대통령직속
정책기획위원회
The Presidential commission on Policy Planning

한국사회학회
Korean Sociological Associatio

EASA
East Asian
Sociological Association

The New Normal in Post Pandemic East Asia

09:30 ~ 09:35: Opening Ceremony — Moderator: Chung, Il-Joon (Secretary General, EASA)

09:35 ~ 09:50: Opening Remarks — Jang, Wonho (President, KSA)
Welcoming Remarks — Lim, Hyun-Chin (President, EASA & Founding Director, SNUAC)
Congratulatory Remarks — Cho, Dae-Yop (Chairman, The Presidential Commission on Policy Planning)

10:00-12:00: Session 1 Moderator: Chang, Dukjin (Seoul National Univ.)

1. Shin, Kyungah (Hallym Univ.) "Issues of Women's Employment during the Covid-19 Crisis in Korea"
2. Li, Chunling (Chinese Academy of Social Sciences) "Housing-Based Wealthization in China : From a Society with High Equality and Scarce Wealth to a Society with High Inequality and Wealthization"
3. Zhou, Yaping and Wang, Xiaoling (Lanzhou Univ.) "Research on multi-path dependence Mechanism of National Economic Governance under the Impact of Global Epidemic"

13:00-14:30: Session 2 Moderator: Zhang, Haidong (Shanghai Univ.)

1. Mizukami, Tetsuo (Rikkyo University) "Chinese in Japanese 'lockdown'?: The impact of the COVID-19 state of emergency upon migrant community in Tokyo"
2. Hwang, Sun-Jae(Chungnam National Univ.) "Social Trust and the Pandemic: Lessons from the COVID-19 Case of South Korea"
3. Yao, Yelin, Jun'an, and Zhang, Haidong (Shanghai Univ. of Engineer Science/Shanghai Business School/ Shanghai Univ.) "Media Use and Anti-Pandemic Confidence: An Empirical Study of Shanghai"

14:40-16:10: Session 3 Moderator: Chung, Il-Joon (Korea Univ.)

1. Lu, Peng (Chinese Academy of Social Sciences) "Digital Techology and China's "Anti-Epidemic Battle" for Covid-19"
2. Lee, Wonjae (KAIST) "Perception and Attitude of COVID-19: A Survey of 16 Countries"
3. Hiroi, Yoshinori (Kyoto Univ.) "Policy Proposal using AI and the Concept of a Decentralized Society"

16:30-18:00: Session 4 Moderator: Daishiro Nomiya (Chuo Univ.)

1. Zhang, Wenhong (Shanghai Univ.) "Social Governance in Public Health Emergencies: A Social Capital Perspective"
2. Yang, Yudong (Nanjing Univ.) "How are the Studies Abroad of Chinese Students Changed by Covid-19?"
3. Chung, Il-Joon (Korea Univ.) "Governing COVID-19 in South Korea: Balancing Security & Liberty"

Date: June 25, 2021 (Friday) 09:00-18:00
Venue : Samick Hall (# 220), Seoul National University Asia Center

Organized by The Presidential Commission on Policy Planning, Korean Sociological Association & East Asian Sociological Association

Opening Remarks

Woho Jang, The President of Korean Sociological Association

Good morning,

As introduced by the Secretary-General of the East Asian Sociological Association, I am Wonho Jang, Professor of Urban Sociology at University of Seoul, and President of Korean Sociological Association.

It is a great pleasure to see my old and new friends as presenters and participants in this international conference that deals with the phenomena of the new normal in post-pandemic East Asia.

First of all, I would like to express my deepest gratitude to Dr. Cho Dae-Yop, an old friend of mine and the chairman of the Presidential Commission on Policy Planning, whose generous support has made this international conference a success.

I also would like to thank my mentor, Dr Hyun-Chin Lim, President of the East Asian Sociological Association, whose creative ideas and leadership has made this conference possible.

And I would like to thank all of the participants whose presentations and discussions will make this conference one of the most influential academic conferences about post-pandemic social transformation.

As you all know, we are now undergoing an unprecedented period of difficulty caused by Covid-19. The pandemic has changed and reshaped most of social structure in the world. That is why are gathered together today to discuss the real meanings of the change and to look for the possible ways to use the pandemic as an opportunity to envision and realize a better society.

Today, we will discuss various new phenomena generated by Covid-19 in three countries, Korea, China, and Japan. The issues are very broad, ranging from women's employment, national economic governance, migrant communities, social attitude and trust, and the balance between security and liberty.

Considering the eminent standing of the presenters who have joined us today from three different countries, I believe today's conference will suggest very important implications for both Academia and the Policy arena.

With this in mind, I would like to once again thank all the participants of this conference.

In addition, I would like to thank the members of the organizing committee of this Conference: Dr. Il-Joon Chung, Dr. Sukki Gong, Dr. Kyung-Min Baek, and the staff

members who have worked so hard behind the scenes.

Although we cannot meet face to face today, I do wish that sometime within this year, we will be able to hug each other and have pleasant conversations in person. In the meantime, please take care of yourselves.

Thank you.

Welcoming Remarks

Hyun-Chin Lim

Co-President
East Asian Sociological Association
Founding Director
Seoul National University Asia Center
Professor Emeritus
Seoul National University
Member
National Academy of Sciences
Republic of Korea

Good morning, ladies and gentlemen!
Welcome to the International Conference on "The New Normal in Post Pandemic East Asia."
I am happy to meet you remotely, speaking from Seoul, Korea. I am very much honored to host the virtual conference on COVID-19, organized jointly by KSA and EASA, which is timely, relevant and important in this time of global difficulty.

Currently, the world is struggling hard to get out of the new corona virus disease (COVID-19) pandemic. Throughout history, nothing has threatened to wipe out more human beings than infectious disease like Covid-19. The pandemic clearly shows how vulnerable we human beings remain. About 100 years ago, during the last great pandemic, one of great social scientists, German intellectual Max Weber unfortunately caught Spanish influenza and passed away. COVID-19 might be a 'once-in-100-year' crisis.

I would argue that the new corona virus pandemic could have been predictable, because we have had decades of signals warning the frequency of global epidemics. Since the early 20th century, the

humankind has experienced more than 30 kinds of new virus. Global epidemics, such as SARS (Severe Acute Respiratory Syndrome), African Swine Fever, Ebola, MERS (Middle East Respiratory Syndrome), and COVID-19, have been rampant almost every three years. The outbreak of new viruses is closely related with climate change that has destroyed the habitats and biomes of animals and plants. According to WHO, global pandemic increases by 4.7%, as the average temperature of the earth rises by 1°C. The rise of temperature and humidity due to global warming ruins earth ecosystem in a way to pull down the boundary of habitats between humans and animals; viruses living in tropical rain forests are supposed to transmit to human beings.

Ladies and gentlemen!
We are now living in the difficult time of the pandemic. The COVID-19 pandemic has led to the most severe global economic downturn since the Great Repression. Due to the high uncertainty about the future of neo-liberal capitalism, the state returns, market retreats, and civil society has shrunk considerably.
Moreover, the pandemic has disrupted our way of thinking and living: everyday life has changed from face-to-face to non-face-to-face contacts. Citizens increasingly find themselves isolated and lonely during the period of local lockdowns. The "less is more" logic of social distancing and stay-at-home policy has weakened a sense of social togetherness and people's solidarity.

The COVID-19 pandemic has already paid a heavy amount of human and economic prices. Humanity is in need of closer international cooperation and coordination to go beyond national boundaries. Progress requires working together, not just as nations but also as an international community. Regretably, however, in the midst of national survival, almost all countries have closed their borders to ward off the contagion of global epidemic. There has been a growing sense of hatred and discrimination rather than tolerance and compassion in the process of combating COVID-19.

The East Asian countries have attracted international attention, since their management of the COVID-19 pandemic has been more effective than that of any other region worldwide. In terms of the numbers of infections and death tolls of the pandemic, they have been in good shape compared to European, North American, or South American countries. Right now, the third wave of COVID-19 is spreading the world; Some Asian countries, such as India, is experiencing a rapid surge of infections and deaths tolls. In particular, East Asian countries which have not gone through vaccination are suffering from the third wave of COVID-19. National lockdowns are not sufficient enough to prevent new corona virus variants, and therefore we should try our best to accomplish the vaccination of citizens as much as possible.

Ladies and gentlemen!
I am not saying that the crisis management in East Asia has been perfect. Repeated resurgence of the pandemic has exposed and widened the political, economic, and social cleavages that had been obscured by the success of early responses. The impacts of the pandemic have been uneven, hitting vulnerable groups, such as the poor, unemployed, and foreign migrants very hard. The blame game between world powers over the pandemic has obstructed effective regional cooperation and coordination. In addition to complete lockdown threatening the freedom of mobility and doing business, rigorous contact tracing measures have also raised the question of how much privacy can be abused for the sake of public health.

As you know, this conference aims to provide a platform to find out key institutional and cultural factors responsible for the success and failure in preventing and treating COVID-19: (1) the role of government, (2) state-society relations, (3) public trust and social capital, (4) public health system, (5) fellowship from civil society, (6) social and interpersonal relationships—to name a few.

I believe that we have an excellent group of scholars from different countries who would offer their knowledge and insights to discuss a wide range of issues facing East Asian countries from a comparative perspective. I hope that you should play a crucial role in developing various ideas and experiences in living in post COVID-19 pandemic era.

Ladies and gentelmen!
Last, but not least, I would like to take this opportunity to express my sincere gratitude to Dr. Dae-Yup Cho, Chairperson of Presidential Commission on Policy Planning for his generous financial support and moral encouragement in making this conference possible. Final thanks also go to Dr. Won-Ho Chang, President of KSA, Dr. IL-Joon Chung, Secretary-General of EASA, Dr. Kyungmin Baek, Research Director of EASA, and Dr. Sukki Kong, General Affairs Director of EASA, and other staff members for their energy, time and sacrifice in preparing this wonderful, virtual conference.

I wish you the very best,
Thank you very much!

Congratulatory rermarks in the Policy Seminar co-organized The Presidential Commission on Policy-Planning, Korean Sociological Association, and East Asian Sociological Association, June 25, 2021.

New Solidarity and Cooperation in East Asia Needed

Dae-Yop Cho

The Chairman of the Presidential Commission on Policy-Planning

Good Morning, ladies and gentlemen. This is Cho, Dae-Yop, a Chairman of the Presidential Commission on Policy-Planning. Nice to Meet you. I would like to express deep gratitude to all who join the conference.

First of all, I welcome scholars from China, Japan and Korea with whole heart.

I really appreciate Professor Chang Wonho, the president of KSA and Professor Lim Hyun-Chin, the president of EASA for their effort to organize this international conference envisioning 'The New Normal in Post Pandemic East Asia', and also New World Order.

I want to draw your attention to the following three issues, which were already dealt with during the G7 summit: Public health security, Environmental security and Economic cooperation.

The lessons we learn from the COVID-19 crisis are that infectious disease like corona virus can dismantle our daily lives and even world order in a couple of days. In this hyperconnected world, in order to solve public health problems, global cooperation and solidarity are necessary. Economically advanced countries like Japan, Korea and China, through exerting global leadership, accelerate vaccination of people living in less developed countries. Let me tell you, South Korea is going to become a vaccine herb producing large scale bio-pharmaceutical products.

Second, in preparing for climate change, "Just Transition" effort is a major concern. Climate change is another security challenges threatening human lives and national security even worse than corona pandemic. Based on reflexivity in climate change, advanced industrial powers in East Asia, Korea, Japan and China should join in global efforts in achieving carbon neutrality and renewable energy. Furthermore, three East Asian countries should cooperate and do their role and responsibility in bridging different economic level countries.

Third, Pursuing co-prosperity through development cooperation with less developed countries. China, Japan and Korea, all succeeded in industrialization and economic growth, should develop global economic policy to assist less developed countries. Especially, actively assisting in constructing the infrastructure of those countries. This maybe the kind of global leadership asked upon Korea, China and Japan.

It's true, three East Asian countries, though centuries long friends, have some disputes over historical issues. Korea, Japan and China are neighboring countries facing each other. Reflecting on the connections and interactions among the three countries in long history and compassioning on the hardships caused by COVID-19 crisis,

Thank you very much.

≪The New Normal in Post Pandemic East Asia≫

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Session 1

Issues of Women's Employment during the Covid-19 Crisis in South Korea

Shin, Kyungah
Prof., Department of Sociology, Hallym University

1

Women workers in the forefront of a pandemic society

South Korean nurses' bandages become badges of honour

AFP | Updated March 14, 2020

SEOUL: This combination photo created on Friday shows nurses from Keimyung University hospital posing for portraits. —AFP

DAEGU: Across their foreheads, cheeks and noses, the nurses on the front line of South Korea's struggle against the coronavirus outbreak wear bandages that have become badges of honour.

https://www.dawn.com/news/1540797

2

Questions

"Korea is considered an exemplary case in Covid-19 prevention and control."

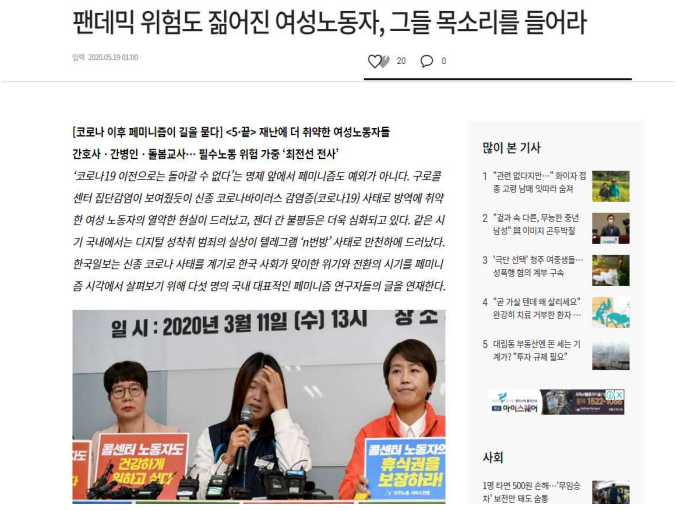
✓ How is it from the gender perspective?

✓ What does "women workers in the forefront of a pandemic society" mean?

✓ What are the tasks for gender equality in the labor market of Covid-19 society and post-pandemic society?

3

Problem raised by care workers in March 2020



팬데믹 위험도 짊어진 여성노동자, 그들 목소리를 들어라

입력 2020.05.19 01:00

20 0

[코로나 이후 페미니즘이 길을 묻다] <5·끝> 재난에 더 취약한 여성노동자들

간호사 · 간병인 · 돌봄교사… 필수노동 위험 가중 '최전선 전사'

'코로나19 이전으로는 돌아갈 수 없다'는 명제 앞에서 페미니즘도 예외가 아니다. 구로콜센터 집단감염이 보여줬듯이 신종 코로나바이러스 감염증(코로나19) 사태로 방역에 취약한 여성 노동자의 열악한 현실이 드러났고, 젠더 간 불평등은 더욱 심화되고 있다. 같은 시기 국내에서는 디지털 성착취 범죄의 실상이 텔레그램 'n번방' 사태로 만천하에 드러났다. 한국일보는 신종 코로나 사태를 계기로 한국 사회가 맞이한 위기와 전환의 시기를 페미니즘 시각에서 살펴보기 위해 다섯 명의 국내 대표적인 페미니즘 연구자들의 글을 연재한다.

많이 본 기사

1 "관련 없다지만…" 원이자 접종 고령 남매 잇따라 숨져

2 "결과 속 다른, 무능한 중년 남성" 與 이미지 곤두박질

3 '극단 선택' 청주 여중생들… 성폭행 혐의 계부 구속

4 "곧 가실 텐데 왜 살리세요" 완강히 치료 거부한 환자 …

5 대림동 부동산엔 돈 세는 기계가? "투자 규제 필요"

사회

1명 타면 500원 손해…'무임승차' 보전만 돼도 숨통

https://www.hankookilbo.com/News/Read/202005141453783815

Working moms' tears in December 2020

- 5.6% of women with children younger than eighteen have resigned from work

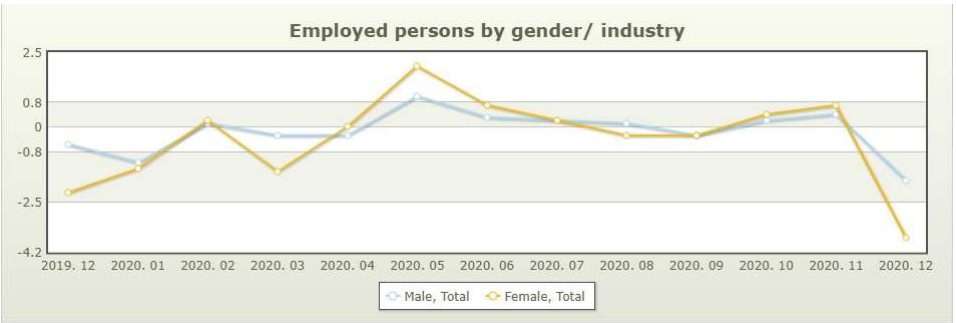
한국의 창(窓)

워킹맘의 눈물

도소매업 워킹맘 10% 직장 떠나는 현실
코로나로 집에 머무는 아이 돌봄 위한 선택
K방역에 취해 이들의 눈물 외면 말아야

https://www.hankookilbo.com/News/Read/A2020122214330000212

Changes in women's employment during the Covid-19



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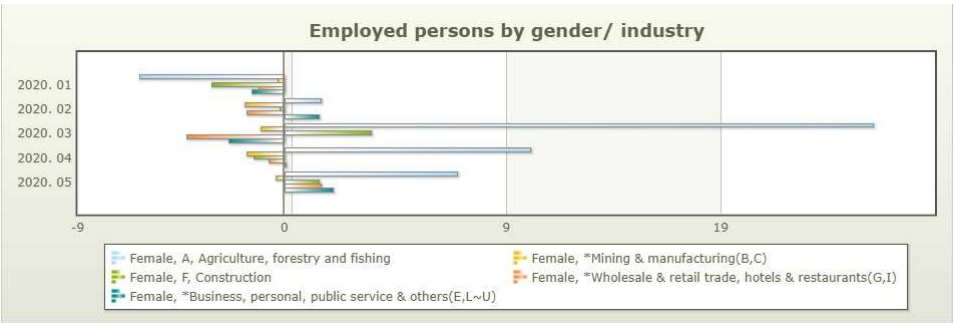

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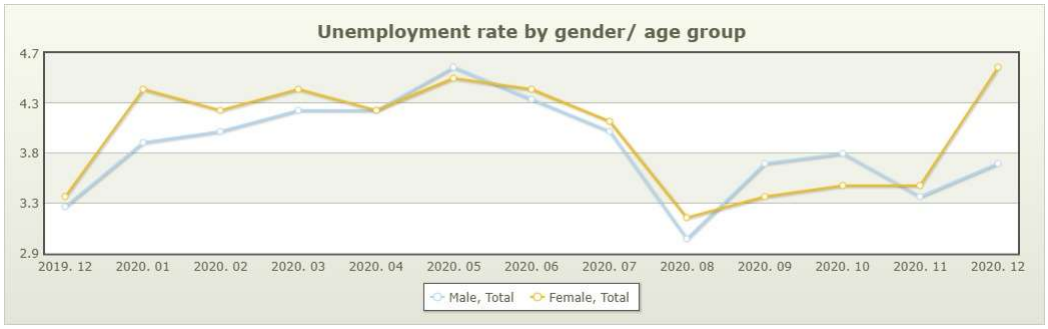
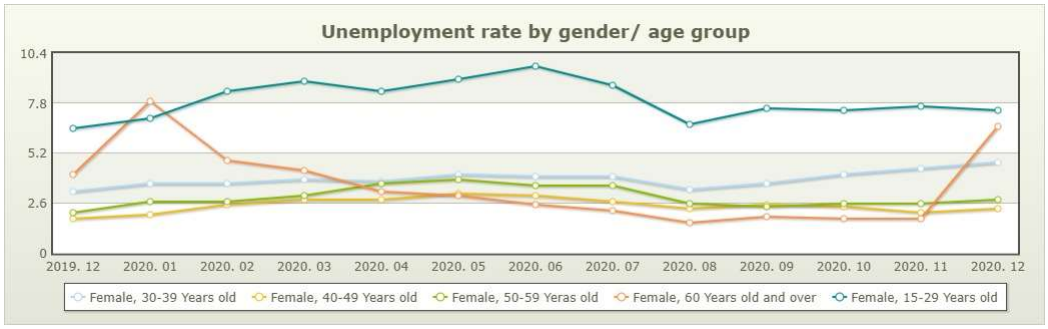
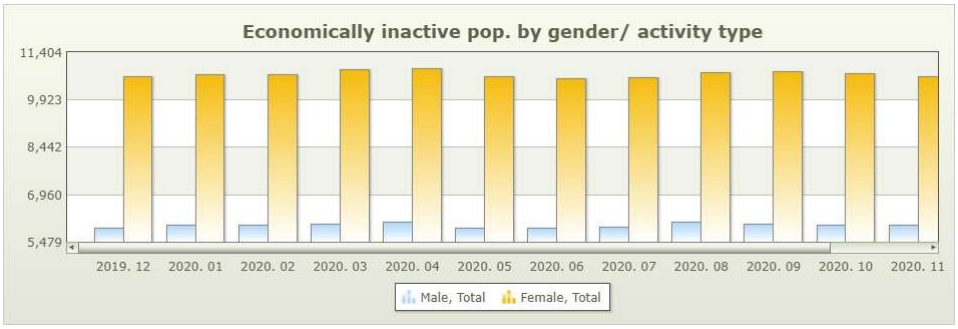

Unemployment rate by gender/ age group
4.7
4.3
3.8
3.3
2.9
2019. 12
2020. 01
2020. 02
2020. 03
2020. 04
2020. 05
2020. 06
2020. 07
2020. 08
2020. 09
2020. 10
2020. 11
2020. 12
Male, Total
Female, Total

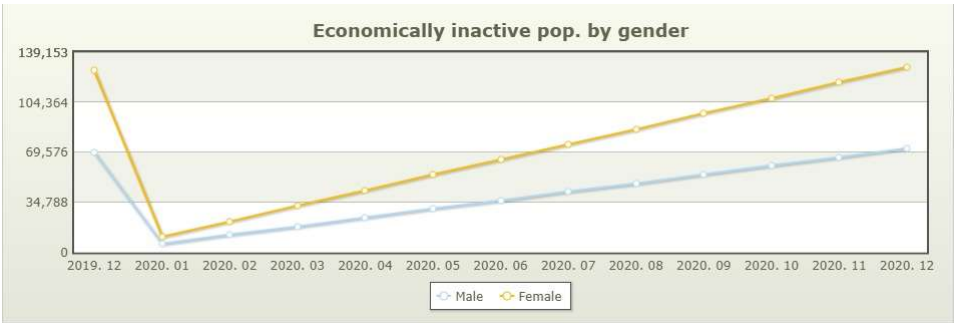
8


Unemployment rate by gender/ age group
10.4
7.8
5.2
2.6
0
2019. 12
2020. 01
2020. 02
2020. 03
2020. 04
2020. 05
2020. 06
2020. 07
2020. 08
2020. 09
2020. 10
2020. 11
2020. 12
Female, 30-39 Years old
Female, 40-49 Years old
Female, 50-59 Yeras old
Female, 60 Years old and over
Female, 15-29 Years old

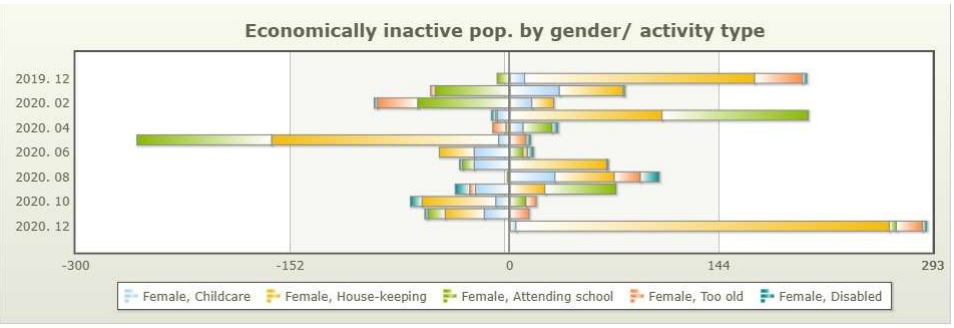
9


Economically inactive pop. by gender/ activity type
11,404
9,923
8,442
6,960
5,479
2019. 12
2020. 01
2020. 02
2020. 03
2020. 04
2020. 05
2020. 06
2020. 07
2020. 08
2020. 09
2020. 10
2020. 11
Male, Total
Female, Total

10


Economically inactive pop. by gender
139,153
104,364
69,576
34,788
0
2019. 12
2020. 01
2020. 02
2020. 03
2020. 04
2020. 05
2020. 06
2020. 07
2020. 08
2020. 09
2020. 10
2020. 11
2020. 12
Male
Female

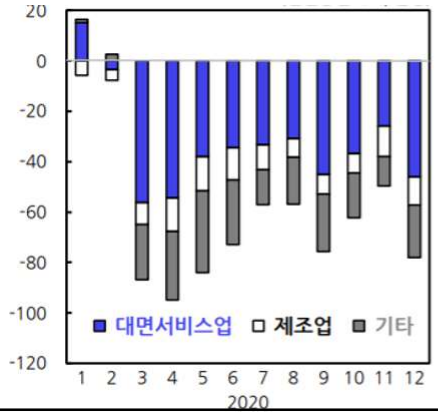
11



12

J., Kim(2020), "The gender gap and implications of the COVID-19 employment shock", KDI.

Changes in the number of employed by industry
(B: female/ W:male, 10,000)



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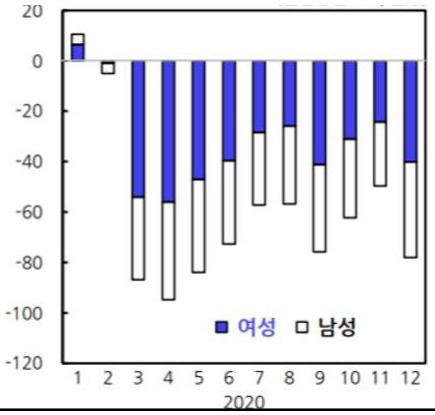
(B: female/ W:male, 10,000)



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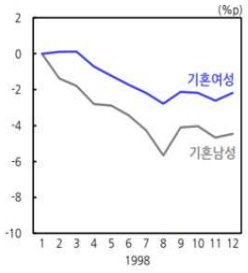
Changes in employment rate by marital status and gender

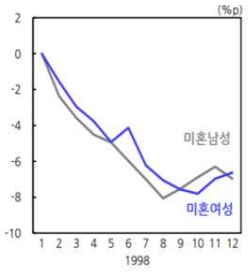
J., Kim(2020)

IMF financial crisis in1998

B: married women
G: married men

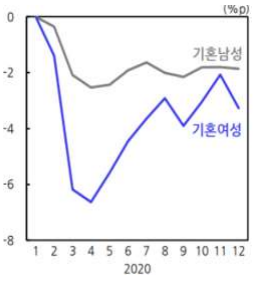


B: unmarried women
G: unmarried men



Covid 19 in 2020

- B: married women
- G: married men



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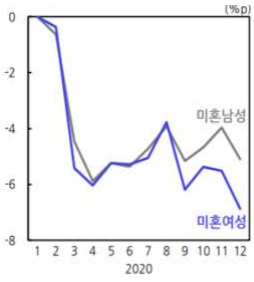

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Naila Kabeer, Shahra Razavi & Yana van der Meulen Rodgers (2021) Feminist Economic Perspectives on the COVID-19 Pandemic, *Feminist Economics*, 27:1-2, 1-29.

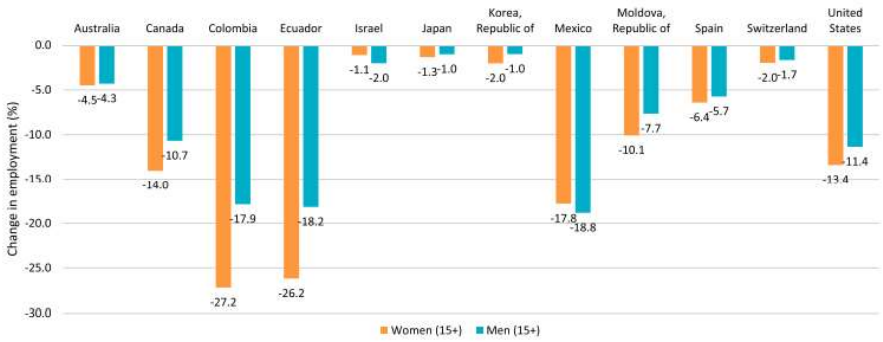

Figure 2 Change in employment April 2019–April 2020 for selected countries (%)
Note: Figures for the US are for the age group 16+.
Source: Constructed by the authors from ILOSTAT Database.

15

Sunyu Ham (2021) Explaining Gender Gaps in the South Korean Labor Market During the COVID-19 Pandemic, Feminist Economics, 27:1-2, 133-151.

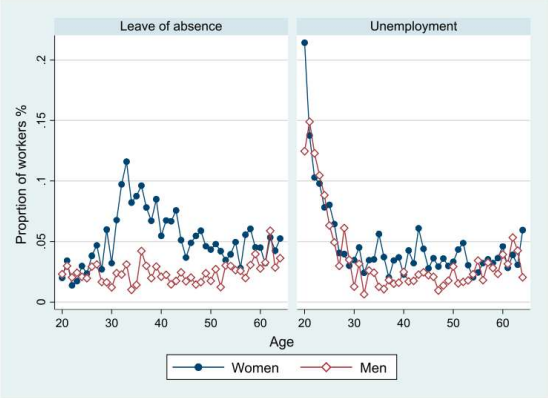

Figure 1 Age distribution of leaves of absence and unemployment during the COVID-19 pandemic in South Korea
Notes: "Leave of absence" is defined as a worker who has a job but did not go to work in the previous week. "Unemployment" is defined as workers who became unemployed between February and April 2020. All statistics were adjusted with sampling weights.

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Sunyu Ham (2021) Explaining Gender Gaps in the South Korean Labor Market During the COVID-19 Pandemic, Feminist Economics, 27:1-2, 133-151.

EXPLAINING GENDER GAPS

Table 2 Decomposing gender gaps in leave of absence and unemployment during the COVID-19 pandemic

	Leave of absence			*Unemployment*		
	(1) Estimate	*(2) S.E.*	*(3) Share*	*(4) Estimate*	*(5) S.E.*	*(6) Share*
Women	0.055***	(0.001)		0.046***	(0.001)	
Men	0.025***	(0.001)		0.029***	(0.001)	
Row gender gap	0.030***	(0.002)	100.0%	0.016***	(0.001)	100.0%
• Explained	0.012***	(0.001)	39.2%	0.007***	(0.001)	45.2%
• Unexplained	0.018***	(0.002)	60.8%	0.009***	(0.002)	54.8%
Explained						
Sociodemographic	−0.001***	(0.000)	−3.4%	0.002***	(0.000)	14.5%
Married & ages 30–45	−0.000***	(0.000)	−1.0%	−0.000**	(0.000)	−0.6%
Service work	−0.000	(0.000)	−0.5%	−0.000**	(0.000)	−3.0%
Care industry	0.006***	(0.000)	21.3%	0.002***	(0.000)	10.3%
Hospitality industry	0.001***	(0.000)	2.7%	0.001***	(0.000)	5.5%
Part time	0.005***	(0.000)	16.8%			
Unstable worker	0.001***	(0.000)	3.5%	0.003***	(0.000)	16.9%
Establishment size	−0.000	(0.000)	0.0%	0.000*	(0.000)	1.7%
N		87,156			90,248	

Notes: "Leave of absence" is defined as a worker who has a job but did not go to work in the previous week. "Unemployment" is defined as workers who became unemployed between February and April 2020. Care industry includes health, education, and domestic industries. Temporary workers, informal workers, and self-employed without employees are coded as unstable working status. Standard errors are in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

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A worldwide evaluation of the Covid-19 pandemic from the gender perspective: Future tasks

1. The problem of gender gap in labor market

- Women of low-income households and marginal groups suffered the most during Covid-19.
- Women around the world work in sectors that were hit hardest by the pandemic (restaurant & catering, lodging business, educational service, cultural industry, etc.).
- Women take up large portions of frontline workers and essential workers (face-to-face service work, medical & health work, etc.)
- Working moms experienced much heavier burden both at work and in care, and lost jobs.
- Teenage girls and young women in their 20s have become bigger victims since they are concentrated in temporary and unskilled service work.

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2. The problem of care

- The pandemic revealed the close correlation of care, environment, and macroeconomics and the crisis of reproduction it caused.
- The centrality of care was underestimated in most societies during Covid-19.
- Women were subject to bigger burdens of work, raising children, and house chores due to shutdown of care facilities such as schools and day care centers and working from home.
- A global phenomenon shows that men have somewhat increased their time devoted to childcare due to working from home.
- Childcare leave has been available in Korea since January 2020, but it is reported that far more women use it than men do.
- The necessity of a *Paradigm Shift* has been raised since the pandemic.

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Housing-based Wealthization in China：

from a society with high equality and scarce wealth to a society with high inequality and wealthization

Chunling Li
Chinese Academy of Social Sciences

Introduction

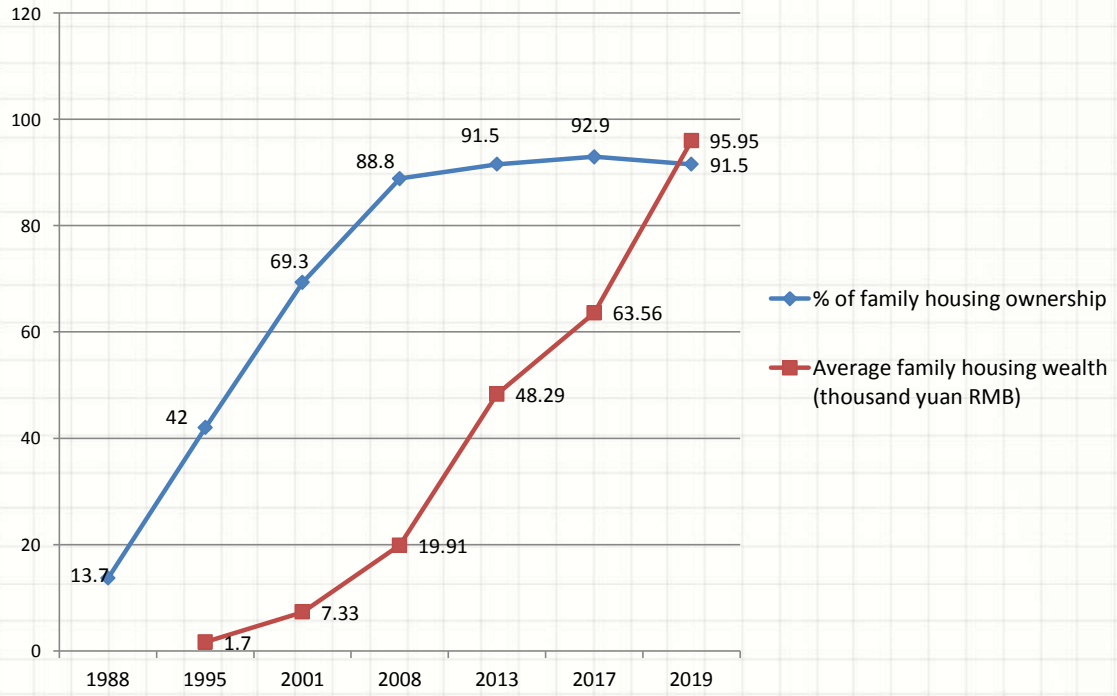
- Wealth inequality: a hot top in the social scientific analysis of inequality over the past decade
- Dynamics of wealth in the Western world is a central element of the inequality (Piketty 2014; Wolff 2016; Saez and Zucman 2016; Chauvel et al. 2019)
- "capital is back" (Piketty 2014)
- "comeback of wealth" and "rewealthization" (Chauvel et al. 2019)
- Rising importance of wealth inequality is challenging traditional class analysis and the concept of occupation-based class(Savage 2021)
- Wealth inequality as a means of renewing class analysis and wealth as a crucial resource for defining one's social position in the conceptualization of social class (Savage 2015; 2020; Rehbein el. Al 2015; Chauvel 2006)

Chinese Wealthization: a little different story form western countries'

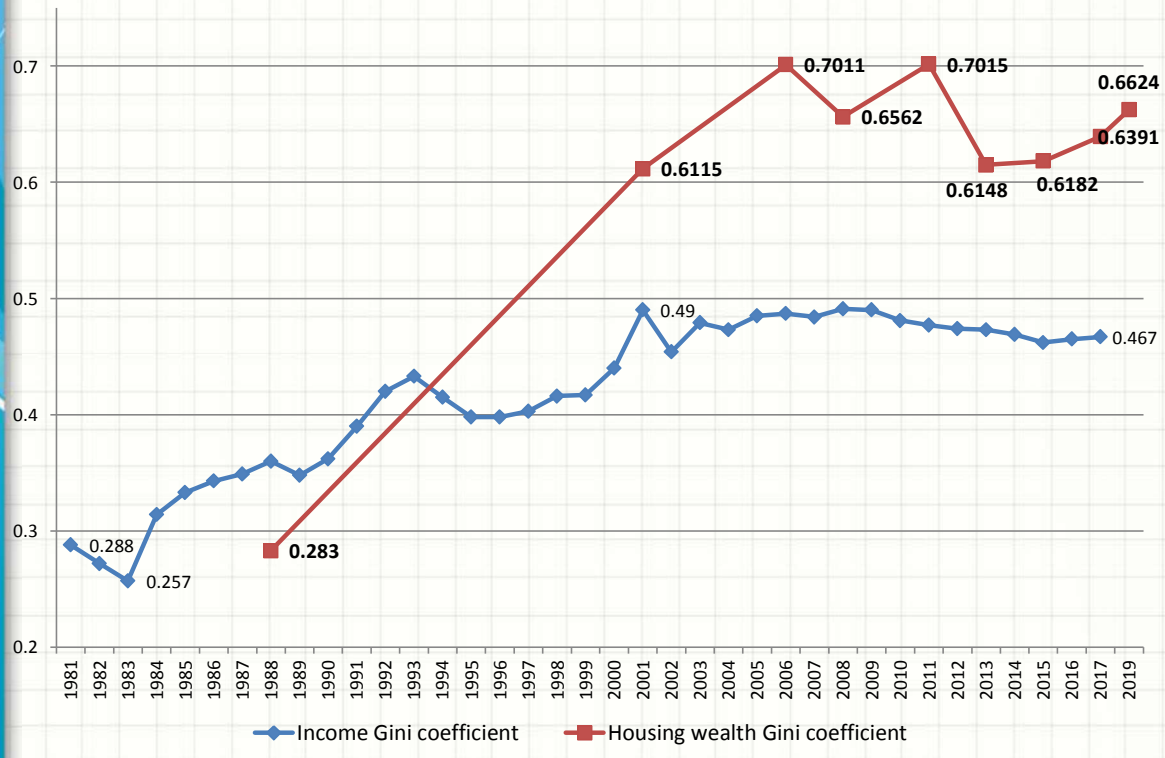
- China shares a similar wealthization process with western countries but it 's a little different story from wenstern countries'.
- New wealth accumulation and aggregation in China (rewealthization and inherited wealth in western countries)
- Chinese wealthization driving by marketization and privitization (besides financialization, globalization and technological change in western countries)
- Chinese wealthization is most prominent in housing wealth, which accounts for 71% of total family wealth.

