DIVISION OF PUBLIC POLICY
Inaugural Newsletter Spring 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

Contents

The Acting Head's Message

The Division of Public Policy (PPOL) was established in 2017 with a view to enhancing HKUST's capacity to offer first-class academic and societal insights into policy dimensions of new scientific and technological discoveries. Currently, the division operates alongside other science and humanities units to generate interdisciplinary research at the global frontier and contributes to policy development by partnering with government agencies, think tanks, and regional organizations.

This inaugural newsletter introduces our faculty members and their recent achievements. It also elaborates key messages from notable conferences and seminars organized by PPOL, the latest developments in our degree programs, and news about our students. In the future, the newsletter series will be published biannually, when semesters begin.

Grants/Awards

Prof. Xiaofan ZHAO

Project: Explaining Business Compliance: Evidence from Energy-saving Regulations in China

Amount awarded: HK$360,000 in August 2021

Funding agency: Young Scientist Fund, National Natural Science Foundation of China

According to the pervasive threat model, enterprises, facing uncertainties in future environmental policies, perceive the presence of pervasive threat from the government, which serves as a major incentive for their compliance with energy conservation and emissions reduction regulations. This study aims to examine whether the pervasive threat model still holds true in China, given the country's socio-economic development in recent years. This study investigates the impact of pervasive threats on firm compliance, not only contributing to conventional theories of regulatory compliance but also providing a new lens through which to observe and assess progress towards the rule of law and government–business relations in contemporary China.

Prof. Masaru YARIME

Project: Governance of Data-Driven Innovation for Sustainable Smart Cities

Amount awarded: HK$100,000 in August 2021

Funding agency: ASPIRE League Partnership Seed Fund

This project aims to examine policy and institutional arrangements for governing data-driven innovation for sustainable smart cities in Tokyo and Hong Kong. In-depth analysis will be conducted to investigate the types of data collected, shared, and used, data ownership and accessibility, purposes of data use, data standards and interoperability, platforms for sharing data, incentives for stakeholders, and policy frameworks and instruments for data governance. Implications for public policy and institutional design are expected to facilitate stakeholder participation and engagement in encouraging societal acceptance, resilience, and inclusiveness in sustainable smart cities.

Prof. Pengyu ZHU

Project: Strategic Planning for Transforming Hong Kong into a Leading Global Aviation and Innovation Hub

Amount awarded: HK$2,151,600 in April 2021

Funding agency: Innovation and Technology Commission, Hong Kong SAR Government

This project aims to study new trends in the global aviation technology industry during the COVID-19 pandemic, evaluate Hong Kong's positioning by interviewing all relevant stakeholders, conduct a series of international case studies through site visits and interviews, investigate possible technological innovations that are applicable to Hong Kong, and create a technology roadmap with five established foci, including the technology evolution of the Hong Kong International Airport, air traffic efficiency, sustainable aviation, intelligent logistics, and cross-industry technology-sharing.

Project: The Persistence of Behavioral Changes in Post-Pandemic Hong Kong: Implications for Transportation, Housing and Economic Development Policies

Amount awarded: HK$658,088 in December 2021

Funding agency: The Policy Innovation and Co-ordination Office, Hong Kong SAR Government

This study will utilize the survey infrastructure of the Hong Kong Panel Study of Social Dynamics (HKPSSD) to conduct a timely population-representative survey of Hong Kong households as the pandemic recedes, collecting data on behavioral patterns before, during, and immediately after the pandemic. The study will examine behavioral changes pertaining to travel, work, shopping, and housing choices. This approach facilitates early prognoses of which behavioral changes are likely to be long-lasting and guides the government in designing policies to address such changes proactively.
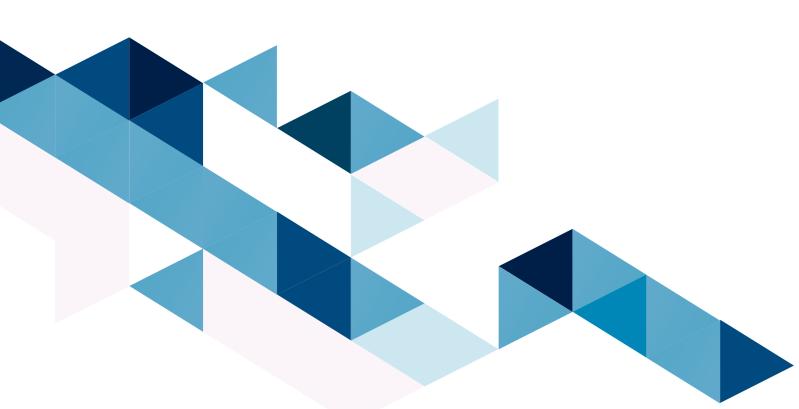
Prof. Naubahar SHARIF

Project: Preparing and Deploying Ethnic Minority Lay Leaders to Promote Mental Well-Being among Hong Kong's Major Ethnic Minority Communities

Amount awarded: HK$2,000,000 in December 2021

Funding agency: Mental Health Initiative Funding, Hong Kong SAR Government

Cultural differences, communication gaps, language barriers, and lack of proper and well-established channels prevent ethnic minorities in Hong Kong from receiving adequate social attention. The goal of this project is to raise awareness of mental health issues among major ethnic minorities in Hong Kong. First, respected community members who could serve as 'lay leaders' in mental health first-aid education will be identified. Second, these 'lay leaders' will receive a series of mental health first-aid training sessions. Third, they will spread their new knowledge in their communities through online and in-person seminars and dialogue sessions.

