allowing many businesses and factories to be kept open. Also, the preventive health care measures meant that German hospitals did not face the pressures seen in Italy, and ICUs were half empty during the height of the German infection, and patients were taken from other EC countries. And, a safe general reopening was possible in May 2020, although the local-Federal administrations remain vigilant concerning new outbreaks. These indeed occurred in meat processing plants in May and June, but the mechanisms for intelligent response were activated with limited lockdowns, quickly limiting the spread and not endangering either health care or the general opening up of the economy.

An important aspect of **German policy during the recovery from the pandemic concerns the practice of protecting workers when firms face external pressures—*Kurtzarbeit***. A version was also adopted in the UK, as well as a temporary measure to prevent a major increase in unemployment.<sup>11</sup> Although Germany had strict deficit limits, these were relaxed to generate the highest direct fiscal impulse in Europe (tax and spending measures of almost 10% of GDP<sup>12</sup>) as well as loans, equity and guarantees of almost 30% of GDP (Chart 6). The pandemic response included support for the local governments, and the Federal Government also undertook to compensate for losses from shared revenues. **This compensation for the sub-national revenue shock** is also relevant for countries, like China, that rely heavily on shared revenues to finance

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<sup>11</sup> The US also used support for furloughs to limit the increase in formal unemployment as discussed below. China has also adopted similar measures as a response to both the trade disruptions and the Covid-19 crisis.

<sup>12</sup> Only Japan and the US had a higher stimulus (IMF 2020b).

subnational governments. But it is also relevant for countries with assigned own-revenues at the subnational level, which are greatly affected by the economic shock that accompanies a pandemic. This leaves them in a difficult position with balanced budget rules and need to protect critical spending on basic services that are essential to successfully navigating a recovery from the pandemic.

In the **US, the governance structure is based on an individualistic system with clear constitutional delineation** of responsibilities between the federal and state governments. This applies to all aspects—from policy to administration and financing. Recognizing externalities in various areas over the past two decades, governments of both parties have enacted laws, created earmarked transfers, or issued regulations concerning education, climate change and the environment, as well as health care. The current Republican administration has tried to roll back most of the central initiatives or mandates, especially concerning the environment, but also health care. This includes a legal challenge in the middle of a pandemic, on June 24, 2020, to the health care coverage to US citizens provided under the 2010 Affordable Care Act. While the US experience under the pandemic has underlined the importance of state (provincial) and local actions, it has also highlighted some of the critical fault lines of the US governance model.

Despite early warnings from the Center for Disease Control and the National Institute for Health, the **US Federal Government did not take the pandemic seriously**. Not having been greatly affected either by the SARS or MERS epidemics, the US Federal Government did not pay much attention as a few cases began to emerge along the Western States (including California) and in the North East (particularly New York, New Jersey and Massachusetts). These are the main population concentrations as well as the most connected to the rest of the world. Like the tip of the iceberg, when cases begin to appear, the virus had considerably spread already, since most carriers are asymptomatic.

**State governments began to react as cases increased exponentially**—with “hard” lockdowns in New York, California and New Jersey. These are incidentally Democratic-leaning states with Democratic Governors. While a national state of emergency was declared by the Federal Government on March 13, 2020, it aimed largely at restricting inflow of travelers from China, Iran and the EC. The hard suppression measures adopted by the North Eastern states in the US, and New York in particular, have had an impact in “flattening the curve” and controlling the virus and mortality rate in these states. But, the lack of timely and adequate coordination at the national level permitted the virus to “seed”, and the subsequent number of people infected in NY State exceed that in the UK, with a significantly higher mortality rate of 165/100,000 people at the

peak (as against 70 deaths per 100,000 people in the UK—the highest in Europe).<sup>13</sup> As NY Governor Cuomo warned, the outbreak in NY will be felt throughout the country, even in states that have no cases at the outset, and that preventive measures are needed in all cases, and also to prevent the virus from returning to areas that have gone through the “hard lockdowns.”