Rapid growth of family housing wealth:

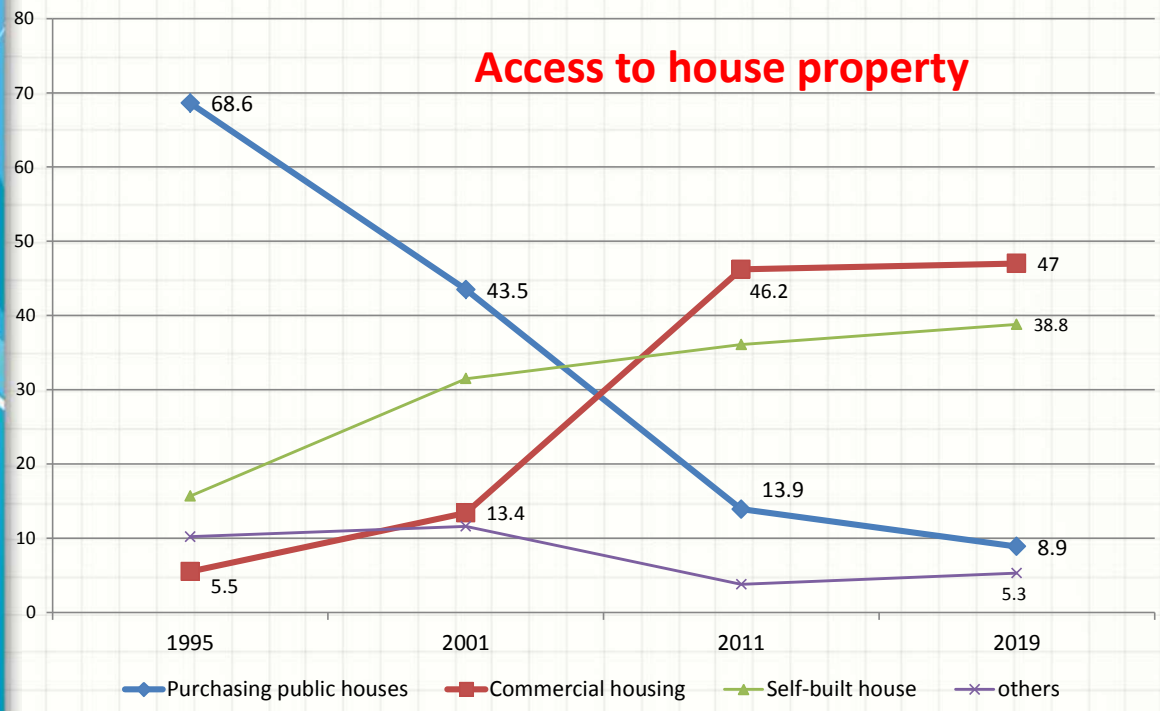
from a society with a few private property to a society with growing private property



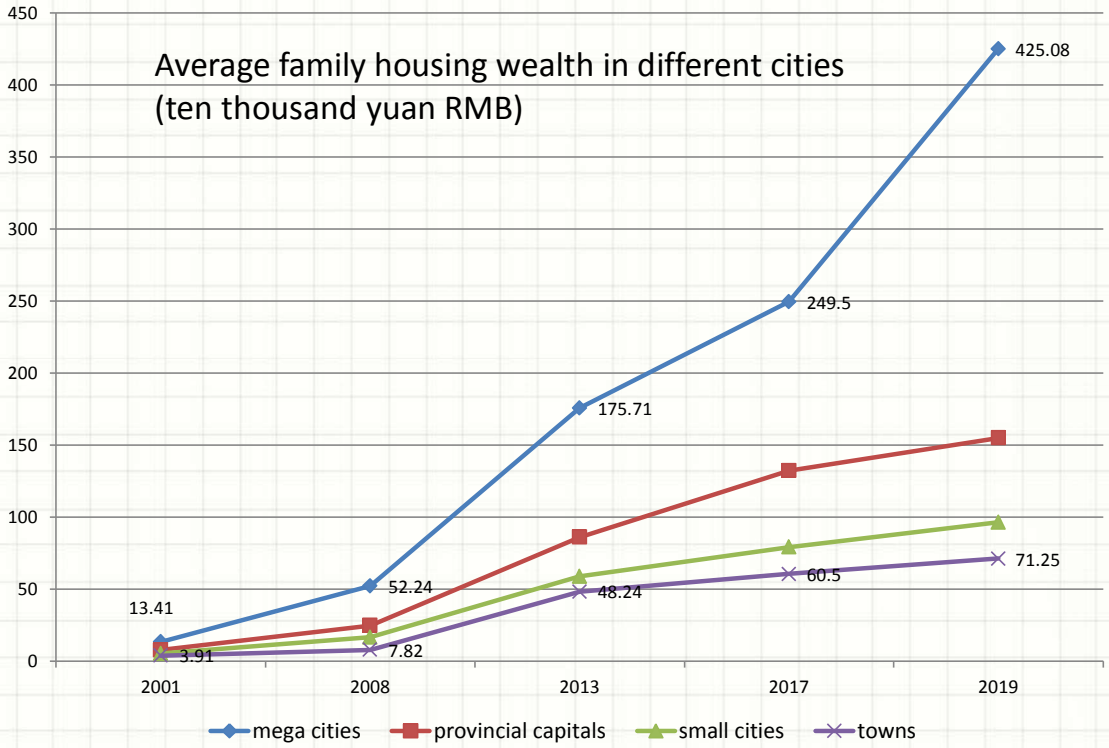
A shift from income inequality into housing wealth inequality as the major source of economic inequality



Changing mechanism of wealth distribution: from the state to market



Housing marketization surged housing price in mega cities as well as housing wealth of local residents there.



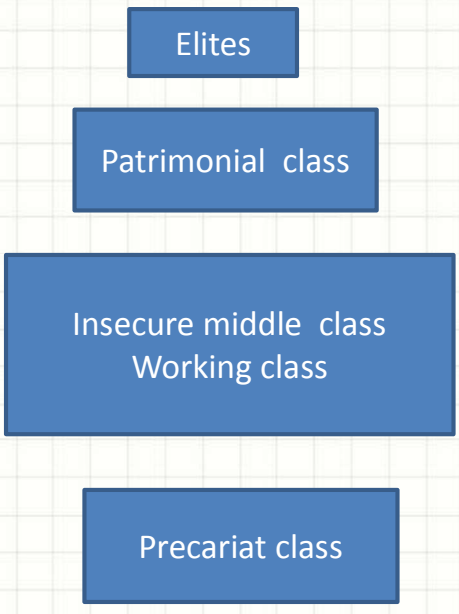
Wealthy class and occupational class

- Wealthization has created a wealthy class having lots of housing property (more than 5 million RMB)
- Members of wealthy class from different occupation-based classes
- 5% from elites； 65.2% from middle class； 29.8% from working class and peasants
- Wealthization leads to differentiation inside a class
- Middle class: wealthy middle class and regular middle class;
- Working class: wealthy working class and regular working class

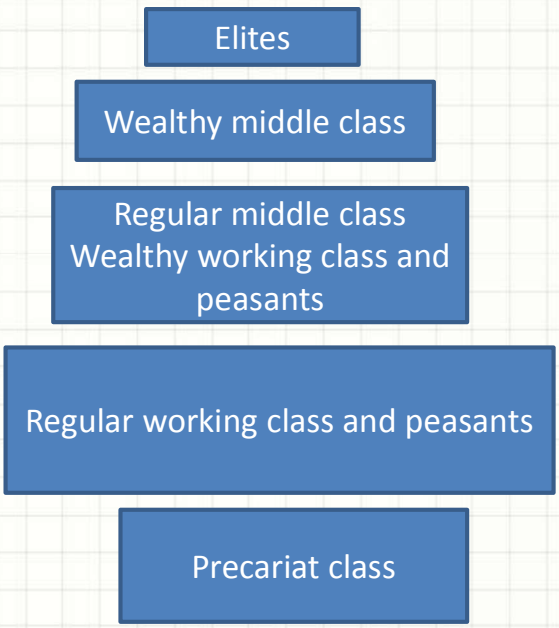
Emerging class system under the age of wealthization ?

European countrie

(Savage 2015； 2020； Rehbein el. Al 2015)



China



THANK YOU !

Research on multi-path dependence mechanism of national economic governance under the impact of global epidemic

Zhou Yaping and Wang Xiaolong

Abstract: Difference between the assumption of all economies with the same production function, in view of the global outbreak of how to promote national economic growth problem, based on the theory of economic governance, using the difference test and finite mixture model, based on world bank global 210 countries and economies in 1960-2018. Nearly 300000 data, build national economic governance path analysis framework, And explore the determinants and growth source difference. The empirical results show that rural development, education level, climate governance and government efficiency are the factors that promote economic growth in all economies, but there is also heterogeneity in the growth path of countries and economies in the world, which can be described by using the finite mixed model of epidemic group. At the same time, the development of health systems and infrastructure can help to understand the heterogeneous growth patterns of different countries and economies, and urbanization and the structure of the rich and poor also have some explanatory power. Through the classification and comparison of business cycles, the growth path of countries and economies around the world has a pattern transformation, which is manifested as the result of the comprehensive action of multiple macroeconomic indicators. Further, the decomposition results of economic growth in affected countries show that although capital factors still play a dominant role in different growth modes, population employment, human settlement environment, science and technology, financial market and transportation network are part of the reasons for the differentiation of different growth modes. In particular, the geographical location of the global economy, the economic cycle, the form of government and the degree of development interact with the global epidemic to form the optimal external economy.

Key words: global epidemic; National economic governance; Finite mixture model; Business cycle; Schema transformation

One, the introduction

Under the trend of global economic integration, the economic linkages among economies have increased significantly, and the sensitivity of public health events in a given country is determined by its influence on the world economy. Lack of an effective response to a public health event can ripple through the global economy. Since the beginning of 2020, 191 economies around the world have experienced a slowdown in economic growth due to COVID-19, and some affected countries face the risk of declining employment rates and "decentralization" of industrial chains. As of June 02, 2020, more than 6.4 million people have been diagnosed with COVID-19, and 377,700 people have died, with a mortality rate of 5.90%. The World Health Organization (WHO) expects the number of new cases of COVID-19 worldwide to continue to increase, as shown in Figure 1. Central and South America will be the most affected areas of COVID-19, and several economies that have lifted the lockdown will see small outbreaks. Whether the epidemic period and epidemic country will constitute an important factor affecting economic growth.

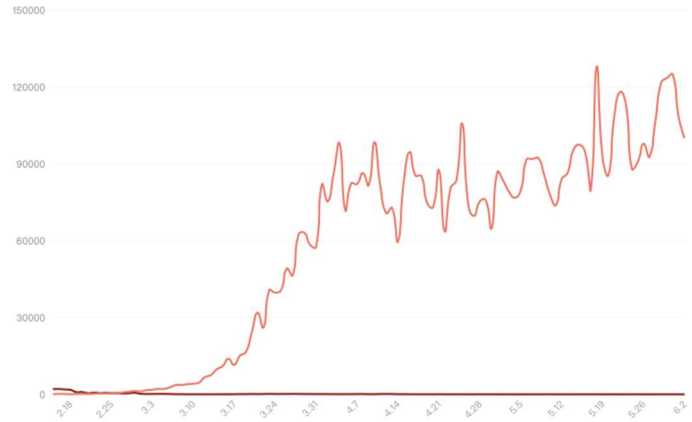


Figure 1 Trends of newly confirmed COVID-19 cases worldwide

At present, it is realistic and urgent to study the dependence path of national economic governance under the impact of global epidemic. During the epidemic period, are the economic governance paths of non-epidemic and epidemic countries consistent? Are there interactions between affected countries due to different economic cycles, political regimes, geographical locations, and levels of development? Specific to a particular disease instead, the country's economic governance path, health system, tax measures, rural development and urbanization, population, infrastructure construction, the balance of payments, employment, environment, climate governance structure, education level, rich and poor, government efficiency, science and technology, the financial market and the improvement of traffic network, etc, center of gravity? What are those? Furthermore, comparing the economic data of the affected countries during the period when the epidemic was under control with that during the period when the epidemic was out of control, which national governance approaches were responsible for the different results? The above issues will be the focus of the research on the sustainable development of national economy in the current period.

However, at present, economists generally use the same regression function (Liu Guanchun, Liu Yuanyuan, Zhang Jun, 2019) to evaluate the path of global epidemic on national economic growth, or take geographical location, specific industries (Xu Guangjian, Li Zhenyu, 2020) and specific groups (Bleakly, H. 2007) as the priori basis for sample division. Are the effects of global epidemic indicators and national governance paths on GNP growth heterogeneous? In the past for a long time in the empirical research has not reached a consensus. Foreign studies focused on "why different countries and economies have different economic development in an epidemic environment". Some literatures demonstrated the accumulation of human capital (Helpman,etc.,2004) and farmers' per capita income (Bailey, 1998), international trade and international investment (Alfani, et al.,2017) on the impact of national economic growth. Another part of the literature conducted empirical studies from non-capital factors. For example, ecological environment construction (Carson, R. T.2010), economic cycle (Gangemi,M,et al.,2000), medical system (Gallup, et al.,2001) and public affairs governance (Powell, et al.,2001). (2007). However, the growth models of different countries and economies deviate from each other, or even the development stages of countries are completely different, so the research results may be biased.

Domestic studies have been done, and although economists agree that the global pandemic has a significant impact on national economic growth, the conclusions are mixed.

Since Xu Ting and Wang Tao (2000) first constructed the mechanism framework of the action of integrated economic system, security control system and strategic resource system on national economic security, there are two main research branches, one is from global control (Fu Yu, Yang Yongcong, 2013) and public goods delivery capability (Tang Dapeng, Li Yi, Wang Lulu, 2015), Institutional Arrangement (He Jiankun, 2017), Industrial Upgrading and Digital Economy Development (He Chengying, Wen Yuechun, Chang Yali, 2020; Li Yun, Ding Linfeng, 2020) and others believe that the occurrence of the global epidemic has a long-term promoting effect on national economic growth. The other is based on the number of deaths (Zhang Wendou, Zu Zhenghu, Xu Qing, 2010), the reduction of the number of enterprises (Zhu Kunfu, Gao Xiang, Yang Cuihong, 2020) and the modern monetary theory (Zhang Yugui, Xu Yongyan, 2020) that the medium and long term impact is also negative. However, the micro data fails to list the impact degree of the epidemic worldwide, and the conclusion that the impact of the epidemic on the national economy is not of global universal value. In addition, the current domestic literatures on the heterogeneity of national economic growth patterns mostly use sample estimation and threshold regression techniques, which cannot avoid the subjectivity of transcendentalism and the bias of sample selection.

Then, in order to overcome the shortcomings of the traditional national economic growth regression model, this paper introduces the finite mixed model and difference test to avoid sample bias and endogeneity problems. Using the global 210 countries and economies in 1960-2018 large sample data, combined with the outbreak period, the epidemic countries, development degree, chau, economic cycle, form and outbreak if government controlled the virtual categories of variables to unity within the framework of analysis, finite mixture model with: determinants of economic growth in different growth paths the role of the different; The growth path of different economies is internally determined; In addition to the traditional economic growth path dependence, the interaction utility of continuous variables and class variables can also be considered. At the same time, the dual difference test model of epidemic period and epidemic country was established to overcome the problem of natural fixed effect of economic growth in epidemic and non-epidemic countries, and the path dependence of economic growth in epidemic and non-epidemic countries was compared and analyzed. Combined with class variables in the finite mixed model, the tripartite difference interaction term test was carried out to analyze the optimal external economy of different economies in the world under the impact of the epidemic.

Different from existing studies, the contribution margin of this study may include: firstly, at the model setting level, the stepwise regression and backward regression methods are used to classify national economic growth paths, and the optimal model is constructed by observing the change of F value and T value of each variable; Secondly, in terms of data selection, it avoids the subjective bias of previous studies in classifying the data according to specific geographical locations, specific industries, or capital factors, and combines the data of different samples of global economies from 1960 to 2018, overcoming the problem of selective bias of sample data. Furthermore, in terms of research methods, macroeconomic indicators are taken as the dependence path factors of national economic governance to investigate their influence on GNP, and the influence of double and triple interaction items on GNP is also investigated. Finally, in the empirical level, the integrated use of OLS regression and difference inspection method, system combing the outbreak period with the outbreak period, countries with the outbreak of

epidemic and developing countries and developed countries, different economic cycle and government forms and the influence of different geography factors, and puts forward the economy in all types of impact outbreak of optimal economic governance path selection. The above results provide theoretical support and practical guidance for the international community on how to promote national economic growth under the impact of COVID-19.

The rest of this paper is structured as follows: The second part is literature review and research hypothesis. The third part is data and empirical methods. The fourth part is the analysis of empirical results and robustness test. The fifth part summarizes the whole paper and puts forward some policy suggestions.

II. Literature review and research hypothesis

How to grow the national economy under the impact of global epidemic is an important research topic of contemporary economy. On the one hand, the world is facing the severe test of the impact of the global epidemic on the economy. As of December 2019, 12 types of large-scale epidemics have occurred in 18 natural years, involving more than 50 countries and economies, since the World Health Organization (WHO) began compiling global epidemic data in 1960, as shown in Table 1. Generally speaking, long-term and large-scale global epidemics have a negative impact on national economic growth by affecting supply and demand structure, export trade, investment confidence, etc. (He Chengying, Wen Yuechun, Chang Yali, 2020).

Table 1 Global epidemic list

The global outbreak	year	Outbreaks in countries
Marburg virus	1967、1970、2017	Germany, Zimbabwe, South Africa, Kenya, Congo and Uganda
Hendra virus	1994	Australia
Nipah virus	1997、1998、1999	Malaysia, Singapore, India
Valleys hot	2000、2018、2019	Congo, Crimea, Saudi Arabia, Yemen, Kenya, Gambia and Niger
SARS, severe acute respiratory syndrome (SARS)	2003	China
The swine flu H1N1	2009、2010	Mexico, United States
Middle East Respiratory Syndrome, MERS	2012、2015	Sudan, Saudi Arabia, Lebanon, Yemen, the United Arab Emirates, Afghanistan, Pakistan and South Korea
ebola	2013、2014、2016	Guinea, Liberia, Sierra Leone and Nigeria
Village card virus	2013、2014、2015、2016	Polynesia, Chile, Brazil and 22 countries in South America
Bird flu H7N9	2016	China
tularemia	2017	Malaysia, Laos, Tanzania and Nigeria
Hot in Lhasa	2018	Nigeria, Mali

Source: World Health Organization database

On the other hand, since the British economist Bailey(1998) studied the impact of the epidemic on the British economy with the Black Death as the independent variable and the per capita income of British farmers as the dependent variable, economists, sociologists and geographers all over the world have participated in the discussion on the impact of the epidemic on the economy. Some researchers argue that global epidemics have "positive externalities" that improve the efficiency of health systems and governments. But some scholars hold the opposite view, arguing that the global epidemic will be detrimental to economic growth in the medium and long term. As can be seen from the world economic growth trend chart in Figure 2, although there were as many as 18 epidemic years, the world economy as a whole only experienced four downturns: Nipah virus epidemic in 1997, Valley Fever epidemic in 2001, and swine flu H1N1 epidemic in 2009. And the 2015 Middle East Respiratory Syndrome combined with Zika. Therefore, there are two theoretical focuses in academic circles. First, at the macro level, the world economy maintained overall growth during 1960-2018, and the positive effect of the global epidemic may be greater than the negative impact. Second, at the micro level, specific to the four economic downturn years, it may be that some path of countries and economies in response to the epidemic determines the effect of economic growth.

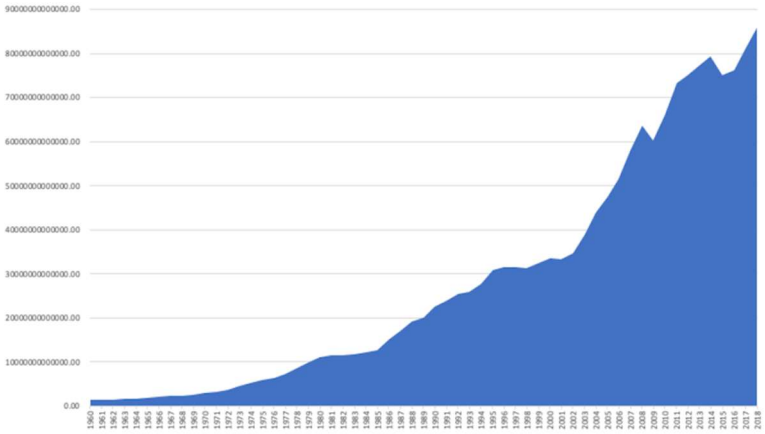


Figure 2 Trends in world economic growth

For the first category, at the macro level, the focus is on the dual effects of "positive externalities" and "long-term negative effects" of the global epidemic. Is this consistent with the role of promoting national economic growth? Bailey (1998), the first scholar who supported the epidemic to promote national economic growth, believed that the labor supply decreased significantly, but the resulting increase in salary increased the per capita income and led to national economic growth. Subsequently, Gangemi, et al., (2000) supplemented the role of the business cycle theory on national economic growth in the context of the global epidemic. Based on the economic growth risk data from 1992 to 2002, the response function was established and it was believed that the high economic volatility in the context of the epidemic brought the risk reward of economic growth level. Gallup, et al., (2001) took infectious diseases as the independent variable and medical mechanism as the mediating variable, observed the economic impact of multiple countries, and pointed out that improving medical mechanism to reduce the epidemic infection rate and form a healthier society would be beneficial to national medium and long term economic growth. Bleakly, H. (2007) observed from the micro level of students' family income that the hookworm epidemic greatly increased the educational welfare subsidies received by students, which was similar to the subsidy measures for workers' insurance under

the COVID-19 in China. In the same year, Powell, et al., (2007) and Tang Dapeng, Li Yi, and Wang Lulu (2015) argued that in terms of public affairs governance, development planning should be an efficient institutional arrangement, which should be based on improving the governance capacity of public affairs. From the perspective of management, Fu Yu and Yang Yongcong (2013) used the IMF database in 2011 to make a comparative analysis of the change degree of organizational flattening structure, and believed that the epidemic promoted the change of global control of agency organizations. Based on the GDP data from 2005 to 2013, He Jiankun (2017) believed that the epidemic reduced carbon emissions and led the transformation of economic development mode to low-carbon and green direction. Xu Guangjian and Li Zhenyu (2020), from the perspective of industry substitution, believe that masks and non-contact science and technology industries have become positive substitutes for economic growth under the epidemic situation. Cheng-ying he WenYueChun, Chang Yali (2020), Luo Zhiheng (2020) and Li Yun Ding Linfeng (2020), respectively, from the reform of industrial upgrading, supply side and the digital economy point of view, think through the industrial upgrading, alternative and enhance economic growth, financial liberalization of foreign trade in the form of digital economy as the core of the virtual economy for the national economic development.

The literature on the negative impact of global epidemic on national economy started from Hu Angang (2003), who believed that SARS caused economic losses in the short term, but had limited long-term impact. This conclusion was not based on empirical evidence. Samuelson, P. A. (2004) studied the interaction between Sino-US trade frictions and the SARS epidemic based on the data of the World Bank from 2000 to 2003, and believed that the "de-centralization of supply chains in the United States and Europe" would be detrimental to China's economic growth in the long run. Zhang Wendou, Zu Zhenghu, and Xu Qing (2010), based on the statistical data from 1997 to 2003, observed the long-term negative impact of the epidemic on the transportation and telecommunications industries according to the grey system theory. Alfani, et al., (2017), based on the data of WTO and from the perspective of international trade and investment, believed that the epidemic caused inflation and increased the possibility of global economic recession. Kun-fu zhu, gaoxiang, cui-hong Yang (2020), Shen Guobing (2020) and ZhangYuGui Xu Yongyan (2020), respectively, from the decrease in the number of enterprises, export and employment rate reduction, as well as the modern monetary theory Angle, out of that impact the global outbreak accelerate industry chain, curb exports and employment as well as the policy of "zero + unlimited QE" short-term stable market portfolio, But there are medium - to long-term risks.

There are two defects in the first category of the review. First of all, most of the above viewpoints belong to qualitative research except for quantitative analysis of data by a few scholars, and they lack the logic of data-driven theoretical development. Secondly, the epidemic is not good for the economy in the short term, but there is a shortage of follow-up studies on the medium and long-term benefits. Traditional literature only takes one epidemic as the independent variable, and does not examine the impact of the epidemic on the national economy from the long-term and multi-path indicators, and the conclusion may not be universal.

As for the second type of debate at the micro level, which path countries and economies take in response to the epidemic determines the effectiveness of economic growth? In other

words, under the global epidemic environment, do the multi-path indicators of national economic governance have the problem of heterogeneity in promoting national economic development? About the heterogeneity of the empirical literature basically has the following categories: first, xu, wang tao based on (2000) 1978-1995, the world bank data, using the method of coordination evaluation, for the first time, build comprehensive economic system, security control system and the strategic resources of the country's economic security mechanism, index system of the method is rich, clear role relationship. However, with the evolution of time, some indicators need to be updated, and there was no empirical data test at that time, which also had some shortcomings. Secondly, Helpman,et al. (2004), based on the data of the World Bank, established the production function and established the model of FDI as the independent variable, human capital as the control variable and GDP as the explained variable, and made an empirical analysis of the U-shaped relationship between FDI and the economic growth of the host country during the SARS epidemic. The perspective of using backward regression to construct multiple quadratic complete regression model provides a method for the study of heterogeneity. However, due to the bias of data selection, there is still no sufficient basis for explaining the path selection of global epidemic on global economic governance. Finally, Carson, R. T. (2010) took environmental governance input cost as independent variable and GDP as dependent variable, and found that there was an inverted U-shaped relationship between ecological governance input and national economic growth in the epidemic environment. The value of this empirical method lies in the difference between the first two kinds of economic risk factors and human capital factors, and introduces the influence of non-capital factors on economic growth. This provides a new perspective for describing the transformation of economic growth patterns in different economies.

To sum up, the impact of the global epidemic on the economy in the medium and long term is seen in some literatures as a positive effect, while some literatures consider it as a inhibiting effect. However, it is a common view that the economic growth of the affected countries is negatively affected during the epidemic period. Moreover, the prevailing view supports the heterogeneity of economic growth in different affected countries. Due to limited space, this paper does not report relevant literature on control variables. Therefore, this paper proposes the following hypotheses:

Hypothesis 1: A global epidemic depresses national economic growth.

Hypothesis 2: The economic growth path selection of epidemic countries is heterogeneous.

3. Data and empirical methods

The data used in this paper are from the World Bank macro data of 210 countries and economies in the world from 1960 to 2018. In order to avoid data selectivity bias, the data set in this paper includes continuous variables such as year, GNP, infrastructure, balance of payments, population employment, human settlement environment, wealth gap, education level, climate governance, policy efficiency, science and technology, financial market and transportation network. It also includes virtual binary variables such as development level, continent, economic cycle, regime form and epidemic control. In short, the national economic governance data used in this paper have certain representativeness and credibility. The specific variable index definitions are shown in Table 2.

Table 2 Variable index definitions

Type	name	encoding	definition

The dependent variable	Gross national product	*GDP*	Gross National Product of World Countries and Economies, 1960-2018
The independent variables	The outbreak period	*Epidperi*	Whether 1960-2018 was the year of the outbreak
	The outbreak of countries	*Epidcoun*	Whether 1960-2018 was the country in which the outbreak occurred
	The health system	*Heal*	Number of hospital beds per thousand people in each country and economy from 1960 to 2018
	The tax system	*Tax*	Proportion of tax revenue in each country and economy from 1960 to 2018
	Rural development	*Rura*	Proportion of cultivated land in each country and economy from 1960 to 2018
	Urban development	*City*	Proportion of Urbanized Population in Countries and Economies from 1960 to 2018
	infrastructure	*Infr*	100-person rate of mobile phones in countries and economies from 1960 to 2018
	The balance of payments	*Paym*	Amount of foreign direct investment by countries and economies during 1960-2018
	The population employment	*Empl*	Employment rate of persons aged 15 and above in countries and economies from 1960 to 2018
Control variables	Living environment	*Live*	Net migration by countries and economies from 1960 to 2018
	Rich and poor structure	*Rich*	Gini Index for countries and economies, 1960-2018
	Education level	*Educ*	Enrolment Rate of Institutions of Higher Learning in Countries and Economies, 1960-2018
	Climate governance	*Clim*	Carbon dioxide emissions by countries and economies from 1960 to 2018
	Government efficiency	*Gove*	Efficiency of government aid in countries and economies, 1960-2018
	Science and technology	*Tech*	Domestic patent applications by countries and economies from 1960 to 2018
	The financial markets	*Fina*	Real interest rates of countries and economies from 1960 to 2018
	Traffic network	*Traf*	Logistics Performance Index of Countries and Economies, 1960-2018
	Development degree	*Deve*	Whether the countries and economies in 1960-2018 are developed countries
	Continent	*Cont*	Which continent are the countries and economies from 1960 to 2018

	The economic cycle	*Time*	Between 1960 and 2018, there was an economic cycle every 20 years
	Form of government	*Rige*	The form of government of countries and economies from 1960 to 2018

Source: World Bank database

As of December 2018, the data of the epidemic group compared with the non-epidemic group are shown in Table 3:1.295% fewer hospital beds per thousand people; Lower tax rate of 3.685%; The proportion of cultivated land was 4.578% less; The proportion of urban population was 3.754% lower; The rate of infrastructure construction was 9.168% less; International payments increased by $4.288 billion; Per capita carbon emissions were reduced by 0.997 tons; $102 million more in government aid loans; The number of resident patent rights increased by 66,300; Real bank interest rates are 0.301% lower; And transportation network index low 0.092. By directly comparing the data of the epidemic group and the non-epidemic group, it was found that the epidemic countries were inferior to the non-epidemic group in terms of health system, proportion of cultivated land, urbanization, infrastructure construction, transportation network, development level, damping coefficient, education level and so on.

Table 3 Data comparison between the epidemic group and the non-epidemic group

variable	The outbreak group	The outbreak of group	variable	The outbreak group	The outbreak of group
Heal（%）	2.632	3.927	Clim（吨）	3.661	4.658
Tax（%）	12.896	16.581	Gove（B）	0.583	0.481
Rura（%）	10.222	14.800	Tech（万）	0.941	0.278
City（%）	48.683	52.437	Fina（%）	7.346	7.647
Infr（%）	22.480	31.648	Traf	0.241	0.333
Paym（B）	7.644	3.356	Deve	0.148	0.232
Empl（%）	57.022	53.967	Rich	43.281	39.140
Live（ten thousand）	7.091	-5.333	Educ	15.854	20.890

In order to improve the accuracy of the data, the sample data are processed as follows: firstly, the difference degree of the data range among the variables is reduced, which is embodied in the logarithm processing of the dependent variable GDP, as shown in formula (1):

$$y^* = Ln(GDP) \quad (1)$$

Secondly, the values of independent variables and control variables are coded, as shown in formula (2):

$$\mu_i = \frac{T-\bar{x}}{s} \quad (2)$$

Finally, the descriptive statistics of related variables are shown in Table 3. The peak value of variable data is generally greater than 0, which indicates that the overall data distribution is steep and sharp compared with the normal distribution. The skewness of variable data is generally between 0.228 and 4.633, which indicates that the degree of deviation between data distribution and normal distribution is not large.

Table 4 descriptive statistics of variables

Variable	Obs	Mean	Median	Std.dev	Kurt	Skew	Mini	Maxi
Heal	9853	3.623	2.60	3.276	4.195	1.820	0.1	21.678

Tax	9853	15.715	14.532	7.859	37.477	3.247	0.0001	149.283
Rura	9853	13.723	9.936	13.344	1.860	1.404	0.001	73.388
City	9853	51.558	50.633	25.168	-1.005	0.090	2.077	100
Infr	9853	29.494	0.620	46.843	1.817	1.560	0.0001	345.324
Paym	9853	4.365	0.90	23.416	216.043	11.996	-239.337	733.826
Empl	9853	54.686	54.627	13.274	0.263	0.228	7.349	98.379
Live	9853	-2.409	-0.97	77.632	79.448	0.855	-995.068	1621.452
Rich	9853	40.114	38.7	8.493	0.304	0.695	20.2	65.8
Educ	9853	19.707	11.622	21.776	1.834	1.529	0.013	136.602
Clim	9853	4.424	1.819	6.911	26.447	4.163	-0.02	87.686
Gove	9853	0.505	0.125	1.262	193.167	10.823	-9.899	33.835
Tech	9853	4344.25	42	37237.2	539.803	19.489	1	1393815
Fina	9853	7.597	5.66	44.681	274.256	15.854	-97.615	789.798
Traf	9853	3116.62	3289	3784.83	40.490	4.633	5.757	54799.1
Deve	9853	0.212	0	0.409	-0.025	1.405	0	1
GDP	9853	173.372	7.596	891.275	206.628	12.758	0.088	20544.343

Note: arranged by the author

In order to overcome the endogeneity problem, this paper uses the finite mixture model and the difference test method to construct the optimal fitting model:

First of all, for the first kind of endogeneity, that is, explanatory variables and explained variables are causal. In theory, although national economic growth will affect the probability of epidemic through changing the health situation, improving national quality and increasing infrastructure and other measures, the increase of GDP does not take epidemic prevention and control as the ultimate goal, but is reflected in the improvement of per capita income of residents. Therefore, there is no endogenous problem of the first kind. Secondly, for the second kind of endogeneity, that is, whether variables are omitted. According to the theory of national economic governance, the result of national economic growth is also affected by the level of economic development, economic structure, economic operation mechanism, national policy orientation and tax policy. In this paper, GDP, infrastructure, balance of payments, population employment, living environment, the gap between the rich and the poor, education level, climate governance, policy efficiency, science and technology, financial market and transportation network and other national macro indicators are used as control variables to describe the growth path of different countries and economies, and the optimal model is drawn up by using the stepwise regression method. Firstly, based on the principle of "thrifty model", this paper uses the one variable linear model as the basic regression equation, and the formulas are shown in (3) and (4)

$$Ln(GDP) = E(y) + \varepsilon \quad (3)$$

$$E(y) = \beta_0 + \beta_1 Epid \quad (4)$$

Due to space limitation, this paper does not report the step of stepwise regression. The output result is that in the final regression model, including GDP, infrastructure, balance of payments, population employment, human settlements, gap between the rich and the poor,

education level, climate governance, policy efficiency, science and technology, financial market and transportation network, the basic regression process is as follows:

$$E(y) = \beta_0 + \beta_1 Epidperi_{it} + \beta_2 Epidcoun_{it} + \varepsilon_{it} \quad (5)$$

Among them, both（$\beta_0 + \varepsilon_{it}$）describes the multi-path relationship of economy (i) in the period (t).

Different from the traditional growth model, the finite mixed model relaxes the basic assumption that all economies follow the same growth path, takes the heterogeneity of different economies into account, integrates continuous numerical variables and category dummy variables into a unified framework, and the number of growth paths is determined by endogenous factors. In this paper, the degree of development of category variables and the form of government are endogenous factors, and the economic cycle, geographical location and epidemic control are exogenous factors. So the expression of finite mixed model can be written as:

$$\begin{cases} Group1:\ y = x\beta_1 + \varepsilon_1 \varepsilon_1 \sim N(0, \sigma_1^2) \\ Group2:\ y = x\beta_2 + \varepsilon_2 \varepsilon_2 \sim N(0, \sigma_2^2) \\ Group3:\ y = x\beta_3 + \varepsilon_3 \varepsilon_3 \sim N(0, \sigma_3^2) \\ Group4:\ y = x\beta_4 + \varepsilon_4 \varepsilon_4 \sim N(0, \sigma_4^2) \\ Group5:\ y = x\beta_5 + \varepsilon_5 \varepsilon_5 \sim N(0, \sigma_5^2) \end{cases} \quad (6)$$

Where, (y) represents the explained variable, (x) is the explanatory variable matrix, and the coefficient matrix to be estimated is（$\beta_j (j = 1,2,3,4,5)$）,（ε_j）They represent independent identically distributed zero mean normal distribution. In different groups（β_J）The statistical level of 10% should be significantly unequal to describe the differential role of explanatory variable (x) in different groups. Otherwise, the model (6) will degenerate into a single equation model (5).

In the model (6), the classification principle of different economies depends on the combination of endogenous factors and exogenous given factors. In addition to the case of category variables, in order to avoid missing variable indicators, macroeconomic indicators are added as control variables, which are expressed in this paper and (z). It should be noted that there are significant differences between the functions of independent variables and control variables. Independent variables help to explain the differences in national economic growth of different economies within the same group, while control variables help to explain the differences in economic growth between different groups. Given the economy (i), the finite mixture model is rewritten as follows:

$$f(y|x, Z, \Theta) = \sum_{k=1}^{k} \pi_k (Z, \alpha_k) f_k (y|x, \beta_k, \sigma_k) \quad (7)$$

Where, (k) is the number of groups, (z) is the control variable matrix, and the corresponding matrix coefficient to be estimated is（α_k）,（$\pi_k(Z, \alpha_k)$）denotes the probability that an economy (i) belongs to a group（β_k）The matrix to be estimated representing the independent variable matrix (x) in the group. Furthermore, the Pearson correlation coefficients of the variables in the main effect regression equation (7) were tested. The results show that the correlation coefficient of the main variables is less than 0.3, which proves that there is no obvious multicollinearity problem between the variables and can be used for regression analysis.

Table 5 Pearson coefficient of variables

	Hea l	Tax	Rur a	Cit y	Inf r	Pay m	Emp l	Liv e	Ric h	Edu c	Cli m	Gov e	Tec h	Fin a	Tra f
Hea	1														

1															
Tax	0.22*	1													
Rura	0.09*	0.08*	1												
City	0.33	0.10*	-0.05*	1											
Infr	0.00*	0.10*	0.02*	0.32	1										
Paym	0.03*	0.00*	0.06*	0.15*	0.23*	1									
Empl	-0.06*	-0.12*	0.07*	-0.12*	0.07*	0.04*	1								
Live	0.10*	0.01*	-0.10*	0.16*	0.07*	0.22*	-0.00*	1							
Rich	-0.34*	-0.05*	-0.30*	-0.25*	-0.15*	-0.07*	0.03*	-0.00*	1						
Educ	0.32	0.16*	0.12*	0.36	0.36	0.29*	-0.00*	0.16*	-0.32*	1					
Clim	0.28*	-0.01*	-0.05*	0.31	0.17*	0.13*	0.00*	0.19*	-0.23*	0.29*	1				
Gove	0.01*	-0.04*	0.07*	0.03*	0.06*	0.06*	-0.07*	0.00*	-0.08*	0.06*	-0.00*	1			
Tech	0.16*	-0.05*	0.01*	0.09*	0.06*	0.39	0.05*	0.10*	-0.05*	0.17*	0.09*	0.04*	1		
Fina	-0.02*	-0.03*	-0.02*	-0.00*	-0.02*	-0.01*	0.03*	-0.00*	0.02*	-0.02*	-0.03*	-0.01*	-0.01*	1	
Traf	0.28*	0.12*	-0.08*	0.40	0.27*	0.18*	0.13*	0.19*	-0.30*	0.34	0.39	0.01*	0.11*	-0.04*	1

Note: the coefficient 0.3 and below indicate that if there is a correlation, it is indicated by *

Combined with the existing literature, we can learn from Liu Guanchun, Liu Yuanyuan and Zhang Jun's (2019) population employment theory. Based on the five control variables of balance of payments, financial market, government efficiency and transportation network, this paper adds 10 analysis indicators of health system, tax system, rural development, urban

development, infrastructure, living environment, rich and poor structure, education level, Climate Governance and science and technology to further enrich the existing analysis framework of economic governance. It is worth noting that the analysis model constructed in this paper not only relaxes the assumption that different economies follow the same growth path, but also allows the growth path of the same economy to change over time, which further enriches the research methods.

4、 Empirical results analysis and robustness test

The basic idea of the empirical research is: firstly, based on the double difference test of epidemic period and epidemic country, we investigate the impact of global epidemic on economic growth of countries proposed in hypothesis 1, and empirically measure the economic growth differences between non epidemic period, epidemic country and non epidemic country, and the economic growth differences between epidemic period and epidemic country and non epidemic country, The influence and significance of each control variable are pointed out. Secondly, by using the group data of the finite mixture model, this paper conducts a triple difference test to examine the heterogeneity of economic growth path selection in epidemic countries proposed by hypothesis 2, and points out the optimal external economy of different group economies under the global epidemic impact environment. Finally, the whole sample robustness test is carried out to test the robustness of the influence of independent variables and control variables on national economic growth by means of zero residual expectation, normal distribution, independence and constant assumption, and F value.

（1） Epidemic period and epidemic country

Did double difference method is used to group the data. Under the control of national fixed effect and annual fixed effect, the impact of control variables on national economic growth was investigated with the occurrence of global epidemic as a quasi natural experiment. The double difference model is constructed as shown in Table 6.