Ongoing Research Projects

Leading Faculty	Funding Agency	Project
Prof. Ye QI	RGC - Strategic Public Policy Research Funding Scheme, Hong Kong SAR Government	• 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)
Prof. Xun WU	GC - Strategic Public Policy Research Funding Scheme, Hong Kong SAR Government	• 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)
	Guangzhou Municipal Science and Technology Bureau	• Research on the Alignment of Science, Technology and Innovation Rules in Guangzhou, Hong Kong and Macao (2021–Now)
Prof. Kira MATUS	RGC - General Research Fund, Hong Kong SAR Government	• Innovation and Access to Technology for Sustainable Development: The Role of Public Policy Actors (2019–Now)

Policy Dialogue Series
'One Country, Two Systems': Retreat or Reboot?

(From left): Prof. Tai-lok LUI, Prof. Anthony Bing-leung CHEUNG, Dr. Henry Kin-chung HO

2020 was a watershed year in Hong Kong SAR's development under the "One Country, Two Systems" principle. Reacting to political disorder and social unrest, the Chinese central government promulgated a national security law and a new electoral system in Hong Kong to guarantee that the city is governed by 'patriots'. On 6 November 2021, instead of being purely optimistic or pessimistic, Prof. CHEUNG, Prof. LUI, and Dr. HO provided objective analysis of the political challenges facing Hong Kong as well as pragmatic solutions.

Prof. CHEUNG expects that, in the new political environment, Hong Kong's development will inevitably be shaped by China's evolving reality, but the city's development is not totally pre-determined. Unique characteristics could be either a benefit or a threat to the nation; the key is whether the city understands what it can do and should do to maintain vibrancy and resilience. He explained that Hong Kong should rely more heavily on China's global advantage than on "internal circulation" to sustain its global status. Moreover, Hong Kong should make an effort to assert its voice and presence within the nation.

Prof. LUI remarked that assuming "One Country, Two Systems" accomplished its mission in 1997 was a mistaken approach. It needs adaptation to both the changing local socio-economic environment and international politics.

Institutional gaps, e.g., in national security and the pace of democratization, should be fixed. Therefore, it is crucial to understand and deal with the "parameters" of the "One Country, Two Systems" framework. Moreover, it is essential for the SAR to prove that Hong Kong as a global city remains valuable to China as such and that this status is compatible with national security concerns.

Dr. HO first indicated that some principles underlying "One Country, Two Systems" are misunderstood. For example, the prosperity and stability of Hong Kong are key goals of "One Country, Two Systems" only if they support China's sovereignty, safety, and development interests. Second, he commented that political integration between Hong Kong and China lagged behind economic integration. Furthermore, political integration needs the participation of government officials and citizens. Third, he concluded that under "One Country, Two Systems", the best scenario is that Hong Kong's system remains different from yet beneficial to China.

In the policy dialogue, speakers agreed that "One Country, Two Systems" will remain important for the future development of Hong Kong. Nevertheless, they also pointed out that promoting mutual understanding, trust, and benefit will be challenging. Whether the city can overcome these challenges remains to be seen.

Event details: Replay on YouTube:

Policy Dialogue Series
Covid-19 Strategy at the Crossroads:
Hong Kong and worldwide

(From left): Prof. Hong FUNG, Prof. Anthony Bing-leung. CHEUNG, Prof. Xun WU

COVID-19 is not only the most savage health crisis in a century, but it also poses a devastating threat to the global economy. Two years after the outbreak, there is still no consensus about the optimal solution to the pandemic. Nevertheless, some societies in Asia and Oceania have apparently performed better than other places in controlling the disease. Recently, as mass vaccination has been accomplished in several countries, "co-existence" rather than "zero-tolerance" has been adopted as an exit strategy. On 15 January 2022, Prof. CHEUNG, Prof. FUNG, and Prof. WU offered policy suggestions, comparing the performances of anti-COVID strategies between Hong Kong and the rest of the world.

Prof. CHEUNG commented that shutting down saves lives but is costly while staying open maintains normal life but is risky. In many societies, whether choosing "co-existence" or "zero-tolerance" as an anti-COVID strategy remains an ongoing debate and depends on changing circumstances. He pointed out that this health crisis has revealed the importance of crisis management and governmental leadership. Independently of political structures, competent state machinery, a trusted government, and effective leadership are necessary components for a successful anti-COVID strategy. In terms of infections and deaths, Hong Kong has performed better than the rest of the world. He argued, however, that public trust is insufficient in Hong Kong. Therefore, the government should improve its crisis leadership and communication.

Prof. FUNG first suggested that COVID-19 is not only a pandemic but also a syndemic because it involves both biological and social interaction. Ethnic minorities, migrant workers, the poor, the elderly, and chronically ill people are groups suffering the most. From a health-care perspective, he urged more investment in public health, financial and social assistance for vulnerable groups, timely decision-making with a "whole of government" approach, and better global cooperation. In addition to enhancing the vaccination rate, he recommended the "Swiss Chess Pandemic Defence" strategy where multiple layers of personal and social efforts are required because each intervention (layer) has imperfections (holes). Last but not least, he expected digitalization to become necessary to make the health-care system more flexible and agile.

Professor WU first indicated that it is difficult simultaneously to achieve mainland border re-openings and removal of the travel ban for all non-residents as well as easing quarantine requirements. Differences in political systems, institutional cultures, implementation capacities, and levels of global linkages between mainland China and Hong Kong make removing the travel ban on all non-residents a more realistic goal. He suggested that Hong Kong should draw lessons from Singapore. Singapore has accomplished high vaccination rates across groups by fighting fake news, persuading the elderly, making vaccines widely accessible, and imposing restrictions on the unvaccinated. Therefore, Singapore can shift toward a more balanced "co-existence" strategy with fewer travel restrictions. Nevertheless, he remarked that social distancing is still being implemented in Singapore. Lastly, he emphasized that the keys to re-opening Hong Kong are building public support, overcoming vaccine hesitancy, making tracing apps mandatory, imposing social distancing, and strengthening healthcare facilities.