**The economic effects of prevarication in the US became clear during the week ending March 21**, which led to the highest-ever level of unemployment claims of over 3 million, to be followed by a further acceleration of new claims as the services and hospitality sectors, but also a lot of manufacturing came to a halt, devastating the labour market even before more drastic “suppression” measures were undertaken in the most affected states, despite a huge direct fiscal stimulus of over 12% of GDP, or the largest among the major countries. Much of the support went, *inter alia*, as subsidies to the largest firms, including airlines, and the financial sector, plus limited support for wage protection and furloughs. Yet the unemployment numbers continued to climb, exceeding 20 million in May, or an employment rate of over 13% the highest since the Great Depression.

Given that the funding for employment protection is for only a limited period of three months, heading into an election cycle, despite the advice from the technical experts, **the President encouraged states to lift restrictions and begin to reopen the economy**. Until that point, most of the infections had been in heavily populated metropolitan areas, and those most at risk were heavily concentrated among minority populations, with poorer housing and numerous underlying health conditions. Most of these people, and the states that they live in, typically support Democrats. The political-economy emphasis of the administration was on removing restrictions quickly for core supporters, especially in the “Republican” governed states in the South and West, that had not been affected as much as the more densely populated areas such as NY and New Jersey. Many Republican Governors began to lift restrictions as soon as there was wavering at the Federal level, and against the advice of the NIH and CDC. Georgia was the first to remove restrictions on April 24, followed quickly by Texas (May 1) and Florida (May 4), in the hope of reviving the economy in time for the electoral cycle, as well as to avoid losing market share to countries like Germany and China, that had begun to reopen safely around at the same time.

**As the experts had warned, reopening the economy before the disease has been controlled throughout the country risks jeopardizing the gains made in the first difficult phase**. Indeed, this is what has happened, and the infections spread rapidly in the Southern and Western States that had followed opened up prematurely. By June 26, the rate of spread of infection in these

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<sup>13</sup> JHU (2020).

newly affected states has exceeded the growth of infections in the NE and California in the initial stages (March-May), and the US is recording the highest rate of infections since the start of the pandemic. Florida and Texas have had to reverse their reopenings. Even California, that had managed to control the infections in the first stage, has had a sharp uptick in infections. Devastating for the functioning of the US-federal model, States like New York and New Jersey, that have gone through a “hard suppression” are initiating restrictions on mobility from the most affected Southern and Western States, with severe consequences for a smooth reopening of the economy. The US experience illustrates what the **WHO has been stressing at the international level—no one is safe in a pandemic until all (states/countries) are safe.**

**The impact of the continuing spread of the virus on the economy is likely to be severe.** First, the unemployment protection measures will expire in July, and will disproportionately impact small and medium-size enterprises, often owned by minority groups, and that also provide 80% of the employment. The second problem area is in the structure of intergovernmental relations in the US. The US States had balanced-budget rules, and the pandemic has affected their own tax bases as well as federal action to defer several taxes. This has had a huge compression on the resources available to the States to carry out their “assigned responsibilities”: financing city governments, schools, hospitals, fire services and policing, at a time when there are huge additional spending needs. As the NY Governor, Cuomo, put it, there has to be direct assistance from the Federal Government to the States. This has not yet happened and could seriously jeopardize the stability of the system of revenue and spending assignments in the US. The IMF, which in April 2020, predicted a swift V-shaped recovery for the US by the third quarter of 2020, now has a much more realistic projection of a continuation of the downturn during 2020, with a negative growth rate of -8% during 2020 (as seen in Chart 5—China is the only major country with a positive growth projection for 2020). The prospects for 2021 are even more uncertain, as the infection continues to spread even before there is an expected “second wave” during the winter of 2020/21.

**Australia is a federal country that has managed to handle the pandemic very well.** As in New Zealand—a smaller, unitary state—early and coordinated action was the key.<sup>14</sup> However, unlike the US, a cooperative approach underlies multi-level finance in Australia. This is underlined by an advanced fiscal equalization system that is based on the premise that national transfers (in this case VAT revenues after 2000, but a budgetary allocation previously) are needed to ensure that all states/regions have the ability to *provide similar levels of public services at similar levels of*

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<sup>14</sup> As of June 29, Australia had 7,767 cases and 104 deaths—a death rate of less than 1 per 100,000. New Zealand also had a death rate of less than 1 per 100,000—with 1,528 cases and 22 deaths. China also had a death rate of less than 1/100,000 (JHU, Covid-19 Database). The virus has been eradicated in these cases and the economies cautiously reopened.