Table 6 dual difference model

	Non epidemic countries	Epidemic countries	Difference
Non epidemic period	α_1	α_2	$d_1 = \alpha_2 - \alpha_1$
Epidemic period	β_1	β_2	$d_2 = \beta_2 - \beta_1$
Difference	$d_3 = \beta_1 - \alpha_1$	$d_4 = \beta_2 - \alpha_2$	$did_1 = d_2 - d_1$

Note: arranged by the author

The double difference equations are as follows:

$$y_\alpha = \beta\ Epidperi\_Epidcoun_{it} + CV_\alpha\ \gamma + \alpha_e + \varphi_t + \varepsilon_\alpha \quad (8)$$

$$Epidperi\_Epidcoun_{it} = Epidperi_{it} \times Epidcoun_{it} \quad (9)$$

Equation (8) is a double difference estimation model considering the fixed effects of year and country, where（y_α） Is the value of national economic growth,（$\beta\ Epidperi\_Epidcoun_{it}$） is the interaction term between the global epidemic period binary numerical variable and the global epidemic country binary numerical variable（CV_α） It is the control variable index of this paper（α_e） For national fixed effect（φ_t） Is the annual fixed effect（ε_α） Represents the random error term. Equation (9) represents the interaction item model（$Epidperi_{it}$）is the dummy variable of the global epidemic event handling group, (1) indicates the epidemic period, (0) indicates the non epidemic period Epidcoun（$Epidcoun_{it}$） is the dummy variable of

treatment group in epidemic country, (1) is epidemic country, (0) is non epidemic country. Double difference focuses on the coefficients of core dependent variables（ β） Its economic meaning can be explained as the impact of the global epidemic on national economic growth.

The basic regression results are shown in Table 7. The interaction between epidemic period and epidemic country is negative, which inhibits national economic growth. Specific control variables: the number of beds per thousand increased by 8.32%; The tax burden rate decreased by 1.19%; Rural development decreased by 0.59%; Urban development increased by 0.40%; 59% in infrastructure construction; The employment rate decreased by 1.19%; The Gini coefficient of wealth structure increased by 2.12%; Carbon emissions increased by 1.10%; The real interest rate decreased by 0.39%; And the performance index of transportation and logistics decreased by 0.11%. Therefore, the impact of the global epidemic has a significant inhibitory effect on national economic growth in the current period.

Table 7 double difference test of epidemic period and epidemic country

因变量	Ln(GDP)						
	α_1	α_2	β_1	β_2	d_1	d_2	did_1
Heal	-0.036（-3.96***）	-0.070（-3.420***）	-0.114（-9.243***）	-0.068（-2.422***）	-0.034	0.046	0.080
Tax	-0.024（-7.191***）	-0.009（-1.052）	-0.016（-4.314***）	-0.013（-1.215）	0.015	0.003	-0.012
Rura	0.034（15.608***）	0.058（15.568***）	0.030（12.192***）	0.048（11.612***）	0.024	0.018	-0.006
City	0.026（16.696***）	0.023（10.328***）	0.017（9.545***）	0.018（6.432***）	-0.003	0.001	0.004
Infr	0.002（2.401***）	0.009（5.093***）	0.004（6.620***）	0.005（4.740***）	0.007	0.001	-0.006
Paym	0.0001（6.558***）	0.0001（4.403***）	0.0001（10.960***）	0.0001（9.673***）	0.000	0.000	0.000
Empl	0.005（2.483***）	0.015（4.980***）	0.007（2.915***）	0.005（1.346）	0.010	-0.002	-0.012
Live	0.0001（4.150***）	-0.0001（-2.170***）	0.0001（4.009***）	-0.0001（-4.384***）	-0.002	-0.002	0.000
Rich	-0.012（-3.360***）	-0.007（1.393）	-0.016（-3.510***）	0.010（1.616*）	0.005	0.026	0.021
Educ	0.044（21.287***	0.049（12.689***	0.035（19.520***	0.040（12.084***	0.005	0.005	0.000

	)	)	)	)			
Clim	0.013 (2.984***)	0.126 (12.158***)	0.030 (5.664***)	0.154 (11.320***)	0.113	0.124	0.011
Gove	0.0001 (18.326)	0.0001 (11.692***)	0.0001 (16.283***)	0.0001 (10.212***)	0.000	0.000	0.000
Tech	0.0001 (12.174***)	0.0001 (1.898**)	0.0001 (12.698***)	0.0001 (2.064**)	0.000	0.000	0.000
Fina	-0.001 (-2.44***)	0.005 (2.949***)	-0.001 (-1.709*)	0.001 (0.677)	0.006	0.002	-0.004
Traf	-0.0001 (-2.948***)	-0.0002 (-9.850)	-0.0001 (-3.189***)	-0.0001 (-6.226***)	-0.0001	0.000	0.0001
Constant	20.311 (90.908***)	20.353 (64.392***)	21.165 (77.962***)	20.545 (51.838***)	0.042	-0.62	-0.662
Standard error	1.759	1.416	1.710	1.354	1.766	1.766	1.766
R^2	0.4938	0.6677	0.5125	0.7243	0.5158	0.5158	0.5158
Adjusted R^2	0.4921	0.6642	0.5101	0.7194	0.5150	0.5150	0.5150
F-value	287.104***	191.868***	216.512***	149.596***	698.565	698.565	698.565
Obs	4429	1448	3105	870	9852	9852	9852

remarks: *p<0.1, **p<0.05, ***p<0.001.

Data: World Bank Database

(2) Epidemic period, epidemic country and economic cycle

Combined with the trend analysis in Figure 2, the world economic growth shows three obvious cycles: the economic growth rate was low in 1960-1979, accelerated in 1980-1999, and further improved after 2000. Table 8 shows the regression results of the triple interaction of epidemic period, epidemic country and economic cycle.

Table 8 triple difference test of epidemic period epidemic country economic cycle

dependent variable	Ln(GDP)		
	1960-1979	1980-1999	2000-2018
Heal	0.034	-0.202	0.030
	(0.51)	(-3.527***)	(0.846)
Tax	-0.036	0.009	-0.014
	(-1.266)	(0.436)	(-1.20)
Rura	0.037	0.042	0.039
	(2.903***)	(4.40***)	(8.778***)

City	0.027	0.031	0.010
	(3.616***)	(4.818***)	(3.150***)
Infr	-4.285	0.006	0.004
	(-3.612***)	(0.389)	(3.636***)
Paym	0.0001	0.0001	0.0001
	(3.548***)	(1.691*)	(10.922***)
Empl	0.020	0.003	-0.0006
	(2.296**)	(0.415)	(-0.145)
Live	-0.0001	-0.0001	-0.0001
	(-2.197***)	(-2.736***)	(-5.204***)
Rich	-0.024	0.026	0.028
	(-1.402)	(2.010**)	(3.753***)
Educ	0.020	0.019	0.034
	(0.838)	(1.876**)	(9.932***)
Clim	0.059	0.217	0.281
	(2.752***)	(6.049***)	(14.107***)
Gove	0.0001	0.0001	0.0001
	(4.048***)	(6.760***)	(9.658***)
Tech	0.0001	0.0001	0.0001
	(2.142**)	(3.364***)	(1.377)
Fina	-0.008	0.008	-0.003
	(-1.086)	(1.619*)	(-1.251)
Traf	-0.0004	-0.0002	-0.0003
	(-4.446***)	(-3.584***)	(-8.665***)
Constant	21.457	19.475	20.784
	(22.185***)	(22.669***)	(48.628***)
Standard error	1.296	1.148	1.167
R^2	0.6993	0.7920	0.7778
Adjusted R^2	0.6651	0.7715	0.7716
F-value	20.466***	38.592***	125.554***
Obs	148	168	554

remarks: *p<0.1, **p<0.05, ***p<0.001.

Data: World Bank Database

Figure 3 shows that rural development, urban development, balance of payments, education level, climate governance, government efficiency and science and technology variables in the epidemic period and epidemic countries have a significant role in promoting national economic growth in the whole cycle. Infrastructure construction, human settlements and logistics performance index have a significant inhibitory effect on national economic growth in the whole cycle. The health system, tax system, the structure of the rich and the poor and the financial market have the heterogeneity of business cycle. Specifically, with the passage of time, the impact of urbanization and population employment rate on the national economy is decreasing, while the impact of rural development, infrastructure, balance of payments, education level, climate governance, government efficiency and science and technology on the

national economic growth is strengthening.

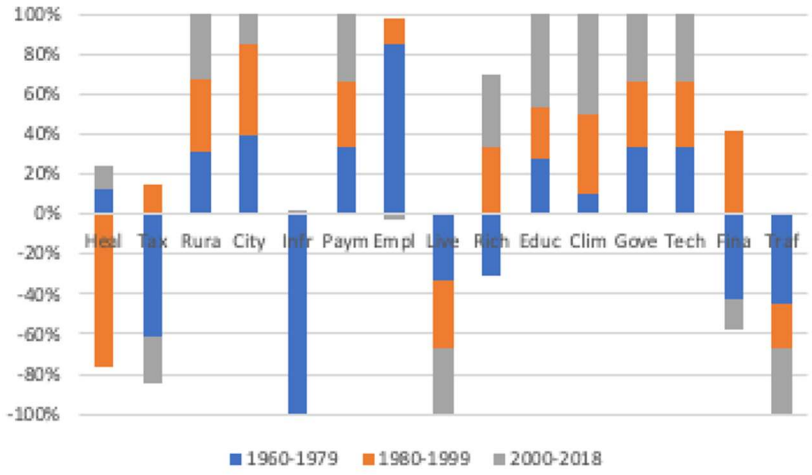


Figure 3 trend of business cycle effect

（3） Epidemic period, epidemic country and continent

Furthermore, we test whether there are significant differences in the degree of influence of each control variable on the economies of different geographical locations? The results are shown in Table 7: health system, tax system, rural development, urban development, balance of payments, population employment, living environment, structure of the rich and the poor, education level, climate governance, government efficiency, financial market and transportation network have a significant impact on the national economy; Oceania has a significant relationship with economic growth in terms of urban development, balance of payments, government efficiency and logistics performance; Rural development, infrastructure construction, balance of payments, education level, Climate Governance and government efficiency have positive effects on economic growth in Africa; Europe promotes economic growth by reducing taxes, rural development, de urbanization, employment, education, reducing carbon emissions, government efficiency, increasing real interest rates and reducing transportation network; In Asia, reducing tax rates, increasing the proportion of arable land, improving the level of urbanization, increasing infrastructure, increasing international income, increasing employment rate, improving education level, reducing market interest rates and reducing logistics index can promote economic growth.

Table 9 triple difference test of epidemic period, epidemic country and continent

dependent variable	Ln(GDP)				
	America	Oceania	Africa	Europe	Asia
Heal	-0.256	0.012	0.061	-1.133	-0.242
	(-5.533***)	(0.191)	(1.206)	(-5.34***)	(-3.507***)
Tax	-0.096	-0.011	-0.007	-0.026	-0.142
	(-5.525***)	(-0.177)	(-0.387)	(-0.327)	(-5.978***)
Rura	0.105	-0.141	0.025	0.578	0.043
	(6.872***)	(-0.595)	(4.815***)	(3.663***)	(7.008***)
City	0.051	0.460	-0.027	-0.625	0.031

	(10.342***)	(2.798**)	(-5.137***)	(-4.68***)	(6.382***)
Infr	0.001	0.007	0.010	-0.002	0.012
	(0.590)	(1.167)	(5.878***)	(-0.856)	(5.821***)
Paym	0.0001	0.0001	0.0001	-0.0001	0.0001
	(2.373***)	(2.272**)	(3.556***)	(-0.475)	(6.068***)
Empl	0.034	-0.032	-0.0009	0.116	0.011
	(3.425***)	(-1.466)	(-0.230)	(3.541***)	(1.618*)
Live	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
	(-8.011***)	(-0.779)	(-3.765***)	(-0.736)	(-2.331**)
Rich	0.070	0.135	0.0001	-0.075	0.083
	(6.106***)	(0.675)	(0.010)	(-1.228)	(4.720***)
Educ	0.024	0.001	0.065	0.009	0.013
	(4.843***)	(0.093)	(3.774***)	(2.174*)	(2.200**)
Clim	0.264	0.137	0.594	-0.189	0.018
	(6.344***)	(1.227)	(8.121***)	(-1.97*)	(1.234)
Gove	0.0001	0.0001	0.0001	0.0001	0.0001
	(5.990***)	(6.553***)	(8.198***)	(6.552***)	(1.258)
Tech	-0.0001	-0.0001	-0.001	-0.0001	0.0001
	(-0.513)	(-0.475)	(-5.508***)	(2.179*)	(0.161)
Fina	0.017	0.038	-0.002	0.0001	-0.018
	(4.725***)	(0.478)	(-1.110)	(6.553***)	(-1.889*)
Traf	0.0001	0.0001	-0.0003	0.0006	-0.0002
	(2.463***)	(2.543***)	(-8.448***)	(9.334***)	(-4.284***)
Constant	14.202	-17.55	22.446	60.390	20.597
	(15.164***)	(-1.154)	(42.826***)	(5.093***)	(28.067***)
Standard error	0.880	0.112	0.934	0.052	1.040
R^2	0.9031	0.9972	0.7497	0.9986	0.7871
Adjusted R^2	0.8975	0.8240	0.7375	0.7950	0.7719
F-value	162.842***	154.257***	61.511***	272.876***	52.005***
Obs	278	21	324	20	227

remarks: *p<0.1, **p<0.05, ***p<0.001.

Data: World Bank Database

Figure 4 shows that the health system, rural development, urbanization, population employment, the structure of the rich and the poor and Climate Governance of the epidemic countries have greater impact on the economy than other variables. Specifically, health system in Oceania and Africa has a positive effect, but not significant; The tax system can be promoted by all States; Except Oceania, rural development has a positive role; Urban development in Asia, Oceania and America has a positive role; In terms of employment, Oceania, Europe and Asia play a positive role; The gap between the rich and the poor in America and Asia has a positive role; Except for Europe, increasing carbon emissions has a positive role in Climate Governance.

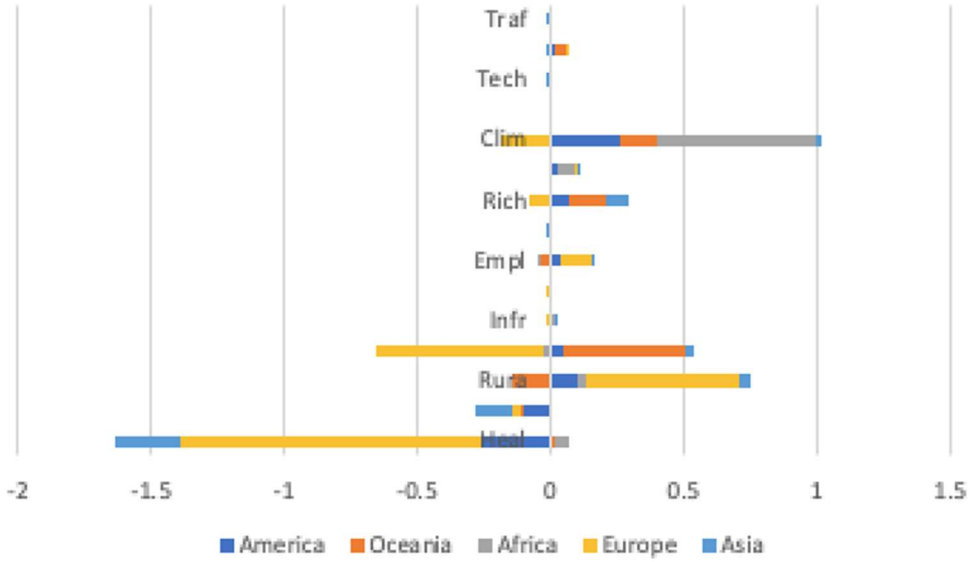


Figure 4. State effect map

(4) Epidemic period, epidemic country and form of government

National governance is one of the most important political phenomena in the society of its own class. The essence of national governance is to coordinate and alleviate social conflicts and contradictions through its attributes and functions, so as to maintain a specific order. The political system determines how the ruling class organizes its own organs of power. Political system is the embodiment of political system. Countries with different political systems have different economic, cultural and foreign trade policies. Therefore, the form of government, as an endogenous factor of the economy, has an important impact on the national economic development. The degree and significance of the influence of different forms of government on the economy are shown in Table 8.

Table 10 triple difference test of epidemic period, epidemic country and political form

dependent variable	Ln(GDP)		
	Constitutional	Presidential	Democratic Republic
Heal	-0.503	-0.238	0.051
	(-6.605***)	(-6.251***)	(0.390)
Tax	-0.064	-0.012	0.030
	(-2.263***)	(-1.093)	(0.294)
Rura	0.026	0.051	-0.265
	(0.151)	(11.966***)	(-3.431***)
City	0.104	0.026	0.112
	(7.167***)	(8.652***)	(3.509***)
Infr	-0.001	0.005	-0.004
	(-0.461)	(4.390***)	(-2.248**)
Paym	-0.0001	0.0001	-0.0001
	(-0.461)	(4.179***)	(-0.960)
Empl	-0.052	-0.001	0.053
	(-3.088***)	(-0.425)	(0.993)
Live	-0.0001	-0.0001	-0.0001

	(-3.976***)	(-3.935***)	(-0.032)
Rich	-0.022	0.013	-0.009
	(-0.394)	(2.158**)	(-0.258)
Educ	-0.059	0.042	-0.004
	(-4.140***)	(11.410***)	(-0.692)
Clim	-0.092	0.148	-0.143
	(-0.793)	(11.159***)	(-0.976)
Gove	0.0001	0.0001	0.0001
	(2.282**)	(9.456***)	(3.002***)
Tech	-0.0001	0.0001	0.0001
	(-2.391**)	(3.240***)	(0.701)
Fina	0.004	0.006	0.017
	(0.579)	(2.369***)	(1.223)
Traf	0.0006	-0.0001	0.0007
	(4.068***)	(-5.701***)	(6.390***)
Constant	26.099	20.547	22.192
	(9.140***)	(53.781***)	(4.285***)
Standard error	0.353	1.289	0.173
R^2	0.9805	0.7252	0.9891
Adjusted R^2	0.9742	0.7197	0.9827
F-value	157.560***	131.973***	152.560***
Obs	63	766	41

remarks: *p<0.1, **p<0.05, ***p<0.001.

Data: World Bank Database

As shown in Figure 5, urbanization, government efficiency and financial market have positive effects on national economy; The other control variables have heterogeneity, specifically: health system, Democratic Republic, tax policy has a positive role in promoting; The results show that the monarchy and presidential economies have a positive role in promoting rural development; The infrastructure construction of presidential system and balance of payments play a positive role; The employment rate of the population in the democratic republic regime has a positive role in promoting the economy; The structure of the rich and the poor, the level of education and the Climate Governance of the presidential regime have a positive promoting effect; The science and technology of Democratic Republic and presidential system have positive effect on economic growth; Democratic Republic and constitutional monarchy have positive effects on promoting economic growth in transportation network performance index.

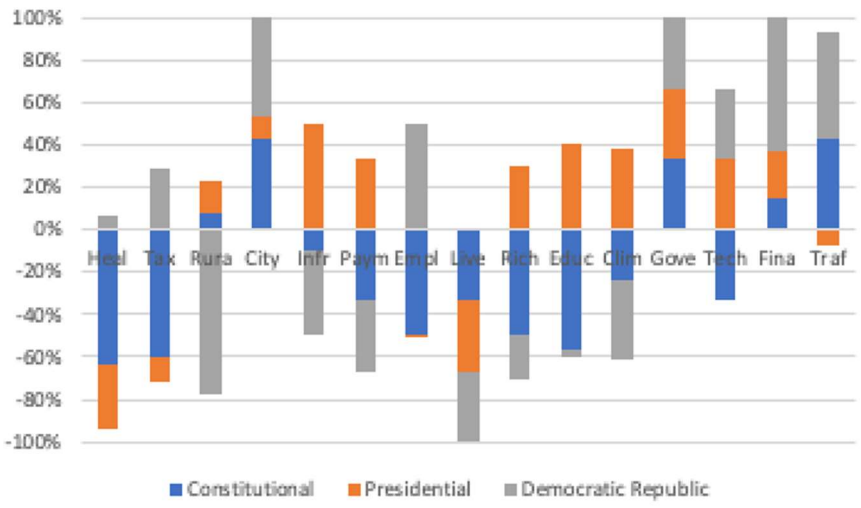


Figure 5 Effect of political form

(5) Epidemic period, epidemic country and development degree

Is there any difference in the degree of economic development between developing countries and developed countries in the face of the impact of the global epidemic? Is the degree of influence of each control variable on economic growth heterogeneous? The level of economic development of a country is based on GDP. The level of economic development of a country or an economy can be measured from two aspects: scale stock and speed increment. Developed countries usually have the natural advantage of the stock of economic growth scale, so it is reasonable to classify the degree of development as the endogenous factor of the economy to test the path selection of macroeconomic indicators for economic growth. The basic regression results are shown in Table 11.

Table 11 triple difference test of epidemic period, epidemic country and development degree

dependent variable	Ln(GDP)	
	Developing	Developed
Heal	-0.224	-0.033
	(-5.462***)	(-0.934)
Tax	0.002	-0.053
	(0.246)	(-1.497)
Rura	0.037	0.063
	(8.286***)	(3.391***)
City	0.014	0.005
	(4.218***)	(0.469)
Infr	0.005	0.006
	(3.913***)	(2.549***)
Paym	0.0001	-0.0001
	(11.135***)	(-0.393)
Empl	0.002	0.007
	(0.646)	(0.345)
Live	-0.0001	0.0001
	(-3.136***)	(1.084)
Rich	0.009	0.050

	(1.393)	(2.950***)
Educ	0.041	0.018
	(7.945***)	(5.802***)
Clim	0.163	0.046
	(11.509***)	(1.687*)
Gove	0.0001	0.0001
	(8.749***)	(2.553***)
Tech	-0.0001	0.0001
	(-3.539***)	(1.474)
Fina	0.002	0.033
	(0.862)	(1.656*)
Traf	-0.0002	0.0001
	(-6.682***)	(3.639***)
Constant	21.128	20.317
	(53.764***)	(8.781***)
Standard error	1.322	0.579
R^2	0.6808	0.9331
Adjusted R^2	0.6742	0.9239
F-value	103.678***	101.398***
Obs	745	125

remarks: *p<0.1, **p<0.05, ***p<0.001.

Data: World Bank Database

As shown in Figure 6, rural development, urban development, infrastructure construction, population employment, the structure of the rich and the poor, education level, climate governance, government efficiency and financial market have positive effects on economic growth. Specifically, under the impact of the global epidemic, developing countries and economies should focus on urbanization, balance of payments, structure of the rich and the poor, education level and Climate Governance.

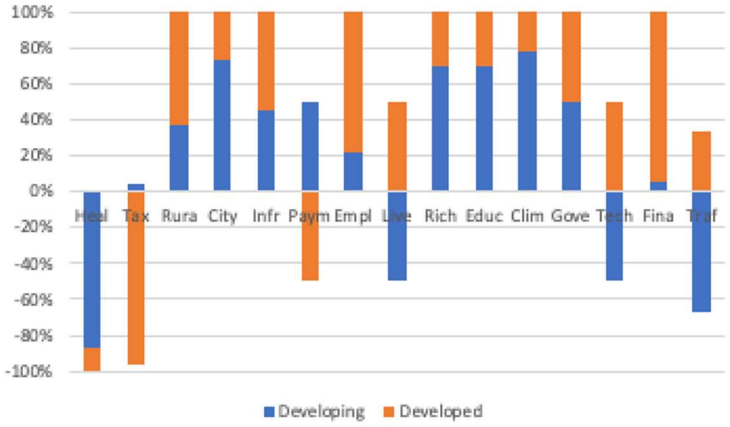


Figure 6 effect chart of economic development degree

(6) Epidemic period, epidemic country and epidemic control

There is no doubt that the global epidemic has a huge impact on the operation of the world economy. Factory shutdown, traffic restriction and factor flow obstruction have a negative

impact on the epidemic countries and the world economy. However, it is worthy of further discussion that during the multiple outbreaks from 1960 to 2019, the global economy entered into negative growth only four times. Then, from the perspective of global economy, which macroeconomic path investment has made more contribution to the prevention of economic runaway during the epidemic period when the epidemic is under control or out of control? The heterogeneity of the impact of control variables on economic growth was tested by the triple difference of epidemic period, epidemic country and epidemic control. The results are shown in Table 12.

Table 12 triple difference test of epidemic period - epidemic country - controlled or not

dependent variable	Ln(GDP)	
	Uncontrolled	Controlled
Heal	-0.014	-0.060
	(-0.204)	(-1.959**)
Tax	-0.012	-0.015
	(-0.584)	(-1.235)
Rura	0.045	0.048
	(5.056***)	(10.360***)
City	0.018	0.018
	(2.732***)	(5.525***)
Infr	0.002	0.006
	(0.800)	(4.737***)
Paym	0.0001	0.0001
	(4.079***)	(8.978***)
Empl	0.002	0.005
	(0.316)	(1.315)
Live	-0.0001	-0.0001
	(-0.892)	(-4.407***)
Rich	0.026	0.008
	(1.862*)	(1.190)
Educ	0.033	0.041
	(4.656***)	(11.080***)
Clim	0.312	0.141
	(7.686***)	(9.768***)
Gove	0.0001	0.0001
	(5.302***)	(9.091***)
Tech	0.0001	0.0001
	(1.321)	(1.465)
Fina	-0.003	0.002
	(-0.584)	(0.748)
Traf	-0.0004	-0.0001
	(-5.162***)	(-5.398***)
Constant	20.444	20.583
	(24.337***)	(46.343***)
Standard error	1.256	1.361

R^2	0.7610	0.7276
Adjusted R^2	0.7376	0.7216
F-value	32.484***	122.011***
Obs	169	701

remarks:*p<0.1, **p<0.05, ***p<0.001.

Data: World Bank Database

As shown in Figure 7, during the period when the epidemic is under control, the impact of the economy on the economy in rural development, urban development, infrastructure construction, balance of payments, population employment, reducing the gap between the rich and the poor, improving the level of education, reducing carbon emissions, improving the efficiency of the government, and increasing the number of patent applications by residents has increased and is significant.

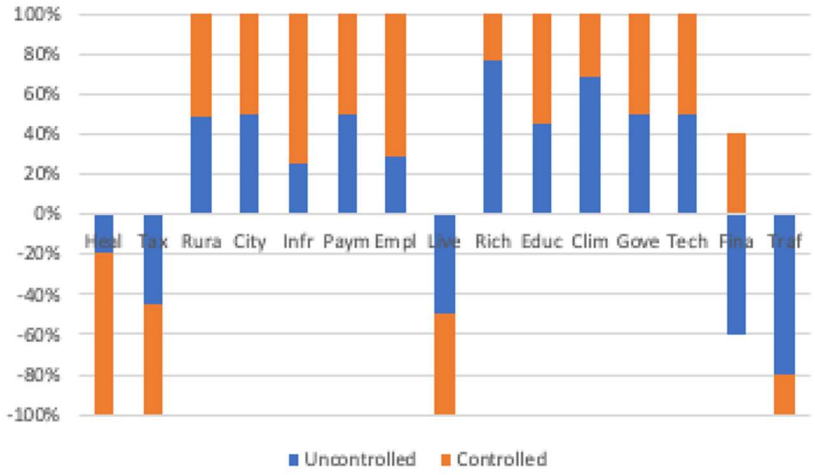


Figure 7 effect chart of controlled epidemic situation in economy

(7) Whole sample robustness test

In order to test the robustness and credibility of the above results, the whole sample mixed model is used to test the stability of the influence of control variables on economic growth

$$Ln(GDP) = 20.545 - 0{,}068Heal - 0.013Tax + 0.048Rura + 0.018City + 0.005Infr + 0.0001Paym + 0.005Empl - 0.0001Live + 0.1Rcih + 0.04Educ + 0.154Clim + 0.0001Gove + 0.0001Tech + 0.001Fina - 0.0001TRaf + \varepsilon \quad (10)$$

The fitting degree of regression model is f = 149.596, and the coefficient of determination after adjustment is r ²= 7194, as shown in table 13, health system, rural development, urbanization, infrastructure, balance of payments, population employment, living environment, structure of the rich and the poor, education level, climate governance, government efficiency, science and technology, transportation network and other factors are related to economic growth in epidemic period and epidemic countries.

Table 13 whole sample robustness test

Dependent variable		B-coefficient	$Ln(GDP)$ Standard error	T-value	P-value
Control variable	*Heal*	-0.068	0.028	-2.422	0.010***
	Tax	-0.013	0.010	-1.215	0.224

Rura	0.048	0.004	11.612	0.000***
City	0.018	0.002	6.432	0.000***
Infr	0.005	0.001	4.740	0.000***
Paym	0.0001	0.001	9.673	0.000***
Empl	0.005	0.003	1.626	0.103***
Live	-0.0001	0.001	-4.384	0.000***
Rich	0.010	0.006	1.616	0.106*
Educ	0.040	0.003	12.084	0.000***
Clim	0.154	0.013	11.320	0.000***
Gove	0.0001	0.001	10.212	0.000***
Tech	0.0001	0.001	2.064	0.039**
Fina	0.001	0.002	0.677	0.498
Traf	-0.0001	0.001	-6.226	0.000***
Intercept		20.545（51.838***）		
Correlation coefficient		85.10		
R^2		72.43		
Adjusted R^2		71.94		
Number of samples		202		
F value		149.596（0.000***）		
Obs		870		

remarks: *p<0.1, **p<0.05, ***p<0.001.

Data: World Bank Database

Furthermore, the scatter plot of variable residuals shows that the result E（ ε)= The residual of each variable does not show an obvious trend, which means that the model has not been wrongly assumed. Predicted (y) $\hat{}$) The residuals are in accordance with the random distribution and the assumption that the error variance is constant. The residual histogram generated by the model conforms to the normal distribution, as shown in Figure 8. The assumption of normal error is reasonable. According to the residual diagram drawn in time sequence, the probability of positive residual value is obviously higher than that of negative residual value, and the assumption of multiple independent errors is reasonable. In conclusion, OLS regression is appropriate.

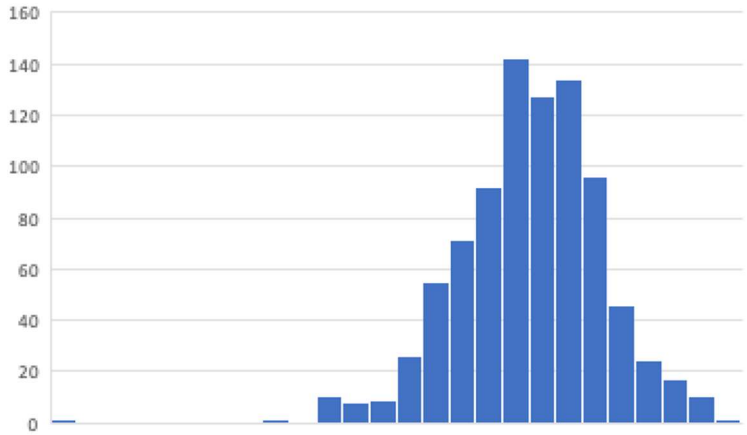


Figure 8 normal distribution of residuals

5、 Conclusion

When discussing the impact of the global epidemic on national economic growth, if we

ignore the endogenous mechanism and exogenous given grouping, it may be difficult to identify the variable elements and mechanism of promoting national economic growth under the global epidemic. Moreover, it is easy to fall into the cognitive bias of average effect. This article liberalized novel coronavirus pneumonia's assumption that all economies obey the same regression function. It will provide a theoretical basis and practical guidance for the current world economy to cope with the outbreak of new crown pneumonia by identifying the control variables that affect the economic growth of the world under the impact of the global epidemic and classifying others. Based on the data of 210 countries and economies from the world bank from 1960 to 2018, this paper uses finite mixture model and difference test to study the promotion effect of global epidemic, economic geographical location, political form, economic cycle and development degree, and 15 control variables on national GDP In the exogenous given category variables, the independent variables have significant inhibitory effect on the national economic growth, and each category variable has heterogeneity in promoting the national economic growth. Firstly, in terms of economic cycle, rural development, urbanization, infrastructure, balance of payments, human settlements, education level, climate governance, government efficiency, science and technology and transportation network have consistency in the whole cycle, while other factors have obvious heterogeneity, The change of influence degree should also attract the attention of policy makers. Secondly, different from other geographically located economies, Asian economies should promote national economic growth in terms of reducing tax burden, ensuring the proportion of cultivated land, improving urbanization, increasing infrastructure, maintaining balance of payments, ensuring employment, increasing the enrollment rate of colleges and universities, and increasing the number of patent applications. Moreover, under the impact of the global epidemic, the presidential parliamentary system has a positive effect on economic growth. Specifically, the rich and poor structure, education level and Climate Governance of the presidential system have a positive role in promoting economic growth. In addition, during the epidemic period, moderately increasing tax rates in developing countries is more conducive to economic growth, and the reduction of net immigration also has a positive impact on the economy. The reduction of patent applications and transportation network also promote economic growth. Finally, the epidemic controlled economies perform better than the uncontrolled economies in rural development, urban development, infrastructure construction, balance of payments, population employment, reducing the gap between the rich and the poor, improving the level of education, reducing carbon emissions, improving government efficiency, and increasing the number of patent applications. To sum up, in response to the impact of the global epidemic, economic governance means and paths need to be combined with their own characteristics and implemented in different directions, so as to find the optimal multi-path dependence mechanism of national economic governance.

This paper summarizes the general rules of global epidemic in national economic governance, and puts forward the following policy suggestions for Asian economies

First of all, all Asian economies, regardless of endogenous factors and exogenous given classification, have the same improvement in cultivated land security, urbanization, moderately allowing the gap between the rich and the poor, improving education level, reducing carbon emissions and improving government efficiency, which will promote economic growth under the impact of the global epidemic. Secondly, the increase of thousand beds and the decrease

of financial real interest rate have obvious effect on economic growth in the economic cycle from 2000 to now, although they are different in other classification data. Finally, the role of capital in economic growth is gradually decreasing, while the role of government led institutional factors, including tax, the structure of the rich and the poor, government efficiency, and the level of real interest rate, is increasing. This provides a new vision for the weak post economy to catch up with and surpass the economy through "efficiency government" in the global epidemic environment.

In general, this paper establishes a model of the impact of each classified variable matrix on national economic growth under the impact of global epidemic, and measures the degree and trend relationship of 15 control variables on national economic growth.

However, the research also has some limitations. In the future, we can introduce a multivariate multinomial interaction model to measure the non-linear relationship between interest rate, net immigration, patent number and transportation network, and further expand the comprehensive analysis of control variables on national economic growth.

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Session 2

Chinese in Japanese ‘lockdown’?: The impact of the COVID-19 state of emergency upon migrant community in Tokyo

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1. Introduction

Since April 2020, the government has on three times announced a state of emergency. And so, in this paper, I would like to explore the question of the influence of each state of emergency in relation to the spread of COVID-19 upon ethnic communities, and to begin with trying to identifying its impact on the Chinese community in central Tokyo.

Firstly, each state of emergency will be briefly explained, and then I will describe the characteristics of the Ikebukuro district of Tokyo, now well-known for its Chinese business community. Some statistical data will be referred to demonstrate the heavy negative impact of COVID-19 on the inflow of foreigners to Japan, Chinese visitors in particular. Lastly, I will illustrate some outcomes and do so with the help of information received from interviews with a Chinese entrepreneur and a Japanese school manager.

2. The ‘State of Emergency’ and the Special Major Law

After 2020, following the pandemic of the new coronavirus, governments around the world have, one after another, have implemented ‘lockdown’ measures to severely limit the movement of people. This restriction is then gradually released when there is a marked decrease in infections. Japan, however, with its three ‘lockdowns’ has somewhat differed from Europe, North America, and some other Asian countries. Japan did not execute actual ‘lockdown’ measures for cities, when the government introduced the state of emergency. Due to provisions in Japan’s legal code, the Japanese government could not strictly limit people’s activities, but only issue a strong request that citizens refrain from going out.

In Europe and North America, many major cities have been subject to ‘lockdown’ with restrictions enforced requiring people to stay at home. Some cities have introduced penalties for those violating the restrictions. In order to prevent the spread of the new

coronavirus, different countries have adopted strict stay-at-home orders: Britain and France have banned going out except for mandatory purchases and have fined offenders. The state of New York in USA has required all businesses in the state, except for supermarkets and pharmacies, to require employees to work from home.

The Japanese government's declaration of a 'state of emergency' is legally based upon the Special Measures Law. That is how the government's countermeasures against the new coronavirus epidemic has been lawfully structured. Even though these have been three similar declarations in Special Measures Law, the rate and characteristics of infection differs over time, and so the target area and the measures taken to restrain the spread of the virus have also differed each time. The counter-measures could not lawfully put a strict limit upon the movement of people, but it is the *activities* of residents that have been restricted.

In Japan there is no legally enacted provisions (either by regulations or specific Acts) by which public transportation can be stopped or roads blocked. And this is why the response is different from what has been experienced in Europe and the United States. This means that the facilities necessary to maintain social life will continue to operate. This includes supermarkets, convenience stores and drug stores (Nihon Keizai Shinbun, 18 April 2020: 5). Although there have been some differences between the past three responses, the declarations of a 'state of emergency' coincides with changes in the adaptive lifestyles of urban residents, and it is also this change that we will consider in its affect upon ethnic business. Chinese restaurants may stay open but they have had to face the fact that there are no customers!

3. Three States of Emergency

In this section, let me delignate the characteristics of the past three states of emergencies as below.

a) The first state of emergency (from 7th April to 25th May 2020)

The first state of emergency was from April 7th to May 25th, 2020. Japan's initial confirmed infection was on January 16, 2020. The first death occurred in February. The infection spread throughout March. This was the occurrence of the so-called

"first wave". The period was initially set as "one month". The target area was then temporarily expanded to apply nationwide, and the period was extended. The cancellation was carried out in stages, to be finally cancelled in all prefectures on May 25th. As a result of the government's countermeasure, a wide range of industries such as restaurants, gyms, and live music houses had to cope with employees requesting permission for leave of absence.

b) The second state of emergency (from 8th January to 21st March 2021)

On December 31, 2020, the number of newly infected people exceeded 1,000 for the first time, and the infection spread rapidly in the Tokyo metropolitan area during the holidays that marked the year's end and New Year. This second state of emergency was issued to four prefectures including Tokyo, Kanagawa, Chiba and Saitama (Nihon Keizai Shinbun, 8 January 2021: 1). Its initial period was 'one month' as with the previous time. But after that, other prefectures such as Osaka, Aichi, Fukuoka, etc. were added for state of emergency target areas, and thus eleven prefectures were eventually declared under the emergency. The period for which the emergency would run was extended twice, and the four prefectures, including Tokyo, remained under the emergency throughout. The restrictions were eventually concluded on March 21st, 2021. This policy not only encouraged restrictions on the movement of people, but also focused on restaurants. The government requested restaurants to shorten their opening hours until 8 pm.

c) The third state of emergency (from 21st April to 20th June 2021)

In the third state of emergency, the initial target was Osaka, Hyogo, and Kyoto, as 'mutant viruses', said to be more infectious than the conventional virus. Tokyo was also included, where the number of newly infected people was on the rise. The government emphasized 'short-term concentration', and the initial period was declared as '17 days' from April 25th to May 11th. This was shorter than the past two times one-month period. However, the number of newly infected people remained at a high level, and the period was extended until May 31st. Five prefectures, Aichi, Fukuoka, Hokkaido, Hiroshima, and Okayama, have been added as target areas. Okinawa Prefecture was added from May 23rd. Regarding this emergency declaration, the countermeasure was issued to 10 prefectures - Tokyo, Osaka, Hyogo, Kyoto, Fukuoka, Aichi, Hokkaido, Okayama, Hiroshima and Okinawa (Nihon Keizai

Shinbun, 29 May 2021: 1). The government set a deadline for 9 prefectures, excluding Okinawa, and it was eventually lifted on June 20. Meanwhile, seven of the prefectures, including Tokyo and Osaka, have shifted to 'priority measures for the prevention of the spread of disease'. Such 'priority measures' were a legal innovation, written into the revised New Corona Special Measures Law enacted in February 2021 in order to curb the spread of infection and that was prior to the declaration of this third state of emergency. Unlike the state of emergency, it is not possible to order or request restaurants to allow employees to take leave of absence, but it is possible to order or request a shortening of business hours.

One of the major aims was to suppress the flow of people during 'Golden Week' which is the holiday period from the end of April to the beginning of May. It was a measure that was both short-term and intensive. The governments requested the stores that offer alcoholic beverages and *karaoke* to be closed or shortened. In principle, the live music events were unattended.

