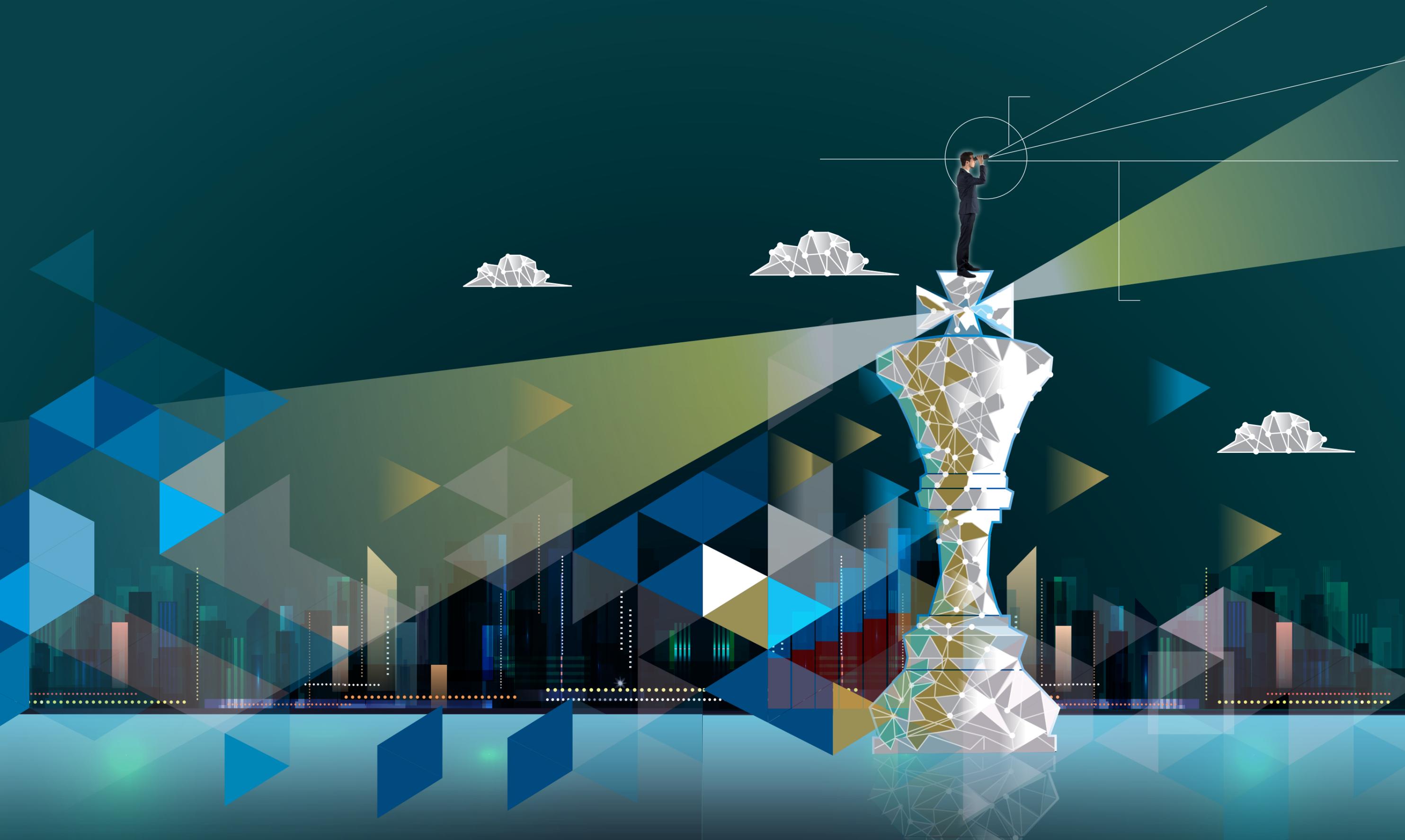


# DIVISION OF PUBLIC POLICY

## Newsletter Issue No.2 Fall 2022

香港科技大學  
THE HONG KONG  
UNIVERSITY OF SCIENCE  
AND TECHNOLOGY

**PPOL**  
Division of Public Policy  
公共政策學部





Professor Naubahar SHARIF, Division of Public Policy, HKUST

## The Acting Head's Message

Welcome to our 2<sup>nd</sup> newsletter, a tradition we began earlier this calendar year! We hope you find the contents informative, as you obtain a better idea of the research and other activities conducted in our zestful Division.

Since our inaugural newsletter was published, Hong Kong has been through many a COVID-related up and down. Fortunately, we are seeing light at the end of the tunnel and a return to some semblance of normalcy. During the Fall of 2022, this was marked by the hustle and bustle of students returning to campus for full in-person instruction. Whereas every semester is accompanied by verve and energy, this particular semester promises to be the start a new chapter and seems to be marked by even more eager anticipation.

As far as PPOL is concerned—and as you can see from this newsletter—our faculty have continued on their trajectory of excelling in their various professional domains. We look forward not only to more in-person professional and social activities, but also hosting at least two major conferences over the coming academic year which we hope to report on in future newsletters.

Happy reading!

Naubahar SHARIF  
30 September 2022

## Contents

- P.2 The Acting Head's Message
- P.3 Faculty Photo
- P.4-5 Research Grants/  
Promotions and New Appointments
- P.6 Ongoing Research Projects
- P.7-12 Policy Dialogue Series
- P.13-15 Highlighted Publications
- P.16 The Division of Public Policy organized the Teaching Day (2022-23) to develop best pedagogy practices
- P.17 MPP students won the second prize in the 2022 Tsinghua International Case Analysis Competition of Public Policy on Sustainable Development Goals
- P.18 PPOL launched the "HKUST Public Policy Fellowship Program"
- P.19-20 PPOL Postgraduate Programs Orientation Day
- P.21-23 PhD and MPhil Thesis Presentations / PPOL RPG Graduate Awarded First Prize in the IPO Best Research Award 2021-22 Competition (MPhil category)
- P.24-25 MPP Program Client-based Policy Analysis Exercise (PAE)

## Faculty Photo



## Research Grants



### Principal Investigator: Prof. Masaru YARIME

**Project: The Smart City as a Field of Innovation: Effects of Public-Private Data Collaboration on Innovation in the Guangdong Province and Implications for the Greater Bay Area**

**Amount awarded: HK\$180,000 in April 2022**

**Funding agency: Institute for Emerging Market Studies, HKUST**

Data is increasingly considered to be a key component in stimulating innovation, as promising possibilities have been opened up by emerging data-intensive technologies, including the Internet of Things and artificial intelligence. Little empirical research, however, has analyzed the availability and accessibility of data to enterprises in facilitating innovation in smart cities. In this project, we examine what kinds of data are available in smart cities, how these data are managed through collaboration between the government and companies, and how the mode of data collaboration influences the innovation performance of SMEs in Guangdong province in China. Panel data are analyzed with key firm-level characteristics, software and patent outputs, and government procurement contracts. This research explores policy implications indicating how the government and enterprises collaborate on data to facilitate innovation while addressing concerns about data security and privacy in the Greater Bay Area.



### Principal Investigator: Prof. Kira MATUS

**Project: Towards 1.5C Lifestyles: What motivates sustainable consumption choices in Hong Kong?**

**Amount awarded: HK\$930,575 in June 2022**

**Funding agency: Hong Kong Research Grants Council**

This project seeks to understand how a cosmopolis like Hong Kong shifts towards more sustainable lifestyles. It also investigates what factors incentivize Hong Kong's people to engage in habits and behaviors that support sustainability goals. Researchers working on this project will engage with local individuals, NGOs, think tanks, and businesses to develop hypotheses about the underlying motivational profiles of Hong Kongers and test these hypotheses via a survey of 1500 Hong Kong residents. This project will contribute a unique understanding of what motivates sustainable consumption choices in the Hong Kong context to scholarly and practical literature that is largely dominated by European and North American cultural perspectives.