To summarize, an optimal Covid-19 strategy should balance the tradeoff between public health protection and normal life. This requires effective crisis management and government leadership, joint efforts by actors across society, greater investment in public health, learning from the experiences of other societies, and a practical approach to re-opening Hong Kong.

Event details: [QR code] Replay on YouTube: [QR code]

APCIEE Conference
6-7 December 2021

(From left) Dr. Shin-cheul KIM, Prof. King CHOW, Prof. Bert SHI, DR. Ngai-tseung CHEUNG, Prof. Wei SHYY and Prof. Naubahar SHARIF

The Association of Pacific Rim Universities (APRU) and the Division of Public Policy (PPOL) at The Hong Kong University of Science and Technology (HKUST) hosted the Asia-Pacific Conference on Innovation and Entrepreneurship Ecosystems (APCIEE) on 6-7 December 2021. The conference invited 31 experts from all over the world to share their experiences in the creation of successful innovation hubs with over 180 attendees (in-person and online), helping to cultivate an innovation network in Hong Kong with aligned interests.

The conference consisted of three thematic sessions, 1) Artificial Intelligence Entrepreneurship in Health Care Industry, 2) Synthetic Biology and Bio-Economy, and 3) A Role of Research Universities in Innovation-led Economic Growth.

In the first session, scientists from the government and enterprises shared their views about current and future trends in the development of artificial intelligence (AI) in the health-care industry. They all agreed that the deepening of AI applications in medical services is inevitable. AI can improve diagnostic accuracy, reduce human error, and lower operational costs. Machine learning in the big data age can also unlock the mysteries of life and create more effective drugs. Experts at the session warned, however, that AI must be supplemented by medical knowledge and human interpretation to prevent bias in diagnosis.

In the second session, notable synthetic biologists from several cities around the world shared their successful experiences in establishing innovation centers. Synthetic biology is an interdisciplinary subject involving biology, chemistry, engineering, computer science, etc. In addition, it will have a strong economic impact in coming decades. Nonetheless, it is difficult to create a favorable innovation ecosystem. Synthetic biology innovations at the early stage are fragile with long life cycles. Also, a circular model involving basic research and applications under clear directives would be essential. Insofar as market-scale policy is crucial for this industry, Hong Kong should collaborate with cities in the Greater Bay Area.

In the third session, leading scholars discussed the major role played by research universities in creating an innovation ecosystem. Universities are essential for training high-quality and multi-disciplinary manpower, which is the cornerstone of innovation. Universities are also responsible for connecting seed funding and experienced entrepreneurs with faculty and students. Furthermore, institutes need to address the issue of the absorptive capacity of new but valuable research outcomes.

Conference details: [QR code] Replay on YouTube: [QR code]

Highlighted Publications

Klemun, Magdalena (2021, December 16). *Evaluating the effects of energy technology choices on linkages between the sustainable development goals* [Conference presentation]. 6th AIEE Energy Symposium on Energy Security, SDA Bocconi School of Management, Milan, Italy.

Synthesizing literature review and network analysis, this paper observes that all energy technologies could generate both beneficial and detrimental linkages between SDG 7 (affordable and clean energy) and non-energy Sustainable Development Goals (SDGs), with some notable heterogeneities across technologies and deployment scenarios. Compared with other technologies, if components are imported, solar photovoltaics (PV) systems have better prospects for establishing beneficial links with SDGs 6 (clean water and sanitation), 8 (decent work and economic growth), and 9 (industry, innovation, and infrastructure). If components are produced locally, manufacturing-intensive electricity technologies, e.g., solar photovoltaics, wind, and nuclear, perform similarly. Because of higher labor-related risks, clean cookstoves exhibit a slightly higher probability of establishing negative linkages with SDGs 8 and 9.

Zhao, Xiaofan & Cai, Q. (2021, December 7). Better risk management. *China Daily Global.* https://www.chinadaily.com.cn/a/202112/07/WS61aea1a8a310cdd39bc79b62.html

Traditional disaster prevention and mitigation efforts in China are not sufficient for tackling escalating climate risks, e.g., large-scale rainstorms, floods, heatwaves, and forest fires. This article recommends: 1) more timely communication and quicker responses in disaster prevention and management, 2) coordination and integration between disaster risk governance and climate change adaptation functions, 3) policy learning and experience sharing between cities, and 4) a more systematic and targeted strategy for climate risk.

Li, Veronica Qin Ting & Yarime, Masaru (2021). Increasing resilience via the use of personal data: Lessons from COVID-19 dashboards on data governance for the public good. *Data and Policy, 3, e29.*

Surveys and semi-structured interviews indicate that two crucial factors in the design and improvement of COVID-19 dashboards in Hong Kong are informed actions based on open COVID-19 case data and public trust built on data transparency. These experiences provide insights into how governments can balance the trade-offs between ensuring public health and protecting data privacy during public health crises by utilizing data tools. In addition, this study argues that norms related to cases reporting in future pandemics should be co-developed between citizens and governments. Accordingly, policies can be recognized as salient, credible, and legitimate.