4, The Number of Foreigner Arrivals with Foci on Chinese

The effect of COVID-19 is quite obvious when we look at the statistical data on foreigners' arrivals: from April 2019, 2,885,456 foreigners, including 202,408 re-entries, entered Japan. However, in April 2020, only 5,312 foreigners entered, and its ratio was only 0.2 percent from the previous year as shown in Table 1.

Table 1 The Numbers of Foreigners' and Chinese Arrivals and Their Departures in 2018-2021

Number/ Period		2018		2019		2020		2021
		April	October	April	October	April	October	March
Entries	Foreigners	2,803,778	2,549,306	2,885,456	2,441,612	5,312	35,578	19,398
	Chinese	582,540	586,060	674,189	642,535	717	6,940	5,630
(Re-entries)	Foreigners	195,789	197,979	202,408	207,059	4,056	14,761	17,380
	Chinese	74,669	77,538	75,293	79,456	688	4,488	5,348
Departures	Foreigners	2,876,699	2,470,474	2,946,845	2,390,786	29,566	33,314	37,135
	Chinese	559,248	578,471	654,811	661,831	6,045	11,670	12,090

(Departure from Re-entries)	Foreigners	214,612	185,627	254,587	205,953	7,232	15,438	18,704
	Chinese	80,900	65,080	97,576	72,514	1,907	4,974	4,821

*The number of Chinese indicate people from mainland China but the entries from Hong Kong and Taiwan were not included in this data.
Source: Homusho [The Ministry of Justice] (2021).

Consider the numbers for Chinese, entries at April 2019. They are by far the largest group among foreigners, some 674,189 (23.4% of the total of foreigners). But note that in April 2020, only 717 persons, and it is only 0.15% when compared to the previous year. In terms of the departures, in the same year period, 2,946,845 foreigner's departure in April 2019, but only 29,566 departures in April 2020, which means about 1.0 percent. Accordingly, 654,811 Chinese and 6,045 Chinese. It is quite obvious that the measures taken by the government to contain the spread of COVID-19 has at least prevented many foreigners from moving around.

5. Foreigner and Chinese Population in the Ikebukuro District

Let me now briefly explain about the distinctive contribution of Ikebukuro in central Tokyo. The Ikebukuro area is located in Toshima ward, one of Tokyo's twenty-three wards, all specially designated as municipalities. In January 2021, the population was given the official estimate of 287,300. During the day, the population is much larger than at night. This daytime swell in numbers is brought on by commuters – there are many urban amenities located in the vicinity and Ikebukuro station is one of the largest terminal stations.

Table 2 Population in Toshima ward in 2017-2021

Category/ year	2017	2018	2019	2020	2021
Foreigners	27,060	29,010	30,223	29,672	26,458
Chinese	13,152	13,727	14,250	13,525	12,414
Population	284,307	287,111	289,508	290,246	287,300

*The number is counted every first day of January.
Source: Toshima no tokei [Statistics of Toshima ward] 2021.

Just before the COVID-19 shock in January 2019, the number of foreigners was 30,223, which occupied 10.4 percent of entire population of the ward (289,508). In this period,

the number of residents from China was 14,250, which was 47 percent of the foreigner population and 4.9 percent of the overall ward population. After the COVID-19 crisis, the numbers of foreigners and Chinese population have slightly been decreased to 26,458 foreigners (9.2 % of the ward population), and 12,414 Chinese (4.3%) in 2021. The numbers of foreigners have not much changed after the onset of the COVID-19 crisis, because it is considered that the residents in the area have considerable difficulty in moving into the area or away from it due to the restrictions that have been in place to reduce the threat of the virus. But the crisis has affected the activities of Ikebukuro. Commuters continue to play an important role in the area, as there are students attending the many schools of the area, and also workers and clients of Ikebukuro's businesses.

In effect, within the Ikebukuro district is the "consumer hot spots", and ethnic businesses, "particularly those that have been developed to sell Chinese cuisine and groceries" (Mizukami 2016). It is also observed that "the unique character of this area is ascribed to the numbers of Chinese commuters who travel to and from the precinct, as well as availing themselves of the various free Chinese papers" (Mizukami 2015). Thus, in addition to the more than 12 thousand registered Chinese, nearly the same number of Chinese visitors from the outskirts of Tokyo gather in the area every day.

6. Current Situation of Chinese Communities

In order to clarify the current situation of the residents from China, I have conducted interviews with a school manager and an entrepreneur from China. Initiatives have been taken within this area to launch Japanese schools for foreigners, and these have enrolled many Chinese youths in their classes.

On 18 June 2021 I interviewed a manager from one of the Japanese language schools located near to the Ikebukuro station. The school manager, Mr. A, told me that now they have 400 students and all of them are from China. "When the first state of emergency was issued in April 2020, we could not run classes until we were able to introduce online teaching. We started hesitantly with online lessons. After the state of emergency was lifted, we started the classes half online and half face-to-face: that means with a class of 20 students, 10 will actually attend the class while the remaining 10 participate on online. The next day, the online students will attend while classroom students will use the online

service."

When the second state of emergency was issued in January 2021, they conducted all classes online. But this time it all ran very smoothly. Under the recent third state of emergency, their courses and style was same as twice previously, and they have now (at that time) introduced complete online classes. When the state of emergency was lifted, they introduced half face-to face classes and half online classes. Mr. A told, with the changes brought about by COVID-19, the students cannot develop the social networks that are naturally formed in educational settings. The number of depressed students has been increasing under the Corona crises and it is hard when teaching contact is online to tell whether or not they are sick. And so now the school staff receives a lecture from educators concerned with the mental care of students.

Another informant is the entrepreneur from China who runs a few Chinese restaurants around Ikebukuro. The interview with her was conducted on 18 June 2021. She told, when the first state of emergency was issued, suddenly no customers came and sales decreased. "February has usually been the busiest time of the Chinese New Year festival, and this has been the busiest time for business in Ikebukuro. But this time there were no customers. Because of the government's subsidies, we can still run the business, but it is hard."

"During the first state of emergency, there was a feeling of tension among workers and customers, and everyone said they were scared. As a result of the corona crises, there is no gathering. Before that, we have had gatherings for each event of the festival. That was when we joined together with groups of shop owners and home town people and the like, but now such gatherings have disappeared from the shock of the corona threat. We have to be satisfied with seeing each other sometimes at home."

7. Concluding Remarks

The COVID-19 crisis has brought about changes in the daily activities of people, including migrants living in central Tokyo. In particular, the activities and gatherings of various ethnic organizations have ceased. As for schools, students from China faced serious challenges and problems largely due to the fact that they cannot develop the social

networks that are so important for their morale in a foreign city.

Especially, under the first state of emergency, the number of visitors to the central Tokyo area, reduced to a very small number indeed, and this was seen in Ikebukuro. However, the initial tension and anxiety has reduced as can be seen from the second and third 'states of emergency' for which the numbers of visitors have remained at the similar level. There are difficulties for ethnic students with online schooling since they value the social contact of face-to-face education. COVID-19 has increased their vulnerability in a foreign land. Some kind of support system is urgently required to ensure the welfare of these young people. residents of and visitors to Ikebukuro in central Tokyo.

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Social Trust and the Pandemic:

Lessons from the COVID-19 Case of South Korea

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1

Introduction

2

- Social trust, a belief in the competence, honesty, or benevolence of the other party, is known as a crucial cause and consequence of functioning institutions.
- Thus, the formation and dissolution of social trust have been of primary interest both for analysts and leaders, and many existing literatures have examined the trends, causes, and consequences of social trust and its relationship with institutional effectiveness.
- In this presentation, I will introduce two of my own research papers that empirically examined the implications of social trust during the ongoing COVID-19 pandemic, based on the experiences of South Korea.

2

The Two Papers

3

- [1] "Social Trust in the Midst of Pandemic Crisis: Implications from COVID-19 of South Korea"
  - *Research in Social Stratification and Mobility* 68 (August 2020) 100523
    - https://doi.org/10.1016/j.rssm.2020.100523
  - Social trust as a "consequence"
- [2] "Trust in Government and the Vaccination Acceptance for the COVID-19 of South Korea"
  - Accepted for publication in *Korea Journal of Population Studies*
  - Social trust as a "cause"

3

4

Paper 1

"Social Trust in the Midst of Pandemic Crisis: Implications from COVID-19 of South Korea"

(Kye & Hwang, 2020)

4

[1] COVID-19 & Changes in Social Trust

5

- Summary & Findings
  - This study aims to exploit the situations imposed by the COVID-19 pandemic crisis in South Korea to identify the causal effect of a pandemic crisis and institutional responses on social trust.
  - With unique panel data collected in the course of the COVID-19 in South Korea (May 2020) and the use of individual fixed-effects models, we examined how social trust in various social institutions changed and identified a causal effect of crisis management on social trust.
  - According to the results, trust in South Korean society, people, and the central and local governments improved substantially, whereas trust in judicature, the press, and religious organizations sharply decreased.

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[1] COVID-19 & Changes in Social Trust

6

- Summary & Findings (cont.)
  - Improvement in trust in the central and local governments was associated with proactive responses to the pandemic crisis, and failure to take appropriate actions was responsible for the deteriorating trust in religious organizations.
  - These findings illustrate the importance of risk management in trust formation and imply that South Korea may be transforming from a low-trust to a high-trust society.

6

[1] COVID19 & Changes in Social Trust

7

Table 1: Social trust in South Korea (10-point scale)

			Year		
Domain	2016	2017	2018	2019	2020
Korean society	5.49	5.38	5.44	5.35	6.18
Korean people	5.74	5.64	5.71	5.57	6.05
Central government	4.81	5.08	5.05	4.73	5.71
Local government	5.07	5.23	4.98	4.84	5.45
Congress	3.82	4.06	3.66	3.21	3.37
Judicature	5.09	4.90	4.82	4.44	3.95
Private company	5.28	5.37	5.16	4.88	4.85
Press	5.04	5.09	4.83	4.36	3.75
Civic group	5.46	5.48	5.24	4.73	4.63
Religious organization	5.25	5.44	4.80	4.62	2.89
N	2,000	2,000	2,010	1,500	1,011

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[1] COVID19 & Changes in Social Trust

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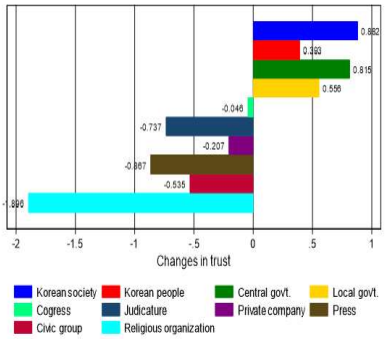
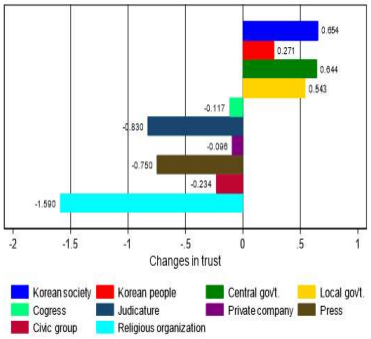
Figure 1: Effect of the COVID-19 pandemic crisis on social trust in South Korea

A. Pooled sample (N = 908)



* The change in trust in congress is not statistically significant.

B. 2019 and 2020 sample only (N = 188)



* The changes in the trust in Korean people, congress, private companies, and civic groups are not statistically significant.

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[1] COVID19 & Changes in Social Trust

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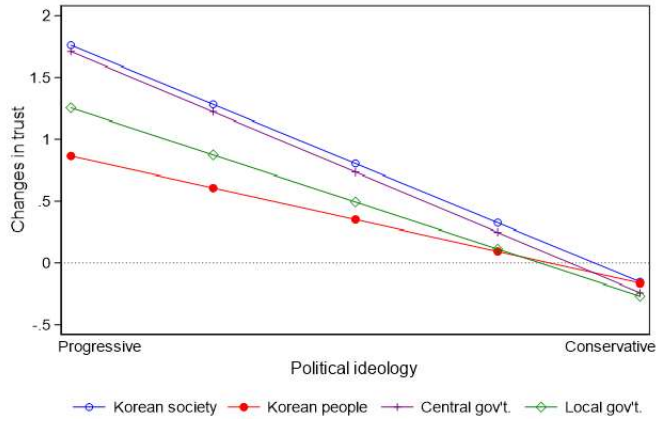
Figure 2: Differential effect of COVID-19 pandemic crisis effects on social trust on the basis of political ideology



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Paper 2

"Trust in Government and the Vaccination Acceptance for the COVID-19 of South Korea"

(Hwang, Gil, & Choi, forthcoming)

10

[2] Gov. Trust & Vaccination Acceptance

11

- Summary & Findings
  - This study empirically examines the relationship between the level of trust in government and vaccination acceptance for COVID-19 in South Korea.
  - Based on an online survey conducted in February 2021, which is nationally representative of the Korean population aged between 25 and 45, we investigated the role of trust in government and other political factors on the level of COVID-19 vaccination acceptance.
  - According to the results, those who have a higher level of trust in government tend to show a higher level of vaccination acceptance, controlling for other confounding factors, such as political orientation, party identification, sociodemographic factors etc.

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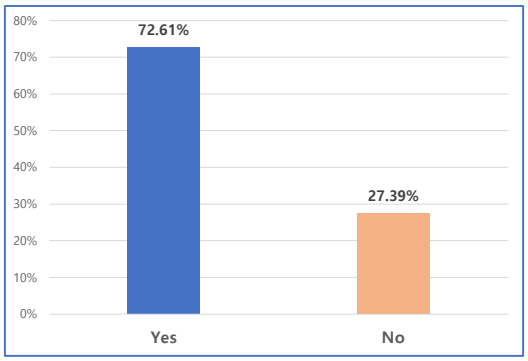
[2] Gov. Trust & Vaccination Acceptance

12

- Vaccination Acceptance for COVID-19 in South Korea



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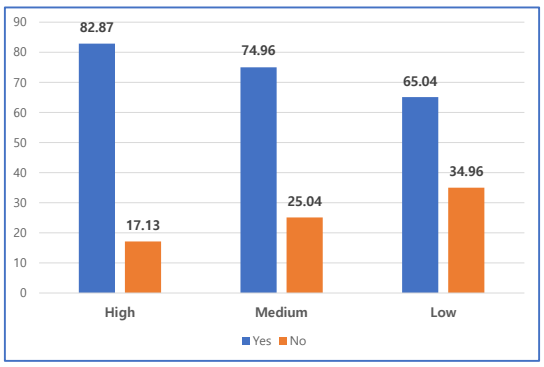
[2] Gov. Trust & Vaccination Acceptance

13

- Vaccination Acceptance by Trust in Government



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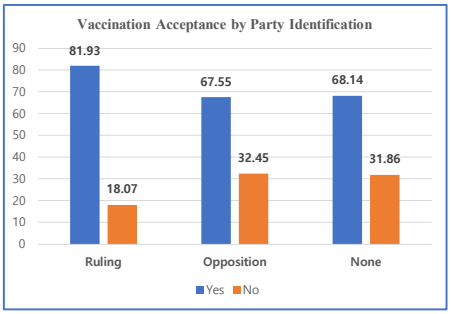
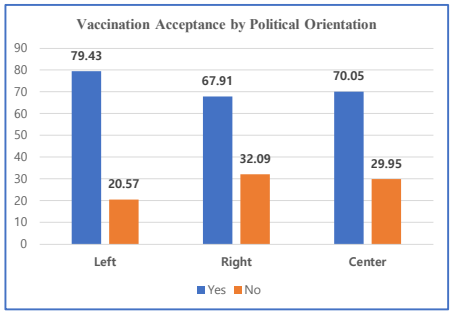
[2] Gov. Trust & Vaccination Acceptance

14

- Vaccination Acceptance by Political Factors





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[2] Gov. Trust & Vaccination Acceptance

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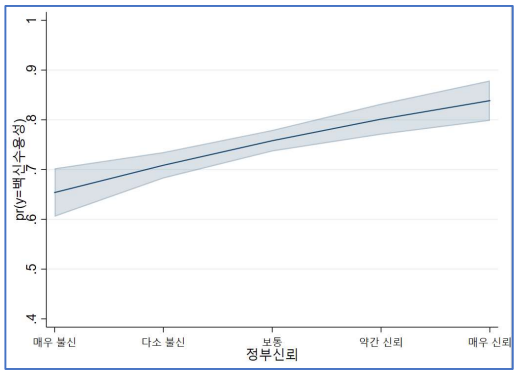
- Trust in Government & Vaccination Acceptance: A Logit Model



Predicted probabilities of vaccination acceptance by the level of government trust based on a logit model (controls: party identification, political orientation, fear of infection, sex, age, marital status, education, religion, employment status, household income, urban residency

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Discussion

16

- Social trust is indeed a *cause* and *consequence* of functioning institutions, playing a particularly important role during a crisis such as pandemic.
- Social trust is a *variable*: depending on the "performance" of institutions including the government, the level of trust can be changed.
- Due to the close link between trust in government and policy compliance, e.g., vaccination acceptance, *trust building* is as important as implementation of policies for the government.

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17 Appendix

17

[1] Results from Kye & Hwang (2020)

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Table 2
Correlates for changes in trust (N = 908)[a].

Variables	Outcomes									
	Korean society	Korean people	Central gov't.	Local gov't.	Congress	Judicature	Private company	Press	Civic group	Relig. Org.
Female	−0.069	−0.044	−0.122	−0.073	0.237	−0.063	**−0.348**	0.085	0.183	−0.056
Age	0.014	0.014	0.017	**0.020**	0.008	0.006	0.016	0.009	**0.029**	0.021
College educated	0.156	0.054	0.140	−0.095	0.010	−0.331	−0.125	−0.225	−0.284	−0.081
Professional/Managerial	**0.592**	0.076	−0.174	0.203	0.047	0.257	0.015	0.154	−0.193	**0.636**
Household Income > = 4 million won	0.092	0.178	−0.058	0.094	−0.063	0.007	−0.067	0.023	0.228	0.043
Subjectively upper- middle class	**−0.667**	**−0.393**	−0.387	−0.208	**−0.451**	−0.150	−0.140	−0.095	−0.308	−0.217
Own house	−0.109	−0.142	−0.385	−0.569	−0.205	−0.201	−0.361	−0.277	**−0.488**	**−0.611**
Political ideology[b]	**−0.478**	**−0.257**	**−0.486**	**−0.380**	−0.148	−0.062	**−0.209**	−0.113	−0.104	−0.029
Never married	−0.244	−0.145	−0.275	−0.227	−0.339	−0.432	−0.420	−0.508	−0.070	−0.355

[a] Coefficients with p-value smaller than 0.05 are marked as bold.
[b] Political ideology was measured using 5-point scale with higher values meaning more conservative ideology.

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[2] Results from Hwang et al. (forthcoming)

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	Model 1	Model 2	Model 3	Model 4	Model 5
Trust in government	1.435**		1.310**	1.282**	1.288**
Party identification (ref.=ruling)					
opposition		0.517**	0.686+	0.678+	0.653+
none		0.522**	0.650**	0.709*	0.693*
Political orientation (ref.=left)					
right		0.788	0.919	0.923	0.922
center		0.814	0.864	0.847	0.847
Fear of infection				1.214**	1.217**
Sex (ref.=female)					
male				1.320*	1.295*
Age (ref.=25-29)					
30-34				0.901	0.856
35-39				1.235	1.166
40-44				1.339	1.257
45-49				2.173**	2.040**
Marital status (ref.=other)					
currently married				1.156	1.150
Education (ref.=below 4-yr college)					
4-yr college+				0.952	0.940
Religion (ref.=none)					
religious				0.882	0.896
Employment status (ref.=not employed)					
employed					1.251+
Household income					0.999
Residency1 (ref.=rural)					
urban					0.949
Residency2: 17 metropolitan areas					(controlled)
Constant	1.036	4.908**	1.948**	0.797	0.693
log likelihood	-1103.01	-1106.74	-1095.56	-1069.23	-1061.97
x^2	53.17	45.71	68.08	120.73	135.24
n	1,924	1,924	1,924	1,924	1,924

+ p<0.10, * p<0.05, ** p<0.01

19

Media Use and Anti-Pandemic Confidence:

Empirical Evidence from Shanghai

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ABSTRACT

Anti-pandemic confidence is the subjective view and psychological expectation of residents for government departments at all levels to overcome the pandemic. The strength of anti-pandemic confidence can significantly affect the effectiveness of pandemic prevention. Using data from a web survey of 123,932 samples, this paper investigates the impact in media use on anti-pandemic confidence through media usage time and media usage type. Findings indicated that Shanghai residents' confidence of the whole country is significantly higher than their confidence in local government anti-pandemic efforts; the media usage time has significantly reduced residents' confidence in fighting the pandemic; media usage types have produced multiple effects on anti-pandemic confidence. The use of official media and social media has a positive effect on anti-pandemic confidence, while multiple media impact negatively. As pandemic prevention and control be normalized, we should continue to exert the positive influence of official media and social media. Meanwhile, we should actively deal with the negative influence multiple media use and make public confidence play an essential role in the cohesion of social forces and anti-pandemic operations.

KEYWORDS

Anti-Pandemic Confidence; Media usage time; Media usage type; General Ordered Logit Model

Introduction

The COVID-19 pandemic outbreak since the end of December 2019 is a public health emergency with the fastest spread, the most comprehensive infection range and the most consequential difficulty in prevention and control that has occurred in China since the founding of the country. At present, the global pandemic continues to spread, and fighting the pandemic in several countries is not optimistic. Pandemic prevention and control should not only focus on tangible methods such as medical treatment and material security, but also recognize the intangible methods of building a positive social mentality, and properly guiding the social mentality in the direction favorable to pandemic prevention and control(Wang & Ying, 2020). It noted confidence in the fight against the pandemic is the most direct reflection of social mentality during the pandemic, and the strength of confidence in the fight against the pandemic not only reflects the current assessment of people's work in the fight against the pandemic but also affects the effect of the next stage of pandemic prevention and control. Only by enhancing confidence in the fight against the pandemic can we truly unite social forces and fight the pandemic with one heart.

Residents' confidence in fighting pandemic based on the assessment of pandemic prevention and control work of governments at all level. These social assessments are based on information about the pandemic. According to Sylvie Briand, a global infectious disease preparedness expert at

the World Health Organization, the outbreak of the COVID-19 pandemic is accompanied by an "information pandemic", which refers to the difficulty of finding trustworthy information sources(Yi,2002). In media convergence, the information dissemination channels are more complex, the volume of information is more overwhelmed, and the subjects and objects of information are more diverse, making the information pandemic phenomenon during the COVID-19 pandemic more prominent. Based on the large-scale online survey data obtained at the beginning of the pandemic, this paper analyzes the residents' media usage during the pandemic and examines the media usage's influence on residents' anti-pandemic confidence.

Literature Review and Research Hypothesis

Social Confidence: the Key to Get Out of the Crisis

Social confidence is people's perceptions and expectations of future development prospects, which derived from a comprehensive judgment at macro-levels (such as the country's economic and social development situation) and subjective feelings at micro-levels (such as personal income, earnings, and work)(Li&wei,2013). Chu(2013) understands social confidence from three levels of mutually integrated: confidence in state power, society and oneself. Social confidence is a subjective psychological representation of people, but also guides people's behavior, and then affects the overall economic and social development. After analyzing the social consequences of the financial crisis, Sun(2009) points out that the lack of social confidence has become a booster for the occurrence and expansion of economic risks. When a country or society suffers from an economic crisis, rebuilding people's social confidence becomes the key to get out of the crisis. Behavioral expectations and social confidence of specific groups at specific times can have a crucial impact on their behavior, which can have positive or negative consequences on the social development. The COVID-19 pandemic is a major public health emergency that has spread the fastest, infected the most widely and is the most difficult to prevent and control since 1949. It makes the economic and social life of residents face a comprehensive crisis. Boosting social confidence is related to the success of pandemic prevention and control, and can motivate individuals to participate in pandemic prevention and control.

Media use and socio-political attitudes

Studies have shown that media messages can influence public perceptions of reality even more significantly than socio-demographic characteristics(Pfau et al.,1998). In the context of a mediated society, the media has increasingly become an essential channel for political information dissemination. Social networking sites such as Facebook, micro-blogs such as Twitter and video sharing websites such as YouTube directly connect users with candidates and public officials (Mcleod & Mcdonald,1983; Utz,2009). Chinese scholars have also found that with the rise and prosperity of mass media, mass media has become an important source for modern people to obtain political information and form political cognition (Hu and Zhuang, 2017). Related studies have mainly concentrated in the fields of communication and political science. The media's political influence on the public is not limited to the transmission of political information, but also influences people's political attitudes. However, current research findings on the relationship between media use and political attitudes are inconsistent, forming several main theories: media depression theory, virtuous circle theory and limited effect theory. To break through this research dilemma, some scholars suggest starting from the micro-level, we should thoroughly investigate

and analyze what kind of effect the media has on what kind of audience under what circumstances (Liao,2009).

As an important concept and research field in communication studies, media use has gone through a process from a secondary position to research center. The measurement methods and techniques of media use have been enriched and refined. However, the measurement indicators are inseparable from the three basic types based on time, space and media form. This study focuses on the two factors of media time and media form(Liao et al.,2015).

Gerbner et al.(1976) concluded that the longer a person watches television, the more likely his perceptions of social reality is to be influenced by the TV content. So the more violent content flood the screen, the more likely a large number of TV viewers will feel that the world is full of violence and fear. Feldman's research on the Japanese people found that the more frequently they use various media types, the more they trust government institutions and the political system (Feldman and Ofer, 2009). However, Wilkins et al.(1995) studied the relationship between Hong Kong residents' media use and their political distrust during the political transition period. The research found that people watching TV frequently will reduce their trust in the Chinese government because Hong Kong TV stations broadcast adverse reports against the Chinese government, which affects the public's recognition of the government. Studies by Chinese scholars have also found that the longer respondents used the Internet, the more negatively they rated their trust in government officials. (Yao,2014).

The classification of media types is crucial for studying people's socio-political attitudes, and different media types have different effects on different levels of socio-political attitudes. Using factor analysis, Hu and Zhuang(2017) divided media into emerging media and traditional media. They found that emerging media significantly reduced residents' trust in the government, while traditional media could greatly improve government trust. Guo and Sun(2018) found that neither traditional media nor new media had a significant effect on the level of trust in the local government, but only affected the central government's level of trust. The use of traditional media would enhance people's trust in the central government. The use of new media would decrease the level of trust in the central government among the people. Zhang et al. (2018) found that both official account and personal account have a significant positive mediating effect on the netizens' social confidence, but the mediating effect of official account trust is higher than that of personal account trust, that is, the function of 'mouthpiece' of Chinese media has been expanded from traditional media to the whole social media. The mediating effect of trust in official accounts is higher than that of trust in personal accounts. Wang et al.(2019) analyzed the difference in subjective well-being among official and unofficial medias, and found that political trust played a partial mediating role between the exposure of official media and the subjective well-being of netizens.Xue et al.(2019) found that official media's exposure to political information has a positive impact on the political attitudes of the new social class, improving their social satisfaction, government satisfaction, government trust and authority recognition, and weakening their awareness of inequality; Non-official media exposure to political information had a negative effect on their political attitudes, which reduce their social satisfaction, government satisfaction, government trust and authority recognition, and strengthening their inequality consciousness.

Media use and anti-pandemic confidence

The studies that have been conducted on social confidence during the COVID-19 pandemic are mainly descriptive analyses, but interpretive studies are relatively lacking. There is even less

research in anti-pandemic confidence and its influencing factors. Only one study by Wei Na(2020) found that the quality of government information release, residents' perception of government information resources, the concern about the pandemic during the COVID-19 pandemic significantly affected residents' confidence in anti-pandemic. This study intends to investigate the effects of media use on public confidence in fighting the pandemic from two aspects: media usage time and the media usage type.

Firstly, considering the hierarchical governance pattern among the Chinese government at all level, we observed residents' confidence in China and Shanghai in fighting the pandemic, respectively, and propose a set of competitive hypotheses in this research.

H1a. Compared with local government, residents have more confidence in central government about fighting the pandemic.

H1b. Compared with central government, residents have more confidence in local government about fighting the pandemic.

Given the controversial results on media usage time's impact on socio-political attitudes, this paper proposes a set of competitive hypotheses on media usage time.

H2a. The longer the media usage time, the stronger is the residents' confidence in fighting the pandemic.

H2b. The shorter the media usage time, the stronger is the residents' confidence in fighting the pandemic.

Scholars generally agree that there are differences in the effects of different media types on residents' socio-political attitudes. For example, during the pandemic period, the spread of self-published rumors caused public panic and brought resistance to the pandemic's prevention and control. Therefore, this paper proposes the hypothesis of media usage type.

H3. The use of official media is more beneficial than unofficial media to raise the residents' confidence in fighting the pandemic.

Study Design

Data sources

The data used in this study come from the Fight against the pandemic: Shanghai Citizens' Life Survey, which was conducted from February 9 to February 14, 2020, jointly by the Development Research Center of Shanghai Municipal People's Government and the Paper Research Institute[1]. The questionnaire was distributed on the Internet platform, and the sample covered 146,086 citizens in 16 districts of Shanghai. Due to the influence of some missing values, this study was analyzed based on 123,932 samples only.

Variable and operationalization

Dependent variable

The dependent variable of this study is confidence in the fight against the pandemic, which is the subjective opinion and psychological expectation of the residents that the government at all levels can overcome the pandemic during the COVID-19 pandemic, including residents' confidence in Shanghai area and the whole country. The operationalization is 'How confident are you that Shanghai will be able to control the pandemic effectively?' Options included 'not confident at all',

[1] The questionnaire was designed by the Department of Sociology of Tongji University and the Paper Research Institute.

'not very confident', 'moderately confident', 'quite confident' and 'very confident', assigned a value of 1-5 respectively.

The survey data show that residents are more confident in China's anti-pandemic than in Shanghai's. Specifically, 67.96% of respondents are relatively confident or very confident in overcoming the pandemic in China, while only 52.44% of the respondents are relatively confident or very confident in overcoming the pandemic in Shanghai. In addition, 8.36% of respondents choose 'not confident at all' or 'not very confident' in China, only 23.76% choose 'not confident at all ' or 'not very confident' in Shanghai. There was a significant difference between the two t-tests ($p<0.001$).

Table 1 Descriptive analysis of Shanghai residents' anti-pandemic confidence

（N=123932）

Unit:%

Options	Confidence in China	Confidence in Shanghai
Not confident at all	2.01	7.15
Not very confident	6.35	16.61
Fairly	23.68	23.8
Quite confident	41.89	33.37
Very confident	26.07	19.07
Total	100	100

Independent variables

The study's core independent variables are media use, including media usage time and media usage type.

Media usage time. Respondents were asked, 'In the past three days, how much time did you spend on information related to the outbreak each day?' The options included 'less than 1 hour', '1-2 hours', '2-4 hours', '4-8' hours and 'more than 8 hours'. We categorized 'less than 1 hour' and '1-2 hours' as low media usage time and '2-4 hours' , '4-8 hours and more than 8 hours' are categorized as high media usage time.

Media usage type. The media usage type was measured by asking the respondents, 'What are your main sources of information about the outbreak?' The options include 'central media and their online platforms (e.g. CCTV, Xinhua News Agency, People's Daily, etc.)', 'local media and their online platforms (e.g. Shanghai TV, Shanghai Post, etc.)', 'domestic social media or We media (e.g. WeChat official accounts, Weibo, online communities, etc.)', 'domestic commercial media (e.g. Life Week, Caixin, etc.)', 'overseas media (e.g. BBC, Facebook,Twitter,etc.)','news shared by family/friends with no clear source', 'announcements/ notifications issued by district, towns, village committees','cell phone text messages sent by telecommunication operators'.This study focuses on obtaining pandemic information through Internet platforms, so we only focus on the first five media types. We used the K-means clustering method to construct classification criteria through these five variables in the questionnaire, which helped us to classify individuals into different media usage types. As shown in **Table 2**, more than 80% of Shanghai residents have obtained information about the pandemic situation through 'local media and their online platforms', which was the highest proportion of all information sources. The proportion of those who used domestic social media or We media and central media as well as their online platforms to obtain information about the pandemic was also very high, ranking second and third

respectively. The proportion of those who used domestic commercial media to obtain information about the pandemic was relatively small, at 21.72%. In comparison the proportion of obtaining pandemic information through overseas media is the lowest, less than 10%. Table2 indicates that local media and their online platforms, domestic social media or We media, central media and their online platforms are the main ways for residents to obtain pandemic information.

Table 2 Information sources of pandemic information for Shanghai residents

（N=123932）

Sequence	Information sources	%
1	Local media and their online platforms	82.12
2	Domestic social media or We media	78.53
3	Central media and their online platforms	78.41
4	Domestic commercial media	21.72
5	Overseas media	8.13

We start with specifying two clusters to analyze five information sources, then gradually increased the number of clusters.. **Table 3** gives the final results of the cluster analysis. Based on the characteristics of media use in each type, this paper summarizes four media usage type during the pandemic: restricted media type, social media type, official media type and multiple media type. In the first media usage type, the percentage of individuals who used media to obtain information about the pandemic was deficient, so it was named the restricted media type, accounting for 14.08% of the total sample. The second media usage type was named social media type because the percentage of local media usage was low, accounting for 8.27% of the total sample. In the third media usage type, individuals mainly relied on official media, such as local media and central media to obtain information, so it was named as official media type, accounting for 57.63% of the total sample. In the fourth media usage type, the possibility of individuals using all types of media is higher than other types, so it is named as multiple media type, accounting for 20.02% of the total sample.

Table 3 Media use as well as type distribution revealed by cluster analysis

Information sources	Restricted Media	Social Media	Official Media	Multiple Media
Central media	0.25	0.88	0.86	**0.91**
Local media	0.22	0.25	**1.00**	0.97
Domestic social media	0.47	**0.99**	0.78	0.94
Domestic commercial media	0.10	0.04	0.00	**1.00**
Overseas media	0.02	**0.38**	0.01	0.22

Note: Bolded black font is the highest percentage under this variable (e.g., central media 0.91 means that respondents with multiple media types are 91% likely to use central media for information), and underlined is the lowest percentage under this variable (e.g., central media 0.25 means that only 25% of respondents with restricted media use central media for information).

Control variables

Considering the possible effects of gender, age, political status, education level and occupation type on residents' anti-pandemic confidence during the COVID-19 pandemic, this study included

the above variables as control variables in the model. Gender is a dummy variable, with men assigned a value of 1 and women assigned a value of 0. Age is a continuous variable, in order to examine the possible quadratic effect of age, the squared term of age is used. Political status is a dummy variable, with party members assigned a value of 1 and non-party members (including members of the Communist Youth League, democratic parties or non-party members) assigned a value of 0. The education level is a fixed-order variable, which is designated as 1 for junior high school and below, 2 for high school/junior college/vocational high school, 3 for university and others. Occupation types include manager, professional technician, office worker, business service personnel, worker, freelance and unemployed. The descriptive analysis results of each variable are shown in **Table 4**.

Table 4 Results of descriptive analysis of each variable

（N=123932）

Variables	N	%	Variables	N	%
Gender			**Political status**		
male	34787	28.07	Party Member	23,347	18.84
female	89145	71.93	Non-party members	10,0585	81.16
Occupation			**Media usage time**		
Manager	21,464	17.32	Low media usage time	47,942	38.68
Professional technician	17,414	14.05	High media usage time	75,990	61.32
Office clerk	59,894	48.33	**Media usage type**		
Business service worker	6,123	4.94	Restricted Media	17,455	14.08
worker	3,334	2.69	Social Media	10,254	8.27
Freelance	7,004	5.65	Official Media	71,416	57.63
Unemployed	8,699	7.02	Multiple media	24,807	20.02

Continuous variables	Average value	Standard deviation	Minimum value	Maximum value
Age	30.64	8.04	18	92
Age^2	10.03	5.83	3.24	84.64
Education level	3.79	0.79	1	5

Research model

This study's dependent variable, anti-pandemic confidence, is a fixed-order variable, and the common practice nowadays is to build a fixed-order logistic-stiffness regression model. However, it presupposes that the parallel line test is not significant, and the relevant data of this study cannot satisfy this condition. Therefore, in this study, we mainly used the General Ordered Logit Model (GOLM) for analysis. The basic form of the model is as follows.

$$P（Yi > j）= g(X\beta_j) = \frac{\exp(\alpha_j + x_i\beta_j)}{1+[\exp(\alpha_j + x_i\beta_j)]})$$

$$j=1,2,\cdots,M-1$$

M is the number of categories of the fixed-order variables. In this study, M = 5, when j = l, category 1 is compared with categories 2, 3, 4, and 5; when j = 2, categories 1 and 2 are compared with categories 3, 4, and 5; when j = 3, categories 1, 2, and 3 are compared with categories 4 and 5;

and when j = 4, categories 1, 2, 3, and 4 are compared with category 5.

Research Findings

*Factors influenc*ing anti-pandemic confidence in *Shanghai*

Table 5 shows the regression model of the factors influencing residents' anti-pandemic confidence in Shanghai. By establishing a generalized fixed-order logistic-stiff regression model, it can accurately predict which option and dependent variable will be influenced by the change of one-unit of independent variable. To be able to visualize more clearly the effect of the change of one-unit in the independent variable on the dependent variable, we present the odds ratio in the table.

In terms of control variables, the effects of gender and political status on anti-pandemic confidence in Shanghai were statistically significant. Female were significantly more confident in fighting the pandemic in Shanghai than male, and Party members were significantly more confident in fighting the pandemic in Shanghai than non-Party members. Regarding age, in the second category ('not confident at all' + 'not very confident' vs. 'fairly' + 'quite confident' + 'very confident') and the third category ('not confident at all' + 'not very confident' + 'fairly' vs. 'quite confident' + 'very confident'), the odds ratios for the age term were less than 1, while the odds ratios for the squared age term were all greater than 1 and significant at the $p<0.001$ level. This means that there is a U-shaped relationship between age and anti-pandemic confidence in Shanghai. The statistical significance of the effect of education on confidence in fighting the pandemic in Shanghai was unstable, except in the first category ('not confident at all ' vs. 'not very confident' + 'fairly' + 'quite confident'+ 'very confident') and the fourth category ('not confident at all' + 'not very confident' + 'fairly' + 'quite confident' vs. 'very confident'), it took an increase in education to significantly reduce the level of Confidence. Regarding the type of occupation, professionals and technicians' anti-pandemic confidence in Shanghai is higher than that of managers, but it is statistically significant only in the second, third and fourth category. In other words,in the fourth category, technical professionals are 10.8% more likely than managers to choose 'very confident' compared to the first four items ('not confident at all' + 'not very confident' + 'fairly' + 'quite confident' + 'very confident'). In contrast, Office clerk, business service personnel, worker, freelancer and the unemployed are significantly less confident in Shanghai's resistance to the pandemic than managers.

Further analyzing the effect of the core independent variables in the generalized logistic regression model on anti-pandemic confidence in Shanghai, we can have the following findings.

media usage time significantly decreases respondents' confidence in Shanghai's anti-pandemic result. The effects of media usage time on confidence in Shanghai's resistance to the pandemic are all statistically significant, and the odds ratio is less than 1 in all categories, indicating that the longer the respondents' media usage time, the weaker their confidence in Shanghai's resistance to the pandemic. Specifically, in the first category, compared with the respondents who use fewer media are 55.9% less like to choose 'not very confident' + 'fairly' + 'quite confident' + 'very confident' than 'not confident at all'. In the second comparison category, respondents with high media usage time were 55.9% less likely to choose 'fairly' + 'quite confident' + 'very confident' compared to respondents with low media usage time. The possibility of choosing 'not confident at all' + 'not very confident' is 48.3% lower than that of choosing 'not confident at all' + 'not very confident'. In the third comparative category, respondents with high

media usage time were more likely to choose ‘quite confident’ + ‘very confident’ than ‘not confident at all’ + ‘not very confident’ compared to respondents with low media usage time.In the fourth comparison category, respondents with high media usage time were 33.4% less likely to choose ‘very confident’ than ‘not confident at all’ + ‘not very confident’ + ‘fairly’ compared to respondents with low media usage time. There are differences in the effects of different types of media use on anti-pandemic confidence in Shanghai.Firstly, the use of official media has significantly increased the confidence of residents in Shanghai local government anti-pandemic effort. Compared with respondents with restricted media types, respondents with official media types have stronger confidence in fighting the pandemic in Shanghai, and the odds ratio is greater than 1,which is of statistically significant. For example, in the first category, , compared with the respondents with restricted media types, respondents with official media types are 44.9% more likely to choose ‘not very confident’ ,‘fairly’ , ‘quite confident’, ‘very confident’ than ‘not at all confident’.