## Research Grants



### Principal Investigator: Prof. Naubahar SHARIF

**Project: Influence of and Interplay Between Culture and Chinese Outward FDI into Southeast Asia**

**Amount awarded: HK\$252,000 in April 2022**

**Funding agency: HKUST Institute for Emerging Market Studies; Center for Economic Policy, HKUST**

This research aims to examine the cultural characteristics of four cities in Thailand and Laos to determine how cultural factors are reshaping urban development at the city level and influence Chinese OFDI inflow to the four cities. Applying a multi-method approach, this research seeks to develop a new theoretical model to explain the impact of culture on urban development and Chinese investors' decision-making. This research will contribute to a critical understanding of a new paradigm for policymaking by integrating research conducted on (a) culture, (b) urban development, and (c) Chinese investment.

**Project: Towards a more inclusive Hong Kong: COVID-19, mental well-being, and mitigation strategies for a multicultural elderly community**

**Amount awarded: HK\$2,743,306 in June 2022**

**Funding agency: Center for Aging Science, HKUST**

This study's objective is to reveal the unequal impacts of the COVID-19 pandemic on the mental well-being of the elderly population (those aged 65 and above) in Hong Kong representing several ethnocultural backgrounds—ethnic minorities and ethnic Chinese. For the former category, this study will comprehensively analyze the variation in psychological impacts across the city's three largest ethnic groups, namely Indians, Pakistanis, and Nepalis. This study also aims to examine how distinctive social support networks within these communities can reduce some of the adverse consequences of the pandemic on their members' mental health. Based on the findings, this study will propose coping strategies for the elderly population that consider multicultural contexts for a more inclusive society in Hong Kong.

## Promotions and New Appointments



Professor Masaru YARIME has been a jointly appointed faculty member with the Division of Environment and Sustainability (ENVR), effective 1 June 2022.



Professor Pengyu ZHU has been substantiated as Associate Professor, effective 1 July 2022.



Professor Kira MATUS has been promoted from Associate Professor to Professor, effective 1 July 2022.

## Ongoing Research Projects

Leading Faculty	Funding Agency	Project
<b>Prof. Xiaofan ZHAO</b>	Young Scientist Fund, National Natural Science Foundation of China	<ul style="list-style-type: none"> <li>Explaining Business Compliance: Evidence from Energy-saving Regulations in China (2022–Now)</li> </ul>
<b>Prof. Masaru YARIME</b>	ASPIRE League Partnership Seed Fund	<ul style="list-style-type: none"> <li>Governance of Data-Driven Innovation for Sustainable Smart Cities (2022–Now)</li> </ul>
<b>Prof. Pengyu ZHU</b>	Innovation and Technology Commission, Hong Kong SAR Government  The Policy Innovation and Coordination Office (PICO)	<ul style="list-style-type: none"> <li>Strategic Planning for Transforming Hong Kong into a Leading Global Aviation and Innovation Hub (2022–Now)</li> <li>The Persistence of Behavioral Changes in Post-Pandemic Hong Kong: Implications for Transportation, Housing and Economic Development Policies (2022–Now)</li> </ul>
<b>Prof. Ye QI</b>	Strategic Public Policy Research Funding Scheme, Hong Kong SAR Government	<ul style="list-style-type: none"> <li>Developing a Green Finance Centre in Hong Kong in the Context of Green Development of the Guangdong-Hong Kong-Macao Greater Bay Area: Institutional Analysis and Policy Design (2020–Now)</li> </ul>
<b>Prof. Xun WU</b>	Strategic Public Policy Research Funding Scheme, Hong Kong SAR Government	<ul style="list-style-type: none"> <li>Accelerating the Development of a Global Innovation and Technology Hub in the Guangdong-Hong Kong-Macao Bay Area: The Roles of Public Research Universities in Hong Kong (2019–Now)</li> </ul>
<b>Prof. Kira MATUS</b>	RGC - General Research Fund, Hong Kong SAR Government	<ul style="list-style-type: none"> <li>Innovation and Access to Technology for Sustainable Development: The Role of Public Policy Actors (2019–Now)</li> </ul>
<b>Prof. Naubahar SHARIF</b>	Mental Health Initiative Funding, Hong Kong SAR Government	<ul style="list-style-type: none"> <li>Preparing and Deploying Ethnic Minority Lay Leaders to Promote Mental Well-Being among Hong Kong's Major Ethnic Minority Communities (2022–Now)</li> </ul>

# Policy Dialogue Series

## Housing Affordability: A land, planning or political question?



(From left): Prof. Anthony B.L. CHEUNG, Prof. Donald LOW, Dr. Stephen WONG

According to the Demographia International Housing Affordability Survey, Housing in Hong Kong has since 2010 been the least affordable among the world's major metropolitan housing markets. Its house price-to-income ratio is 20.7, three times higher than Singapore's. The deteriorating housing affordability has led to lengthy debates across society. The government has also attempted to manage demand and increase land supply. However, a tremendous gap between demand and supply remains. Is unaffordable housing in Hong Kong caused by the shortage of land, planning restrictions, or community politics? Is Singapore's experience applicable to Hong Kong? On 19 February 2022, Prof. CHEUNG, Prof. LOW, and Dr. WONG shared their views and offered prospective solutions to the problem.

Prof. CHEUNG first explained that unaffordable housing in Hong Kong is fundamentally a result of severely low supply and very solid consumption and investment demand in the housing market. Therefore, the government must tackle both the supply and demand sides. He believes that, even if a city faces land constraints, it could still increase its housing supply by using land more intensively. Yet, given the lengthy planning process, diverse social interests, narrow-sighted politics, and limited government capacity, Hong

Kong cannot increase its land supply quickly or significantly.

In the short-to-medium term, he suggested that the government could develop brownfield sites, tap into private agricultural land, and modify the uses of sites under private leases. In the medium-to-long term, the government must develop new areas, e.g., the Northern Metropolis, the East Lantau Metropolis, and the reclamation land outside Victoria Harbor. In addition, Hong Kong needs to reform the planning system by enhancing the flexibility of the zoning system, streamlining the planning process, and strengthening inter-bureau/department coordination.

Prof. LOW first shared Singapore's successful experience in public housing policy. In the 1960s, there were 350,000 households in Singapore but only 250,000 proper housing units. Moreover, housing conditions were poor and basic facilities were scarce. However, the Housing and Development Board (HDB) was able to tackle the crux of the problem very quickly. By 1975, nearly half of Singapore's population lived in HDB flats. Since 1985, more than 80% of the population has remained living in HDB flats. There were also various size and quality options within HDB neighborhoods to cater to the demands of various income groups.

Prof. LOW then commented that public housing policy in Singapore has been designed to achieve multiple objectives, including home ownership, social and ethnic integration, building a "productivist" welfare society, ensuring retirement security, and demonstrating a high-performing government. Hong Kong could learn from Singapore's experience. Nevertheless, Hong Kong cannot simply copy Singapore's housing policy because it faces far stricter constraints than Singapore. For instance, the Land Acquisition Act enacted in 1966 enabled the Singapore government to acquire a large amount of land at a reasonable cost. Moreover, leveraging its strong government, the Central Provident Fund guided the population to accumulate considerable savings for down payments and monthly installments for HDB flats. These elements are absent from Hong Kong.

Dr. WONG first noted that land development in Hong Kong lagged far behind the need. He estimated that 9,080 hectares of land are needed in the next 30 years, including 4,800 hectares for the Hong Kong 2030+ mega project, 3,520 hectares for residential living space enhancement, and 760 hectares for facility land enhancement. Currently, the total potential supply is only 7,100 hectares. Hence, he recommended that the government expand the Lantau Tomorrow Vision and allocate extra areas in the New Territories for an additional supply of 3,600 hectares. In

addition, he proposed two new railway projects and two major road projects on top of existing government plans.