Sakuma, N., Trencher, T., **Yarime, Masaru,** & Onuki. M. (2021). A comparison of smart city research and practice in Sweden and Japan: Trends and opportunities identified from a literature review and co-occurrence network analysis. *Sustainability Science, 16(6), 1777–1796.*

Using co-occurrence network analysis (a type of content analysis), this paper investigates nearly 2,000 academic studies of smart cities in Sweden and Japan published since 2010. The analysis reveals unique trends related to the conceptual formulation of smart cities, the involvement of local government and citizens, and differing interpretations of susceptibility to crises between the two countries. Results show that technology-focused discussions override social topics, e.g., human capital, stakeholder involvement, governance, and social equity, especially in Japan. These findings offer important directions for future research, policy, and practice regarding smart cities.

Papyshev, G. & **Yarime, Masaru** (2021). Exploring city digital twins as policy tools: A task-based approach to generating synthetic data on urban mobility. *Data and Policy, 3, e16.*

City digital twins (CDTs) provide a digital representation of a city's multiple facets. Although urban data are voluminous, historical data are not capable of predicting events such that no events of a particular type have occured. Furthermore, privacy issues hinder the usage of micro-level individual data in CDTs. This article recommends a task-based approach to urban-mobility data generation. By asking citizens to perform certain activities in an urban setting, governments can create new data for future policymaking. This approach can solve the issue of unavailable data without causing privacy apprehension because the data generated under a hypothetical environment will not represent any behaviors of real individuals.

Zhu, Pengyu & Tan, Xinying. (2021). Is compulsory home quarantine less effective than centralized quarantine in controlling the COVID-19 outbreak? Evidence from Hong Kong. *Sustainable Cities and Society, 74, 103222.*

Consolidating epidemiological, socioeconomic, and meteo-rological data from more than 250 cities, this paper applies the Synthetic Control Method (SCM) to simulate infection trends for a hypothetical scenario in which Hong Kong adopts centralized quarantine measures, and compares them with actual infection figures. Results show that home quarantine would have been less effective than centralized quarantine at the beginning of the pandemic. Nevertheless, the difference in infection rates between these two approaches narrows at the later stage (0.136% vs. 0.174%). Insofar as home quarantine requires fewer public resources, it may be preferable in developing countries. In addition, it is a more sustainable approach for many cities because it balances public health with individual freedom.

Zhu, Pengyu (2021). Does high-speed rail stimulate urban land growth? Experience from China. *Transportation Research Part D: Transport and Environment, 98, 102974.*

This paper studies whether high-speed rail (HSR) fosters urban land growth and examines how the impact differs across various types of cities. HSR route planning decisions are largely determined by the economic status of cities and likely to be endogenous to their economic performances and land development rates, and therefore this paper applies a Two-period Panel Data Instrumental Variable model using the post-road network during the Ming Dynasty and locations of military bases as instrumental variables. Results show that HSR connections on average accelerate the growth rate of urban built-up areas by 11.2%. Furthermore, this impact depends substantially on the size and location of cities. Last but not least, this paper analyses the causes of and mechanisms for such heterogeneity and illuminates the policy and planning implications.

Zhu, Pengyu & Guo, Yuqing (2021). The role of high-speed rail and air travel in the spread of COVID-19 in China. *Travel Medicine and Infectious Disease. Volume 42,102097.*

Using a random-effects panel data model and a Difference-in-Differences in Reverse (DDR) model, this paper shows that high-speed rail (HSR) and air transportation connectivity with Wuhan raised the number of daily new confirmed cases by 25.4% and 21.2% on average, respectively. Suspension of these transportation services reduced the numbers by 18.6% and 13.3%, respectively. The effect of suspension became stronger over time and peaked 3 weeks after the Wuhan lockdown, then gradually diminished. The full effects of suspension needed approximately one month to entirely materialize, eventually reaching around twice the maximum incubation period. Despite the

----

similarity between the suspension effects of the two transportation modes, the impact of HSR on the COVID-19 infection rate was larger than air travel.

Low, Donald (2021, August 20). Hong Kong can break free from its zero-Covid corner. Here's how. *South China Morning Post.* Retrieved from https://www.scmp.com/week-asia/opinion/article/3145729/hong-kong-can-break-free-its-zero-covid-corner-heres-how

Facing Covid-19, a co-existing strategy will put susceptible groups at risk, while a zero-tolerance strategy will hamper the economy and livelihoods. This article recommends five actions the Hong Kong government can take to strike a balance between public health and normal lives: 1) notifying the public of the (increasing) likelihood that Covid-19 will become endemic; 2) persuading residents to consider a reasonable level of risk; 3) enhancing vaccination rates among senior citizens; 4) preparing a risk mitigation strategy for transition to an endemic environment; 5) introducing more differentiated measures between vaccinated and unvaccinated people to promote vaccination.

Low, Donald (2021, August 1). Coronavirus won't just go away. Here's how Hong Kong can learn to live with it. South China Morning Post. Retrieved from https://www.scmp.com/week-asia/opinion/article/3143228/coronavirus-wont-just-go-away-heres-how-hong-kong-can-learn-live

Co-existing with Covid-19 requires herd immunity. This article provides behavioral insights for the Hong Kong government to promote vaccination. For example, ordinary people may overestimate their abilities and underestimate the infectious risk. Omission bias makes people perceive harmful actions to be more serious than harmful inaction. Moreover, people tend to follow the majority due to herd behavior. These behavioral biases substantially reduce citizens' willingness to receive vaccinations. Therefore, the government should take into account these factors when it frames the vaccination program and communicates the risk.