Secondly, the use of social media has somewhat increased respondents’ confidence in Shanghai local government anti-pandemic effort. Specifically, in the first type of comparisons, social media respondents were more likely to choose ‘not very confident’,‘fairly’ , ‘quite confident’ or ‘very confident’ than restricted media respondents. The probability of being ‘very confident’ is 14.3% higher than that of being ‘not confident at all’. In the second category of comparisons, compared to restricted media respondents, the social media respondents were 6.5% more likely to choose ‘fairly’ , ‘quite confident’ or ‘very confident’. In the third comparative category, respondents in the social media category are 6.1% more likely to choose ‘quite confident’, ‘very confident’ than ‘not confident at all’ , ‘not very confident’ or ‘fairly’. Except for the last category, the odds ratios of the first three categories were statistically significant, Finally, the use of multiple media has effected the confidence of Shanghai local government in fighting the pandemic. Specifically, in the first comparisons, respondents with multiple media types are 7.9% more likely than those with restricted media types to select ‘not very confident’ + ‘fairly’ + ‘quite confident’ + ‘very confident’ than ‘not confident at all’.

In the third category of comparisons, compared with the respondents with restricted media types, respondents with multiple media types are 6.9% less likely to select ‘quite confident’ , ‘very confident’ than ‘not confident at all’,‘not very confident’ or ‘fairly’. In the fourth category of comparisons, respondents with multiple media types were 9.6% less likely to choose ‘very confident’ than ‘not confident at all’ ,‘not very confident’ or ‘fairly’ compared to respondents with restricted media types.It can be seen that there is a negative effect of multiple media resources on the anti-pandemic confidence in Shanghai, which is of great significant in the comparison between the third category and fourth.

Table 5 Generalized fixed-order logistic regression model of factors influencing anti-pandemic confidence

	category 1 1 vs 2-5	category 2 1-2 vs 3-5	category 3 1-3 vs 4-5	category 4 1-4 vs 5
Control variables				
Male [a]	0.671***	0.788***	0.939***	1.071***
Age	0.998	0.973***	0.977***	0.999
Age^2	1.082***	1.105***	1.101***	1.052***
Party member[b]	1.848***	1.702***	1.705***	1.574***

Educational level	1.081***	1.020**	0.997	0.857***
Occupation type[c]				
Professional technician	1.052	1.074***	1.059***	1.108***
Office clerk	0.653***	0.701***	0.729***	0.683***
Business service worker	0.727***	0.878***	0.921***	0.968
worker	0.584***	0.781***	0.821***	0.951
Freelance	0.679***	0.757***	0.798***	0.783***
Unemployed	0.526***	0.580***	0.646***	0.694***
Media usage time				
High media usage time[d]	0.441***	0.517***	0.574***	0.666***
Media usage type				
Social Media[e]	1.143***	1.065**	1.061**	1.019
Official Media	1.449***	1.255***	1.217***	1.217***
Multiple media	1.079**	0.963	0.931***	0.904***
Constant term	9.692***	4.369***	1.263***	0.315***
N	123932			
Log likelihood	-181348.26			
Pseudo R^2	0.0313			

Note: (1) Listed in the table are odds ratios. (2) Two-tailed test for statistical significance: *** p<0.01, ** p<0.05, * p<0.1.(3) a Gender, with female as the reference. b Political status, with non-party members as the reference. c Occupation type, with managers as the reference. d Media usage time, with low media usage time as the reference. e Media usage type, with restricted media type as the reference.

Factors influencing anti-pandemic confidence in China

Table 6 shows the generalized fixed-order logistic regression model of the factors influencing China's central government confidence in fighting the pandemic. As for the control variables, in the second, third and fourth comparisons, the odds ratio of the age term is less than 1, while the odds ratio of the age-squared term is greater than 1. Therefore, there is a U-shaped relationship between age and confidence in fighting the pandemic in China as a whole country. All categories have an odds ratio greater than 1. In other words, party members' confidence in China is significantly higher than that of non-party members. Educational attainment has a certain degree of influence on confidence in fighting the pandemic in China, and the odds ratio of all categories is less than 1 except the first category, which means that the higher the education attainment level, the lower the residents' confidence in fighting the pandemic in China. Regarding the type of occupation, Office clerk, freelancer and non-employed people had significantly lower confidence in China's resistance to the pandemic than managers. In addition, business service worker and worker were less confident in China's resistance to the pandemic than managers, but only in the first, second and third categories of comparisons were they statistically significant. There was no significant difference between technical professionals and managers in their confidence in China's anti-pandemic effort, except that in the fourth comparative category, technical professionals are more likely to choose 'very confident' than managers, instead of the first four items ('not confident at all'+ 'not very confident' + 'fairly' + 'quite confident') by 7.2%.

Similarly, we further added the two core independent variables of media usage time and media usage type to the control variables. The main findings are as follows.

In terms of media usage time, just like the effect on confidence in Shanghai's anti-pandemic, media usage time was also able to significantly reduce respondents' confidence in China's anti-pandemic. The effect of media usage time on confidence in China's resistance to the pandemic was statistically significant in all categories, and the odds ratio was less than 1 in all categories, indicating that the longer the respondents' media usage time, the weaker their confidence in China's resistance to the pandemic. In the first category, for example, compared with respondents who use less media, those who use more media are 50.2% less likely to chose 'not very confident', 'fairly', 'quite confident','very confident' or 'very confident' than 'not confident at all'.

In terms of the media usage type, both social media and official media significantly increased respondents' confidence in China's fight against the pandemic. Compared with the respondents with restricted media types, respondents with social media types and official media types have stronger confidence in China's fight against the pandemic, and the odds ratio of each category is greater than 1 which is statistically significant. Meanwhile, the use of multiple media also enhanced respondents' confidence in central government anti-pandemic effort. Specifically, for the first category, respondents with multiple media types are 37.1% more likely to choose 'not very confident', 'fairly', 'quite confident','very confident' than 'not confident at all'.In the second category of comparisons, respondents with multiple media types were 18.1% more likely to choose 'fairly', 'quite confident', 'very confident' than respondents with restricted media types.In the third comparison category, respondents with multiple media types were 10% more likely to select 'fairly confident', 'very confident' than 'not at all confident' ,'not very confident' or 'fairly' compared to respondents with restricted media types.The odds ratios for the first three categories are statistically significant, but the last category is not statistically significant.

Table 6 Generalized fixed-order logistic regression model of factors influencing anti-pandemic confidence in China

	Category 1 1 vs 2-5	Category 2 1-2 vs 3-5	Category 3 1-3 vs 4-5	Category 4 1-4 vs 5
Control variables				
Male [a]	0.514***	0.716***	0.975*	1.204***
Age	1.030**	0.984**	0.978***	0.974***
Age^2	1.032	1.070***	1.072***	1.070***
Party member[b]	2.301***	1.981***	1.810***	1.561***
Educational level	1.026	0.948***	0.940***	0.825***
Occupation Type[c]				
Professional technician	1.085	0.993	1.003	1.072***
Office clerk	0.713***	0.739***	0.776***	0.753***
Business service worker	0.706***	0.788***	0.838***	0.976
worker	0.638***	0.791***	0.828***	1.006
Freelance	0.605***	0.680***	0.780***	0.843***
Unemployed	0.413***	0.536***	0.650***	0.732***
Media usage time				
High media usage time[d]	0.498***	0.572***	0.679***	0.763***
Media usage type				

Social Media[e]	1.329***	1.155***	1.176***	1.120***
Official Media	2.276***	1.800***	1.514***	1.363***
Multiple media	1.371***	1.181***	1.100***	1.002
Constant term	20.031***	14.620***	2.889***	0.810**
N	123932			
Log likelihood	-158289.91			
Pseudo R^2	0.0249			

Note: (1) Listed in the table are the odds ratios. (2) Two-tailed test for statistical significance: *** p<0.01, ** p<0.05, * p<0.1.(3) a Gender, with female as the reference. b Political status, with non-party members as the reference. c Occupation type, with managers as the reference. d Media usage time, with low media usage time as the reference. e Media usage type, with restricted media type as the reference.

Conclusions and Discussions

This paper compared residents' confidence in fighting the pandemic in Shanghai and China and examined the impact of media use on residents' confidence in fighting the pandemic using data from 123,932 web-based questionnaires targeting Shanghai residents at the beginning of the new crown pneumonia pandemic. The main findings of the study are as follows.

First of all, there are differences in residents' confidence in fighting the pandemic in Shanghai and China. The survey data showed that Shanghai residents' confidence in fighting the pandemic in China was significantly higher than their confidence in fighting the pandemic in Shanghai, and the research hypothesis H1a was verified. Studies have shown that the overall governmental trust of Chinese people is in the poor order of strong central government and weak local government. The current researches found that residents' confidence in fighting the pandemic is also manifested by strong central government and weak local government. Because of the difference of social confidence, the confidence of the central government in anti-pandemic is significantly higher than the local government. Scholars have pointed out that in the Chinese context, the public has two main conceptions of government: the imagined government and real government(Wang,2005). And specifically in terms of confidence in the fight against the pandemic, people prefer to have more confidence in the distant, hard-to-reach central government, while lacking confidence in the local government, which is within their reach and with which they deal regularly. In addition, the progress of the pandemic has a direct impact on residents confidence in Shanghai and the country's fight against the pandemic. Statistics show that from February 8 to February 14,2020, there were 45 new confirmed cases, 326 cumulative confirmed cases, and 692 new suspected cases in Shanghai. During the same period, except Hubei Province, there were 224 new confirmed cases, 12,170 confirmed cases and 3,435 new suspected cases in the country. It can be seen that the new confirmed and suspected cases in Shanghai during this period are at a high level in the whole country except Hubei. This may directly affected residents' anti-pandemic confidence in Shanghai.

Secondly, media usage time significantly reduced residents' confidence in fighting the pandemic. Residents with high media usage time were significantly less confident in overcoming the pandemic both in local government and central government that those with low media usage time, so the study hypothesis H2b was verified. This finding may be related to information overload. Information overload refers to the state that the individual's information processing ability is insufficient to meet the enormous information processing demands (Qiong et al.,2020).

Numerous studies have shown that information overload can cause users to experience cognitive burdens and emotional barriers, and that users experiencing information overload are more likely to feel stressed, overwhelmed, overwhelmed, and sometimes confused and self-doubtful about what is going on, thus affecting physiological and psychological health(Bawden et al.,2009). In terms of information processing and behavior, people who experience information overload are more likely to misinterpret information, neglect further information input and reduce the accuracy of decision making (Khaleel, Israa , et al.,2019). During the pandemic period, the phenomenon of increasing anxiety and sadness is actually a manifestation of information overload, which directly affects residents' psychological health. The findings of this study show that information overload further affects residents' confidence in fighting the pandemic.

Besides, different media types have multiple effects on confidence in fighting the pandemic. This paper found that the residents' media usage type during the pandemic included 'restricted media', 'social media', 'official media', and 'multiple media'. The official media had a significant positive effect on the confidence in fighting the pandemic in both Shanghai and China, mainly because the official media, as the government's main forum for political information dissemination and diffusion, emphasized the mouthpiece mode and intervention mode. The pandemic information was mainly positive, thus positively contributing to the residents' confidence in fighting the pandemic. Social media also significantly boosted residents' confidence in fighting the pandemic. It has been shown that the use of social media can promote both political participation, political knowledge, civic cohesion, social trust, and government credibility among netizens. Social media also plays a positive role in mobilizing patriotic sentiments among netizens. This new emerging medium has become a tool for maintaining the current political and social system in China(Li et al.,2016;Hyun et al.,2015). The relevant findings of this study further prove that the use of social media has a positive effect on enhancing residents' confidence in anti-pandemic. Although the use of diversified media boosted respondents' confidence in the fight against the pandemic in China to a certain extent, it had a negative impact on residents' confidence in fighting against the pandemic in Shanghai. This may be related to the use of domestic commercial media and foreign media. Due to the lack of a strict information gate-keeping system or to gain attention, increase the number of clicks, and chase commercial profits, some self-media, commercial media, or foreign media challenge and question the official media, and even publish negative and false news, making users evaluate the government's anti-pandemic actions negatively, which in turn affects anti-pandemic confidence. Therefore, the research hypothesis H3 is partially verified. With the normalization of pandemic prevention and control work, we should continue to exert the positive influence of official media and social media, actively deal with the negative influence brought by the use of multiple media, realize the benign interaction of multiple media in dissemination pandemic information, and give full play to the important role of confidence in rallying social strength and jointly fighting the pandemic.

Finally, it should be noted that there are the following shortcomings int this paper: the data of this study were obtained through an online survey, which has the limitation of an online questionnaire. The data in this study only represent the confidence of Shanghai residents in fighting against the pandemic at the beginning of the outbreak, and the confidence of Shanghai residents in fighting the pandemic and the factors influencing it may change as the pandemic develops further. This paper only investigates the direct effect of media use on confidence in fighting the pandemic, but fails to explain the specific mechanism of the effect of media use on

confidence in fighting the pandemic.

Notes

1.The survey was actually conducted from February 9 to February 14, 2020, and the pandemic data were collated up to February 8, 2020, as the daily release was for the previous day's pandemic data.

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Session 3

Digital Techology and China's "Anti-Epidemic Battle" for Covid-19

Peng LU

Department of Sociology for Economy, Science, and Technology

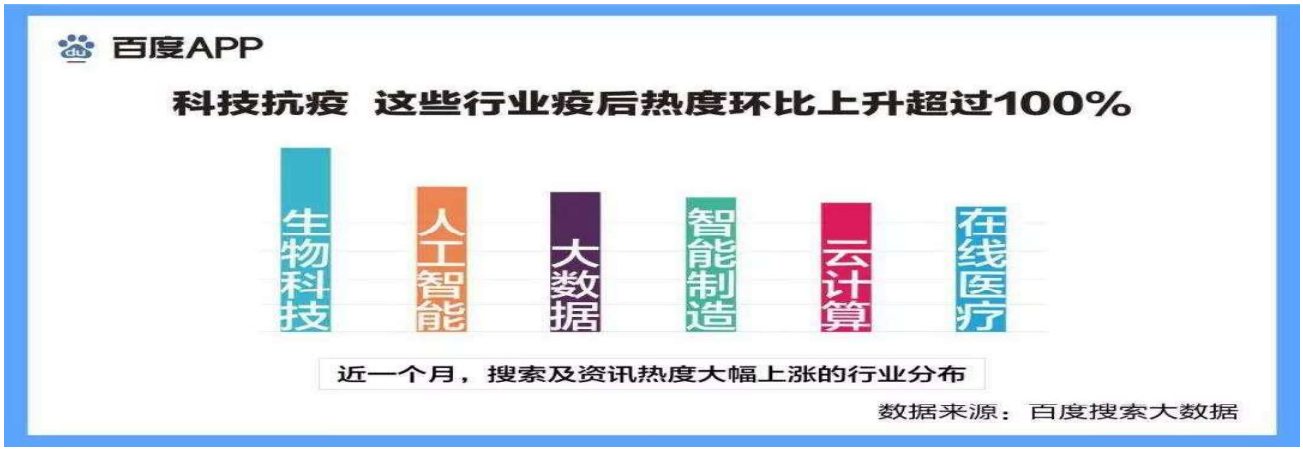
Institute of Sociology, Chinese Academy of Social Sciences

ABC Times

AI, BIG DATA, CLOUD COMPUTING

The Coming of "Intellectual Governance"

China has become the first country in the world to use artificial intelligence (AI) data, algorithms and computing power to fight public health incidents on a large scale.

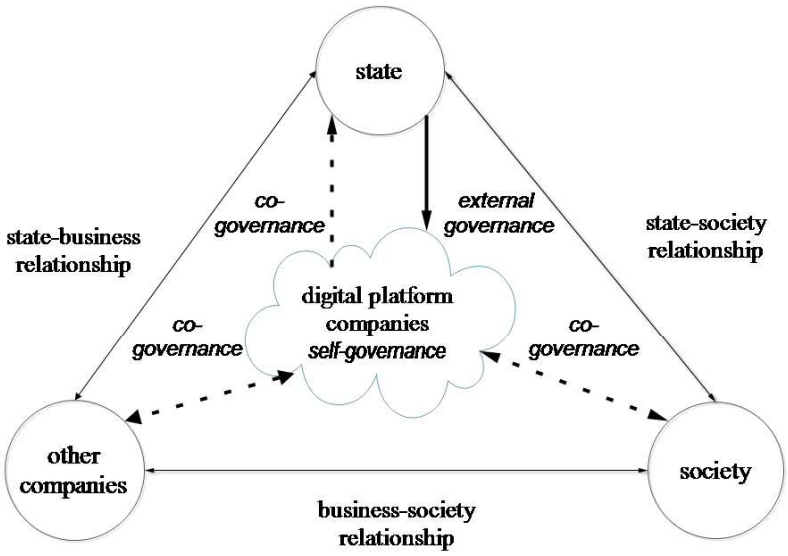


What is Platform Governance

01 **Self Governance**

02 **External Governance**

03 **Co-governance**



Self-Regulation

- The narrow sense of "platform governance".
- In some management literature only refers to the corporate governance of platform companies, including the upgrading of technology or products, the establishment of a more open and transparent corporate governance structure, the improvement of algorithms, the formulation of platform agreements, etc.
- However, many of the changes implemented within these companies will also involve how the platform companies standardize its ecology of B-end (suppliers, advertisers, etc.) and C-end (users), which is a type of "governance by the platform," merging with the co-governance.

Self-Regulation in the World

Self-Regulation: Deepfake Storm

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External Governance

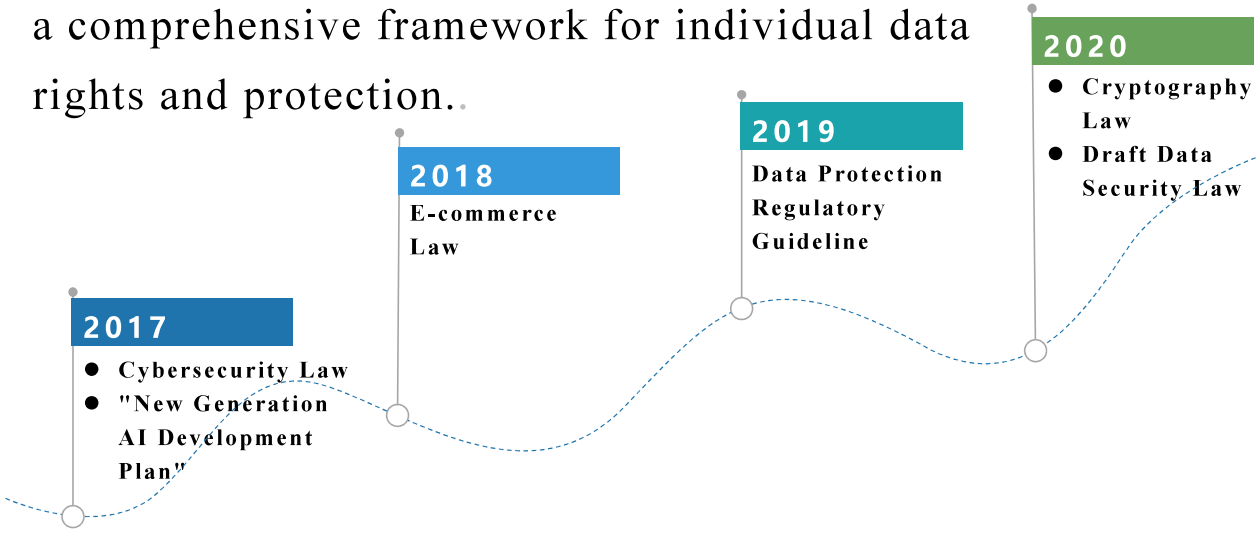
- the governance of the platform by the state
- due to numerous public scandals, large-scale data disclosure, monopoly of platform industry and increasing public attention to polarization, false information (such as "fake news") and algorithm colonization, the supervision of these platform companies has become the focus of many critical studies
- technology companies should be subject to legal constraints and be supervised by transnational and domestic institutions

External Governance

- China has promulgated a series of regulations in the market fields of price mechanism, payment mechanism, consumer rights protection, reasonable taxation, fair competition, etc.
- Compared with the EU's controversial and harsh governance, the Chinese state was tolerant when it comes to issues related to public policies, like privacy and ethics. (*When Mark Zuckerberg testified before Congress in early 2018 on Facebook's data practice, he warned that regulating the platform's use of personal data would cause the US to fall behind Chinese companies when it comes to data-intensive innovation, such as AI*)

External Governance in China

China's personal data protection law will lead to a comprehensive framework for individual data rights and protection.



"2019 may also be the turning year of Internet regulation from loose to strict (in China)," and "platform governance is becoming increasingly complex and diverse, interweaving with regulation on data, content and other aspects".

--Tecent Insitutue
Digital Transformation and Governance Innovation: Global Internet Legal Policy Observation in 2019

Co-governance

Indirect

Participate in one part of national governance architecture (P2G). For example, participate in governance indirectly as a "e-government" supplier, mainly providing "technology"

Direct

Become "private governors" by creating rules and making decisions in many fields related to basic civic right. Form a "mixed public-private governance structure", which can even spread their domestic laws to global users through the rules of platform enterprises, such as user service agreements

Scenarios

those application scenarios that impressed me the most

Info and Knowledge Center

"Every major Chinese app has added dedicated hubs for the Coronavirus. They've all smoothly integrated tons of different tools to help people get through the crisis, including:

1. **Statistics**: Apps scraped the figures from the National Health Commission reformatted, resliced, and visualized in it in myriad ways.1
2. **Check Your Exposure:** Multiple tools let people check whether other passengers of specific planes and trains they'd been on had been diagnosed (this information aggregated by the State Council). Independently-developed let people even check individual apartment blocks.
3. **E-Medicine:** Maps directing people to the nearest fever clinics and ICUs. Online consultations and perscriptions, as well as psychogical counseling.
4. **E-Commerce:** Masks, hand sanitizer, and more, through each app's preferred partners. Additional tools let users check the quality of a mask given its serial number, view the quantities of masks at stores near them, and report price gouging.
5. **Tools for Quarantine:** Before Health QR Codes (described below) launched, other tools helped individual communities take roll calls and keep records."

Source: http://dangrover.com/blog/2020/04/05/covid-in-ui.html

Baidu (Dedicated tab in news reader UI)

Source: http://dangrover.com/blog/2020/04/05/covid-in-ui.html

Alibaba Health

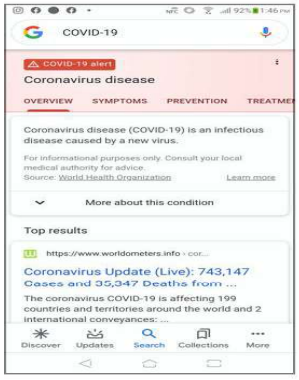
- Take a number (by hospital, by specialty, by illness)
- My visit log
- Expert blogs
- National Health QR Code. *Don't leave home without it!*
- Trending local hospitals
- *Sort together / Local hospitals / respitory / digestive / pediatrician / gynecology / neurology / optometry / endocrinology*

Tencent Health

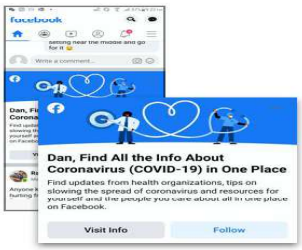
- Trending searchs
- National health insurance electronic cert.
- Get a red envelope/coupon!
- Health knowledge, online consultations, online reservation, appointment experience
- Coronavirus status
- Domestic / Overseas
- Guangzhou, Shenzhen
- Check epidemic
  Understand the epidemic
  (Tencent medical knowledge base)

http://dangrover.com/blog/2020/04/05/covid-in-ui.html

Google



Facebook



Twitter

'Health Code'

Holder may move about unrestricted

May be asked to stay home for seven days

Two week quarantine

"Health Code" is a QR code on people's mobile phones that rates the user's risk of catching the coronavirus. Green codes granted unrestricted movement. A yellow code required seven days of quarantine. Red meant 14 days of quarantine.

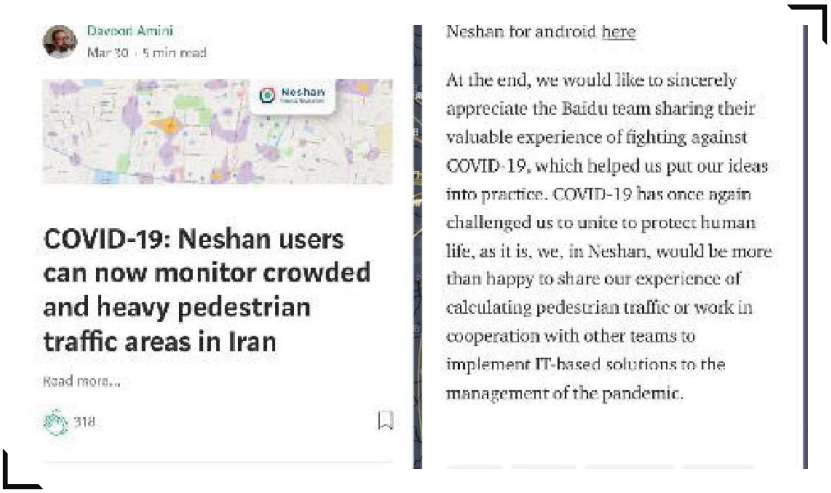
It is partly similar to Google and Apple's tracking app Exposure Notification (and much more sophisticated), but is essentially compulsorily enforced as a precondition for entering anywhere.

Swift Responsiveness and Institution Learning

From Feb 9, the local government of Yuhang District of Hangzhou City first adopted Alibaba's health codes, then city of Hangzhou and whole Zhejiang Providence, to Feb 16 when the Chinese central government gave "green light" to Alibaba to speed up its installation to nationwide 100 plus cities, the whole process only took 7 days.

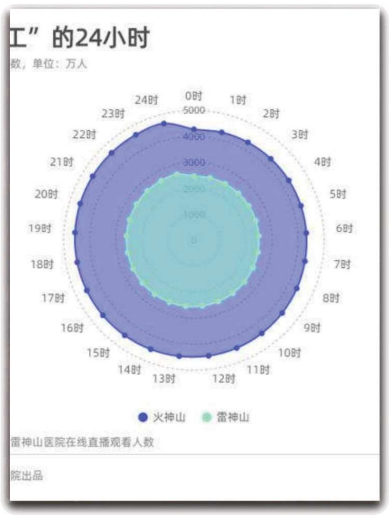
Geographic Information Systems (GIS) Data

AI spatio-temporal big data provides a reliable reference for scientific research worldwide. The public can check the daily population migration trends, and urban travel intensity of the country, so as to have a clearer understanding of national population activities and travel conditions.



"Cloud Overseers" : All eyes on

From Jan 27 to May 21, construction and maintainance for two new makeshift hospitals were witnessed live with 24/7 livestreams via state media's app. Over 100 million Chinese were online a day, and have nicknamed the bulldozers and trucks, such as "Little Yellow" and "Little Blue."



Logistics and Delivery Technology

Consumer digital maturity: On Jan 26, Meituan took the lead in launching a "contactless delivery" service in Wuhan

Digitally Enabled Delivery Systems: On Fe 5, the public service platform for epidemic prevention materials information developed by Ant Blockchain and cityDo Group was launched on Alipay

Supply Chain: On Feb 12, Jingdong cooperated with the Hubei Provincial Government to formally undertake its emergency supply chain management platform

“More Cases?”

Internet+Labor: Empower New Labor

- ChuanHua, a large Chinese logistics platform, has opened green channels for anti-virus materials nationwide, providing services of free transportation, warehousing and material transfer.
- In less than three days, it received nearly 200 transportation capacity needs from "blocked" Wuhan, and managed to deliver them.
- ChuanHua developed an app called "ChuanHua Anxin Post," literally meaning Comforting Station, creating an on-line and off-line community where truck drivers can help each other and yield a sense of social solidarity.
- During the epidemic, more than 22,000 "app friends" (truck drivers) on the platform of Anxin Post voluntarily responded to the mobilization of ChuanHua to deliver goods to the dangerous endemic area.

24

Even more Cases: A Rival of Co-governance

There are more and more scenarios of co-governance. Many are the result of government requirements, but many are the result of active matching by platform.

'New Infrastructure'

This new catchphrase means the concept of new infrastructure is more expansive than simply building out 5G.

It includes new data centers, industrial internet capacity, blockchair IoT, artificial intelligence (AI), and even satellite-delivered internet services.

China unveils guideline on improving market-based allocation of production factors, , including land, labor and capital while accelerating the development of the market of technology and data factors.

Accelerate the cultivation of the data factor market:
(1) Promote the open sharing of government data;
(2) Enhance the value of data resources;
(3) Strengthen data resource integration and security protection

March 30 , 2020

Final Tips

ABC, again

"Algorithm"
Value and Vison

"Big Data"
Public available, complete, fine-grained, timely, machine-readable, structured "useful" data

"Computing Power"
Power to realize digital dividends through policy innovation and implementation


社计师
So-coders
Thanks
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Email: lv-peng@cass.org.cn

Perception and Attitude of COVID-19
a survey of 16 countries

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@EASA 062521

DATA
16 Cities (Seoul, Tokyo, Taipei, Stockholm, New York, Toronto, London, Berlin, Paris, Madrid, Rome, Moscow, São Paulo, Mexico City, New Delhi, Jakarta)
Stratified Random Sampling (Population size, Age, Sex)
N = 8,233 (about 500 for each city)
±4.4%, 95% confidence level
Computer Assisted Web Interview (Rakuten Insight)
2020. 9. 18 ~ 10. 5
National Research Foundation of Korea, Policy Research (200-20200061) Seoul National University / Joongmin Foundation

QUESTIONS
Government vs. Civil Society
US vs. China
Social Capital

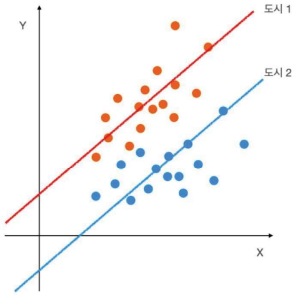
Methodology

<Univariate Comparisons> $\overline{x} \pm z\frac{s}{\sqrt{n}}$

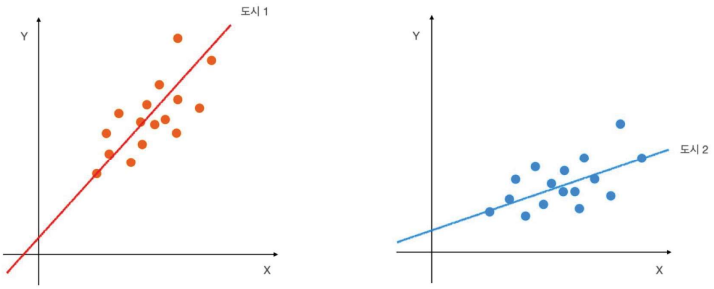
<Multivariate>

Methodology cont'd

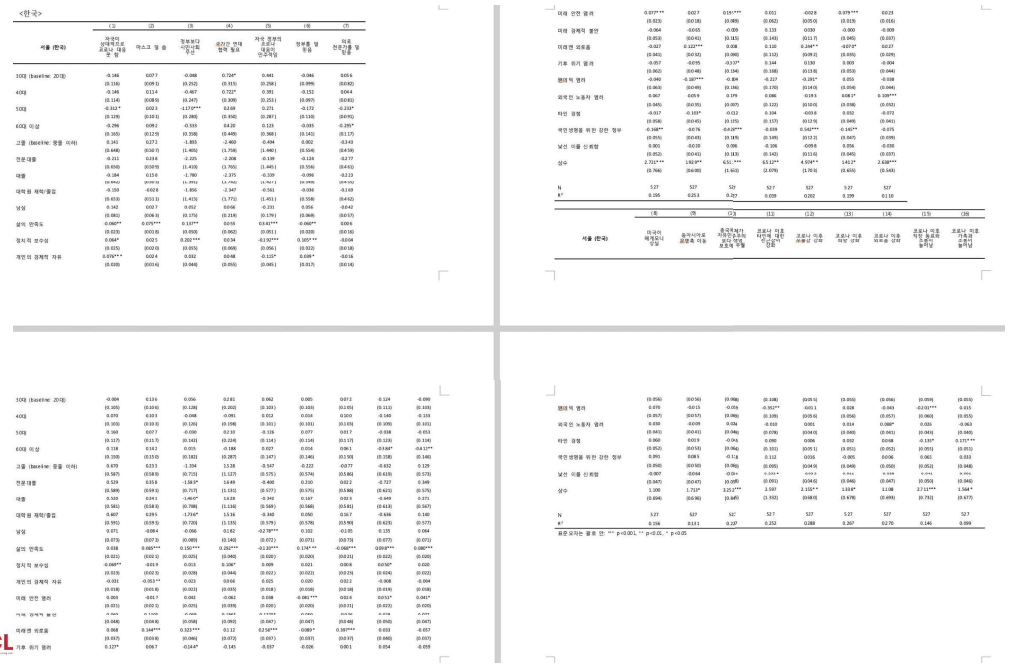
<Multivariate with Fixed Effects>



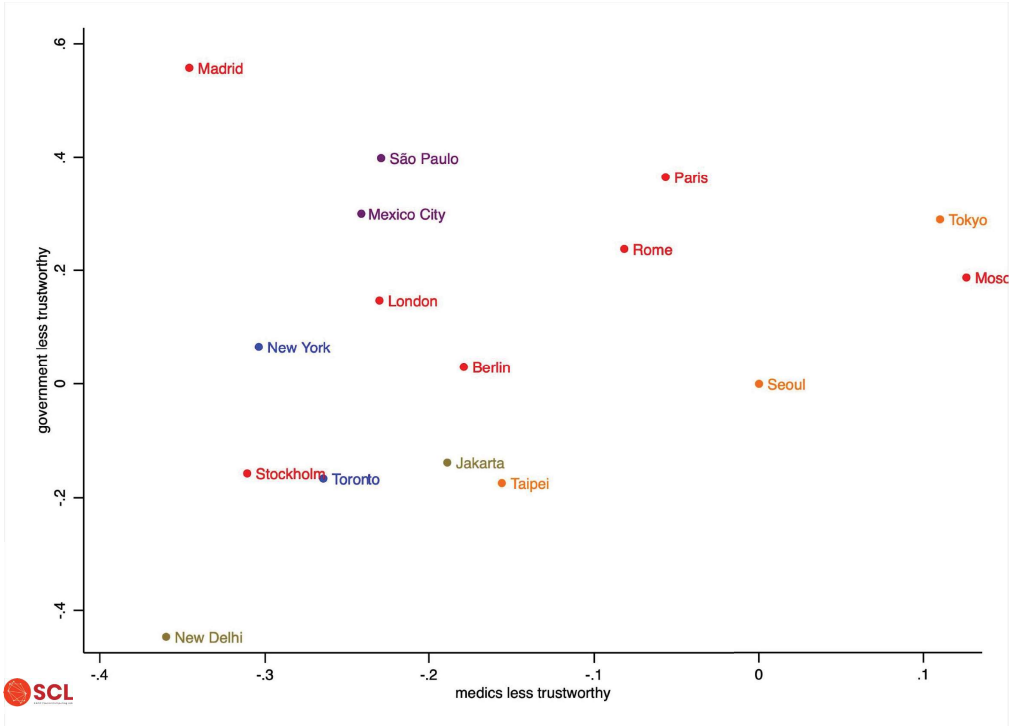
<Multivariate for Each City>



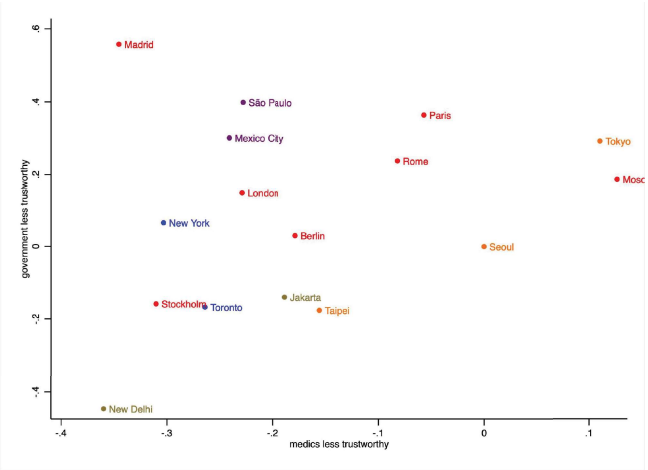
Methodology cont'd <Multivariate for Each City – 16 models with 21 IVs for 16 cities>



Government vs. Civil Society: Path Dependency



Government vs. Civil Society: Path Dependency



Covid-19 brought back the existing perception of government and civil society.

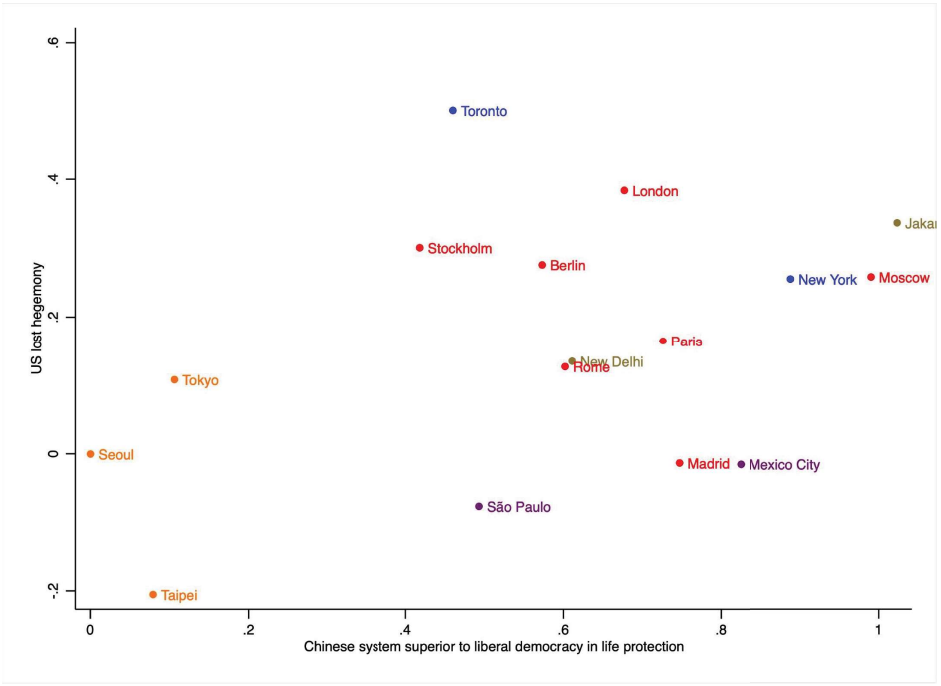
Evaluation of Covid-19 management was also aligned with domestic political and social distributions.

Government vs. Civil Society: Path Dependency

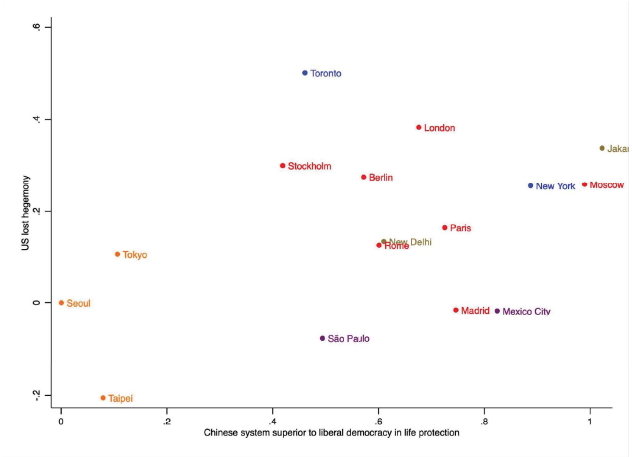
DV: my country was worse in managing Covid-19					
IV	Seoul	Taipei	New York	São Paulo	London
Political Conservative	0.064*	0.045*	-0.052*	-0.110***	-0.129***
Economic Conservative	0.076***	-0.017	-0.050*	-0.071***	-0.044*

KAIST Graduate School of Culture Technology SCL

US vs. China



US vs. China



The neighbors of China (Korea, Taiwan, and Japan) do not recognize the significance of Chinese system for Covid-19.

US's neighbors believe either the fall of US (Canada) or the rise of China (Mexico).