Dr. WONG then warned that if short-run housing unaffordability is not tackled, many talents will relocate to other cities. Furthermore, social tension will become unmanageable. He suggested that, to satisfy the urgent demand, development projects in the upcoming decades should be accelerated by streamlining development processes, e.g., simplifying leases, proceeding with reclamation works and town planning procedures simultaneously, and making proactive and professional judgments during district consultations. In terms of housing policy, he offered a series of recommendations, notably re-launching the Tenants Purchase Scheme (TPS), providing rent subsidies, fully opening up the White Form Secondary Market, and providing interest-free loans to first-time buyers.

Despite the severe land constraints, speakers generally agreed that unaffordable housing is a pressing social issue in Hong Kong, but it is not unmanageable. To tackle the problem, the government must adopt a "whole-of-government" approach and act decisively to streamline the planning process, develop new areas, and improve public housing policy.



Event details:



Replay on YouTube:



# Policy Dialogue Series

## Regional Integration and Economic Future: Opportunities and threats within Greater Bay Area



(From left): Prof. Anthony B.L. CHEUNG, Prof. Donald LOW, Prof Heiwai TANG

Recently, the Greater Bay Area (GBA) became an important subject attracting great attention from all sectors of society. The “Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area” designates five strategic positions of the region: a vibrant world-class city cluster; a globally influential international innovation and technology hub; an important support pillar for the Belt and Road initiative; a showcase for in-depth cooperation between Mainland China, Hong Kong, and Macao; and a quality cycle for living, working, and traveling. On 19 March 2022, Prof. CHEUNG, Prof. LOW, and Prof. TANG discussed how Hong Kong could leverage its institutional advantages and unique resources by utilizing the GBA platform to facilitate economic transformation and shape a more promising future.

Prof. CHEUNG first elaborated on Hong Kong’s economic transformations since the 1950s. The first economic transformation from the 1950s to the 1960s extended Hong Kong’s economic focus from re-export to light manufacturing industries. From the 1980s onward, the second economic transformation shifted the city’s economy to the financial and service sectors. During that period, Hong Kong served as a role model for mainland cities considering economic reforms, an intermediary connecting China and the world, and the “front shop” of the “back factory” in the Pearl River Delta.

Nevertheless, the economic balance between Hong Kong and Mainland China reversed after 1997. Hong Kong’s

GDP was 27% of the GDP of Mainland China in 1993, but now it is only 2.2%. Moreover, Hong Kong is facing a series of economic uncertainties, e.g., the dilemma between positive non-interventionism and a proactive governance approach and lacking a strategy for integrating into Mainland China’s economy while maintaining its unique advantages. Furthermore, Hong Kong suffers from several economic weaknesses, e.g., high production costs, rigid bureaucratic procedures, and falling competitiveness in innovation.

Prof. CHEUNG then recommended that Hong Kong launch the third economic transformation through integration into the GBA. Nevertheless, Hong Kong must redefine its strategic positioning carefully. For example, “innovation” needs to be integrated with the city’s best competitive edges – the financial, business, professional, and other high-value-added sectors. The city also needs a better understanding of China. Instead of being passive, Hong Kong should play a leading role in the GBA and an active role in collaborating with ASEAN.

Prof. LOW first commented that regional integration could create risk exposures for small economies, e.g., the drain of talents, migration of the manufacturing sector, dissipation of technology growth, and a less diversified economy. As one of the major cities of the GBA, Hong Kong must strike a balance between integration and distinctiveness. Hong Kong’s value to the GBA will be much more significant if it can differentiate itself from other cities in the region.

Second, Prof. LOW indicated that one particular area where Hong Kong is distinctive from other cities in the GBA is its close economic relationship with Southeast Asia. The economic growth of Southeast Asia will lead to a more extensive consumer base and greater demand for sophisticated services. Moreover, the global supply chain reconfiguration will spur investments in Southeast Asia. Hong Kong can be the gateway for the GBA’s outward FDIs and high-ended exports to Southeast Asia.

Currently, Hong Kong’s innovation capacity is relatively weak compared with that of other major cities in the world. Hong Kong needs to foster a vital innovation and enterprise ecosystem to maintain its competitiveness. Furthermore, Hong Kong should strengthen its public healthcare system and design a more practical COVID-19 strategy to ensure that its status as an international city is sustainable.

Prof. TANG first commented that Hong Kong has always benefited from the “dividends” of globalization by serving as a middleman between China and the world. In the past, Hong Kong functioned as an intermediary between China’s foreign trade and inward FDIs to China. Now, Hong Kong is a beneficiary of China’s “Going Out” strategy. During the period of hyper-globalization, Hong Kong enjoyed a vast benefit by adopting an “auto-pilot” economic approach. Yet this approach has imposed silent costs on the city’s economy in the long run, e.g., over-reliance on the financial sector, dissipation of value-added capacity, and a

following out of the middle class. In addition, Hong Kong is encountering multiple economic headwinds, e.g., huge income inequality, “slowbalization” and de-intermediation, limited labor mobility with other economies, an incomplete innovation ecosystem, a changing geopolitical landscape, and a post-pandemic new normal.

Prof. TANG agreed that Hong Kong desperately needs a third economic transformation. However, the prerequisites are a proactive economic strategy and socioeconomic adaptability. Such a transformation also requires diverse talents, especially in scientific and technological fields, and the development of new industries, e.g., health tech, green tech, and semiconductors. Prof. TANG recommended that Hong Kong leverage the Regional Comprehensive Economic Partnership (RCEP) to transform itself into a center for RMB exchange, legal support, and big data. Hong Kong should also participate strategically in the GBA’s industrial ecosystem, attract high-tech multinationals, actively cultivate talent for a range of industries, increase land supply, and promote advanced production technologies.

Last but not least, all speakers agreed that the city’s government should strengthen its policymaking and policy implementation capacity and proactively coordinate actors from key sectors in Hong Kong, Mainland China, and Southeast Asia.



Event details:



Replay on YouTube:



# Policy Dialogue Series

## Identity: A real or packaged issue?



(From left): Prof. Anthony B.L. CHEUNG, Prof. Christine LOH, Mr. Yuk-shing TSANG

As emerging separatism became a significant concern of the central government, a 'return of hearts' and establishing a Chinese national identity became top priorities in addition to national security. Nevertheless, is 'identity' the root of political polarization and confrontation in recent years, or is it instead a framed articulation of various socioeconomic grievances and anxieties? On 30 April 2022, Prof. CHEUNG, Prof. LOH, and Mr. TSANG, who are experienced participants in Hong Kong's pre-1998 transition and post-1997 governance, sought to unravel the critical issues and myths.

Prof. CHEUNG first illustrated that Hong Kong citizens lacked a clear and stable national identity, reflecting the city's unique history before 1997. Although the locally born/raised generation originally embraced a strong Chinese identity, many became alienated from Mainland China after the Cultural Revolution. Moreover, local culture and pride gradually formed because of Hong Kong's relatively more advanced social development compared with mainland China, Taiwan, and overseas Chinese society in the 1980s and 1990s.

After 1997, however, a Chinese national identity was still not firmly established in Hong Kong because of a series of political controversies, e.g., the debate over the language of instruction, Article 23 legislation, electoral democracy, and anti-extradition protests. Concurrent socioeconomic

grievances, e.g., the lack of upward mobility and housing unaffordability, further exacerbated the issue. Prof. CHEUNG further explained that identity politics in Hong Kong might also be caused by fear, e.g., fear of the unknown, fear of the other, and fear of the future.

Second, Prof. CHEUNG pointed out that overcoming several challenges may help Hong Kong citizens disentangle the identity issue. The city must relaunch a purposeful community, establish a Chinese national identity while maintaining Hong Kong's international status, calibrate the proper level of self-administration and democracy, build a performance-based government, and define the city's core values.