Dong, C., **Qi, Ye,** & Nemet, G. (2021). A government approach to address coal overcapacity in China. *Journal of cleaner production, 278, 123417.*

Conventional economics suggests that price signals will clear the market and overcapacity will disappear. Nevertheless, this self-adjusting process is long-lasting. Using a cobweb model, this paper compares the "visible hand" of China's government to an optimal strategy to cut overcapacity with the minimum cost. Results show that China's efforts to restore the equilibrium of the coal market have been effective, timely, and modestly costly. Reducing 500-900 million tons of coal production capacity permanently, the country decarbonized its energy supply system within a relatively short period, leading to more potential for the development of renewable energy.

Li, H., Wang, X., **Zhao, Xiaofan,** & Qi, Ye (2021). Understanding systemic risk induced by climate change. *Advances in Climate Change Research, 12(3), 384-394.*

This paper studies the concept, source, occurrence, proliferation, transformation, and evaluation framework of systemic risk caused by climate change. Crucial findings are: 1) climate change risk is mainly due to the rapid growth of greenhouse gas emissions, increasing socioeconomic complexity, and ever-changing exposure and vulnerability; 2) climate change risk is driven by the interaction and dynamic evolution of various sorts of single risks, its proliferation and time span are determined by attributes of these single risks; 3) the domains, severity, and likelihood of impacts are three principal indicators in systemic risk evaluation. This paper recommends

----

developing theories to understand systemic risk, implementing empirical assessment of future risks, and preparing countermeasures to tackle the risk.

Wang, J., **Chandra, Kevin**, Du, C., Ding, W., & **Wu, Xun** (2021). Assessing the Potential of Cross-border Regional Innovation Systems: A case study of the Hong Kong-Shenzhen region. *Technology in Society, 65, 101557.*

This study investigates the development of cross-border regional innovation systems (CBRISs) between Hong Kong and Shenzhen. Focusing on cognitive proximity, innovation actors, collaboration, and global connectivity, this study analyzes patent and publication data from the two cities between 2001 and 2015. Results indicate good potential for regional integration due to growing convergence in scientific research, steadily increasing collaboration output, and innovation actors' complementarity between the two cities. Nevertheless, compared with other cross-border regional innovation systems, technological integration between Hong Kong and Shenzhen is still in the early stages.

Yang, W., Chang, S., Zhang, W., Wang, R., Mossialos, E., **Wu, Xun,** Cui, D., Li, H., & Mi, H. (2021). An Initial Analysis of the Effects of a Long-Term Care Insurance on Equity and Efficiency: A Case Study of Qingdao City in China. *Research on Aging, 43(3-4)., 156-165.*

This paper examines equity and efficiency in financing a newly piloted long-term care (LTC) insurance program in Qingdao city, China. Through 47 extensive interviews conducted in 2016, this study shows that substantial disparities in the financial burden borne by insurance participants persist. Despite the cost reduction the program provides, LTC providers are motivated to provide care at the lowest cost, even when better care is necessary. In addition, this article sheds light on the potential and challenges involved in implementing public LTC insurance models in developing countries.

Matus, Kira, Veale, M. (2021). Certification systems for machine learning: Lessons from sustainability. *Regulation and Governance, 16(1), 77–196.*

Machine learning certification is proposed to address concerns about its societal impacts. While the majority of regulatory efforts currently center on networking standards set by organizations such as the Institute of Electrical and Electronics Engineers (IEEE), this paper recommends that machine-learning certification should build on structures from the sustainability domain. This is because policy challenges associated with machine learning and sustainability are structurally similar, e.g., hard to observe credence properties and value chain issues. This paper, therefore, analyzes certification systems in sustainability, with a focus on commodities, to offer insights across both fields, complementing emerging proposals such as the EU's AI Act.

Sharif, Naubahar, Chandra, Kevin, Mansoor, A., & Sinha, K. B. (2021). A comparative analysis of research and development spending and total factor productivity growth in Hong Kong, Shenzhen, Singapore. *Structural Change and Economic Dynamics, 57, 108-120.*

Focusing on three locations in the Asia-Pacific region—Hong Kong, Shenzhen, and Singapore—this paper examines the influence of variations in research and development (R&D) spending on total factor productivity (TFP) growth. Our empirical results indicate that the influence of both public and private R&D on TFP growth is strong and positively significant in Singapore, significant but limited in Hong Kong, and not significant in Shenzhen.

Core Faculty Members

Prof. Naubahar SHARIF
• **PhD in Science and Technology Studies, Cornell University**

» Acting Head and Professor, Division of Public Policy
» Professor, Division of Integrative Systems and Design

Prof. Naubahar SHARIF is an expert in innovation and technology policy. He has published numerous papers in leading journals, e.g., *Research Policy*, *Science and Public Policy*, *The China Journal*, and *Science, Technology and Human Values*. The impact of his knowledge has spread to the public and society through opinion pieces submitted to the China Daily (Hong Kong Edition) and the South China Morning Post (SCMP) as well as local media interviews. He was appointed a research consultant for the Innovation and Technology Commission (ITC) of the HKSAR government from 2006 to 2010. Now, he is a council member of the Hong Kong Sociological Association (HKSA) and a Senior Advisor for the Joseph Needham Foundation for Science & Civilisation (Hong Kong). In addition to a current research grant from the HKSAR-administered Mental Health Initiatives Fund for "Preparing and Deploying Ethnic Minority Lay Leaders to Promote Mental Well-Being Among Hong Kong's Major Ethnic Minority Communities", he has also received research grants from various government agencies in Asia, e.g., the Policy Innovation and Co-ordination Office (HKSAR), the Shenzhen Science and Technology Innovation Committee, and the ASPIRE League (a consortium of five science and technology universities in Asia). He is also a dedicated teacher and was the winner of the Interdisciplinary Programs Office's Teaching Excellence Award (2020) and the School of Humanities and Social Science (SHSS) Best Teacher Award (2009, 2016).