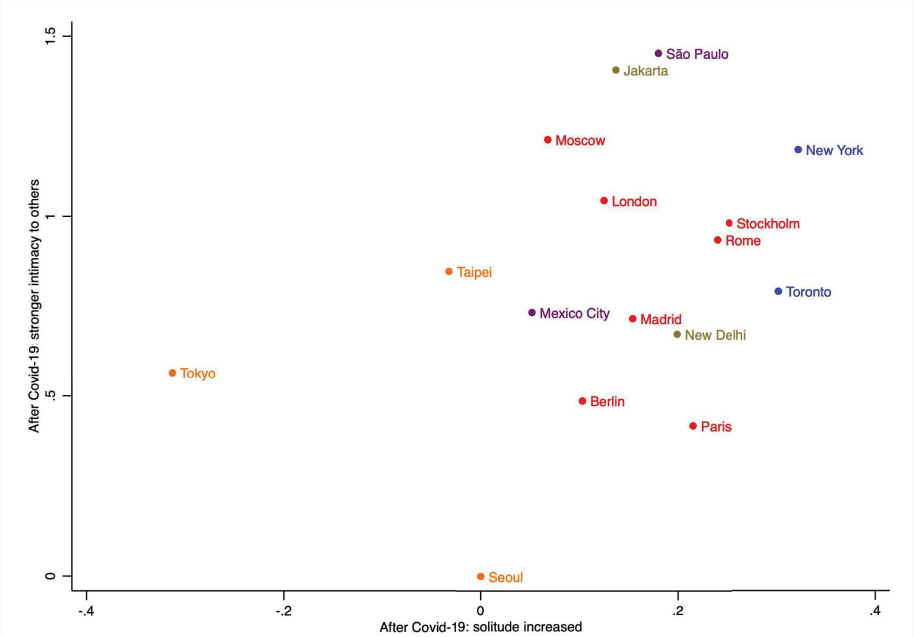
US vs. China

IV: more lonely in the future					
DV	Seoul	Taipei	New York	São Paulo	London
East Asia gaining cultural gravity	0.144***	-0.004	0.183***	0.097**	0.074
Chinese system superior to liberal democracy in life protection	0.323***	0.061	0.224***	0.156***	0.166***

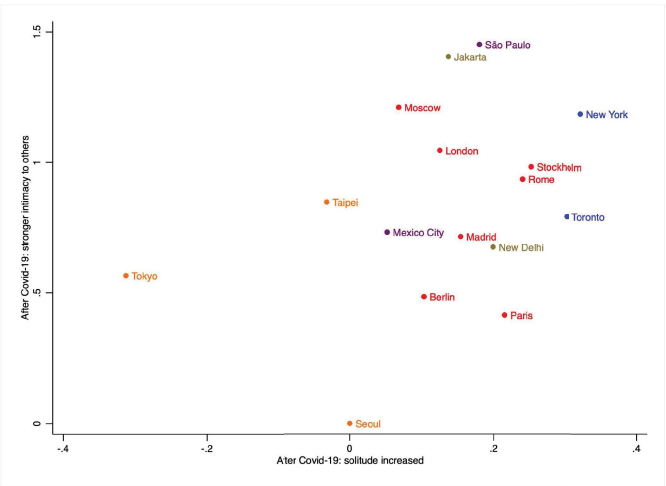
US vs. China

IV: college graduate (baseline: middle school graduate or less)					
DV	Seoul	Taipei	New York	São Paulo	London
US lost hegemony	0.520	-0.140	0.315	0.044	-0.063
Chinese system superior to liberal democracy in life protection	-1.460*	-0.384	-0.043	-0.216	-0.053*

Changing Social Capital



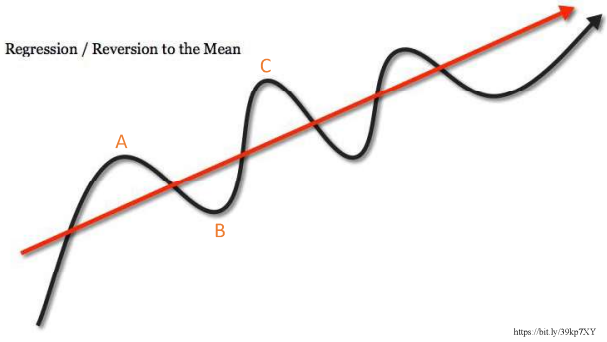
Changing Social Capital



1. East Asian countries known for strong social capital exhibit little increase in both intimacy and solitude, which suggests social capital in the countries was stable.

2. In Western countries, both intimacy and solitude increased

Going Forward



<Reversion to the Mean>

When the true value is the red line,
the observed value tends to follow the black line.

With a limited number of surveys, we could obtain two opposite observations - B-C vs. A-B

To get a more accurate picture, it is necessary to repeat the survey.

Policy Proposal using AI and the Concept of a Decentralized Society

Yoshinori Hiroi (Professor, Kyoto University)

Thank you very much for inviting me to this valuable conference. My name is Yoshinori Hiroi from Kyoto University and I am very honored to be here. In my presentation, I would like to think about a vision of society in the new normal age based on some AI-based simulations.

As an introductory remark, let me point out a basic perspective in thinking about such a topic.

There have been a lot of discussions about "New Normal" since the outbreak of Covid-19 pandemic last year. But when we look at the situation in Japan, can we say that was it "normal" before Covid-19? I doubt it because, for instance, when I think of the extremely packed commuting trains in the morning around Tokyo area, I should say it was obviously "abnormal" rather than "normal."

What I would like to point out here is that, based upon such an understanding, the outbreak and experiences of Covid-19 should be regarded as a kind of opportunity rather than crisis for realizing a truly normal way of living, or society, where people can lead a humane life of better quality and realize a sustainable society of well-being.

Challenges regarding Sustainability in Japan

Here I would like to show you the results of two AI-based simulations about the future states of Japan, that our research team have been conducting recently. One is the simulation about the sustainability of Japan towards 2050 conducted a few years ago, and the other is the simulation about the post Covid-19 Japanese society, which was made public in February this year.

Let me begin with the first simulation about the sustainability of Japan towards 2050. This simulation was conducted and made public in 2017, and so it is independent of the outbreak of Covid-19, but as I show you the results of the simulation, the future vision of society which was shown in the simulation has much to do with the post Covid-19 society and the New Normal.

The starting point of this research is my concern or perception that Japan is facing many challenges or crises in terms of sustainability.

One typical example is demographic change and population decline. Please look at this chart. This is a very long-term historical trend of population in Japan.Until the 19th century, population in Japan has been relatively stable and it was around 30 million in the latter half of Edo period before modernization. But as you can see, Japanese population began to increase suddenly after the Meiji period in the process of rapid

industrialization. But with its peak in 2008, population in Japan began to decrease very sharply, and it is estimated to decline to the level which is half as low as the current population towards the end of this century. As a total, this pattern of population shift in Japan looks like a roller-coaster and it is really a big challenge.

So Japan is facing many challenges regarding sustainability, including demographic sustainability, financial and inter-generational sustainability, sustainability of community, environmental sustainability, and so on.

AI-based Simulation in 2017 about the future sustainability of Japan

This is the background that we raised a question "Will Japan be sustainable towards 2050?" And I tried to seek for the "help" of AI, in a sense, as it is a good tool in analyzing complicated relationships of many uncertain factors.

Fortunately for me, a laboratory called "Hitachi- Kyoto University Laboratory", one of the collaborative projects between academia and industry, was set up in 2016 and there are many experts in the area of AI in the laboratory. And in this context we began a research project combining public policy and AI analysis.

In this project, first we made a model consisting of about 150 social factors such as population, GDP, aging, environments and so on, interacting with each other. And we conducted 20,000 simulations regarding the future states of Japan towards 2050 and assessed them from the perspective of various dimensions of sustainability I mentioned, as well as four social domains, that is, employment, inequality, health and well-being.

As a result, AI-based simulations and analysis showed the following things.

1) A fundamental divergence between "Localization" model and "Centralization" model is likely to occur in 8 to 10 years from now.

2) the "Localization" model based on local community and local economic circulations will be more desirable from the perspectives of demographic and local sustainability, health, equality and well-being.

3) AI-based simulations also showed that, in order to realize the "Localization" model, various policy measures are necessary and effective, such as developments of renewable energy, strengthening of local public transportations, culture and ethics supporting local community, social policy for the formation of local assets etc.

The AI-based analysis here is still at a very primitive stage and needs a lot of improvement and sophistications. But one of the interesting things of the results is that AI, which is likely to be associated with centralization, shows that the localization model of society is desirable from the perspectives of sustainability.

As I mentioned, this AI-based simulations was conducted and made public in 2017. And when the Covid-19 pandemic occurred last year, I was very surprised, because the results and agenda shown in the AI-based simulations echoes and coincides with the agenda and challenges triggered by the Covid-19 pandemic.

What I mean here is the agenda about "Localization" versus "Centralization" of economy or spatial structure of society. Needless to say, Covid-19 diseases first broke out in the extremely concentrated or densely populated cities such as New York, Paris, London, Tokyo etc. and then they spread to other cities and areas. Of course there are very many complicated factors behind the spread of Covid-19 diseases, but at least we can say that such densely populated cities or extremely concentrated structure of society is very fragile to the outbreak and spreads of pandemics such as Covid-19.

I don't mean to say that our AI-based simulation about the future sustainability of Japanese society "predicted" the outbreak of Covid-19 pandemic, but interestingly, the agenda shown there, that is, the fragility and risks of too concentrated structure of society and the importance of "localization" model, are common. And when we think of the topics of New Normal, a shift to localization instead of centralization model of society is one of the very significant agenda.

AI-based Simulation about the Post Covid-19 Society

OK, I talked about the first AI-based simulation conducted in 2017, and in the wake of the outbreak of the Covid-19 pandemic last year, our research group started a next AI-based simulation. This is about the post Covid-19 society, and we made a new model consisting of about 350 social factors, incorporating the new elements that arose or surfaced after the Covid-19, such as the number of companies which introduce satellite offices.

And based on such a model we conducted again 20,000 simulations regarding the future states of Japan towards 2050 and assessed them from various perspectives, as we did in the first simulation in 2017.

The chart now I am showing indicates the pattern of divergence of 20,000 scenarios towards 2050.

As a result, AI-based simulations and analysis showed the following things.

1) Post Covid-19 Society in Japan is likely to diverge first into two directions, that is, the more centralized scenario groups with population decline and the decentralized scenario groups with recovery of population.

2) Then the latter groups are likely to diverge into two preferrable groups, that is, the model of accelerated decentralization and the more balanced model of big cities and rural areas, and the latter is the most preferrable from various viewpoints such as financial sustainability and the activation of agriculture in rural areas.

3) In order to realize this desirable model, various policy measures are necessary and effective, such as policies to promote more active roles of women in society, increases of wages for women, increases of satellite offices, increases of double-income households, flexible work-and-life balance, support for the younger generations in the local areas including the ones engaged in agriculture, and so on.

I think this result of the simulation is interesting in a sense that such a direction of post-Covid 19 society shows, in a sense, a more decentralized or diverse society in the comprehensive sense than the one that the first AI-based simulation before the outbreak of Covid-19 suggested.

What I mean by the expression of "more decentralized or diverse society in the comprehensive sense" is the following thing. In the first AI-based simulation conducted in 2017, the localization model was shown as a desirable model for the future sustainability of Japan, but it was about the spatial structure or relationships between concentrated areas such as Tokyo and local areas. So the axis of "centralization" and "decentralization" is limited to the spatial meaning or dimension.

On the other hand, however, in the second AI-based simulation regarding the post Covid-19 society, the axis of "centralization" and "decentralization" in the broader sense has emerged. That is, the roles of men and women in society, choices about working style, choices about where to live, etc. and these elements suggest a more "decentralized" or diverse ways of leading lives in society.

I think these kinds of directions in life coincide with the New Normal in post Covid-19 society. That is, more choices and flexibility in the roles of men and women, working style, where to live and so on, and these can be called a "decentralized" model in the comprehensive sense as I mentioned.

Paradigm Shift for Japanese Society

In addition, such directions also coincide with the agenda for Japanese society from the long-term perspective, independent of the Covid-19 crisis. I talked about the demographic change in Japan, and in retrospect, I can say that the times of the increase of population and economy since modernization, particularly in latter half of the 20th century were the times of centralization, and people in Japan rushed to a single goal of economic growth as if they were climbing up a single path to the mountain peak. Also most people moved from rural areas to big cities such as Tokyo and in the process the centralization in the spatial meaning was also strengthened,

But now that Japan already entered in the times of population decrease and economy has matured, we need a fundamental paradigm shift from the mindset of climbing up a single path to the more decentralized and diverse lifestyles and ways of thinking.

The direction that the AI-based simulation about the post-covid 19 society indicating "the decentralized or diverse society in the comprehensive sense" including the roles of men and women in society, choices about working style, choices about where to live, and so on echo the direction of Japanese society I mentioned from the long-term perspective of demographic change. I think these directions coincide with the agenda of New Normal after the Covid-19 crisis.

Visions of Sustainable Welfare Society

AI-based analysis showed that the localization model is desirable for sustainability, and in this context, I would like to talk about the concept of "sustainable welfare society."

When I refer to "sustainable welfare society," the point is the integration of environmental concerns and welfare concerns, in other words, sustainability and distributional justice.

Generally speaking, the discussions about the environment mainly concerns the total volume of wealth and its sustainability, while the discussions about welfare mainly concerns the distribution of wealth and its equality or justice. Both these concerns are essential for realizing desirable society and we should have them both in perspective.

This graph is the rough images of sustainable welfare society. Here, the vertical axis shows the welfare perspective, and in this case, so-called Gini Coefficient which indicates the degree of economic equality. Specifically, the upper side is more inequal, and the lower side, more equal. On the other hand, the horizontal axis shows the environmental perspective, and in this case, the EPI, Environmental Performance Index, developed by Yale University, which integrates various factors related to environment, such as CO2 emission, pollutions, energy consumptions, nature preservations etc.

One of the interesting observations here is that both axes, welfare and environment correlate to some extent. That is, there are upper left countries, which show that both welfare and environment performances are relatively poor, including US, unfortunately Japan and Korea,. Also there are lower right countries, which show both welfare and environment performances are relatively good, including countries in mainly northern parts of Europe.

And I think that the sustainable welfare society I am talking here is closely related to the localization model of economy that the AI-based analysis I mentioned indicates. In other words, sustainable welfare society is a society where the economy at local community level is very active, and also the various redistribution systems in order to decrease the inequality or economic disparity are institutionalized at the national and global level.

in conclusion, I think that the fundamental change of value from "growth and expansion" to "sustainability and well-being" are required, and this is particularly true of Japan, whose shift from rapid increase of population and economy to population decline combined with super-aging is very fast and drastic.

This is the end of my talk and thank you very much for your attention.

Session 4

Social Governance in Public Health Emergemcies: A Social Capital Perspective

Zhang Wenhong
Shanghai University

1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Definition and analysis level of social capital
• Micro, meso and macro

2


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•Micro, meso and **macro**
–Putnam, Fukuyama and other scholars have defined and studied social capital from a **macro perspective**.
–For Putnam, social capital refers to the characteristics of **social organizations,** such as **trust, norms and networks**, which can improve social efficiency by promoting coordination and action. Social capital improves the return of investment in material capital and human capital.

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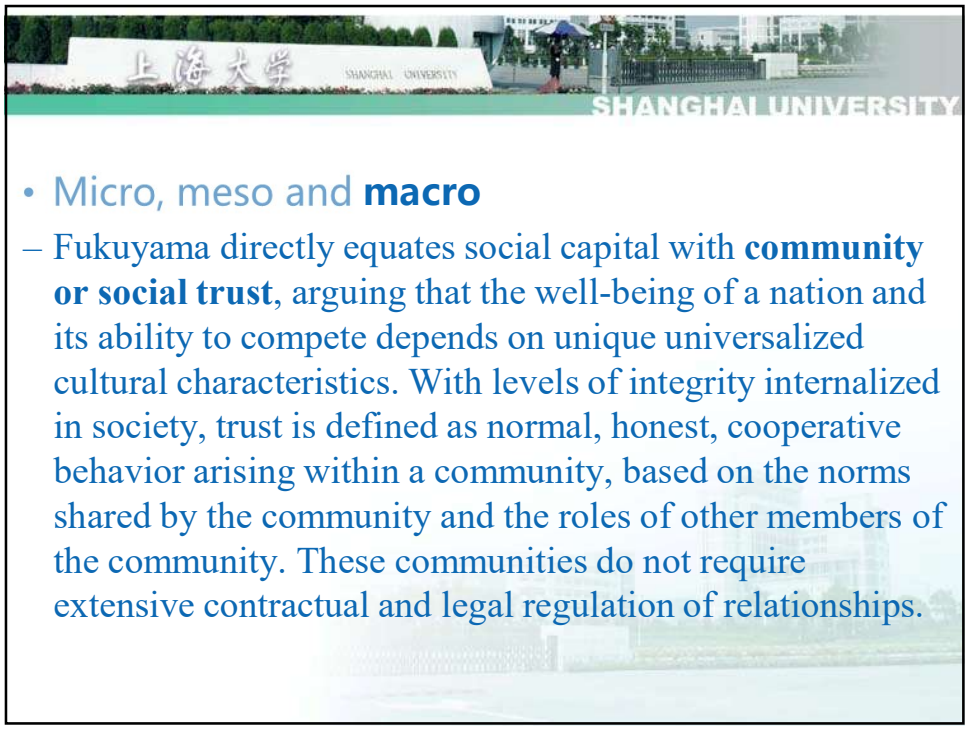
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• Micro, meso and **macro**
– Fukuyama directly equates social capital with **community or social trust**, arguing that the well-being of a nation and its ability to compete depends on unique universalized cultural characteristics. With levels of integrity internalized in society, trust is defined as normal, honest, cooperative behavior arising within a community, based on the norms shared by the community and the roles of other members of the community. These communities do not require extensive contractual and legal regulation of relationships.

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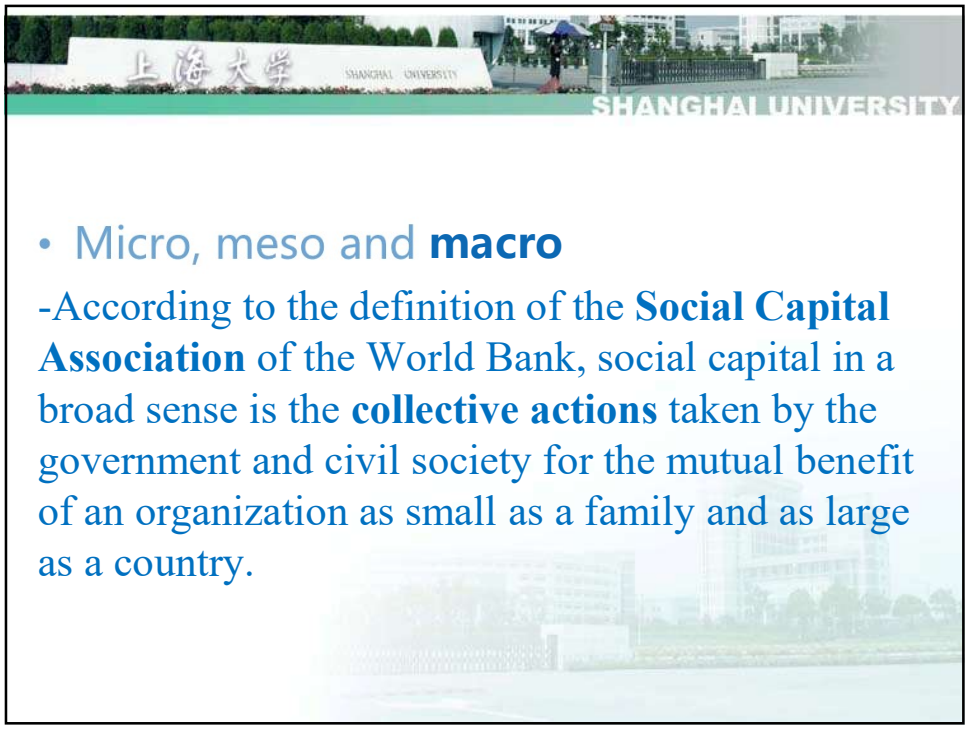
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• Micro, meso and **macro**
-According to the definition of the **Social Capital Association** of the World Bank, social capital in a broad sense is the **collective actions** taken by the government and civil society for the mutual benefit of an organization as small as a family and as large as a country.

5


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The differences between **government social capital** and **civil social capital**.
– **Governmental social capital** refers to the various governmental institutions that affect the ability of people to cooperate for mutual benefit, including the efficiency of contract enforcement, legal rules, etc.
– **Civil society capital includes** common values, norms, informal networks, social group membership and other institutional factors that influence individuals' ability to achieve common goals.

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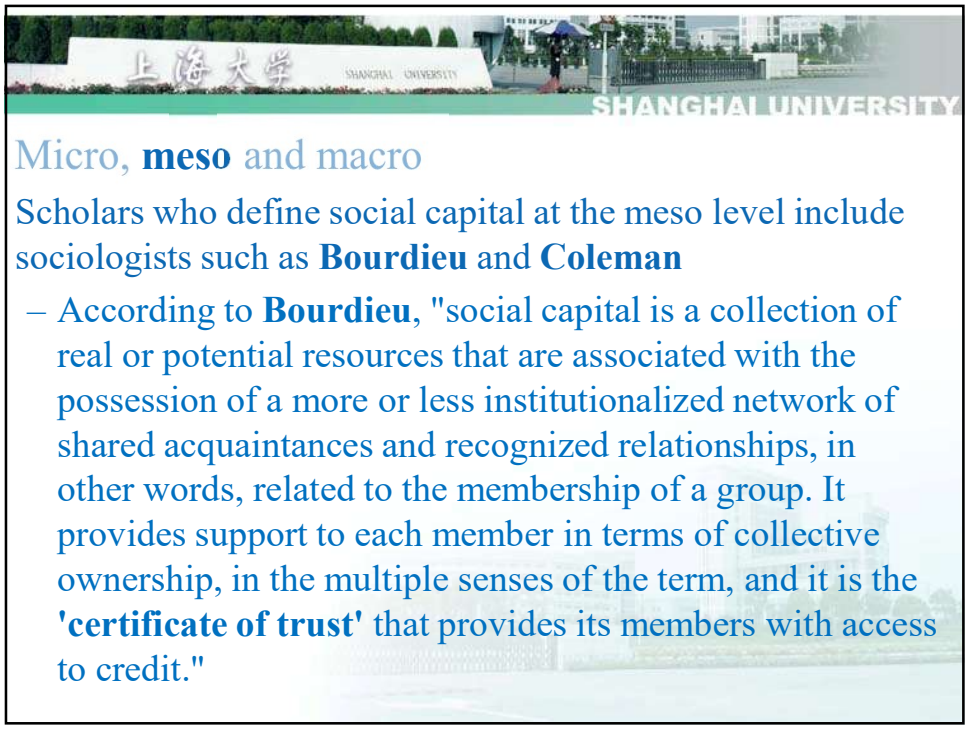
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Micro, **meso** and macro
Scholars who define social capital at the meso level include sociologists such as **Bourdieu** and **Coleman**
– According to **Bourdieu**, "social capital is a collection of real or potential resources that are associated with the possession of a more or less institutionalized network of shared acquaintances and recognized relationships, in other words, related to the membership of a group. It provides support to each member in terms of collective ownership, in the multiple senses of the term, and it is the **'certificate of trust'** that provides its members with access to credit."

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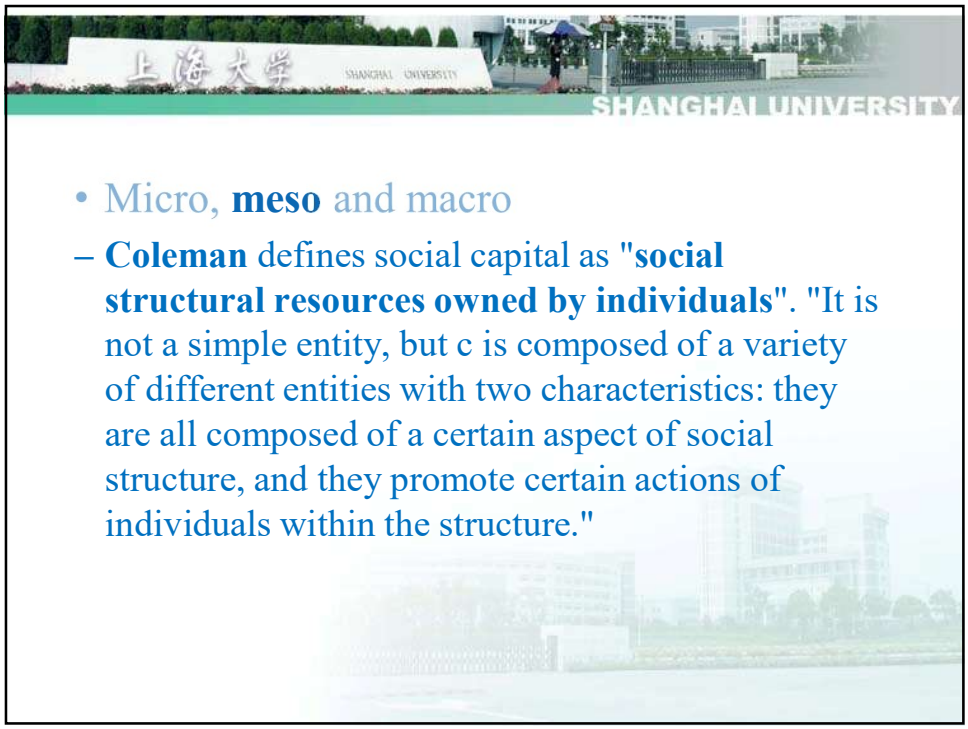
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• Micro, **meso** and macro
– **Coleman** defines social capital as "**social structural resources owned by individuals**". "It is not a simple entity, but c is composed of a variety of different entities with two characteristics: they are all composed of a certain aspect of social structure, and they promote certain actions of individuals within the structure."

8


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• **Micro**, meso and macro
• Scholars such as **Nan Lin** define social capital from a microscopic perspective.
-Nan Lin thinks that social capital can be defined as **resources embedded in a social structure**, which can be participated or mobilized in purposeful actions. He divided the concept of social capital into three parts: resources embedded in a social structure, individual's ability to acquire these social resources, and individual's use or mobilization of these social resources in purposeful actions.

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• We defined social capital as the **sum of social resources** that actors embedded at various levels can mobilize to achieve their collective goals by constructing formal or informal norms, values and social trust, and social participation.

10


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Social capital mechanisms in COVID-19 pandemic prevention and control
• Government social capital:
• Communist Party of China (CPC) and government mobilization of resources

11

Xi Jinping presided over 15 meetings of the Political Bureau of the CPC Central Committee on the theme of pandemic prevention and control

Four times inspections of pandemic prevention and control, as well as assessment of the resumption of production of enterprises

Meeting with WHO Director-General, Cambodian Prime Minister and Pakistani President

Telephone calls with leaders of more than 50 countries to discuss the global prevention and control of the pandemic.

12

– On January 25, the central government set up a leading group to deal with the new coronavirus infection pneumonia outbreak. **28** group meetings were held.
– Li Keqiang held **11** State Council executive meetings
– 1.27 Premier Li Keqiang inspects Wuhan
– From 1.27 to 4.27, Vice Premier Sun Chunlan inspected Wuhan, thereafter led the Central Steering Group to sit in Wuhan to direct and supervise the national anti-pandemic fight.

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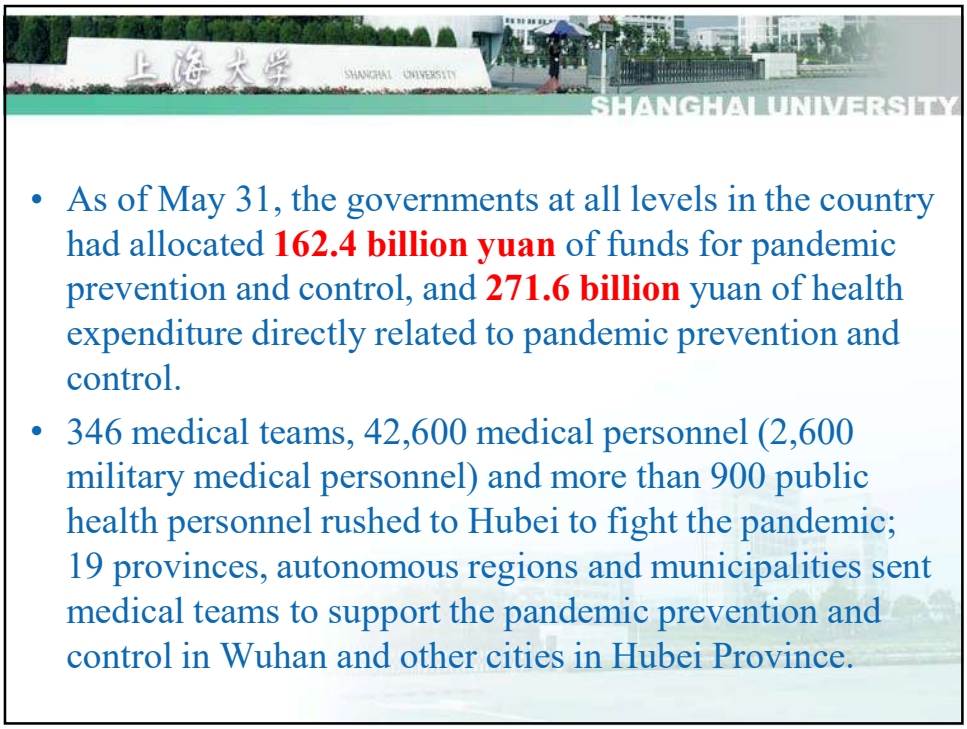
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• As of May 31, the governments at all levels in the country had allocated 162.4 billion yuan of funds for pandemic prevention and control, and 271.6 billion yuan of health expenditure directly related to pandemic prevention and control.
• 346 medical teams, 42,600 medical personnel (2,600 military medical personnel) and more than 900 public health personnel rushed to Hubei to fight the pandemic; 19 provinces, autonomous regions and municipalities sent medical teams to support the pandemic prevention and control in Wuhan and other cities in Hubei Province.

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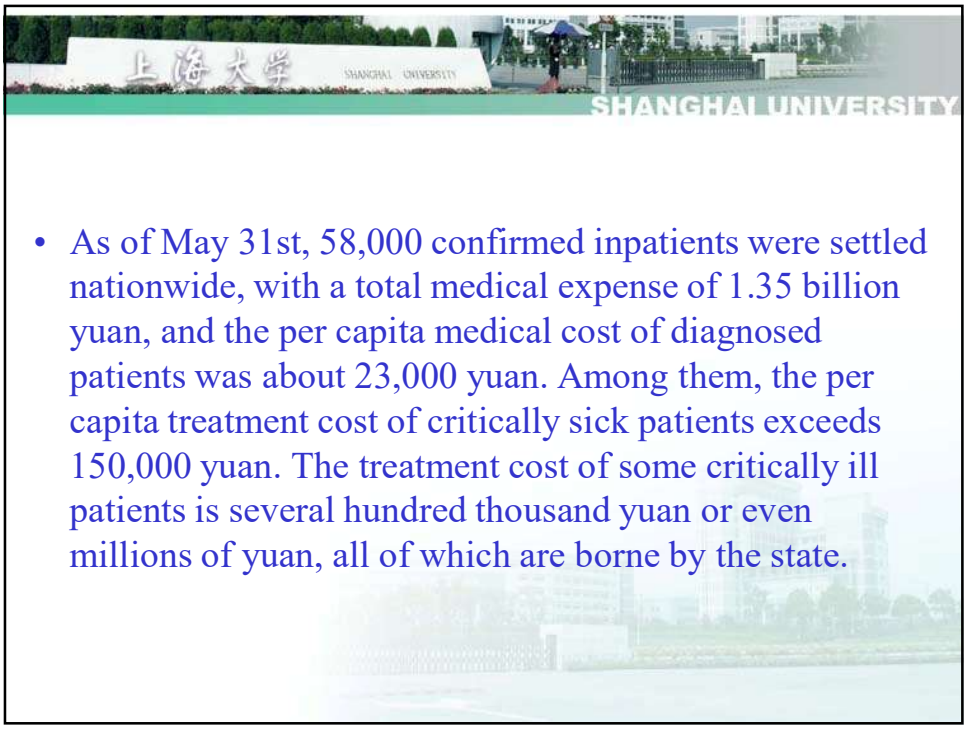
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• As of May 31st, 58,000 confirmed inpatients were settled nationwide, with a total medical expense of 1.35 billion yuan, and the per capita medical cost of diagnosed patients was about 23,000 yuan. Among them, the per capita treatment cost of critically sick patients exceeds 150,000 yuan. The treatment cost of some critically ill patients is several hundred thousand yuan or even millions of yuan, all of which are borne by the state.

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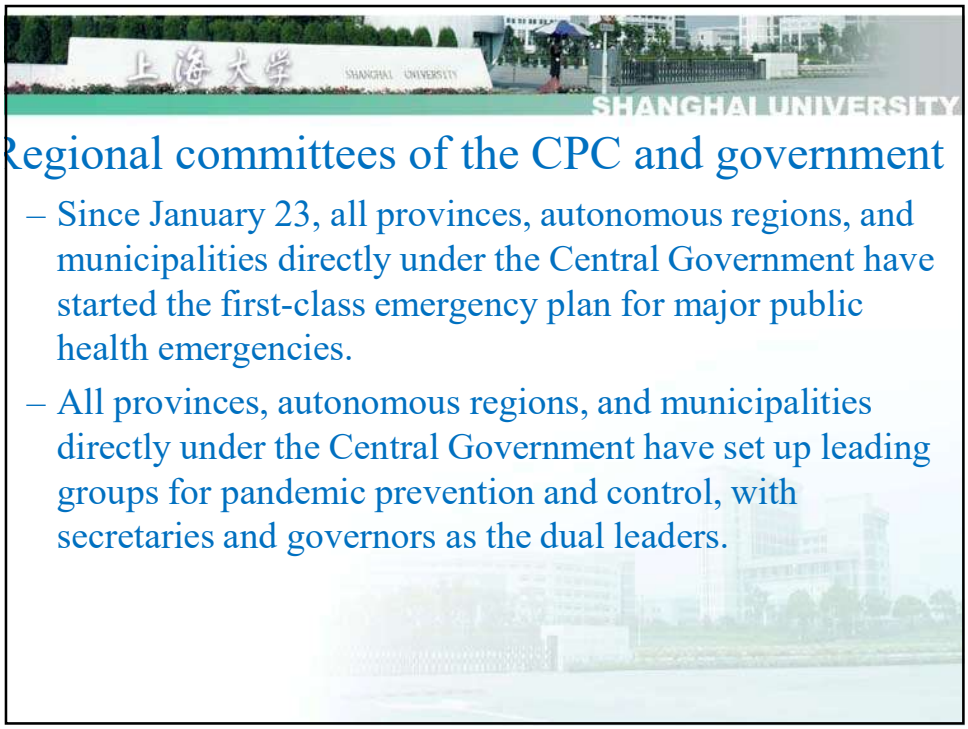
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Regional committees of the CPC and government
– Since January 23, all provinces, autonomous regions, and municipalities directly under the Central Government have started the first-class emergency plan for major public health emergencies.
– All provinces, autonomous regions, and municipalities directly under the Central Government have set up leading groups for pandemic prevention and control, with secretaries and governors as the dual leaders.

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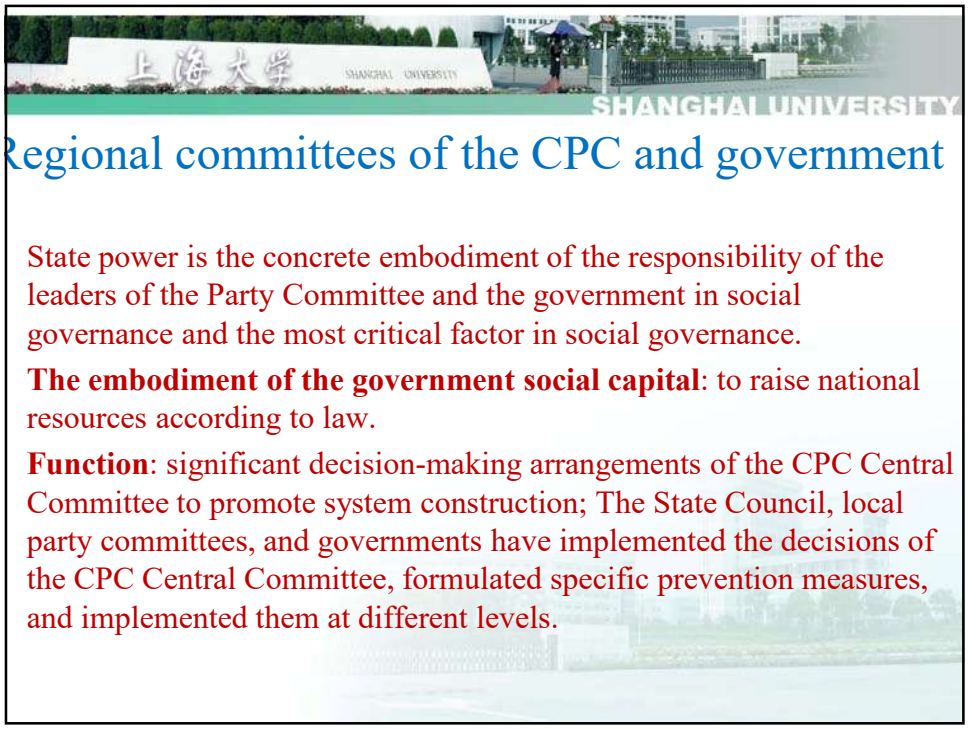
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Regional committees of the CPC and government
State power is the concrete embodiment of the responsibility of the leaders of the Party Committee and the government in social governance and the most critical factor in social governance.
The embodiment of the government social capital: to raise national resources according to law.
Function: significant decision-making arrangements of the CPC Central Committee to promote system construction; The State Council, local party committees, and governments have implemented the decisions of the CPC Central Committee, formulated specific prevention measures, and implemented them at different levels.

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18


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深圳航空
Shenzhen Airlines
热烈欢送江苏省支援湖
河北支援湖北医疗队
抗击病毒 战胜疫情

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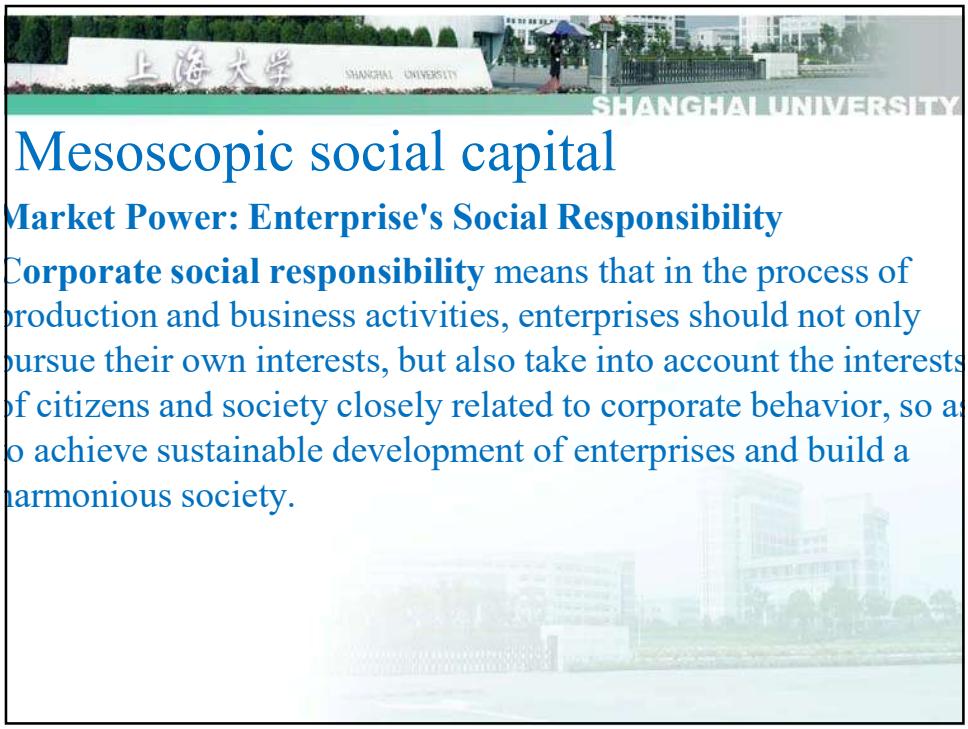
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Mesoscopic social capital
Market Power: Enterprise's Social Responsibility
Corporate social responsibility means that in the process of production and business activities, enterprises should not only pursue their own interests, but also take into account the interests of citizens and society closely related to corporate behavior, so as to achieve sustainable development of enterprises and build a harmonious society.