**own-tax effort.** This ensures that all sub-national jurisdictions can react effectively to crisis situations. And special purpose transfers are also used to meet national objectives and minimum standards. China adopted features of this model as part of the 1993/4 fiscal reforms.

Chart 5. IMF Growth projections for 2020/2021 in the Covid-19 era

(real GDP, annual percent change)	2019	2020	2021
<b>World Output</b>	2.9	-4.9	5.4
<b>Advanced Economies</b>	1.7	-8.0	4.8
United States	2.3	-8.0	4.5
Euro Area	1.3	-10.2	6.0
Germany	0.6	-7.8	5.4
France	1.5	-12.5	7.3
Italy	0.3	-12.8	6.3
Spain	2.0	-12.8	6.3
Japan	0.7	-5.8	2.4
United Kingdom	1.4	-10.2	6.3
Canada	1.7	-8.4	4.9
Other Advanced Economies	1.7	-4.8	4.2
<b>Emerging Markets and Developing Economies</b>	3.7	-3.0	5.9
Emerging and Developing Asia	5.5	-0.8	7.4
China	6.1	1.0	8.2
India	4.2	-4.5	6.0
ASEAN-5	4.9	-2.0	6.2
Emerging and Developing Europe	2.1	-5.8	4.3
Russia	1.3	-6.6	4.1
Latin America and the Caribbean	0.1	-9.4	3.7
Brazil	1.1	-9.1	3.6
Mexico	-0.3	-10.5	3.3
Middle East and Central Asia	1.0	-4.7	3.3
Saudi Arabia	0.3	-6.8	3.1
Sub-Saharan Africa	3.1	-3.2	3.4
Nigeria	2.2	-5.4	2.6
South Africa	0.2	-8.0	3.5
Low-Income Developing Countries	5.2	-1.0	5.2

Source: IMF: World Economic Review Update June 2020.

**Outside the United States, the fastest growing spread of the virus has been in Latin America and South Asia.** The lessons are instructive, and reflect the dilemmas seen in the US, where there are responsible states/provinces, but the Federal Government is in denial (Brazil) or confused

(Pakistan, initially<sup>15</sup>) about the nature of the pandemic (and climate change<sup>16</sup>) and what to do about it. Expectations that the virus would not spread in warm tropical climates, or the populations would be protected by long-term use of anti-malarial drugs, or that the virus would magically disappear, contributed to the confusion. Brazil now has the highest number of infected cases outside the US (although it is believed that the true numbers are considerably higher, given the absence of adequate testing<sup>17</sup>). Despite attempts by the Sao Paulo administration, which had one of the first clusters of the virus, the infection has spread throughout the country, including the Amazonas region. Although the country has not been locked down, a negative growth of -9% of GDP is expected in 2020 (IMF, 2020b).

**In emerging market countries, measures aimed primarily at protecting economic activity without first addressing the spread of the disease are even less likely to be effective than in the US.** Large numbers of urban workers depend on a daily wage to put food on the table, and such activities are amongst the first casualties of the epidemic, caused by a disruption of national and cross-border value chains, as well as loss of confidence. Moreover, public health care facilities are almost non-existent, especially for the informal sector. But, given the typically low coverage of the income tax system, it is not easy to ensure adequate cash compensation to a broad range of households who will suffer from economic deprivation, in addition to the risk of losing their lives. The disruption to food supply chains and hoarding might also lead to a spike in prices that would reduce the value of the cash payments.