Prof. Kira MATUS
• **PhD in Public Policy, Harvard University**

» Associate Head and Professor, Division of Public Policy
» Professor, Division of Environment and Sustainability
» Co-Director, Master of Public Policy Program

Prof. Kira MATUS is an interdisciplinary expert in sustainable innovation and technology, green chemistry and engineering, and public policy related to science. She studies interaction between policy and the development and implementation of "green" technologies. For instance, policy motivates innovation, but innovation also facilitates and requires new policy. Most of her publications have appeared in top-tier journals such as *Science and Public Policy*, *Policy Studies Journal*, *Climate Change*, *The Journal of Chemical Physics*, and *Environmental Science and Technology*. Moreover, she is currently President of the Women's Faculty Association (HKUST) and a member of the Editorial Advisory Board of ACS Sustainable Chemistry and Engineering.

Prof. Xun WU
• **PhD in Public Policy Analysis, University of North Carolina at Chapel Hill**

» Associate Director (Taught Postgraduate Studies), Interdisciplinary Programs Office
» Director, Institute for Public Policy (IPP)
» Professor, Division of Public Policy and Division of Social Science
» Associate Director, GREAT Smart Cities Institute

Prof. Xun WU has received professional training in engineering, economics, public administration, and policy analysis. He applies his polymathic knowledge in several research fields including water resource management, health policy, anti-corruption, policy design and innovations, and technology policy. Most of his articles have been published in leading journals, e.g., *Policy Sciences*, *Public Administration Review*, *Governance, Social Sciences & Medicine*, and *Water Resources Research*. His high-quality research skill has earned him myriad research grants from national and municipal governments, such as the Ministry of Science and Technology (China), the Ministry of Education (China), the Science, Technology and Innovation Commission of Shenzhen, the Central Policy Unit (Hong Kong), etc. In addition, he has been a consultant for various international government agencies, such as the World Bank, the Asian Development Bank, and the International Vaccine Institute. Moreover, he has been a developer of and teacher in executive training programs for multiple public agencies, e.g., the Yunnan Provincial Government of China, the Public Utilities Board (PUB) of Singapore, the General Secretariat of the Executive Council (GSEC) of UAE, and the Ministry of Water Resources of Nepal. Currently, he is a Co-Editor of Cambridge Studies in Comparative Public Policy and a Co-Editor of Cambridge Elements in Public Policy.

Prof. Ye QI
• **PhD in Environmental Science, State University of New York's College of Environmental Science and Forestry & Syracuse University**

» Area Head, Innovation, Policy, and Entrepreneurship Thrust, Society Hub, HKUST (Guangzhou)
» Professor, Division of Public Policy
» Co-Director, HKUST-NES-SKOLKOVO China-Russia Eurasian Studies Center (Guangzhou)

Prof. Ye QI is an expert in environmental policy and governance, sustainability science, climate change, sustainable urbanization, and Chinese environmental and energy policy. His articles have appeared in notable journals, e.g., *Nature Geoscience*, *Applied Energy*, *Energy Policy*, *Environmental Policy and Governance*, etc. Before joining HKUST in 2019, he was the Cheung Kong Professor of Environmental Policy and Management in the School of Public Policy and Management at Tsinghua University, and the Volkswagen Professor of Sustainability in Schwarzman College at Tsinghua University. Between 2014 and 2019, he was a Senior Fellow at the Brookings Institution and the Director of the Brookings-Tsinghua Center for Public Policy. Between 2002 and 2005, he held the position of Cheung Kong Professor of Environmental Science at Beijing Normal University. From 1996 to 2003, he taught ecosystem management and climate change science in the Department of Environmental Science, Policy and Management at the University of California, Berkeley.

Prof. Donald LOW
• **Master in International Public Policy, The Johns Hopkins University**

» Director, Institute for Emerging Market Studies
» Director, Leadership and Public Policy Executive Education
» Professor of Practice in Public Policy
» Program Director, Master of Public Management
» Senior Lecturer, Division of Public Policy and Institute for Public Policy

Prof. Donald LOW is a specialist in behavioral economics, development economics, decision-making and risk analysis, inequality and social policy, complexity in public policy, organizational behavior, and the politics and governance of Singapore. Before joining HKUST, he had long experience in senior-level administration across diverse fields. He held various high-ranking positions, e.g., Director of Fiscal Policy at the Ministry of Finance and Director of the Strategic Policy Office in the Public Service Division, in the Singapore government, for almost 15 years. He was also a founder of the Centre for Public Economics at the Civil Service College, with the mission of enhancing knowledge of fundamental economics among Singapore public servants. From 2012 to 2018, he was the Associate Dean for Executive Education and Research at the Lee Kuan Yew School of Public Policy, National University of Singapore. He frequently publishes opinion pieces in local newspapers such as the South China Morning Post (SCMP). In addition, he has written books and book chapters related to various policy issues. Notable examples are Hard Choices: Challenging the Singapore Consensus and Behavioral Economics and Policy Design: Examples from Singapore.