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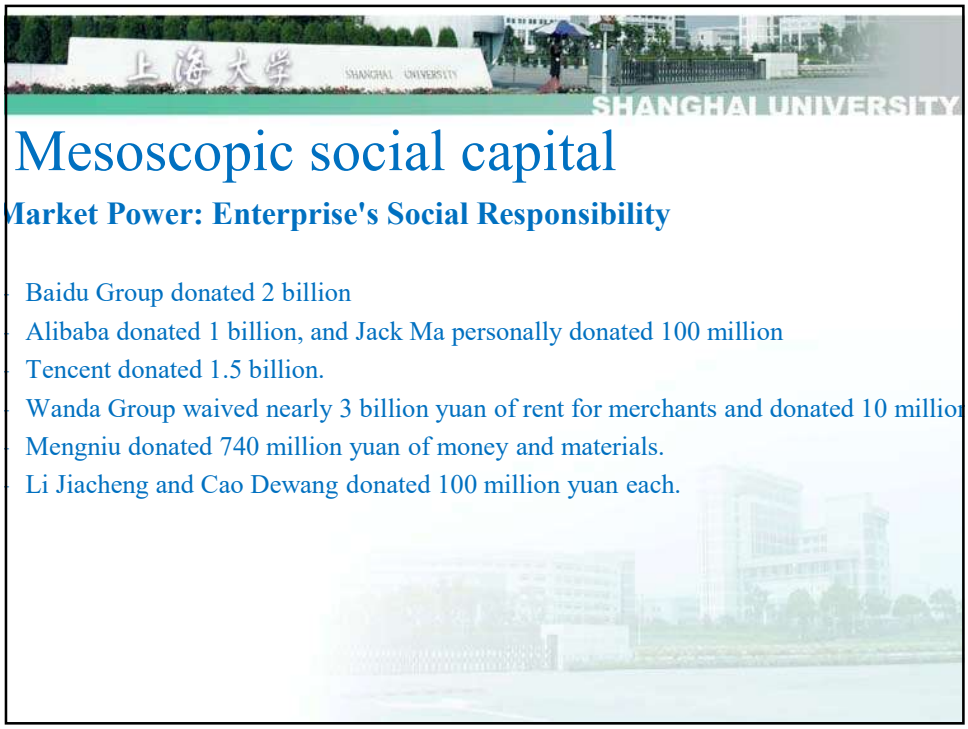
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Mesoscopic social capital
Market Power: Enterprise's Social Responsibility
Baidu Group donated 2 billion
Alibaba donated 1 billion, and Jack Ma personally donated 100 million
Tencent donated 1.5 billion.
Wanda Group waived nearly 3 billion yuan of rent for merchants and donated 10 million
Mengniu donated 740 million yuan of money and materials.
Li Jiacheng and Cao Dewang donated 100 million yuan each.

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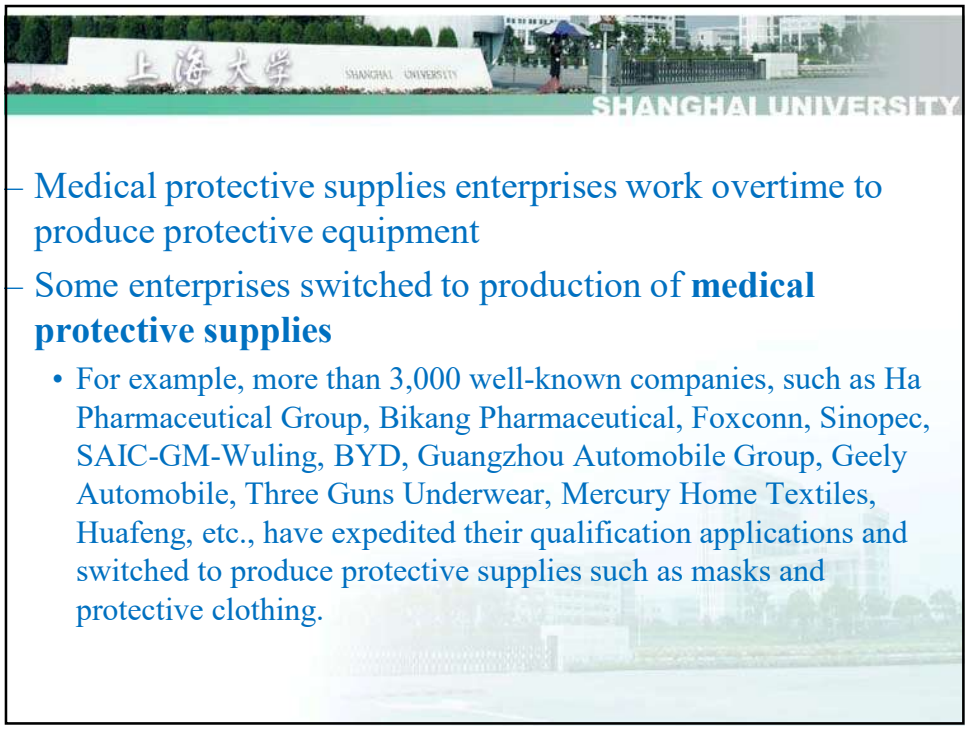
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– Medical protective supplies enterprises work overtime to produce protective equipment
– Some enterprises switched to production of **medical protective supplies**
• For example, more than 3,000 well-known companies, such as Ha Pharmaceutical Group, Bikang Pharmaceutical, Foxconn, Sinopec, SAIC-GM-Wuling, BYD, Guangzhou Automobile Group, Geely Automobile, Three Guns Underwear, Mercury Home Textiles, Huafeng, etc., have expedited their qualification applications and switched to produce protective supplies such as masks and protective clothing.

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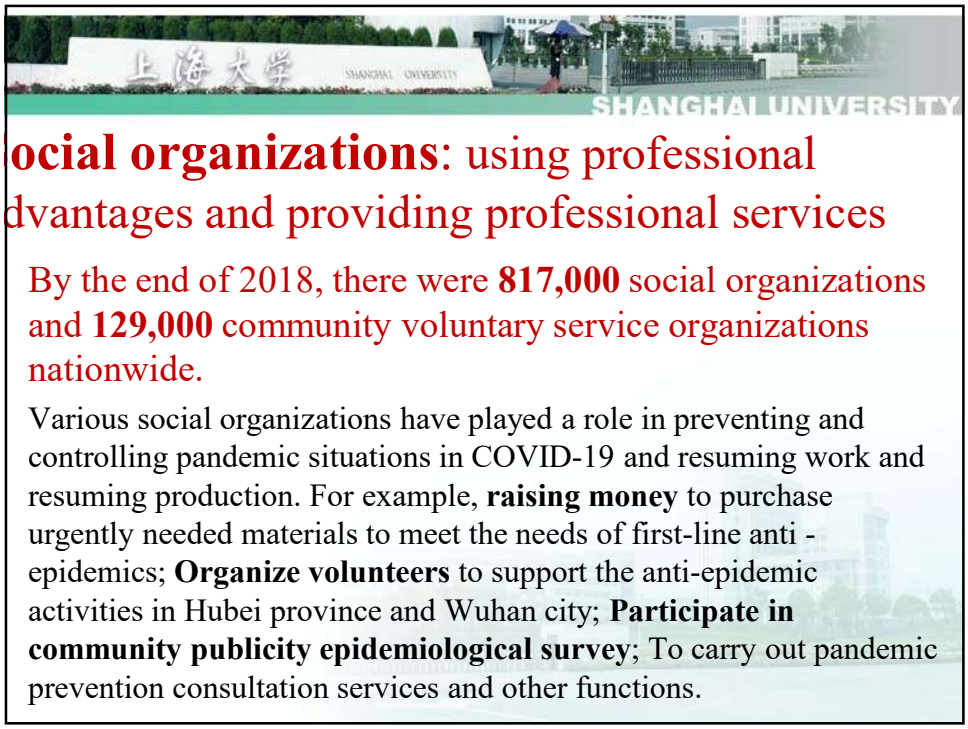
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ocial organizations: using professional dvantages and providing professional services
By the end of 2018, there were **817,000** social organizations and **129,000** community voluntary service organizations nationwide.
Various social organizations have played a role in preventing and controlling pandemic situations in COVID-19 and resuming work and resuming production. For example, **raising money** to purchase urgently needed materials to meet the needs of first-line anti - epidemics; **Organize volunteers** to support the anti-epidemic activities in Hubei province and Wuhan city; **Participate in community publicity epidemiological survey**; To carry out pandemic prevention consultation services and other functions.

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• The Red Cross Society and Foundation of China have received donations totaling **2,283,739,400** yuan. The total donation funds allocated was about **32.83 billion** yuan, and materials about **940 million** pieces. (April 28, 2020)
• As of May 31, 2020, about **38.93 billion** yuan of social donations and **990 million** pieces of materials have been received. About **32.83 billion** yuan of donations and **940 million** materials have been distributed.

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Community
Perfecting the institutionalized channels for people to participate in grassroots social governance.
Improve the grassroots governance system of urban and rural areas under the leadership of party organizations combining autonomy, rule by law, and rule by virtue.
Improve the community management service mechanism and promote grid management service.
Give full play to the role of mass and social organizations.
Exerting the self-discipline function of trade associations and chambers of commerce.
Realize the benign interaction among government governance, social supervision, and resident autonomy.
Consolidate the foundation of grassroots social governance.
Promote social governance and shift the focus of service to the grassroots level.
Sink more social resources to the grassroots level to better provide accurate and refined services.

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Resident/village committees, property companies, owners' committees, volunteers
– Information verification
– Entry and exit registration
– Body temperature detection,
– Mask purchase reservation
– Door-to-door service for people with special needs (buying medicine, grocery shopping, cleaning),
– Serving home-based isolators
– Mediating contradictions in pandemic disputes

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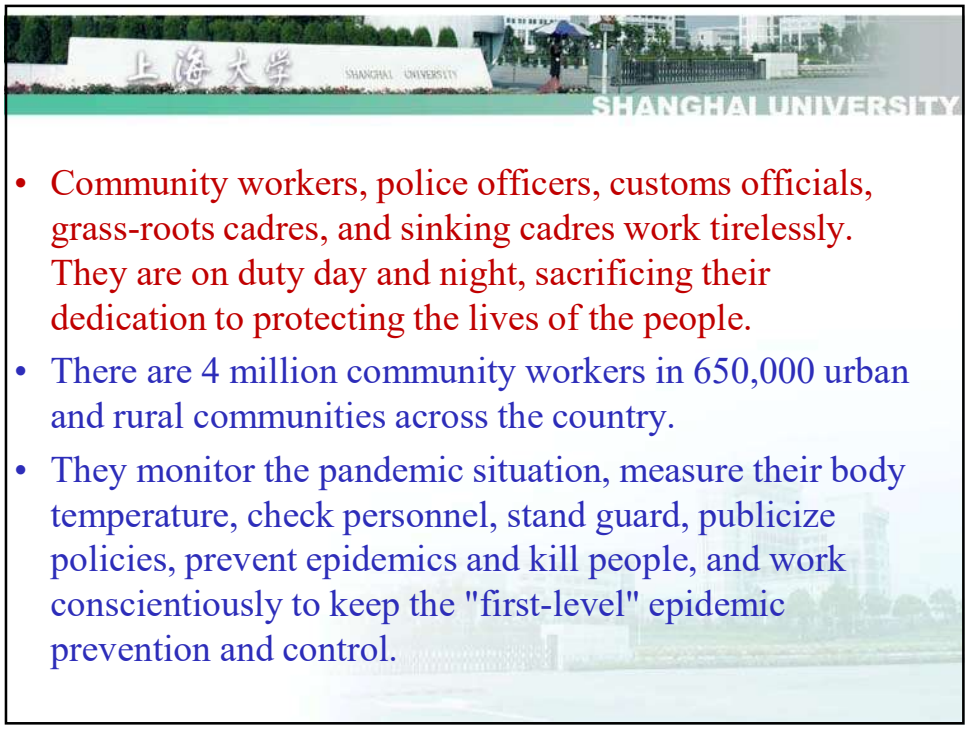
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• Community workers, police officers, customs officials, grass-roots cadres, and sinking cadres work tirelessly. They are on duty day and night, sacrificing their dedication to protecting the lives of the people.
• There are 4 million community workers in 650,000 urban and rural communities across the country.
• They monitor the pandemic situation, measure their body temperature, check personnel, stand guard, publicize policies, prevent epidemics and kill people, and work conscientiously to keep the "first-level" epidemic prevention and control.

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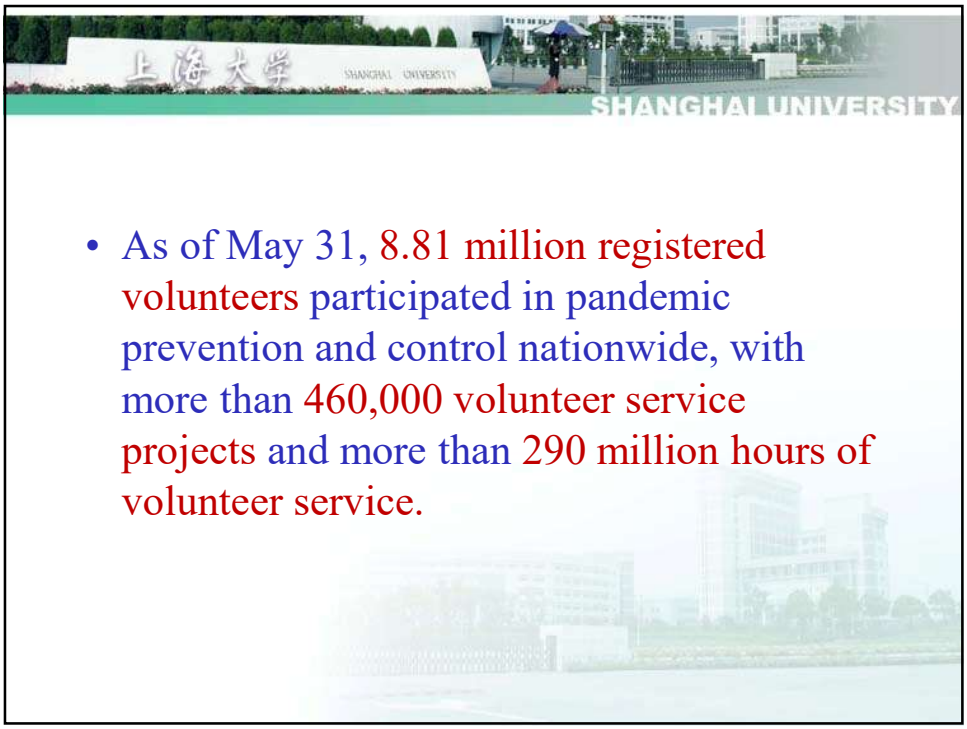
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• As of May 31, 8.81 million registered volunteers participated in pandemic prevention and control nationwide, with more than 460,000 volunteer service projects and more than 290 million hours of volunteer service.

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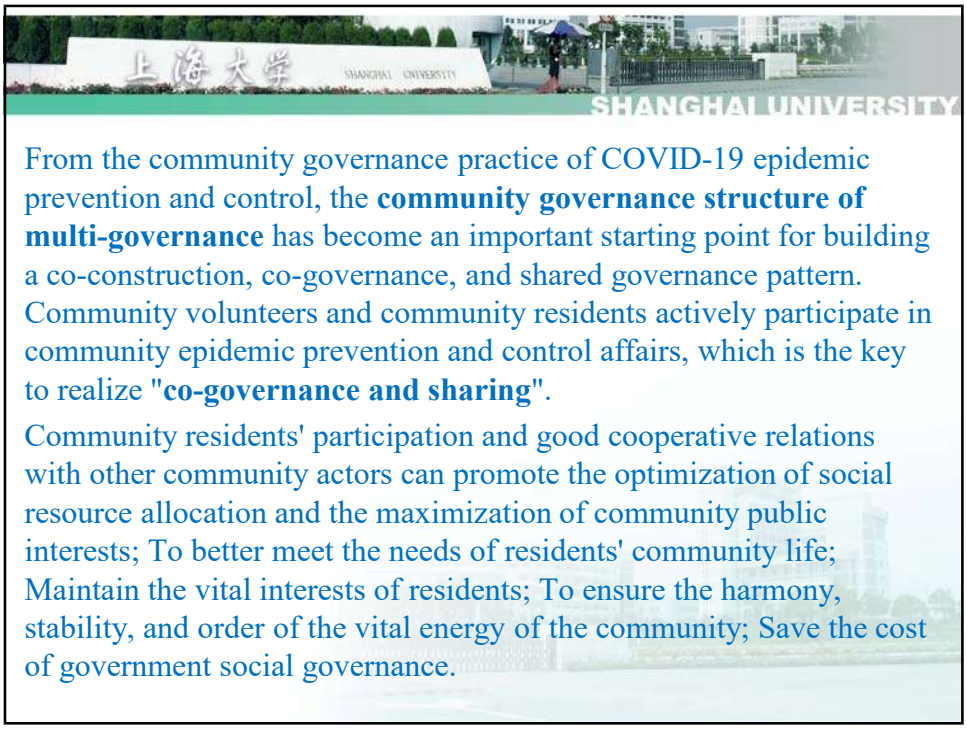
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From the community governance practice of COVID-19 epidemic prevention and control, the **community governance structure of multi-governance** has become an important starting point for building a co-construction, co-governance, and shared governance pattern. Community volunteers and community residents actively participate in community epidemic prevention and control affairs, which is the key to realize "**co-governance and sharing**".
Community residents' participation and good cooperative relations with other community actors can promote the optimization of social resource allocation and the maximization of community public interests; To better meet the needs of residents' community life; Maintain the vital interests of residents; To ensure the harmony, stability, and order of the vital energy of the community; Save the cost of government social governance.

29

- During the epidemic prevention and control period, the most outstanding groups, such as medical workers, PLA officers and soldiers, police officers, grass-roots civil servants, and community workers, promoted their position in the hearts of the people of the whole country with their dedication and touching stories.
- They have won a high degree of social recognition and expanded the influence of social capital for their groups. Moreover, they have accumulated valuable experience for correctly solving the conflicts between doctors and patients and between cadres and masses.

30

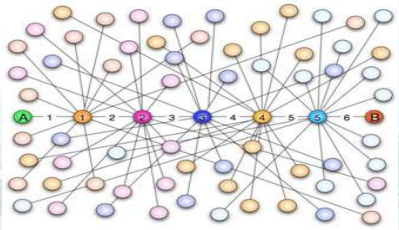
Individuals (members of society)

- Suspend the face-to-face interaction of social network members and maintain a certain social distance
  - Xiaotong Fei "the differential mode of association"

31

Stanley Milgram's Small World Model (Six Degree Separation Theory)

- **Social network model** of information society and the infectious disease transmission.
- Studies have shown that relatives are often more effective channels of information dissemination than non-relatives. Individuals tend to share information with similar people and good people with good relationships.



32

The analysis of nearly 1,000 clustered cases in China shows that 83% of patients are based on families, and there are some common places, including medical institutions, schools, shopping malls, factories, etc.

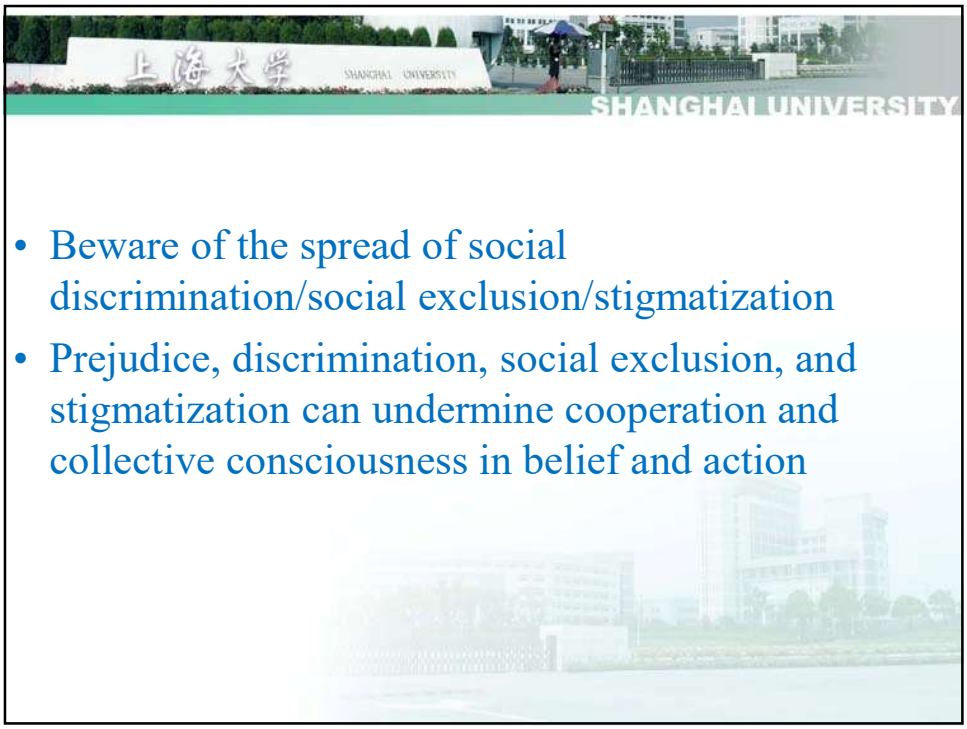
According to statistics, in cluster cases, the first transmission accounts for about 22%, the second-transmission accounts for about 64%, and some individuals will have three or even four generations.

The formation of cluster cases is usually the **first case** that the patient has a history of living and traveling in Hubei.

The **second-transmission** is caused by family contact or taking care of the patient and dinner.

The occurrence of the **third and fourth transmission** is mainly due to the lack of apparent clinical characteristics and prevention awareness of the first transmission.

33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• Beware of the spread of social discrimination/social exclusion/stigmatization
• Prejudice, discrimination, social exclusion, and stigmatization can undermine cooperation and collective consciousness in belief and action

34


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• Adequate awareness of the high risks of the modern world
✓ Global economic integration
✓ High mobility
✓ Regional warfare
✓ The new Cold War
✓ The global pandemic of infectious diseases: SARS, MERS, Ebola, COVID-19

35


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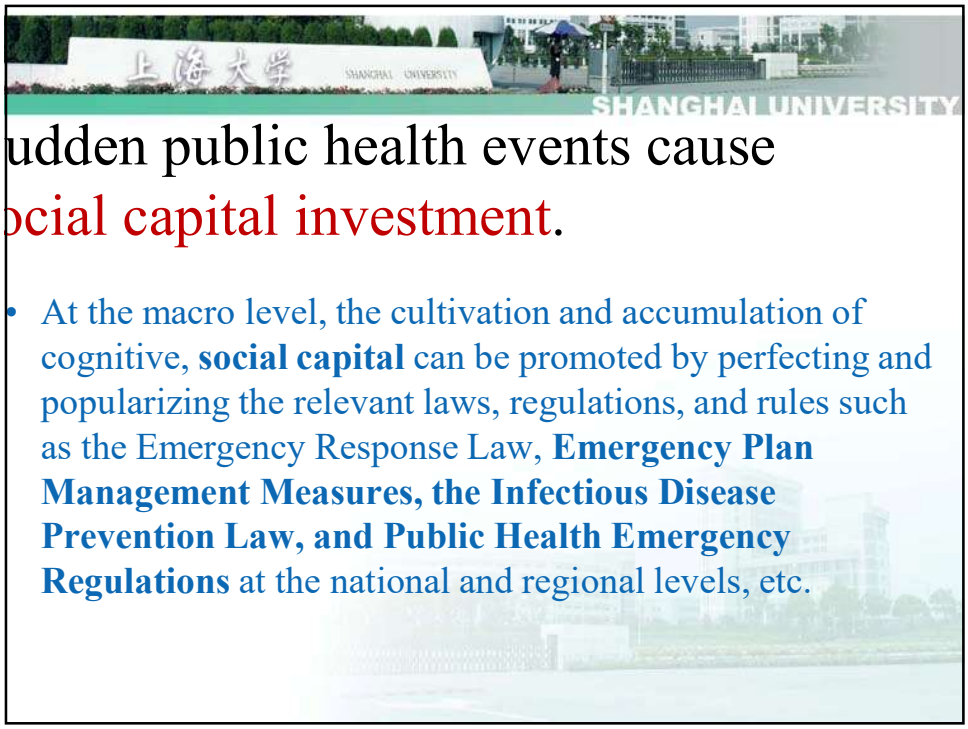
Change our habitual living habits/lifestyles.
According to the survey data of WHO in 2008, 60% of global deaths can be attributed to destructive behaviors and lifestyles.
Large-scale dinners for Spring Festival and weddings and funerals-Chinese food to eat in the west, sharing meals and chopsticks
Put an end to the bad habit of eating wild animals indiscriminately: According to data, 78% of the newly-increased infectious diseases of human beings are related to wild animals. SARS, MERS, Ebola, and Covid-19 are all direct or indirect wild animal epidemics.
Get into the habit of wearing masks in public places (especially during the outbreak of influenza or other infectious diseases, in winter and spring.

36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udden public health events cause
ocial capital investment.
At the macro level, the cultivation and accumulation of cognitive, social capital can be promoted by perfecting and popularizing the relevant laws, regulations, and rules such as the Emergency Response Law, Emergency Plan Management Measures, the Infectious Disease Prevention Law, and Public Health Emergency Regulations at the national and regional levels, etc.

37

- In the standard period of social operation, the government's further investment in social capital should also focus on the system construction of social trust. The dishonesty of some public power executors and public power organs means increasing social operating costs and invalidating universal social rules. The government's social capital investment should be based on promoting the open and transparent operation of power, eliminating the abuse of public power executors, and further improving the transparency and integrity of public authority;

38

Earnestly realize information disclosure and adequate supervision by public opinion, encourage public participation and social management of the people, let power run under surveillance, and gain the people's trust by trusting them. We should crack down on the organizational and personal behaviors of breaking promises. Make dishonest enterprises, organizations, and individuals pay a high price. Encourage trustworthy behaviors, establish a reward and punishment mechanism of social trust. Speed up the legislation of social integrity, improve relevant laws and regulations. Establish the neutral, objective, and fair position of government credibility in social operation, form a benign operation mechanism of social trust, improve the return rate of organizational and personal credibility, and make social trust return to the delicate procedure.

39

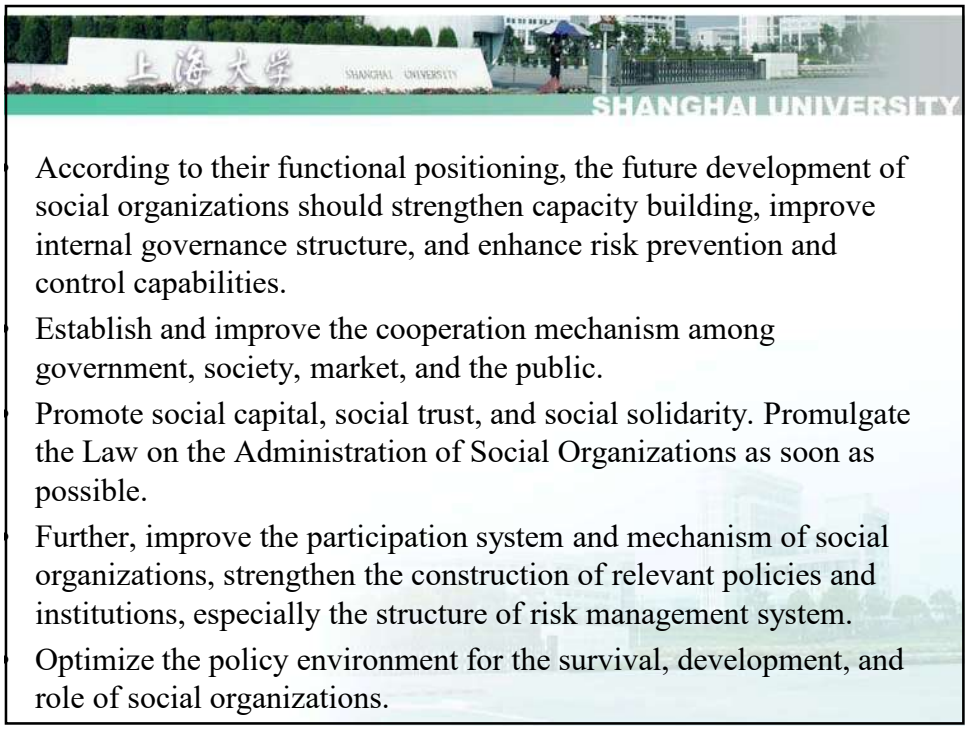
- At the meso level, the quality of social capital is enhanced by supporting the sustainable development of enterprises, social organizations, and communities.

- Based on the Company Law, the Contract Law, the Trademark Law, the Contract Law, the Labor Law, the Labor Protection Law, and other laws closely related to the development of enterprises. We will further urge enterprises to fulfill essential social responsibilities and give full play to promoting good and suppressing evil in the China Corporate Social Responsibility Report published annually.

40

- Corporate social responsibilities include rights and interests, environment, integrity, and harmony.
- Utilizing law, media, and public supervision is the fundamental way to cultivate, improve and expand the influence of enterprise social capital.

41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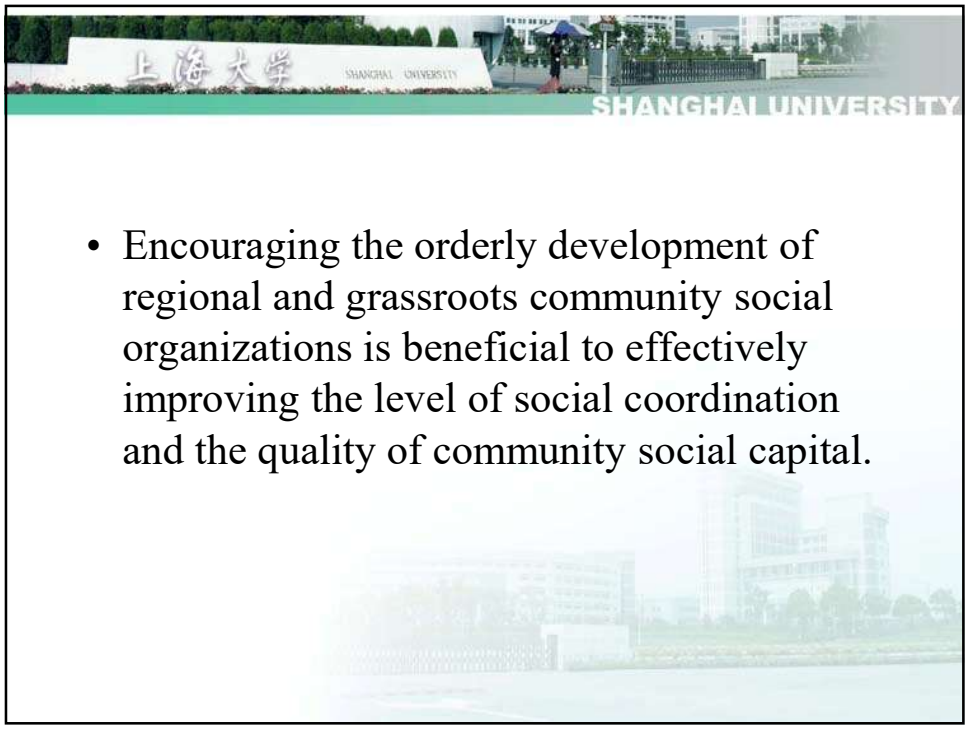
According to their functional positioning, the future development of social organizations should strengthen capacity building, improve internal governance structure, and enhance risk prevention and control capabilities.
Establish and improve the cooperation mechanism among government, society, market, and the public.
Promote social capital, social trust, and social solidarity. Promulgate the Law on the Administration of Social Organizations as soon as possible.
Further, improve the participation system and mechanism of social organizations, strengthen the construction of relevant policies and institutions, especially the structure of risk management system.
Optimize the policy environment for the survival, development, and role of social organizations.

42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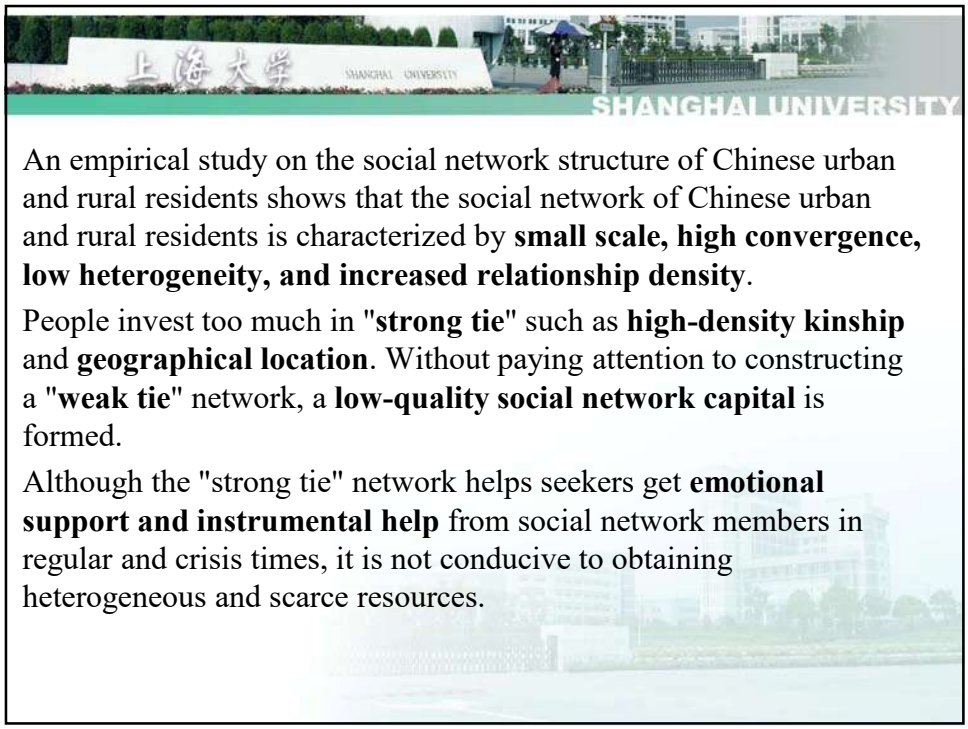
Encouraging the orderly development of regional and grassroots community social organizations is beneficial to effectively improving the level of social coordination and the quality of community social capital.

43

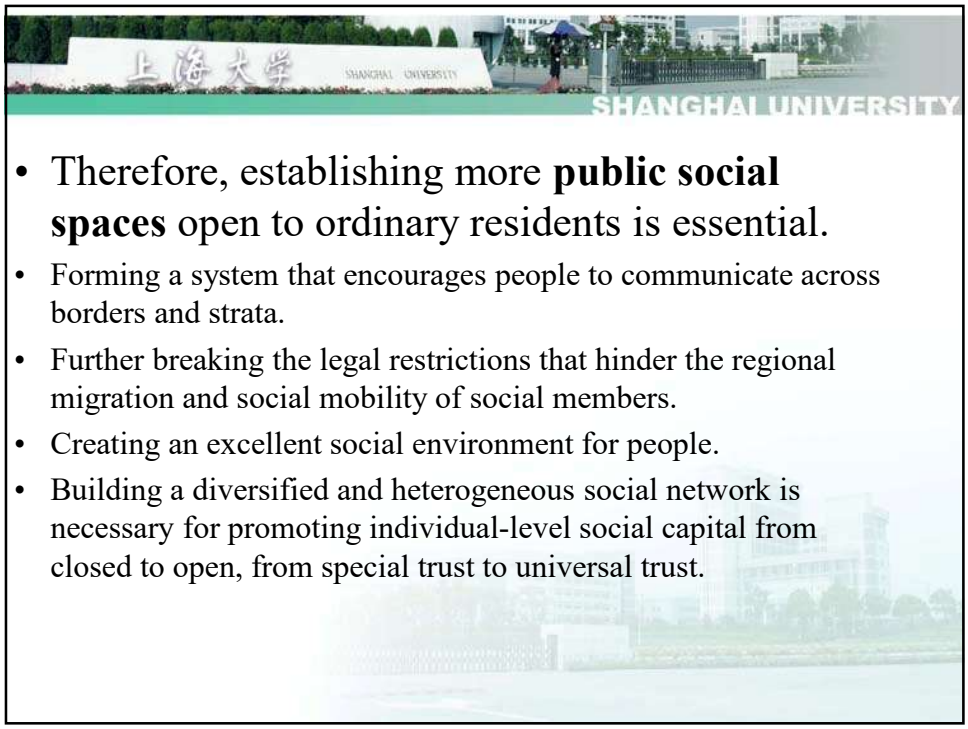


An empirical study on the social network structure of Chinese urban and rural residents shows that the social network of Chinese urban and rural residents is characterized by **small scale, high convergence, low heterogeneity, and increased relationship density**.

People invest too much in "**strong tie**" such as **high-density kinship** and **geographical location**. Without paying attention to constructing a "**weak tie**" network, a **low-quality social network capital** is formed.

Although the "strong tie" network helps seekers get **emotional support and instrumental help** from social network members in regular and crisis times, it is not conducive to obtaining heterogeneous and scarce resources.

44



- Therefore, establishing more **public social spaces** open to ordinary residents is essential.
- Forming a system that encourages people to communicate across borders and strata.
- Further breaking the legal restrictions that hinder the regional migration and social mobility of social members.
- Creating an excellent social environment for people.
- Building a diversified and heterogeneous social network is necessary for promoting individual-level social capital from closed to open, from special trust to universal trust.

45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• THANK YOU !
46

How are the Overseas Studies of Chinese Students changed by the Covid-19?

Yang Yudong
Nanjing University

1

1.The Reason I Choose This Subject

- (1) Some students overseas or staying in China told their different stories about their anxieties caused by the Covid-19.
- (2) I helped a few my students in South Korea and England through sending them masks during the most serious period of the Covid-19.

2

- (3) I get to know that broking out of Covid-19 in the whole world has changed too much for these students who have gone abroad and who still stay in China with the dreams of studying abroad.
- (4) I hope to make clear that how this pandemic disease changes the students' routines of going abroad and how these students react to this hard situation with their agency.

3

2. Informants of my study

- 1. I classify the students into 3 categories for my study
- (1) students ready to go overseas, but stopped by the Covid-19 and forced to stay in China.
- (2) students already overseas and coming back to China after the broking out of Covid-19

4

- (3) students already overseas and not coming back to China after the broking out of Covid-19.
- (4) these students choose different destination countries to study, including USA, South Korea, and England.

5

List of my objects

Name of student	classifications	Destination countries	Study Degrees	Gender/age
JYD	Ready to go	USA	Ph.D. degree	male /26
ZYL	Ready to apply	England	Master degree	male/22
YTY	Abroad and return	England	Master degree	Female/23
WJY	Abroad and return	England	Master degree	Female/22
MYX	Abroad and return	USA	Master degree	Male/24
XWS	Abroad and return	USA	Exchange Student	Female/22
WP	Abroad, not return	USA	Ph.D. degree	Male/26
LPP	Abroad, not return	South Korea	Master degree	Female/24
SDR	Abroad, not return	South Korea	Master Degree	Male/25

6

3.What change the Covid-19 brings?

- I) For those students who can't go abroad.
- (1) I get the offer, but I can't go to America because of Covid-19.(JYD)
- (2)My parents also get very worried about it, and I can't stay home, because they talk about it everyday. It makes me crazy.
-

7

- (3) If I can't go to John-Hopkins University before 9th month, 2021, I will lose the chance to enter this university.
- (4) As same students as me, I hope that health situations in USA will get better as quick as possible.

8

- (5) I take some part-time jobs, acting as a teaching assistant for different academic lessons.
- (6) I plan to go to Singapore to take straight plane to America this July, because there isn't direct plane from mainland of China to America.

9

- (7) I wish to apply the Master Degree of Advertisement in England and I prepare it for almost 2 years and a half. (ZYL)
- (8) But after the broking out of Covid-19, I often quarrel with my family, because they change their mind and oppose I go abroad to study. They insist that foreign countries are more dangerous than China and they will worry about my safety everyday.

10

- (9) My father even asks his friend to provide me a job and hopes that I will give up the idea of going abroad.
- (10) I think it's very important to record this historical event taking place in my family, then I make a short documentary about it.