Prof. LOH commented that the identity of Hong Kong citizens had always been contested. Hong Kong has been a blend of many things. People of different generations with different family histories may look at themselves differently. The 1960s and 1970s were periods of economic rise in the West and Hong Kong's economic take-off. Many companies in Hong Kong had deep business connections with Western society. As a result, there was a perception that the West was the best. This was when an entire generation of people in Hong Kong attached to the West.

From 1980 to 1997 Britain and China were negotiating the future of Hong Kong. It was a period of deep confusion



Photo by Bruce Röttgers on Unsplash

because people in Hong Kong, to a vast extent, could not decide their own future. Only a small proportion of Hong Kong residents at that time were offered full British citizenship. Some Hong Kong families migrated to the U.K., Canada, Australia, and the U.S. During the 1990s, because employment opportunities were rare in the West and the Hong Kong economy was still growing, some migrants returned to Hong Kong.

During the decades after 1997, although Hong Kong citizens witnessed the second surge of China, there was no period of decolonization in the city. Hong Kong citizens were told that everything before 1997 could be carried on as long as Hong Kong citizens were patriotic and recognized that Hong Kong is a part of China. In recent years, the deteriorating relationship between China and the U.S. and the revived contest between capitalism and socialism pose a new challenge to the city. Hong Kong citizens need to figure out how to see themselves as a part of China while promoting the value of democracy.

Mr. TSANG first analyzed the nature of the question - "Am I a Chinese or Hongkonger?". It could be a question when Hong Kong citizens respond to customs officials in other countries. It could be a question, i.e., "Do I feel that I am Chinese?", to which an emotional answer is expected. If this is the case, Hong Kong citizens have to consider the common qualities they share with other Chinese in other

parts of the country, e.g., Shanghaiese and Pekingese. It could also be a question, i.e., "Would I prefer to be a Chinese or Hongkonger?", to which a utilitarian answer is expected. In this case, people have to compare the privileges and rights that a Chinese or Hongkonger has against the corresponding duties.

Mr. TSANG then commented that, for "One Country, Two Systems" to work well, Hong Kong needs a strong sense of national identity. Moreover, national identity and patriotism are equivalent from the perspective of the leaders in Beijing. He explained that, according to a speech that Xia Baolong delivered in 2021, patriotism means loving the People's Republic of China (PRC) and upholding the country's socialist system. Citing the Education Bureau Circular, he further illustrated that a sense of national identity includes understanding the nation's historical, economic, and technological development.

Third, Mr. TSANG commented that whether Hong Kong will be governed by a highly autonomous administration depends very much on whether the central government is convinced that there is a strong sense of nationality among Hong Kong citizens.

Event details:



Replay on YouTube:



# Highlighted Publications

This section highlights some of the publications of core faculty members in the Division of Public Policy (PPOL) from January to June 2022. To view the full list of publications of our core faculty members during this period, please visit <https://ppol.hkust.edu.hk/publication-list-spring-2022> or scan the QR code on the right.



He, J., Li, Z., Zhang, X., Wang, H., Dong, W., Du, E., Chang, S., Ou, X., Guo, S., Tian, Z., Gu, A., Teng, F., Hu, B., Yang, X., Chen, S., Yao, M., Yuan, Z., Zhou, L., **Zhao, Xiaofan**, Li, Y. & Zhang, D. (2022). Towards carbon neutrality: A study on China's long-term low-carbon transition pathways and strategies. *Environmental Science and Ecotechnology*, 9, 100134.

*This paper compares six-long term development scenarios in China. For each scenario, the authors present a set of quantitative evaluations of carbon emissions pathways, energy transformation, technology, and policy and investment demand. Results indicate that reaching carbon neutrality before 2060 requires an average annual drop in CO<sub>2</sub> of 9.3% between 2030 and 2050. Such a reduction implies enormous investment in energy infrastructure, emissions reduction technologies, and breakthrough technologies. A long-term development strategy that can balance decarbonization and socioeconomic development is critical for the country.*

Ahl, A., Goto, M., **Yarime, Masaru**, Tanaka, K., & Sagawa, D. (2022). Challenges and opportunities of blockchain energy applications: Interrelatedness among technological, economic, social, environmental, and institutional dimensions. *Renewable and Sustainable Energy Reviews*, 166, 112623.

*Based on qualitative content analysis, expert interviews, and discussion in recent literature, this paper studies the practical challenges and opportunities that blockchain applications offer. Instead of focusing solely on technology, this paper employs a multi-perspective approach. Results show that the main issues are scalability, data privacy, cost of change, market dynamics, user experience, skills, multi-stakeholder governance, and regulatory change. Major opportunities also arise from these domains. These include blockchain advancements, power market development, user research, and regulatory sandboxes. Moreover, a holistic approach that integrates these domains is crucial to the success of corporate strategies and public policy development related to blockchain and other emerging technologies.*

Sakti, A. D., Fauzi, A. I., Takeuchi, W., Pradhan, B., **Yarime, Masaru**, Vega-Garcia, C., Agustina, E., Wibisono, D., Anggraini, T.S., Theodora, M.O., Ramadhanti, D., Muhammad, M.F., Aufaristama, M., AMP Perdana, & Wikantika, K. (2022). Spatial prioritization for wildfire mitigation by integrating heterogeneous spatial data: A new multi-dimensional approach for tropical rainforests. *Remote Sensing*, 14(3), 543.

*This paper pins down priority areas for wildfire mitigation in Indonesia by applying a multi-dimensional approach consisting of disaster, environmental, historical, and administrative parameters by consolidating 20 types of multi-source spatial data. Results suggest that 379,516 km<sup>2</sup> of forest in Indonesia are categorized as high-priority. Most priority areas for wildfire mitigation are located in Sumatra, Kalimantan, and North Maluku. Approximately 19.5% of these areas have suffered from deforestation due to wildfires during the last decade. Moreover, 5.2% and 3.9% of these areas are located in oil palm and mining areas, respectively. These findings assist efforts to select high-priority areas for the REDD+ program and land use evaluation.*

Kyaw Thu, M., Beppu, S., **Yarime, Masaru**, & Shibayama, S. (2022). Role of Machine Learning and Organizational Structure in Science. *PLoS ONE*, 17 (8), e0272280.

*Through bibliometric analyses of 25,000 scientific publications in a wide range of disciplines, this paper examines the team structure of machine learning (ML)-related projects and their contribution to scientific knowledge production under a variety of team structures. Results indicate that interdisciplinary collaboration between domain scientists and computer scientists and the participation of interdisciplinary experts are prevalent in ML-related projects. Moreover, the involvement of interdisciplinary experts is critical to achieving seminal and pioneering discoveries. Last but not least, the depth of ML determines the contribution of ML and its implications to team structure.*

**Zhu, Pengyu & Tan, Xinying** (2022). Evaluating the effectiveness of Hong Kong's border restriction policy in reducing COVID-19 infections. *BMC Public Health*, 22(1), 1-19.

*This paper first merges big data from Baidu Population Migration with meteorological data and census data from over 200 Chinese cities. Next, it applies the synthetic control modeling approach to simulate a counterfactual "synthetic Hong Kong" without a strict border restriction policy. It then compares the infection trends between the simulated scenarios with the actual infection dynamic. Results show that the COVID-19 infection number in the simulated scenarios is lower than in the actual scenario. This paper suggests that the border restriction policy may not effectively restrain the spread of COVID-19 when the virus is already circulating in the city.*

Zhang, S., Yi, B., Guo, F., & **Zhu, Pengyu** (2022). Exploring selected pathways to low and zero CO<sub>2</sub> emissions in China's iron and steel industry and their impacts on resources and energy. *Journal of Cleaner Production*, 340, 130813.