Prof. Masaru YARIME
• **PhD in Economics and Policy Studies of Innovation and Technological Change, Maastricht University**

» Associate Professor, Division of Public Policy and Division of Environment and Sustainability
» PG Coordinator, Research Postgraduate Programs (Public Policy)

Prof. Masaru YARIME's research interests include policy design and innovations, the emergence of the innovation systems approach, energy policy and technology development, climate change and global environmental governance, and big data and social science research. He has participated in many international initiatives related to energy, the environment, and sustainability, e.g., the United Nations Environment Programme (UNEP) and the Intergovernmental Panel on Climate Change. Given the broad range of his knowledge, he has published numerous papers in top journals such as *Environmental Science and Policy, Energy Policy*, *Sustainability Science*, *Renewable and Sustainable Energy Reviews*, and *Data and Policy*. Currently, he holds many external positions:

◇ Editor, Sustainability Science, 2009–present
◇ Editorial Board Member, Environmental Innovation and Societal Transitions, 2010–present
◇ Editor, Data & Policy, 2020–present
◇ Editorial Board Member, Discover Sustainability, 2020–present
◇ Associate Editor, Environmental Science and Policy, 2021–present
◇ Specialty Chief Editor, Frontiers in Sustainable Cities - Governance and Cities, 2021–present
◇ Vice-Chair, International Data Policy Committee, Committee on Data for Science and Technology (CODATA), International Science Council, 2017–present
◇ Program Committee, Atlanta Conference on Science and Innovation Policy, 2017–present
◇ Judging Panel, Hong Kong ESG Reporting Awards (HERA), 2018–present
◇ Advisor, Center of Excellence for Data in Society (CEDS), University of Arizona, 2019–present
◇ International Organisation Committee, Data for Policy Conference, 2020–present
◇ Working Group for Policy Framework, G20 Global Smart Cities Alliance on Technology Governance, 2020–present
◇ Visiting Associate Professor, Graduate School of Public Policy (GraSPP), The University of Tokyo, 2017–present
◇ Honorary Associate Professor, Department of Science, Technology, Engineering and Public Policy (STEaPP), University College London, 2014–2021.

Prof. Pengyu ZHU
• **PhD in Policy, Planning and Development, University of Southern California**

» Director, Center for Applied Social and Economic Research
» Associate Professor, Division of Public Policy
» Co-Director, Master of Public Policy Program

Prof. Pengyu ZHU's research areas cover big data and urban planning, sustainable transportation, economic development policy, housing and land use policy, and migration and employment. His publications have appeared in leading journals such as *Landscape and Urban Planning*, *Urban Studies*, *Annals of Regional Sciences*, *Transportation*, *Transportation Research Part D*, *Urban Geography*, *Cities*, *Regional Science and Urban Economics*, and the *International Journal of Environmental Science and Technology*. His research has been cited frequently in well-known scientific media, e.g., the Wall Street Journal, Slate Magazine, CityLab, Per Square Mile, and the Reason Foundation. In recent years, he has obtained more than HK$3,800,000 in research grants from government agencies such as the Innovation and Technology Commission (HKSAR) and the Policy Innovation and Co-ordination Office (HKSAR). Because of his outstanding research achievements, he was the winner of the 5th Charles M. Tiebout Prize in Regional Science in 2011 and the Regional Science Springer Prize in 2014. Currently, he is an Associate Editor of The Journal of Urban Management and a Special Issue Co-Editor of Transportation Research Part D.

Prof. Magdalena KLEMUN
• **PhD in Engineering Systems, Massachusetts Institute of Technology**

» Assistant Professor, Division of Public Policy

Prof. Magdalena KLEMUN is an engineering expert. Her research areas center on energy systems, technological change, and climate policy. In particular, she focuses on the impacts of policy and engineering design choices on the economic and environmental performance of technology and the comparison of the roles of hardware and non-hardware ('soft') innovations. Her articles have appeared in prominent journals such as *The Journal of Water Resources Planning and Management* and *Wiley Interdisciplinary Reviews: Climate Change*.

Prof. Xiaofan ZHAO
• **PhD in Public Administration, Tsinghua University**

» Assistant Professor, Division of Public Policy

Prof. Xiaofan ZHAO's research domains include climate change, energy and environmental policy, theories of the policy process, and regulatory enforcement and compliance. She concentrates on energy conservation and climate change policies with a geographical focus on China and comparative environmental governance with a global scope. She also studies how and why private companies comply with energy and climate regulations. Her articles have been published in well-known journals including *World Development*, *Energy Research & Social Science*, *Energy Policy*, *The Journal of Cleaner Production*, *Environmental Policy and Governance*, and *Journal of Chinese Political Science*.

Jointly Appointed Faculty Members

Prof. King Lau CHOW
- PhD in Cell Biology, Baylor College of Medicine

» Acting Dean of Students
» Director, Center for the Development of the Gifted and Talented
» Program Director, BSc in Individualized Interdisciplinary Major Program
» Professor, Division of Life Science, Department of Chemical and Biological Engineering, and Division of Public Policy

Research Interests
Genetics; Emerging technology regulation; Public health ethics; Science and interdisciplinary education policy

Prof. Stuart GIETEL BASTEN
- PhD in Historical Demography, University of Cambridge

» Associate Director, Leadership and Public Policy Executive Education
» Professor, Division of Social Science and Division of Public Policy
» Director, Center for Aging Science

Research Interests
Demography; Population policy; Ageing policy; Family policy; Health policy

Prof. Edwin LAI
- PhD in Economics, Stanford University

» Associate Director and Leader of Globalization and Growth Program, Center for Economic Policy
» Professor, Department of Economics and Division of Public Policy

Research Interests
Intellectual property rights protection; International trade; Renminbi; Economic growth and development; International macroeconomics

Prof. Albert Francis PARK
- PhD in Applied Economics, Stanford University

» Chair Professor, Department of Economics and Division of Social Science
» Professor, Division of Public Policy
» Special Advisor to the Director, HKUST Institute for Emerging Market Studies