While useful from a medium-term perspective, **macro policies in developing countries to encourage private investment or protect the limited formal sector firms, will be of limited use in meeting the pressing needs of the Covid-19 crisis.** Given the meager levels of health care coverage in countries, the hope is to minimize the duration of disruption with a sharp “suppression strategy” as India has adopted. However, parallel measures are needed to ensure that all urban residents have access to food, and this may involve reintroducing “rationing” of food items. Unlike in OECD countries, there is no hope that a cash injection will get to those who need it most, the informal sector workers, or that they will be able to find reasonably priced food supplies in a period of significant disruption to trade and movements of commodities. Delays in

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<sup>15</sup> A province, Sindh, took preventive action while the Federal Government was undecided, until the country’s powerful military took a leading role in coordinating the response.

<sup>16</sup> As in the US, the Bolsonaro administration in Brazil has revoked many of the provisions adopted by previous administrations to protect the rain forest and limit carbon emissions, and Pakistan has doubled down on low quality coal mining and power plants depending on imported coal.

<sup>17</sup> Indeed, the US CDC believes that the true number of people infected in the US is probably ten times the numbers reported in the official statistics. The situation in Brazil and Pakistan is likely worse.



**National policies are also needed to ensure the continuity of food supply chains**, given the impact of the crisis on both international and country level mobility of goods and people. There may be a disruption in the movement of “informal” workers essential for harvesting of crops in emerging market and advanced countries alike. This may accentuate disruptions in global food trade if countries start stockpiling in anticipation of further disruption. Thus, continued international cooperation is essential to ensure that disruptions are not magnified.

**The global danger with prevarication by large emerging market countries like Brazil is that large areas and populations will become seeding grounds for the next stage of the pandemic.** Also, the number of younger people contracting the disease in the US and elsewhere should be a matter of concern, as well as the high proportion of asymptomatic carriers. At the minimum, countries that risk uncontrolled infections can expect to be frozen out of global value chains, as activity levels return to normal in China and other parts of the globe as the disease is controlled.

**India imposed a national hard lockdown after the scale of the problem became clear.** However, given the delays in responding, the decision was taken late, and without adequate warning or capability of providing for the very large numbers of informal sector workers in the large metropolitan areas like Mumbai. Consequently, large numbers of desperate people walked hundreds of miles to their home villages across the country—likely seeding a much bigger disaster to follow. It should be mentioned that the State of Kerala, which has an excellent primary health care system, used it early and effectively in instituting the testing, tracking and tracing program. Despite the fact that many people from Kerala work in the “infected hubs” in the Middle East, as well as in the major metropolitan areas of India, the virus was contained with a remarkably low incidence and death rate, given the impressive preventive measures. However, given the different political parties in power in the Central and Kerala governments, the state has not been able to access financing to meet revenue shortfalls, and will eventually face a financing crisis. Given the delays in locking down and failing to coordinate effectively with state and local governments, the pandemic was seeded, and India has the third highest incidence of the virus (after the US and Brazil). Like the two other federations, both incidence of infections and death rates were rising (in early August, 2020).

**Another hugely problematic area of possible future seeding of the Covid-19 is in the war-torn regions in the Middle East**, especially the refugee camps of Syria, West Bank and Gaza, and also the vulnerable populations in Iraq, which has around 3 million internally displaced people (IDPs) and where social distancing and regular washing of hands is not feasible. More importantly, 80% of the Iraqi population lack proper sanitation, and 70% access to potable water, and there has been a collapse of the extensive system of clinics and hospital care that had been among the best in the Arab world before the first Iraq war. These conditions will likely ensure that large areas in

critically important parts of the world and at the cross roads of global trade, may continue to seed infections elsewhere and at the minimum risk being totally isolated from other regions at considerable global cost.

**There is also the likelihood of a continuation of huge economic disruption and deprivation in the Middle East, particularly in the war-torn regions in Iraq, Syria and Yemen.** As in the South Asian case, rather than focusing on cash transfers to mitigate the effects of Covid-19, the appropriate interventions might be to strengthen direct delivery of food and medicines to the population in “lock down” mode. This would need to be supported in parallel with rebuilding the health care system, starting with a reestablishment of local clinics, initially as Covid-19 testing stations, but eventually becoming the core of a primary care and referral system. And hospitals established or renovated at the governorate or central levels, could then become the overlapping components of a revamped health care system, essential for a revitalized reconstruction effort.