11

- II) For those students return from their respective countries.
- 1) though they came to know the news of Covid-19 in China, they didn't imagine that this disease would influence their study and every life before March of 2020.

12

- 2) though they worried about their families and friends in China, they devoted most of their time to their studies before March.
- And only one of them send the KN-95 masks to their parents from England.

13

- 3) all of things changed totally after March, from that time the situation in their destination countries got worse and worse.

14

- (4) Campuses were closed and they had to take lessons on-line.
- Only one students said that this didn't make trouble to him because he felt that many lessons needed study by himself, on-line or off-line didn't matter.(WP)
- Most students didn't get accustomed with lessons on-line.

15

- (5) they seldom went out because they are afraid of being infected.
- My friends made a trip plan for their Spring Holidays(one week in the middle of March),but at last they gave it up and stayed in the room(XWS).

16

- (6) Most of them thought about the things that they should return to China.
- I bought the plane tickets immediately in March. But unfortunately my plane were cancelled for 3 times. (WJY)
- My mother got worried to the extent of madness and she did only one thing during that time: catching one ticket for me. (YTY)

17

- (7) many news spread that Chinese people and Asian people were attacked at that time and it made some students more anxious and expected to go back.
- One of my friends even got depressed so deeply that she had to go to hospital to take treatment. (YTY)

18

This kind of thing really happened in California, closed to Berkley. My parents and my whole close relatives all urged me to go back. I chose to stay in USA because my boyfriend worked there. And I also hoped to apply for the Ph.D. degree of medical anthropology to study, then I chose to stay.(XWS)

19

- I wished to stay more because I felt it was a pity if I finished my trip in America so quickly. So, I persuaded my friends to stay. But I found that if I continue with my plan to get the Ph.D. degree of statistics in America, I had to spend more than 5 years there. I wasn't clear what the future of America would be like. I gave up and applied the Ph.D. degree in China. Then I came back.(MYX)

20

- III) for those students don't come back
- 1) because I major in public health and safety, I know more clearly than other people how to protect myself, I don't think of going back. (WP)

21

- (2) I don't feel it is very dangerous in Seoul and I think it is a very good chance for me to read many materials, then I choose to stay. (LPP)

22

- (3) I think the Korean government takes good control on Covid-19, and at first I hope to do some study of Chaoxian minority group in South Korea. Then I decide to stay in South Korea.

23

4. Most important change for their ways of study

- (1) they are forced to come back
- (WJY, MYX, XWS)
- (2) they have to accept the change without any preparation.

24

- (3) some of them have changed the whole plans of their study.
- I hope to apply for medical anthropology for my Ph.D. Degree in 2020. But due to Covid-19, there is only one position of this area in America in 2020. Then I have to postpone my application to 2021.(XWS)

25

- If there isn't Covid-19, at least I will stay in America for more time and travel more places. And I can choose whether or not to go back to China. But the Covid-19 makes the space for choosing much limited and I don't think the future in America will be much better and I decide to return(MYX).

26

- (4) some students change their job expectation
- I am very disappointed the operation of American Public Health System, which I previously regard very high. Therefore, I don't plan to choose a job in university and will work in a medical corporation after graduation. (WP)

27

5. Discussion

- (1) Covid-19 created a totally abnormal social situation which force these international students have to find their way to adapt to it.

28

- (2) This situation seems like the communitas raised by anthropologist Victor Turner, which means the common rules and practices of society don't work as usual, people are forced to deal with the situation with new methods and idea.

29

- (3) I hope to raise one concept “shortened time-space” to describe this situation, because Covid-19 makes the time more nervous than before and makes the space(including space for activities and space for choosing) much limited. And the international students experience this kind of time-space more strongly than many common people.

30

- (4) The value of this study is to discover one special social world practiced by the “victims” of the Covid-19 and to find their discourses and pratices.

31

32

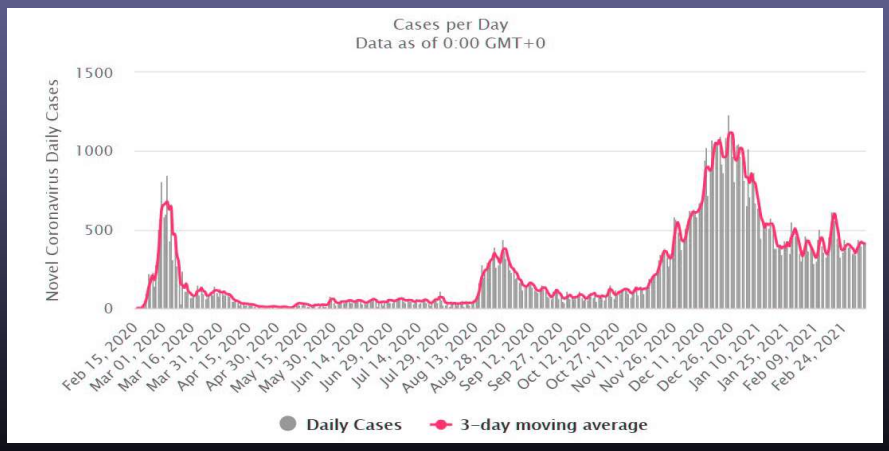
EASA Conference: The New Normal
in Post Pandemic East Asia
June 25, 2021

Governing COVID-19 in South Korea:
Balancing Security & Liberty

Il Joon Chung
Department of Sociology, Korea Univ.

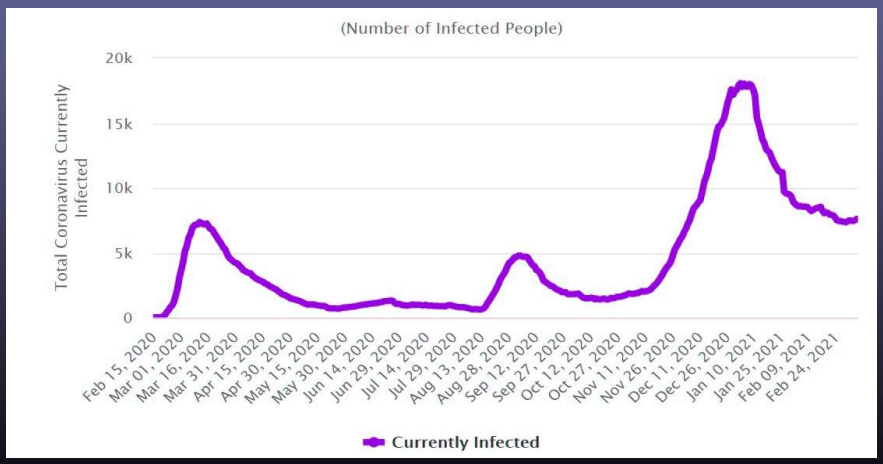
1

1. Statistics of COVID-19 *Daily Cases* in South Korea (Februbary, 2021)



2

1. Statistics of COVID-19 *Active Cases* in South Korea (Februbary, 2021)



3

1. Statistics of COVID-19 Worldwide (1/12/2020)

COUNTRY	CONFIRMED	DEATHS	CASE-FATALITY	DEATHS/100K POP.	Confirmed/100K
Italy	1,601,554	55,576	3.50%	**91.97**	2,650.33
United Kingdom	1,633,733	58,545	3.60%	**88.05**	2,457.09
United States	13,541,221	268,045	2.00%	**81.93**	4,138.98
France	2,275,016	52,819	2.30%	**78.85**	3,396.22
Germany	1,069,912	16,694	1.60%	**20.13**	1,290.12
Japan	148,962	2,076	1.40%	**1.64**	117.68
South Korea	34,652	526	1.50%	**1.02**	67.20
Singapore	58,218	29	0.00%	**0.51**	1,023.83
China	92,902	4,743	5.10%	**0.34**	6.66
Taiwan	675	7	1.00%	**0.03**	2.89

4

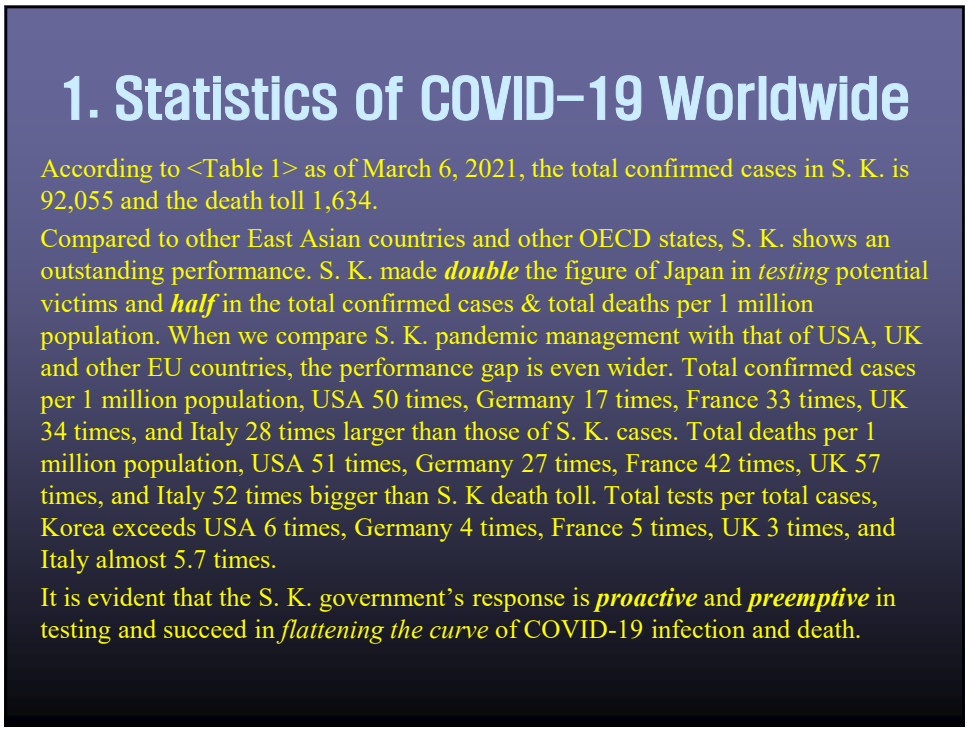
1. Statistics of COVID-19 Worldwide

<Table 1> COVID-19 Pandemic Management Indicators.

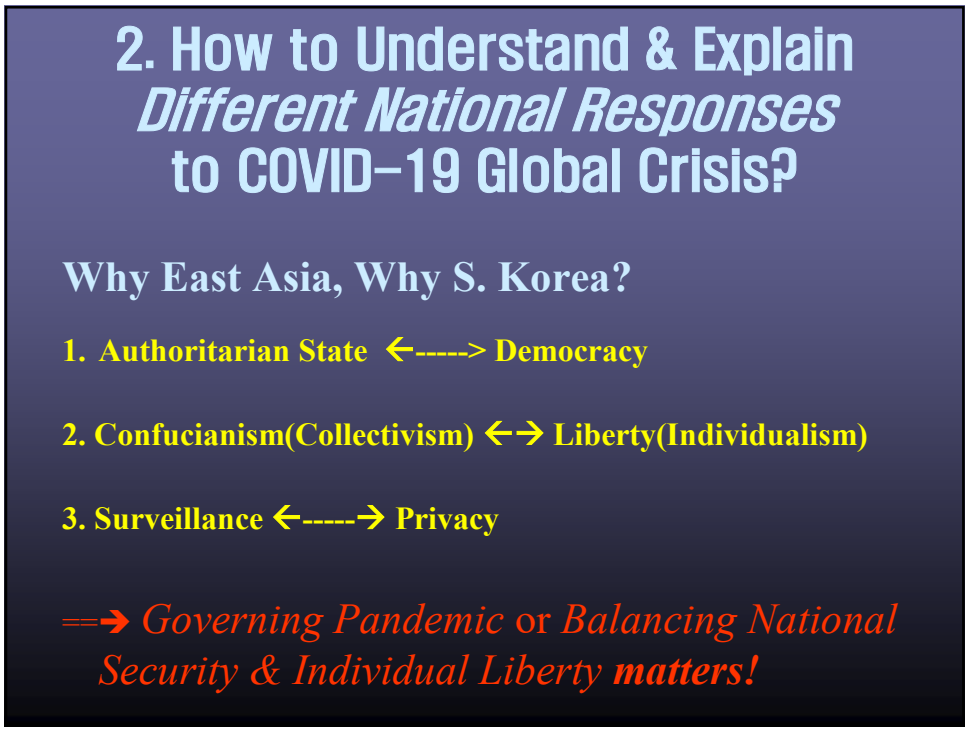
Country/ Polity	(1) GDP per capita (in 2019, nominal)	(2) Tests per 1 million population	(3) Total tests per total cases	(4) Total confirmed cases	(5) Total confirmed cases per 1 million population	(6) Total deaths	(7) Total deaths per 1 million population
Singapore	$65,233	1,282,649	125	60,020	10,205	29	5
Hong Kong	$48,713	1,141,101	776	11,075	1,469	202	27
Japan	$40,246	67,765	19	437,892	3,469	8,227	65
Korea	$31,846	132,983	74	92,055	1,794	1,634	32
Taiwan	$25,873	7,432	183	967	41	10	0.4
China	$10,261	111,163	1,778	89,962	63	4,636	3
USA	$65,297	1,107,643	12	29,653,891	89,233	537,838	1,616
Germany	$46,445	537,291	18	2,502,122	29,799	72,532	863
France	$40,493	835,694	14	3,882,408	59,390	88,574	1,353
UK	$42,330	1,382,644	22	4,213,343	61,844	124,501	1,826
Italy	$33,228	696,533	13	3,046,762	50,442	99,785	1,649
World	$11,441	NA	NA	117,068,412	15,019	2,605,085	333.5

Note. The numbers in Columns 2 through 6 are those measure as of March 6. Columns 2 through 6 were retrieved from the Worldometer at https://www.worldometers.info/coronavirus/. GDP per capita data were extracted from the The World Bank(https://www.worldbank.org/)

5


1. Statistics of COVID-19 Worldwide
According to <Table 1> as of March 6, 2021, the total confirmed cases in S. K. is 92,055 and the death toll 1,634.
Compared to other East Asian countries and other OECD states, S. K. shows an outstanding performance. S. K. made double the figure of Japan in testing potential victims and half in the total confirmed cases & total deaths per 1 million population. When we compare S. K. pandemic management with that of USA, UK and other EU countries, the performance gap is even wider. Total confirmed cases per 1 million population, USA 50 times, Germany 17 times, France 33 times, UK 34 times, and Italy 28 times larger than those of S. K. cases. Total deaths per 1 million population, USA 51 times, Germany 27 times, France 42 times, UK 57 times, and Italy 52 times bigger than S. K death toll. Total tests per total cases, Korea exceeds USA 6 times, Germany 4 times, France 5 times, UK 3 times, and Italy almost 5.7 times.
It is evident that the S. K. government's response is proactive and preemptive in testing and succeed in flattening the curve of COVID-19 infection and death.

6


2. How to Understand & Explain
Different National Responses
to COVID-19 Global Crisis?
Why East Asia, Why S. Korea?
1. Authoritarian State <-----> Democracy
2. Confucianism(Collectivism) <-> Liberty(Individualism)
3. Surveillance <-----> Privacy
==> Governing Pandemic or Balancing National Security & Individual Liberty matters!

7

2. How to Understand & Explain *Different National Responses* to COVID-19 Global Crisis?

Theoretical Frameworks

1. Biopolitics (vs. Geopolitics)

2. Securitization

8

1. Biopolitics (vs. Geopolitics)

Foucault's analytics of ***biopolitics*** as **a collection of changing *dispositives of security*** and contrasts this with geopolitical security discourse. The epistemologies associated with the biopoliticized securing of populations are those concerned with surveillance and the accumulation and analysis of big data sets concerning behavior, the patterns which behavior displays and the profiling of individuals within the population.

For Foucault, ***civil society*** was the object domain which ***the arts of government (=Governmentality)*** arising in the 18th century posited as the natural limit to the power of sovereign. **In global liberal politics, security and liberty are not rivals. Global liberal politics governs *through* freedom.**

The traditional geopolitical security technologies are essentially *preventive measures*, trading in the protection of preformed bodies. Whereas biopolitical security technologies are ***regulatory measures***, trading in the contingency and futures of bodies continuously *in-formation*.

Foucault identifies 'circulation' as the space of operation of biopolitics. Circulation is concerned with ***flows***, but flows have to be ***monitored and regulated***. The task of monitoring and regulating flows changes the basic routines and practices of governing institutions including ***borders***. Their task is to regulate the very re-productive powers of the intercourse transacted by, between and through populations

9

1. Biopolitics (vs. Geopolitics)

Biopolitics is not the expression of a sovereign will but aims at the administration and regulation of life processes on the level of populations. It focuses on living beings rather than on legal subjects. "Biopolitics" in Foucault's work signals ***a break in the order of politics***. 'the entry of phenomena peculiar to the life of the human species into the order of knowledge and power, into the sphere of political techniques'. The objects of biopolitics are not singular human beings but their biological features measured and aggregated on the level of populations. This procedure makes it possible to define norms, establish standards, and determine average values. As a result, "life" has become an independent, objective, and measurable factor, as well as a collective reality that can be epistemologically and practically separated from concrete living beings and the singularity of individual experience.

From this perspective, the notion of biopolitics refers to the emergence of a specific political knowledge and new disciplines such as ***statistics, demography, biology, and epidemiology***. These disciplines make it possible to analyze processes of life on the level of populations and to "govern" individuals and collectives by practices of ***correction, exclusion, normalization, disciplining, therapeutics, and optimization***.

According to Foucault, biopolitics does not supplement traditional political competencies and structures through new domains and questions. It does not produce an extension of politics but rather transforms its core, in that it reformulates concepts of political sovereignty and subjugates them to new forms of political knowledge.

10

1. Biopolitics (vs. Geopolitics)

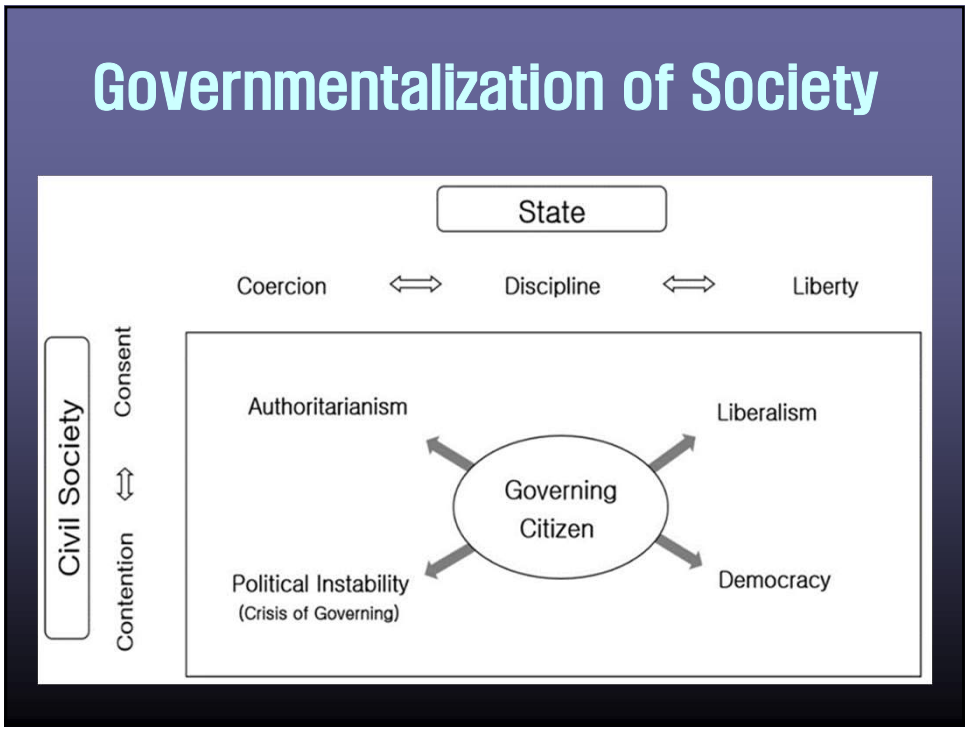
Biopolitics stands for a constellation in which modern human and natural sciences and the normative concepts that emerge from them structure political action and determine its goals. Foucault sees the particularity of this ***biopower*** in the fact that it fosters life or disallows it to the point of death, whereas the sovereign power takes life or let live.

Foucault distinguishes "two basic forms" of this power over life: ***the disciplining of the individual body and the regulatory control of the population***. By "population" Foucault imagine an independent biological corpus, a "social body" that is characterized by its own processes and phenomena, such as birth and death rates, health status, life span, and the production of wealth and its circulation. The totality of the concrete processes of life in a population is the target of a "technology of security".

However, Foucault's thesis that modern politics tends to become biopolitics does not imply that sovereignty and the "power over death" play no role anymore. On the contrary, the sovereign "right of death" has not disappeared but is subordinated to a power that seeks to maintain, develop, and manage life.

The "birth of biopolitics" is closely linked to the emergence of ***liberal forms of government***. Foucault conceives of *liberalism* not as an economic theory or a political ideology but ***as a specific art of governing human beings***. He regards ***security mechanisms as counterparts to liberal freedom and as the condition for its existence***. Security mechanisms are meant to secure and protect the permanently endangered naturalness of the population, as well as its own forms of free and spontaneous self-regulation.

11



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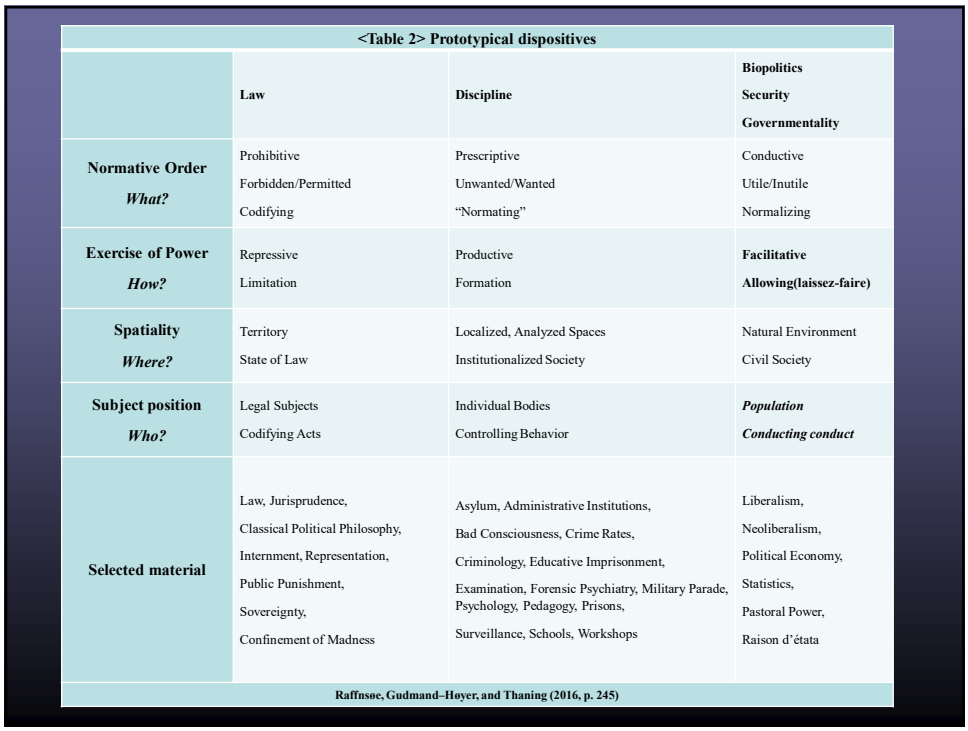

<Table 2> Prototypical dispositives

	Law	Discipline	Biopolitics Security Governmentality
Normative Order ***What?***	Prohibitive Forbidden/Permitted Codifying	Prescriptive Unwanted/Wanted "Normating"	Conductive Utile/Inutile Normalizing
Exercise of Power ***How?***	Repressive Limitation	Productive Formation	**Facilitative** **Allowing(laissez-faire)**
Spatiality ***Where?***	Territory State of Law	Localized, Analyzed Spaces Institutionalized Society	Natural Environment Civil Society
Subject position ***Who?***	Legal Subjects Codifying Acts	Individual Bodies Controlling Behavior	***Population*** ***Conducting conduct***
Selected material	Law, Jurisprudence, Classical Political Philosophy, Internment, Representation, Public Punishment, Sovereignty, Confinement of Madness	Asylum, Administrative Institutions, Bad Consciousness, Crime Rates, Criminology, Educative Imprisonment, Examination, Forensic Psychiatry, Military Parade, Psychology, Pedagogy, Prisons, Surveillance, Schools, Workshops	Liberalism, Neoliberalism, Political Economy, Statistics, Pastoral Power, Raison d'état

Raffnsøe, Gudmand–Høyer, and Thaning (2016, p. 245)

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2. Securitization

Securitization means the political process through which an issue is 'presented as an existential threat requiring emergency measures and justifying actions outside the normal bounds of political procedure'.
Infectious diseases have become the latest in a long line of non-military issues to be securitized.
By the concept "**global governmentalization of security**" we can broaden and deepen the concept of security away from one centered on a traditional definition associated with the military defense and protection of states towards one that increasingly includes ***the terrain of health and welfare of populations***.
In addressing economic, social, and environmental issues as security issues, the assessment of threats is increasingly calculated on **biopolitical grounds** which pays particular attention to the global and transboundary circulation of threats to populations in addition to the distributionary logic of geopolitical rationalities which emphasizes the military capability of competing sovereign states.

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2. Securitization

Public health can be improved through a security focus, and security can be enhanced by incorporating public health concerns. The securitisation phase for public health governance began in the mid 1990s in response to three major developments.
First, heightened fears about ***the proliferation of bioweapons***.
Second, the continued global spread of HIV/AIDS and the pandemic's increasingly devastating political, economic, and social implications in the developing world.
Third, growing awareness about deepening vulnerabilities of populations in rich and poor countries caused by the globalized spread of disease risks, be they pathogens, products, or pollutants.
These developments stimulated analysts to begin to frame public health problems as security threats. Traditional notions of security focus on the nation-state and concern themselves with threats to national security. Public health has frequently appeared, in connection both with the threat posed by weapons of mass destruction (WMD), particularly bioweapons, and with the damage to a state's material power that naturally occurring communicable diseases could inflict. National security concerns identified bioweapons as the threat, especially those that might use contagious pathogens.

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2. Securitization

<Table 3> Global Infectious Disease in the 21st Century

	SARS	H1N1	MERS
period	2002. 11-2003. 7	2009. 4-2010. 8	2012. 4-2015. 12
global infection no.	8,096	1,632,258	1,167
global death toll(fatality)	774 (9.6%)	19,633 (1.2%)	479 (41%)
S. K. infection no.	4	107,939	186
S. K. death toll(fatality)	0	260 (0.24%)	36 (20.4%)
S. K. regime	Roh, Moo-hyun(Liberal)	Lee, Myung-bak(Conservative)	Park, Geun-hye(Conservative)

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2. Securitization

<Table 3> shows the sequences of global infectious disease and its impact on S. K. MERS crisis occurred during the conservative president Park's term of office and incumbent president Moon was an opposition party leader, at that time. All the responses to contain COVID-19 under the Moon regime were already ***codified*** and ***institutionalized***.

S. K. government's initial response to the COVID-19 is another vivid example of the politics of national emergency at work. It's not 'a crisis of quarantine', 'economic crisis', or 'political crisis', it's 'the national crisis' and so 'national emergency'.

The process of public health securitisation was a process of *prioritisation* in governing S. K. especially in times of the national emergency.

Geopolitics oriented traditional national security framework focuses on defending territory from well preidentified enemies, biopolitical security concept comprises promoting the lives of population in that territory as well as guaranteeing the circulation of goods and people among those nation-states. Not all health issues are securitized. Every individual is responsible for most of the health issues.

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2. Securitization

Public health issues which are related to the health of populations should be securitized by the state. Even in *high morbidity/mortality diseases*, only those diseases have *acute health impact* could be securitized as national or global health security issues. Assessments of a public health risk's mobility and potential for material damage will involve consideration of other important factors. One such factor is the means of response available to be brought to bear against the risk, such as ***surveillance and intervention capabilities***. The existence or non-existence of ***public health infrastructure*** can affect the mobility of a public health risk and the material damage it can inflict on a population. Another factor that flows into both mobility and material impact is the mutability of the public health risk, or its ability or potential to change, or be changed, as it enters human populations or in response to intervention efforts.

Securitisation of public health has provided for convergences of narrow and broad conceptions of security approaches to health and security. The securitisation of public health in S. K. creates a dialogue between government authorities and lawmakers because it not only brings security into public health but also causes public health to inform security.

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3. S. K. government' s Responses and Remarkable Results

More than one year of the breakout of the pandemic, S. K. emerged as a success case not only containing the virus but also maintaining economic performance. Without shutdown borders or lockdown cities and regions, S. K. government responded the virus crisis ***effectively*** and ***democratically***. It is often called "the K-quarantine model."

The key question lies 'How could Korea succeed in governing the virus emergency while preserving democracy?' There are huge differences in the ways of managing COVID-19 pandemic among Western European countries and East Asian countries. What is the uniqueness of *the art of governing COVID-19 pandemic* in S. K.?

Contrary to the common understanding of 'the relative success of COVID-19 quarantine' in East Asian Countries due to 'the authoritarian state and obedient civil society based on Confucian cultural heritages,' we propose the new approach of *the National Emergency Biopolitics* inspired by Foucault and developed later by other scholars.

At the end of March 2020, president Moon said, "Over the last 2 months, Korea has been at the center of the COVID-19 challenge. The time is never right for complacency, yet *preemptive* and *transparent quarantine measures*, combined with *the public's voluntary and democratic participation* in such efforts, are bringing gradual stability".

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3. S. K. government' s Responses and Remarkable Results

S. Korea: Liberal Governing

Kyung-wha Kang (Foreign Minister), "We acted quickly and preemptively and that is not just our philosophy but is a reflection of our recent experience"

---Sewol trauma in 2014 and MERS in 2015

"So from the very beginning, we were of a mindset and the government machinery was ready to act quickly and preemptively. That is what we've done, and have been uncompromisingly transparent and open in the process."

"Our fight about the virus is about robust testing, very vigorous tracing and quick treatment of the patients"

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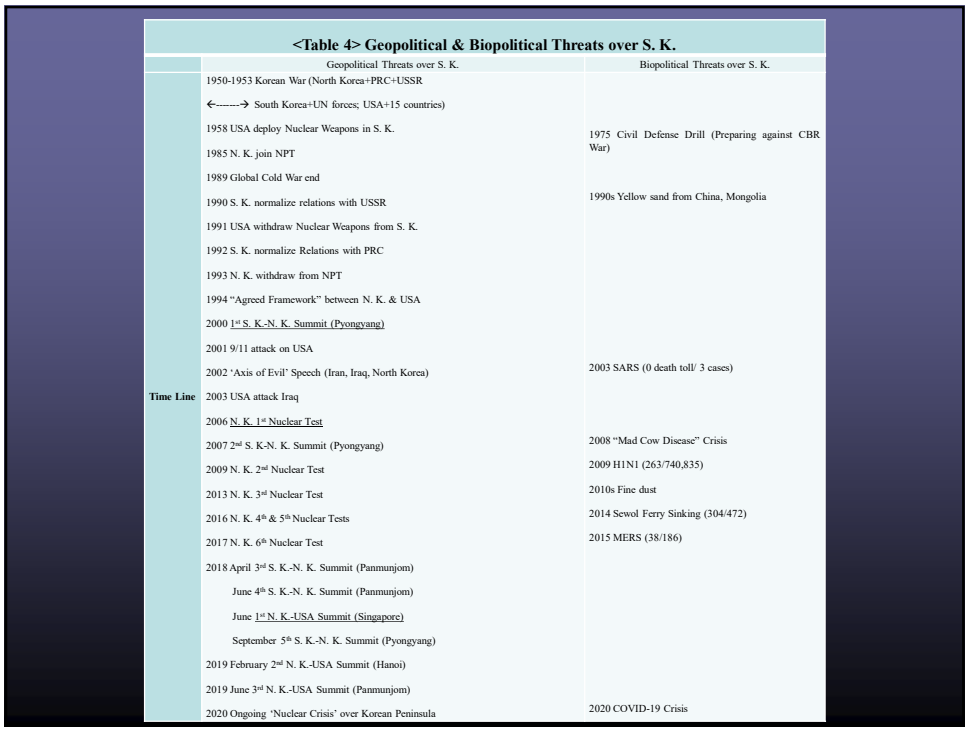

<Table 4> Geopolitical & Biopolitical Threats over S. K.

	Geopolitical Threats over S. K.	Biopolitical Threats over S. K.
Time Line	1950-1953 Korean War (North Korea+PRC+USSR <------> South Korea+UN forces; USA+15 countries)	
	1958 USA deploy Nuclear Weapons in S. K.	1975 Civil Defense Drill (Preparing against CBR War)
	1985 N. K. join NPT	
	1989 Global Cold War end	
	1990 S. K. normalize relations with USSR	1990s Yellow sand from China, Mongolia
	1991 USA withdraw Nuclear Weapons from S. K.	
	1992 S. K. normalize Relations with PRC	
	1993 N. K. withdraw from NPT	
	1994 "Agreed Framework" between N. K. & USA	
	2000 1st S. K.-N. K. Summit (Pyongyang)	
	2001 9/11 attack on USA	
	2002 'Axis of Evil' Speech (Iran, Iraq, North Korea)	2003 SARS (0 death toll/ 3 cases)
	2003 USA attack Iraq	
	2006 N. K. 1st Nuclear Test	
	2007 2nd S. K-N. K. Summit (Pyongyang)	2008 "Mad Cow Disease" Crisis
	2009 N. K. 2nd Nuclear Test	2009 H1N1 (263/740,835)
	2013 N. K. 3rd Nuclear Test	2010s Fine dust
	2016 N. K. 4th & 5th Nuclear Tests	2014 Sewol Ferry Sinking (304/472)
	2017 N. K. 6th Nuclear Test	2015 MERS (38/186)
	2018 April 3rd S. K.-N. K. Summit (Panmunjom)	
	June 4th S. K.-N. K. Summit (Panmunjom)	
	June 1st N. K.-USA Summit (Singapore)	
	September 5th S. K.-N. K. Summit (Pyongyang)	
	2019 February 2nd N. K.-USA Summit (Hanoi)	
	2019 June 3rd N. K.-USA Summit (Panmunjom)	
	2020 Ongoing 'Nuclear Crisis' over Korean Peninsula	2020 COVID-19 Crisis

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<Table 5> South Korean Presidents since the Democratic Transition in 1987

President	Tenure	Ruling Party	Power Rotation
Roh, Tae-woo (Conservative)	1988-1993	Democratic Justice Party/ Democratic Liberal Party	No
Kim, Young-sam (Conservative)	1993-1998	Democratic Liberal Party/ New Korea Party/ Grand National Party	No
Kim, Dae-jung (Liberal)	1998-2003	National Congress for New Politics/ New Millennium Democratic Party	Yes (1st regime change)
Roh, Moo-hyun (Liberal)	2003-2008	New Millennium Democratic Party/ Open Uri Party/ United New Democratic Party/ United Democratic Party	No
Lee, Myung-bak (Conservative)	2008-2013	Grand National Party/ Saenuri Party	Yes
Park, Geun-hye (Conservative)	2013-2017. 3 (Impeached)	Saenuri Party	No
Moon, Jae-in (Liberal)	2017. 5-incumbent	Democratic Party of Korea	Yes (2nd regime change)

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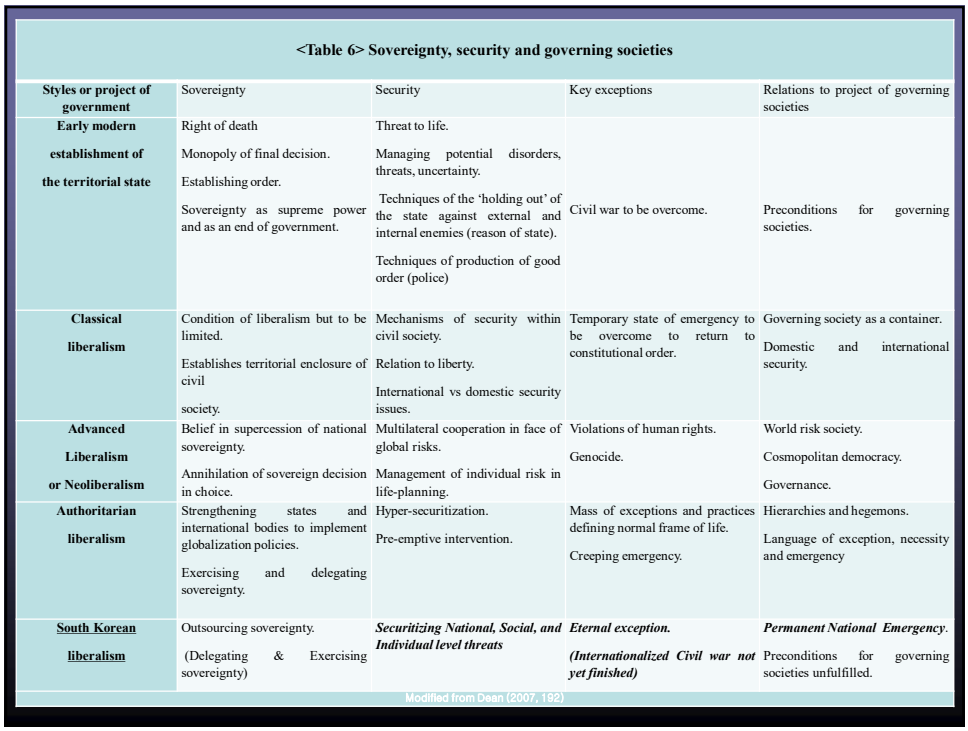

<Table 6> Sovereignty, security and governing societies

Styles or project of government	Sovereignty	Security	Key exceptions	Relations to project of governing societies
Early modern establishment of the territorial state	Right of death Monopoly of final decision. Establishing order. Sovereignty as supreme power and as an end of government.	Threat to life. Managing potential disorders, threats, uncertainty. Techniques of the 'holding out' of the state against external and internal enemies (reason of state). Techniques of production of good order (police)	Civil war to be overcome.	Preconditions for governing societies.
Classical liberalism	Condition of liberalism but to be limited. Establishes territorial enclosure of civil society.	Mechanisms of security within civil society. Relation to liberty. International vs domestic security issues.	Temporary state of emergency to be overcome to return to constitutional order.	Governing society as a container. Domestic and international security.
Advanced Liberalism or Neoliberalism	Belief in supercession of national sovereignty. Annihilation of sovereign decision in choice.	Multilateral cooperation in face of global risks. Management of individual risk in life-planning.	Violations of human rights. Genocide.	World risk society. Cosmopolitan democracy. Governance.
Authoritarian liberalism	Strengthening states and international bodies to implement globalization policies. Exercising and delegating sovereignty.	Hyper-securitization. Pre-emptive intervention.	Mass of exceptions and practices defining normal frame of life. Creeping emergency.	Hierarchies and hegemons. Language of exception, necessity and emergency
South Korean liberalism	Outsourcing sovereignty. (Delegating & Exercising sovereignty)	***Securitizing National, Social, and Individual level threats***	***Eternal exception.*** ***(Internationalized Civil war not yet finished)***	***Permanent National Emergency***. Preconditions for governing societies unfulfilled.

Modified from Dean (2007, 192)

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3. S. K. government' s Responses and Remarkable Results

S. Korea: Liberal Governing

State = Society > Market

Security = Liberty balance

(Security through Liberty, Liberty guarded by Security)

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'30/50 Club'

Japan (1992)

Germany (1995)

U. S. A. (1996)

UK, France, Italy (2004)

ROK (2018)

G7 U. S. A. , UK, France, Germany, Italy, Japan, Canada / ROK, Australia, Republic of South Africa

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4. Conclusion: The Uniqueness of K-Quarantine Model

1) Combining ***Geopolitics*** with ***Biopolitics***

2) Mobilizing ***sovereign***, ***disciplinary***, and ***biopower*** altogether

3) Promoting not only ***public-private sector cooperation*** but also ***state-society collaboration***

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5. Conclusion: The Uniqueness of K-Quarantine Model

Liberal Governmentality in Action!

---Securing global biopolitical threat by guaranteeing liberty of each & every citizen

---'*Conducting conducts*'

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5. Conclusion: The Uniqueness of K-Quarantine Model

'Suffering produces perseverance,
Perseverance produces character,
Character produces Hope.'
(Romans 5)

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