*Zero CO<sub>2</sub> emissions pathways in China's iron and steel industry and their impacts on resources, energy, and water are explored by applying the MESSAGEix-China iron and steel model that incorporates the process-based technology of the sector into the IIASA's MESSAGEix structure. Multiple pathways to reaching zero CO<sub>2</sub> emissions in the country's iron and steel industry before the end of the 21<sup>st</sup> century are identified. In all these pathways, CO<sub>2</sub> emissions decreased substantially between 2030 and 2060 because of the swift transition to 100% scrap-based Electric Arc Furnaces (EAFs) and hydrogen-based Direct Reduced Iron (DRI)-EAF steel-making technologies. Nevertheless, China will still need carbon sink or negative emissions technologies to neutralize 70-360 Mt of CO<sub>2</sub> emissions from China's iron and steel industry. Moreover, the impacts of various technologies for achieving zero emissions on the consumption of materials and energy vary. Last but not least, this paper recommends a cross-cutting strategy to achieve zero CO<sub>2</sub> emissions and promote materials recycling, clean energy, and clean water.*

**Zhu, Pengyu**, & Mo, H. (2022). The potential of ride-pooling in VKT reduction and its environmental implications. *Transportation Research Part D: Transport and Environment*, 103, 103155.

*By simulating an ideal situation in which all riders are open to ride-pooling, this paper shows that ride-pooling can lower aggregate Vehicle Kilometer Travel (VKT) by 8.21% compared with a standard ride-hailing mode in a mid-size city, Haikou. It also reduces petroleum consumption by 1,234,164 liters and carbon emissions by 3,308 tons every year. Moreover, the impact of ride-pooling on VKT reduction depends crucially on buffer time and the time of day. The paper develops a decision model that can be used to achieve an optimal balance between social benefits and riders' costs. In addition, this paper concludes that ride-pooling services, if implemented massively and efficiently, can play a crucial role in effecting sustainable transportation.*

**Zhu, Pengyu**, Huang, J., Wang, J., Liu, Y., Li, J., Wang, M., & Qiang, W. (2022). Understanding taxi ridership with spatial spillover effects and temporal dynamics. *Cities*, 125, 103637.

*Based on GPS-tracked taxi trips, mobile signaling data, and points of interest (POIs) data, this paper uses spatial econometric models to analyze taxi demand in Beijing at a 1-kilometer square grid resolution. Results indicate that road network density has the greatest (positive) direct and indirect effect on taxi ridership during the morning and evening peak hours. Moreover, directly and indirectly, bus coverage increases taxi pick-ups and drop-offs, while the direct impact of subway coverage is negative. Moreover, the impacts of key built-environment factors on taxi demand are heterogeneous during peak times in the morning and evening. This paper unravels the complex nature of taxi ridership and offers important insights for policymakers, transport planners, and other stakeholders in metropolitan cities worldwide.*

**Low, Donald** (2022, February 18). The 3 most likely scenarios of how the pandemic in Hong Kong ends. *South China Morning Post*. Retrieved from <https://www.scmp.com/week-asia/opinion/article/3167624/3-most-likely-scenarios-how-pandemic-hong-kong-ends>.

*This article first indicates that Hong Kong authorities missed an opportunity in 2021 to improve its public health capabilities to mitigate future outbreaks of COVID-19. Therefore, the city was underprepared to tackle the highly transmissible Omicron in early 2022. Second, this article illustrates three possible scenarios depicting how the pandemic in Hong Kong ends. In the first scenario, Hong Kong will further intensify its efforts with the dynamic zero-COVID strategy. In the second scenario, Hong Kong will live with COVID. In the third scenario, Hong Kong will be a pathfinder in implementing a creative mitigation strategy suitable for the city and compatible with anti-pandemic policy in China. Such a strategy may also provide important insights for policymakers in China.*

Hartley, K. & **Low, Donald** (2022, March 30). Hong Kong must rebuild public trust to strengthen its crisis response, as COVID-19 mass-testing debacle shows. *South China Morning Post*. Retrieved from <https://www.scmp.com/week-asia/opinion/article/3172405/hong-kong-must-rebuild-public-trust-strengthen-its-crisis>.

*This article suggests that the lack of public trust and social capital, in addition to insufficient mobilization capacity, is a salient reason for the debacle of COVID-19 mass-testing in Hong Kong. If public trust*

*and social capital further diminish, the government will encounter additional obstacles to implementing other policies in the future. This article recommends that the government create more space enabling community groups to react to crises and strengthen its relationship with civil society insofar as the government alone cannot supply public and social services in all areas.*

**Zhao, Xiaofan, & Qi, Ye** (2022). Three Decades of Climate Policymaking in China: A View of Learning. *Sustainability*, 14(4), 2202.

*This paper reveals that the history of climate policymaking in China between 1990 and 2021 can be considered a conceptual learning process. In the first stage of the conceptual learning process, the government has reconceived climate change from a scientific and diplomatic problem into a developmental and strategic issue. In the second stage, the government switched the focus from avoiding climate action to reinvigorating economic development through climate action. In the third stage, the government has reshaped its climate change strategy from mitigation to adaptation and from centralized governance processes to more diversified coordination.*

Liu, Z., Deng, Z., He, G., Wang, H., Zhang, X., Lin, J., **Qi, Ye**, Liang, X. (2022). Challenges and opportunities for carbon neutrality in China. *Nature Reviews Earth & Environment*, 3(2), 141-155.

*This paper summarizes the key features of China's CO<sub>2</sub> emissions, reduction processes, and successes in meeting climate targets. Decarbonization in China has been sizable. Between 2005 and 2020, carbon intensity was reduced by 48.4%. Nevertheless, it is still challenging for the country to reach its peak total CO<sub>2</sub> emissions before 2030 and realize carbon neutrality before 2060. Critical steps towards carbon neutrality include increasing China's non-fossil energy share, large-scale adoption of negative-emissions technology, supporting regional low-carbon development, and creating a nationwide 'green market'. Alignment of top-down socio-economic development plans and bottom-up economic incentives and technology development is crucial to achieving these steps.*

Dong, C., Li, J., & **Qi, Ye** (2022). Decomposing PM<sub>2.5</sub> air pollution rebounds in Northern China before COVID-19. *Environmental Science and Pollution Research*, 29(19), 28688-28699.

*This study analyzes the PM<sub>2.5</sub> trend for 136 northern Chinese cities from 2015 to early 2020. Results indicate that average PM<sub>2.5</sub> concentrations in northern China increased by 5.16 µg/m<sup>3</sup> in 2019, countervailing 80% of the reduction in 2018. A multiple linear regression analysis attributes half of this PM<sub>2.5</sub> rebound to anthropogenic factors relating to deep cuts in PM<sub>2.5</sub> concentrations in the preceding year, adjustment of mitigation targets set by the government, and the rising marginal cost of PM<sub>2.5</sub> abatement measures. Thus, this paper recommends a more sustainable plan that targets critical regions during key emissions periods for future PM<sub>2.5</sub> emission reductions.*

Zhu, M., **Qi, Ye**, & Hultman, N. (2022). Low-carbon energy transition from the commanding heights: How state-owned enterprises drive China's wind power "miracle". *Energy Research & Social Science*, 85, 102392.

*Through comprehensive and in-depth field investigation, this paper demonstrates that the wind power investment decisions of central state-owned enterprises (CSOEs) in China were not mainly driven by*

## Highlighted Publications

top-down political imperatives. Instead, wind power projects were pursued by marginalized subsidiary companies of CSOEs as practical business opportunities to survive and grow. Although headquarters of CSOEs generally considered wind power an unconventional energy source without strong profitability, institutional changes and market reforms in the power sector and among state-owned enterprises during the early 2000s motivated CSOEs to engage in wind power investment projects to enhance profit. This finding contradicts the conventional assumption that CSOEs invest in wind power to fulfill political objectives.