**The multi-level finance lesson is that coordination is critical even if cities are governed by different parties from state/provincial level, and states from the Federal level. This reflects the political economy problem of global coordination in microcosm.** If a city/state imposes stringent suppression restrictions, but the neighboring city/state reinforced by the inaction at the State or Federal level does not, the efforts in the first jurisdiction might not amount to much. This is partly due to asymmetric information and the likelihood that asymptomatic carriers will continue to seed the disease to the detriment of all jurisdictions within the State, and the country. The reluctance of states that do not have a significant incidence of disease at the outset (US Southern States for example) to take preventive measures risks jeopardizing the recovery in the hardest hit states and metropolitan areas. This lesson also applies to countries in a regional and global context.

## I. V. Addressing risks from the pandemic and climate change and building back better

The experience of addressing the pandemic in China and elsewhere shows that saving lives takes precedence over saving jobs, that might be lost in any case, and that timely and sequenced actions are needed for both. In China, at the local level, this involves the incentives to manage and finance critical functions related as much to disaster prevention as to relief, together with institutional strengthening, timely information flows and tightening of local (*kuai*) decision-making processes. Effective risk management involves strengthening of reforms underway to share information with the central government on a timely basis. The central government in turn is best able to coordinate across jurisdictions, and to provide extraordinary financial assistance

that will be needed in all cases. This is complicated in Federal countries with incomplete jurisdictions and political economy considerations.

Of course, as the health emergency stabilizes, the central attention will shift to managing the economic shocks that will unfold as the global value-chains and trading patterns unwind, and the dislocation in the productive and employment patterns in China are clearly evaluated. A response would include accelerating the strategy of “high quality” growth that is less dependent on exports. This can usefully be linked to the rebalancing towards domestic consumption, as well as a renewed emphasis on sustainable interior employment hubs. These would meet the objectives for a cleaner environment, a more equal distribution of income and employment opportunities, as well as reduced risk, that were the key planks of the current medium-term economic plan of the government enunciated in 2018 (Liu He, 2018). In the UK, there is an emphasis on national infrastructure to “level up” and provide sustainable employment opportunities in depressed areas.

A key component of this strategy will be the development of clean, compact and connected cities (CCCs), or sustainable employment hubs, for which both local service delivery and financing, as well as national policy and infrastructure investment will be critical. The covid-19 crisis provides some useful pointers. This should assist in preventing future outbreaks, while assisting with the responses and in effective risk management (Liu and Li, 2018).

Key elements from the Covid-19 crisis for strengthening the local “horizontal” relationships include local incentives and accountability for outcomes or results, as well as timely information flows, both horizontal as well as vertical. This includes appropriate assignments of responsibilities, and own-source revenues, and full information on general government and subnational balance sheets for accountable decision-making and more effective leveraging of private sources of finance.

It is not simple or straightforward to centralize or decentralize the health sector. The current crisis has highlighted the importance of the distinction between preventive and curative sub-functions. Thus, a typical curative system of hospital care, is often managed<sup>18</sup> and financed by central or regional governments through national insurance and general revenues, especially in countries with an ageing demographic profile given the relatively high cost of such provision. But, as seen in Italy, if the local/community primary care clinics are not adequately equipped to deal

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<sup>18</sup> We abstract from the various mechanisms that range from the Bismarkian and Beveridge-type social insurance systems that pool risks across the population to achieve better coverage and outcomes, to largely private provision with mandated private insurance, such as in the US. The latter is hugely expensive (see Table 8), and does not achieve full coverage, given that almost 10% of the population is without insurance coverage.

with initial screening, the hospital system can be overwhelmed very quickly. Moreover, in addition to the local primary care clinics, households need clean water and proper sanitation to prevent the spread to the virus.<sup>19</sup> There also needs to be a provision for adequate information sharing and education to “guide” individual and household responses, as private interests may conflict with the welfare of the community at large. In addition, there may be restrictions on hiring or firing medical staff as salaries and investments might be determined at higher levels (as in many Latin American and some European countries). Thus, even a simple sub-function, such as local clinics, requires a range of additional functions to be able to deliver desired outcomes.