Li, Veronica Qin Ting, Ma, L., & Wu, Xun (2022). COVID-19, policy change, and post-pandemic data governance: A case analysis of contact tracing applications in East Asia. *Policy and Society*, 41(1), 01-14.

Through a comparison of the use of contact tracing and monitoring applications in mainland China, Hong Kong, and Singapore, this paper analyzes the potential benefits and risks regarding the design of contact tracing applications and the participation of stakeholders across phases of the policy cycle to cope with the COVID-19 pandemic. Results indicate that although COVID-19 has not altered the nature of subjects such as public trust in data governance, the growing involvement of big tech in data policies, or data privacy risks, these subjects have been magnified and become more controversial as the adoption of data technologies has accelerated.

Wu, Xun, Shi, L., Lu, X., Li, X., & Ma, L. (2022). Government dissemination of epidemic information as a policy instrument during COVID-19 pandemic: Evidence from Chinese cities. *Cities*, 125, 103658.

Through a content analysis of 14,637 news items from the portals of 79 municipal governments in China, this paper measures the comprehensiveness, responsiveness, and privacy protection of governments' epidemic information practices and examines the patterns and determinants of dissemination of epidemic information. Results suggest that information dissemination patterns of COVID-19 cases in local neighborhoods vary across cities. These patterns are determined by the government's open data performance, the severity of the pandemic, the administrative levels of the cities, population, and health sector capacities. These findings provide theoretical and policy insights into government dissemination of epidemic information.

Chow, J., Du, C. D., & Wu, Xun (2022). Uncertainty and collaborative governance: the role of science in combating shipping air pollution in Hong Kong and the Greater Bay Area, China. *Journal of Environmental Policy & Planning*, 1-13.

Based on a case study of shipping emissions control, this article analyzes uncertainties in air pollution policy formulation in Hong Kong and the Greater Bay Area and the importance of science in minimizing these uncertainties to facilitate collaborative governance. Results suggest that science can reduce uncertainties and strengthen collaborative governance by tackling major challenges brought up by other scholars.

Wang, J., Chandra, Kevin, Du, C., Ding, W., & Wu, Xun (2022). Transformation of Cross-Border Regional Innovation Networks: A Case Study of Hong Kong and Shenzhen. In *Higher Education, Innovation and Entrepreneurship from Comparative Perspectives* (pp. 185-210). Springer, Singapore.

Based on publication, patent, and entrepreneurship activity data, this article explores the transformation of Hong Kong and Shenzhen with a focus on their innovation activities. Electronics and ICT are the main high-tech sectors in both cities. Results point to a high complementarity of innovation resources between the two cities. However, the structure of each city's local innovation system is unbalanced. The innovation system in Shenzhen tilts toward the industry sector, while innovation activities in Hong Kong are predominantly academic. This paper suggests that if the cross-border regional innovation networks between the two cities are connected more extensively, their innovation systems can play a more balanced role between key innovation actors.

Gietel-Basten, Stuart, Matus, Kira, & Mori, R. (2022). COVID-19 as a trigger for innovation in policy action for older persons? Evidence from Asia. *Policy and Society*, 41(1), 168-186.

Analyzing policies across Afghanistan, Bangladesh, India, Iran, Japan, Korea, Myanmar, Pakistan, and Vietnam, this paper shows that COVID-19 responses sped up and scaled up existing policy programs. Moreover, it identifies two domains where COVID-19 policies have the greatest potential to generate long-lasting innovation in Asia. The first is infrastructural enhancements to ensure access to benefits and the development of remote banking. The second is well-being and caring support, e.g., telemedicine, delivery services for medical and other supplies, and remote support for the elderly. These findings are consistent with "acceleration" models of policy change.

Sharif, Naubahar, & Chandra, Kevin (2022). A comparative analysis of innovation policies in Hong Kong and Shenzhen within the Greater Bay Area initiative. *Science and Public Policy*, 49(1), 54-71.

This paper finds that Hong Kong's innovation policies are diverse, fragmented, and overlapping. In contrast, Shenzhen's innovation policies are more targeted with a clear division of duties and concentrated in strategic emerging industries. Integration between the two cities is taking place but is weak. To strengthen integration, Hong Kong and Shenzhen can collaborate in four domains: talent recruitment, joint R&D activities, enterprise competitiveness, and support for start-ups. Moreover, this paper argues that the integration of innovation activities between the two cities could be the main force driving the development of the Greater Bay Area.

## The Division of Public Policy organized the Teaching Day (2022-23) to develop best pedagogy practices

The Division of Public Policy organized the PPOL Teaching Day (2022-23) on 30 August 2022. The teaching day aimed to establish a more consistent approach to teaching and assessment across PPOL courses and develop best pedagogy practices.

In the pre-session discussion, Prof. Kira MATUS presented an up-to-date overview of the MPP, MPM, MPhil, and PhD programs. She then outlined the division's plan for teaching, e.g., teaching modes, as well as coordination between teachers, improved logistics, and better quality assurance, in the coming academic year. She also invited teachers to share their opinions on improving teaching quality.

In the first session, Dr. Sean MCMINN, Director of the Centre for Education Innovation (CEI), offered an in-depth analysis of the experience and perceptions of MPP and MPM students as learners based on feedback from student surveys. He highlighted the importance of

interaction between students and teachers, strengthening students' pre-requisite knowledge, opportunities for real-world practice, networking, and related challenges involved in these teaching objectives.

In the second session, Dr. MCMINN illustrated the concrete measures that must be adopted to accomplish these objectives, such as enhancing students' motivation, increasing the engagement of professors and teaching faculty, evaluating and improving students' prior knowledge, adopting the goal-directed practice approach, and adjusting teaching strategies according to the current social, emotional, and intellectual climate. Then, led by Dr. MCMINN, faculty members were divided into groups and shared their good practices in assessment design, active learning environment development, and teaching modes.

The PPOL Teaching Day has been held annually since 2021.



Professor Kira MATUS led the pre-session discussion.



Dr. Sean MCMINN shared best pedagogy practices.



Faculty members engaged in group discussions about assessment design, the active learning environment, and modes of teaching.

## MPP students won the second prize in the 2022 Tsinghua International Case Analysis Competition of Public Policy on Sustainable Development Goals

On August 20, 2022, a team of four MPP students, including Bangyuan AN, Hanz Charles PONCE ACOSTA, Yijie ZHANG, and Yuqi LIU, won the second prize in the 2022 Tsinghua International Case Analysis Competition of Public Policy on Sustainable Development Goals. The title of the award-winning case analysis report was "Salient Altar of Saline Alkali Land: Lessons from the Development of Agricultural Technology in Saline Alkali Land in the Yellow River Delta." Prof. Masaru YARIME and Prof. Xiaofan ZHAO were the advisors for this team.

"The team has skillfully applied the knowledge and methodologies learned at our MPP program to tackle a crucial challenge in moving towards sustainable agriculture," Prof. YARIME commented. He encouraged the students to further explore public policy for facilitating science, technology, and innovation for sustainability.

"They have chosen a meaningful topic – sustainable agriculture – and demonstrated brilliant analytical skills as a result of their training in the MPP program. I hope that more MPP students will follow their steps and join this and other similar case competitions in the future," Prof. ZHAO said.

The School of Public Policy and Management and the Institute for Sustainable Development Goals of Tsinghua University organized the competition. Fifty-four teams from 84 institutes in China, the United States, Brazil, Japan, Canada, and Italy participated in the competition. Through case studies, students were encouraged to explore existing problems, practices, policy innovations, and solutions to sustainable development worldwide.



(From left to right, top to bottom) Yijie ZHANG, Bangyuan AN, and Yuqi LIU presented their case analysis report in the final round of the competition. Hanz Charles PONCE ACOSTA participated in the preparation of the slides, all previous rounds of the competition, and the report's writing.