Table 2 illustrates the difficulties with a clear-cut assignment of primary preventive health care. In addition to the actual delivery of a sub-function as illustrated for a number of functions and sub-functions, it would also be important to add the “policy” and financing arrangements, that would need to be factored in, to reflect the complexity of the *kuai-tiao* organizational structure in China. It is worth pointing out that the column of functions and sub-functions corresponds to the UN’s Classifications of Functions of Government that is included in most countries’ budget documents. It is also a part of the IMF’s Government Financial Statistics Manual (GFSM, 2001, revised in 2014). The first part of the top row (Compensation, Use of Goods and Services, revenues, through to the acquisition of financial and non-financial assets) are the economic inputs and part of the Economic Classification of the GFSM2014. The administrative parts reflect, for each level of government, the agencies involved—the crux of the *kuai/tiao* arrangements.

Table 2. What is involved in clarifying spending assignments?

Economic classification/ GFSM Functions/COFOG	Compensation	Use of goods and services	Fixed capital	...	Acquisition of non-financial assets	Admin/ Units Codes	Projects Codes	Programs/ Sub-programs Codes	Output	Outcomes
Education										
a. Primary and secondary	M	M	C/R	C	M/C/R	X	X	X	A	A
b. Tertiary	R/C	R/C	C/R	R/C	R/C	X	X	X	A	A
Health care										
a. Basic preventive	M	C	C/R	M	M/R/C	X	X	X	A	A
b. Hospital	R	R	C/R	R	R/C	X	X	X	A	A
Water	M	M	R/M	M	R/C/M	X	X	X	A	A
Sanitation	M	M	R/M	M	R/C/M	X	X	X	A	A

*Notes:*  
‘C’ represents a central assignment, ‘R’ is regional and ‘M’ is municipal.  
X would be relevant codes reflecting the institutional arrangements and A are actuals for outputs and outcomes respectively, that depend on sectoral analyses.

Source: Ahmad (2015).

<sup>19</sup> Leaking sewage in an apartment block in Hong Kong was the cause of a major flareup of cases.

The projects, programs and sub programs, as well as output and outcome indicators are typically all part of a Chart of Accounts for general government (see Table 3), that provides the same information in real time (depending on how the infrastructure of a nested set of Integrated Financial Information Management Systems is set up). Thus, Table 3 integrates both the *kuai* (segment 4) and the *tiao* relationships (segment 6) along with the functions/sector information as well as the economic inputs.

Table 3 The logic of a GFSM2014-compliant Chart of Accounts

No.	Segment	Size	Description
1.	Institutional Entity	2	GFS2014 – Economic Entity, e.g. General Government Sector, Other Economic Entities
2.	Source of Funds	2	Funding Sources
3.	Functional Classification	8	UN/OECD classification of functions of government
4.	Administrative Classification	6	Ministry, Department, Division, Section
5.	Program / Sub Program Classification	6	To track specific programs
6.	Activities / Projects	6	To track detailed activities or projects that form part of general government
7.	Geographic	6	Regions/States/ Local Governments or Municipalities
8.	Economic Classification	8	GFSM2001 definition of Revenue, Expense, Assets and Liabilities
9.	Outputs and Outcomes (for performance budgeting)	6	Including for possible physical outputs and outcomes for evaluation purposes

Source: Ahmad (2015).

For a rapid flow of information to a city/metropolitan government as well as the Central Government, they should both have the same Chart of Accounts, linked or nested, but this is not the case in China. While the Chinese Central Government has adopted the GFSM2014 standards and the new budget law also requires that all local governments also move towards accruals, this is not due to be fully implemented for another couple of years, and there are differences in classification and accounting standards across local governments. Of course, the Chart of Accounts (Table 3) should be an integral element of a full balance sheet that also reflect assets

and liabilities. Again, the deficiencies in local government balance sheets have been examined in Ahmad and Zhang (2020). This is also a mechanism whereby local governments can “disguise” liabilities in the political “game play” with higher levels of government, and is by no means only found in China—in fact many multilevel governments (including in the EU) suffer from this problem that also interferes with fiscal rules and imposition of hard-budget constraints on lower levels, and management of sub-national liabilities.