## PPOL launched the "HKUST Public Policy Fellowship Program"



In 2022, the Division of Public Policy (PPOL) launched the Public Policy Fellowship Program to support outstanding students from around the world in pursuing taught postgraduate programs in public policy and management at the Hong Kong University of Science and Technology (HKUST).

The Fellowship is open to eligible applicants from all countries; we especially welcome applicants from Belt and Road countries. The Fellowship will cover the full tuition fees and provide an annual allowance. The fellows should not concurrently hold any other scholarship, fellowship, or award.

Eligible applicants admitted to the Master of Public Policy (MPP) or Master of Public Management (MPM) program will be evaluated for the Fellowship based on academic and professional achievements, contribution to cultural diversity, quality of the class learning environment, leadership potential, and commitment to good governance. No separate application is required.

# PPOL Postgraduate Programs Orientation Day



Incoming PPOL students, faculty members, and guest speakers arrived at HKUST for orientation day.

The PPOL postgraduate programs orientation day was held on August 27, 2022. Incoming students in the MPP, MPM, and MPhil/Ph.D. programs received warm greetings from PPOL faculty members and learned more course details for their new start at HKUST.

Two guest speakers, Mr. Oscar Yam-Shu KWOK, the Head of the Civil Service College of the Hong Kong Special Administrative Region, and Prof. Heiwai TANG, the Victor and William Fung Professor in Economics at the University of Hong Kong, were invited to share invaluable insights into Hong Kong's existing policy challenges and the new approach needed to build a better Hong Kong.

Mr. Yam-Shu Kwok, the Head of the Civil Service College of the Hong Kong Special Administrative Region, narrated Singapore's experience to demonstrate that social

engineering implemented by an active government does not undermine family and social responsibilities; instead, optimal social policies, e.g., in housing and education, support people and encourage them to bear more social responsibilities and contribute to racial and religious harmony. He also emphasized the importance of a far-sighted vision and persuasive communication skills in leadership. Finally, he indicated that security, prosperity, and stability are the fundamental objectives of every society irrespective of governance systems or philosophies because these are the foundations of the social contract.



Mr. Oscar Yam-Shu KWOK shared insights into policy governance in Hong Kong.



Students and teachers spent time together during the MPM Welcoming Dinner.



Prof. Naubahar SHARIF gave a speech at the MPP Welcoming Lunch.

## PhD and MPhil Thesis Presentations

### China-Pakistan Economic Corridor: Is Pakistan Ready for Technology Catchup?

Dr. Athar MANSOOR

Supervisor: Prof. Naubahar SHARIF

Placement: Chief Strategy Officer, Enrichers Investment Group, Lahore, Pakistan



This study examines the essence of the China-Pakistan Economic Corridor (CPEC) through a qualitative approach. It identifies a big opportunity for Pakistan to catch up with technology innovation. This study applies the popular National Innovation System (NIS) approach to describe the NIS of Pakistan and tests a new theory in science, technology, and innovation scholarship – the theory of creative insecurity – in Pakistan, and identifies the variables that have hindered Pakistan's technological progress from

the perspective of its relative threat balance, but not from the perspective of domestic institutions and policies. It argues that Pakistan should take advantage of the special economic zones being created across the country within the CPEC's industrial cooperation framework. Finally, it offers policy recommendations for improving the functions of Pakistan's NIS.

### Regulation of artificial intelligence technologies in the Indian construction industry

Dr. Vishnu SIVARUDRAN PILLAI

Supervisor: Prof. Kira MATUS

Placement: Principal Research Associate, the Indian Institute of Corporate Affairs



This thesis extends the Normal Accident Theory (NAT) and High-Reliability Organisation (HRO) theory to the AI-fied construction space to analyze the risks and potential for regulating artificial intelligence technologies in the Indian construction industry. First, the author examined 974 relevant journal articles to identify the research frontier. Second, the author learned of the technology expectations of experts and construction personnel through a workshop and interviews. Third, risks were identified through an analysis of 94 articles discussing the ethical aspects of AI and interviews with employees from the construction sector and a manufacturing firm.

Results show that the risks related to AI technology run beyond the physical domain and include retrenchment/ layoffs, privacy risks, and liability risks. The regulatory space is spanned by efforts taken by highly qualified and skilled employees. Nevertheless, AI system developers operate outside the liability spectrum, causing irresponsible innovation, privacy risk, etc. Moreover, country-level laws, ISO standards, and contractual guidelines are insufficient for an 'AI-fied' construction sector.

### Understanding Long-Term Care Provision for Community-Dwelling Older People in China through the Lens of Welfare Mix

Dr. Zilin LI

Supervisor: Prof. Stuart GIETEL-BASTEN

Placement: Postdoctoral Fellow, Consortium on Analytics for Data-Driven Decision-making (CAnD3), McGill University



This thesis applies the welfare mix framework to explore how the four core institutions in the elderly social welfare system of China, namely the state, the market, the third sector, and the family, share responsibilities, interact with each other, and explain the challenges they encountered during the collaboration process.

The findings suggest that because older parents are becoming more independent from adult children, the family

alone is no longer sufficient to meet community-dwelling older people's long-term care needs. Although there is a remarkable increase in formal provision under the state's advocacy, it has not translated into fewer unmet needs. The lack of effective collaboration between formal and informal care leads to two consensus gaps: between the state's contribution and citizens' expectations, and between the state's ambition and non-state actors' capacity.

### Online surveys as evidence for policymaking: Examining the relationships between incentives, response rates, sample representativeness and data quality

Dr. C. Joy CRUZ

Supervisors: Prof. Stuart GIETEL-BASTEN and Prof. Kira MATUS

Placement: Assistant Professor at the University of the Philippines Population Institute



This thesis seeks to examine the extent of the use of survey evidence in policymaking. It also aims to evaluate the relationship between incentives, response rates, sample representativeness, and data quality when implementing online surveys.

First, through document analysis of 18,566 legislative documents used to discuss 569 bills from 2000 to 2022, the author assessed the extent of the use of surveys in public policymaking in Hong Kong. Second, an experimental study has been implemented to examine the effect of incentives on the response rate of large-scale online social surveys like

the Hong Kong Generations and Gender Survey (HK-GGS). Third, through exploratory, in-depth analyses using HK-GGS survey data, the author evaluated the quality of the data and the sample's representativeness.

Findings suggest that there is low uptake of survey data in policymaking in Hong Kong, specifically in legislation. Furthermore, conducting a large-scale, address-based, randomly sampled, and purely online survey is plausible within the premise of giving incentives and considering all other factors. Last but not least, higher response rates make the HK-GGS pilot data reliable.

### Policy Decision-Making in Sustainable Development

Dr. Viktória DÖME

Supervisor: Prof. Kira MATUS

Placement: Research Associate, Innovation Pathways at the Institute for Manufacturing, University of Cambridge



This thesis aims to comprehensively analyze policy decision-making in advancing technological innovation for sustainable development. Using quantitative analysis, the author started from a global perspective on the factors that influence policy tool choice in the renewable energy sector. Based on a literature review and content analysis of government documents, the author then moved on to examining the broader innovation context, including barriers and innovation strategies. The author built on a previous cross-sectoral framework (Anadon et al., 2014; 2016), to

enable a comprehensive multi-sectoral (five sectors) and multi-country analysis to determine whether innovation policies are designed to mobilize innovation for sustainability. The author investigated ten small, developed countries as niches in a global system with specific innovation strategies, policies, and focus areas while constrained by limited resources. Finally, the author provided a case study illustrating policies supporting the clean energy transition in four Central European countries.

### Cage Builders and Bird Catchers: Examining the Influence of China's Industrial Relocation Policies through Guangdong's "Double Transfer" Program

Ms. Jasmine ZHANG (MPhil)

Supervisor: Prof. Pengyu ZHU



Reviewing relevant policy documents and applying fixed-effects and lagged dependent variable regression adjustment models, this study first explores what types of policy tools have been employed by the Guangdong government to direct industrial relocation to shed light on policies that are significantly different from those more common in liberal market economies. Second, the study examines whether these policies have led to

a different industrial arrangement than would otherwise have been the case. Results suggest that state policy beyond infrastructure investment, taxation, and other fiscal incentives should be considered in future analyses of industrial relocation in China. These factors are relevant to examining industrial relocation at the national level, given numerous similar programs launched by the national and provincial governments.

## The Smart City as a Field of Innovation: Effects of Public-Private Data Collaboration on the Innovative Performance of Small and Medium-sized Enterprises



Ms. Xiaohui JIANG (MPhil)  
Supervisor: Prof. Masaru YARIME  
Placement: PhD in Economic Geography at the University of Zurich

This study addresses how data are managed through collaboration between the government and companies in smart cities and how obtaining various types of government contracts (equipment supply, platform building, data analysis) can influence innovation performance. Focusing on the case of SMEs in China, this research aims to shed light on what kinds of data are available and used in smart cities and how the government and enterprises collaborate on data to facilitate innovation. Data on companies' registered

capital, industry, software products, and patents from 1990–2020 are compiled from the Tianyancha database. A panel dataset is established with the key characteristics of SMEs, software and patent output, and their records on government contracts. Our PSM analysis suggests that, compared with the control group, the treatment group that obtains government contracts generates more innovation outputs.



## PPOL RPG Graduate Awarded First Prize in the IPO Best Research Award 2021-22 Competition (MPhil category)

Ms. Veronica Qin Ting LI, our MPhil in Public Policy graduate in 2021, received the first prize in the IPO Best Research Award 2021-22 competition (MPhil category).

Under the supervision of Prof. Masaru YARIME, Veronica's thesis concerns effective data tools for crises such as COVID-19. Focusing on the role of citizens in developing such data tools, Veronica asks what would affect the public

use and acceptability of data tools for COVID-19 advice (in Hong Kong). In addition to this award, Veronica was also the Joseph Needham Merit Scholarship awardee in 2021. She is currently pursuing her doctoral studies in the Department of Science, Technology, Engineering and Public Policy at University College London.

## MPP Program Client-based Policy Analysis Exercise (PAE)

In addition to courses, one major component of the MPP program is the Client-based Policy Analysis Exercise (PAE), a capstone module. PAE is an eight-month-long project in which second-year students work in teams of three to five people on challenges, issues, and problems facing real-world organizations. Supervised by faculty members and mentors from client organizations, students will apply the knowledge and skills that they have learned to analyze policy issues, develop solutions and produce professional reports for the client organizations.

The following section summarizes the findings of some PAE reports in the academic year 2021/22.

### Developing Intelligent Air Cargo Logistics --- Challenges & Opportunities for Hong Kong

Client: Huawei Technology  
Faculty advisor: Prof. Pengyu ZHU  
Students: Siyin LIN, Danning HOU, Mingyue DAI, Yijie LIU

Hong Kong is an international air logistics hub given its strategic location and world-class infrastructure. Nevertheless, major airports in the Asian-Pacific region increasingly challenge the leading position of the Hong Kong International Airport as they invest heavily in air cargo logistics. Moreover, valuing passengers over goods leads to underdevelopment in Hong Kong's air cargo logistics.

The first objective of this project is to create a 10-year technology roadmap to help the industry capture innovative technologies applicable to air logistics. The second is to formulate a policy framework to support this roadmap's sustainable development while considering the interests of key stakeholders. Therefore, project team members conducted interviews with key stakeholders, e.g., tech companies, academia, and airline companies. They also studied secondary data sources, e.g., airport reports and journal articles, and carried out desk research on 22 international airports across five continents.

The report recommends that, in the short term (1-3 years), the Hong Kong government set up special funds for the development of the air-cargo industry, simplify administrative procedures, and provide corporate tax relief to incentivize innovation. In the medium term (3-5 years), the government could amend existing industry-related regulations and build a cooperation platform for enterprises in Hong Kong and mainland China. In the long term (5-10 years), the government could develop Hong Kong into an international innovation and technology hub, hold airshows regularly to follow the latest developments, strengthen industry planning guidance and coordination, and attract talent from overseas and Mainland China.

The private sector also plays a critical role. Air cargo logistic companies could control costs and improve efficiency by adopting advanced technologies to raise the level of digitization. On the other hand, technology companies could support the industry by enhancing their R&D capacity and supplying advanced technology solutions.

## Accelerating the Development of a Global Innovation and Technology Hub in the Guangdong-Hong Kong-Macao Bay Area: University-industry Cooperation in Hong Kong

Client: Policy Innovation and Co-ordination Office

Faculty advisor: Prof. Masaru YARIME

Students: Jieyu GAO, Pui Gi SZETO, Tianhuai WANG, Jing YANG, Xiaodan ZHANG

The Hong Kong government aims to develop Hong Kong into an innovation center. This research group shows, however, that university-industry collaboration (UIC) in Hong Kong is weak. Although several universities in Hong Kong are among the Top 100 in the QS World University Rankings, their innovation performances are not equally impressive. Moreover, gross domestic expenditure on R&D (GRED) in Hong Kong is almost the lowest among developed economies.

Based on a survey of companies in four cities- Beijing, Shanghai, Shenzhen, and Hong Kong- the research group analyzes their key differences in the development of university-industry collaboration and what the Hong Kong government should do to promote the development of UIC in Hong Kong.

Compared with those in the other three cities in Mainland China, companies in Hong Kong are mostly small and medium-sized enterprises. They usually lack the capability and resources to conduct technological research and

development. Hong Kong also lacks a formal network enabling private companies to contact university researchers and learn about university research outputs. Moreover, economic activities in Hong Kong are predominately related to the finance sector, while the other three Mainland cities target the development of hi-tech industries. Last but not least, the long and complicated processes for research funding applications in Hong Kong weaken private companies' incentives for participating in UIC.

Thus, the research group recommends that the government improve the efficiency of the research funding system by standardizing operating procedures, coordinating and harmonizing funding, and strengthening expert networks. The government could also build the research talent pipeline and a platform to enhance collaboration accessibility by developing formal interaction channels to share information and establishing a platform to integrate the full cycle of technology transfer. In addition, the government could increase public R&D expenditure.

## Defining Sustainable Finance: Hong Kong's Taxonomy Strategy

Clients: Institute for Public Policy, HKUST; Climate Bonds Initiative

Faculty advisor: Prof. Xun WU

Students: Beiju CHEN, Yuxuan CUI, Shitong LI, Yue SHEN, Xiting WANG

In 2020, the size of the global green bond market was over 1 trillion USD, and green bonds from Hong Kong issuers totaled 2.90 billion USD. It is estimated that 90 trillion USD in investment in sustainable infrastructure will be needed in the coming 15 years to tackle the pressing environmental challenges facing the global community. Yet, the green finance sector in Hong Kong, an international financial center, remains nascent.

The report indicates that one of the key components for developing a sustainable finance sector is green taxonomy. Green taxonomy is a "must-to-have" tool for defining "green projects" and reducing transaction costs. Such a taxonomy would also create a common language for market participants such as bond issuers, investors, verifiers, and regulators. Many economies attach great importance

to sustainable taxonomy. Sustainable taxonomy in some economies, e.g., China and the EU, is already functioning. However, because of a lack of data and knowledge, implementing green taxonomy in Hong Kong faces many challenges, e.g., difficulties in assessing the related technical criteria.

The report suggests that the Hong Kong government could enhance public awareness of the benefits and successful cases of the common ground taxonomy (CGT) and collaborate closely with the International Platform on Sustainable Finance. On the other hand, the government could strengthen its capacity in sustainable finance by clarifying regulations, improving the data environment, developing necessary professional skills, and incentivizing market participants.

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