In addition to the information flows in the *tiao-kuai* relationships, there is still the issue of incentives facing local governments, in particular cities and metropolitan areas in China. And a critical element in the inappropriate incentives facing local governments is the absence of own-source revenues (i.e., significant tax bases that they can set rates on within a band, as is permitted under Chinese law but only applied in the context of minor taxes on property transactions). Ahmad, Niu, Wang and Wang (2020) examine some possibilities for beneficial property tax at the city/metropolitan level linked to basic services, including preventive health care, education and social housing.

Together with clarity on the spending responsibilities, and more efficient information flows including on liabilities, the own-source revenue issue remains to be tackled on an urgent basis. These components will be needed as part of a “package” of measures at the sub-national level for the rebalancing towards new sustainable “hubs” in the interior to offset some of the effects of the loss of export markets on production and employment opportunities. Further, the CCC focus is also critical in improving the environment and living conditions that are needed to reduce the likelihood of future pandemics and worsening health conditions due to deteriorating environmental considerations.

A key lesson from China and the other countries struggling with the Covid-19 pandemic is that **saving lives takes precedence over misguided “attempts” to save jobs, that will likely be lost regardless**, as uncertainty in markets, ruptured trading links, and self-preservation predominate. Moreover, prevention to the extent possible is always more cost-effective than scrambling to provide ex-post relief. This lesson applies also to tsunamis, and the slower moving but adverse effects of climate change that are becoming progressively more severe.

It is clear that the **do-nothing or even delayed scenario would have been cataclysmic for China and its people**. As it is, the damage has been limited to one main region Hubei (almost as large as Italy, or larger than Spain) and the rest of the country has been relatively protected. Attempts to shift to a “suppression strategy” in Europe or the Americas, have come either too late after a period of denial, or have been relatively ineffective. This is seen also in the Italian “delayed suppression model”, leading to a top-rated health care system being over-run.

The Covid-19 crisis has shown that regardless of political systems and ideology, **the preparation for a natural disaster, management and response, and recovery are neither fully central nor can they be solely local.** Without central guidance, it is difficult for a local government in isolation to envisage or prepare for a pandemic, tsunami, or the extreme effects of climate change, including droughts, floods or fire, or generate the resources to deal with the consequences of the disaster, which typically also has an economic dimension in terms of damage and loss of livelihoods. But localities are where the action happens, and where the earliest warning signs arise on which actions must be taken promptly, in a coordinated manner, by subnational and national governments working in synch. International cooperation is also likely to be needed as the externalities are global.

**International support is often needed, including for advanced countries.** China with its own crisis largely under control, on April 3 donated 1,000 ventilators to the State of New York, and 300 to the UK, following support for Italy in the preceding week. But global action will be needed for the potential “disaster” zones in war-torn Iraq, Syria and Yemen, as well as North Africa, that lack clean water and sanitation, not to speak of hospital care. Timely suppression is the only solution, together with the establishment of local preventive measures, including basic testing clinics that can form the nucleus of a local health care system, with referrals to hospitals in the less badly affected cities and neighboring countries. This should become the nucleus of a more robust health care system in the future and linked to the establishment or reconstruction of CCCs as part of a coordinated approach to the SDGs and establishing a clean environment.

**International cooperation is essential, given the close linkages of pandemic response with the SDG and Climate Change agendas.** Better economic coordination is required going forward to minimize disruptions to trade and value chains. This could usefully be taken up in different fora, e.g., the UN, G20, as well as COP26

## References:

Ahmad, Ehtisham (2015), “Governance and Institutions”, in Ahmad, E and G. Brosio, *Handbook of Multilevel Finance*, Edward Elgar.

Ahmad, Ehtisham (2018), “Governance models and policy framework: some Chinese perspectives,” *Journal of Chinese Governance*.

- Ahmad, Ehtisham, (2019), “Decentralization and Governance: Options for the 14<sup>th</sup> Five Year Plan,” *LSE/CUT Program on Financing Sustainable Urban Transitions in China and Mexico*.
- Ahmad, Ehtisham, Meili Niu and Kezhou Xiao, eds., (2018), *Fiscal Underpinnings for Sustainable Development in China: rebalancing in Guangdong*. Springer.
- Ahmad, Ehtisham and Xiaorong Zhang (2020), “Local government liabilities and sustainable debt in China—evidence from County T in Central China,” *LSE/CUT Program on Financing Sustainable Urban Transitions in China and Mexico*.
- Ahmad, Ehtisham, Meili Niu, Limin Wang and Meiyan Wang, (2020), “Designing Beneficial Property Taxation for Sustainable Development in China—evidence from six cities, including Guangzhou” *LSE/CUT Program on Financing Sustainable Urban Transitions in China and Mexico*.
- Ahmad, Ehtisham, Nicholas Stern and Chunping Xie (2020), “From rescue to recovery: towards a post-pandemic sustainable transition for China,” *China Development Forum*.
- Baldwin, Richard and Beatrice di Mauro (2020), *Mitigating the Covid Economic Crisis: Act Fast and Do What it Takes*, CEPR VoxEU.
- Ferguson, Neil et al., (2020), *Impact of non-pharmaceutical interventions to reduce COVID-19 mortality and healthcare demand*, Imperial College COVID-19 Response Team.
- Gao, Xiang and Jiangxing Yu, (2020), “Public governance mechanism in the prevention and control of the COVID-19: information, decision-making and execution,” *Journal of Chinese Governance*, March 2020.
- Gourinchas, Pierre-Olivier (2020), “Flattening the pandemic and recession curves,” in Baldwin and DiMauro (2020) *op cit*.
- International Monetary Fund (2014), *Government Financial Statistics Manual*, Washington DC.
- International Monetary Fund (2020a), *World Economic Outlook*, April, Washington DC.
- International Monetary Fund (2020b), *World Economic Outlook* (update), June, Washington DC.
- Liu He, (2018), *3 critical battles China is preparing to fight*. Speech to World Economic Forum, Davos, January 24, 2018.
- Liu, Shangxi and Li Chengwei, (2018), “Public services evaluation from the perspectives of public risk governance,” in Ehtisham Ahmad, Meili Niu and Kezhou Xiao, eds., 2018, *Fiscal*



*Underpinnings for Sustainable Development in China: rebalancing in Guangdong.* Springer.

Oates, L., L. Dai, L. Sudmant and A. Gouldson, (2020), *Building Climate Resilience and Water Security in Cities: Lessons from the Sponge City of Wuhan*, Coalition for Urban Transitions.

Schwartz, Jonathan (2012), "Compensating for the "authoritarian advantage" in Crisis Response: A comparative case study of SARS Pandemic responses in China and Taiwan," *Journal of Chinese Political Science*.

Spahn, Paul-Bernd (2015), "Contract Federalism," in Ahmad, Ehtisham and Giorgio Brosio (eds.), *Handbook of Multilevel Finance*, Edward Elgar.

Yi Huang, Chen Lin, Pengfei Wang, and Zhiwei Xu, (2020), "Saving China from the coronavirus and economic meltdown: Experiences and lessons," in Baldwin and DiMauro (2020).

Xiao, Kezhou (2018), "Managing Subnational Liability for Sustainable Development: a case study of Guangdong Province," in Ahmad E, Niu M and Xiao K(eds.) *Fiscal Underpinnings for Sustainable Development in China*, Springer.

Yang, Quanshe (209), "How is China's local debt spiral created in *tiao-kuai* authority," Presented at the ABFM Annual Meeting, Washington DC.

You Henuan, Wu Xin and Guo Xuxu (2020) , "Distribution of COVID-19 Morbidity Rate in Association with Social and Economic Factors in Wuhan, China: Implications for Urban Development," *International Journal of Environmental Research and Public Health*, May 2020.