Research Interests
Applied economics; Development economics; Labor economics; Chinese economy

Prof. Yan XU
- PhD in Telecommunications Policy, University of Strathclyde

» Associate Dean of Business and Management (HKUST EMBA Program, Executive Programs & China Strategy)
» Associate Director, Center for Business Strategy and Innovation
» Professor, Department of Information Systems, Business Statistics and Operations Management, and Division of Public Policy

Research Interests
Technology and innovation management; Telecom industry development and policy; Open innovation; Information technology policy and standardization; Digital economy

Prof. Hyuncheol Bryant KIM
- PhD in Economics, Columbia University

» Associate Professor, Department of Economics and Division of Public Policy

Research Interests
Applied empirical microeconomics; Development economics; Health economics; Education economics; Personnel economics; Policy evaluation
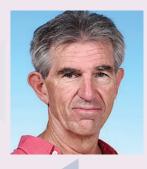
Prof. Gerald R. PATCHELL
- PhD in Geography, Simon Fraser University

» Associate Professor, Division of Social Science, Division of Environment and Sustainability, and Division of Public Policy

Research Interests
Economic geography; Sustainable development; Environment and society; Japan; Regional integration

Prof. James WONG
- PhD in Government, The London School of Economics and Political Science

» Assistant Professor of Social Science Education
» Lecturer I, Division of Social Science and Division of Public Policy
» UG Programs Coordinator (Social Science)
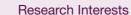
Research Interests
Ethics and public policy; Politics of science, environment, and sustainability; Democratic governance and citizen participation

Prof. Yatang LIN
- PhD in Economics, The London School of Economics and Political Science

» Assistant Professor, Department of Economics, Division of Public Policy, and Division of Social Science

Research Interests
Environmental economics; Urban and regional economics; International trade; Economic growth and development

Adjunct Faculty Members

Prof. Wai Kwong Elvis AU
» Adjunct Professor, Division of Public Policy
» Former Deputy Director of the Environmental Protection Department, HKSAR Government

Prof. Michael Shih-ta CHEN
» Adjunct Professor, Department of Management and Division of Public Policy
» Advisor, Thompson Center for Business Case Studies, School of Business and Management

Prof. Anthony Bing-leung CHEUNG
» Adjunct Professor, Division of Public Policy
» Former Secretary for Transport and Housing, HKSAR Government

Prof. Pauline NG
» Adjunct Professor, Division of Public Policy
» Former Secretary General of the Legislative Council Secretariat, HKSAR

Prof. Timothy SZE
» Adjunct Associate Professor, Division of Public Policy
» Director, General Administration Office, HKUST (GZ)
» Secretary, Governing Board of HKUST (GZ)

Prof. Angela TRITTO
» Adjunct Assistant Professor, Division of Public Policy
» Postdoctoral Fellow, Institute of Emerging Market Studies and Division of Social Science

HKUST (GZ) Affiliated Faculty Members

PPOL is delighted to welcome three new affiliated faculty members from the Guangzhou Campus of HKUST

Prof. Zhuoni ZHANG
● PhD in Social Science, Hong Kong University of Science and Technology

» Associate Professor, Urban Governance and Design Thrust, Society Hub (GZ Campus)
» Affiliate Associate Professor, Division of Social Science and Division of Public Policy

Research interests
Population migration; Social inequality; Residential segregation; Ethnic enclaves; Urban studies

Prof. Chaosu LI
● PhD in Urban and Regional Planning, University of North Carolina at Chapel Hill

» Assistant Professor, HKUST Urban Governance and Design Thrust, Society Hub (GZ Campus)
» Affiliate Assistant Professor, Division of Public Policy

Research interests
Urban planning and governance; Urban form; Urban sustainability; Urban resilience; Plan evaluation; Applied GIS; Big data analytics

Prof. Corey XU
● PhD in Public Administration and Policy, Florida State University

» Assistant Professor, HKUST Innovation, Policy & Entrepreneurship Thrust, Society Hub (GZ Campus)
» Affiliate Assistant Professor, Division of Public Policy

Research interests
E-governance; Smart city; Social equity; Coproduction; Big data analytics; Public service; Spatial econometrics

Master of Public Policy (MPP)

The Master of Public Policy (MPP) Program is a two-year course of studies that equips students with interdisciplinary knowledge across science and technology innovations as well as public policy formulation and implementation. The degree requires the completion of 48 credit hours (most courses earn students three credit hours). After completing relevant courses, students can choose to specialize in one of the two following concentrations: 1. Science, Technology and Innovation Policy; 2. Environmental Policy and Sustainability.

Profiles of Students

Students admitted in 2021 are mainly graduates of prestigious mainland universities, e.g., Fudan University, Peking University, and Renmin University of China. Some of the students are graduates of famous overseas universities, e.g., American University, Indiana University, Lancaster University, Ritsumeikan Asia Pacific University, Syracuse University, University College London, the University of California at Berkeley, the University of Mumbai, the University of Oregon, and the University of Sydney.

Job Placements for Graduates

According to our survey, the majority of recent graduates (admitted in September 2019) are employed in the high-tech sector, the banking and finance sectors, the government sector, and consulting firms. Among their employers are Tencent, Meituan, the Agricultural Bank of China, the Education Bureau of Shenzhen Municipality, EY, Deloitte (HK), and PwC. Their job titles include management trainee, consultant, product manager, strategy analyst, equity investment analyst, etc.

Master of Public Management (MPM)

The Master of Public Management (MPM) program welcomed its first batch of students in September 2021. The MPM is designed for mid-career professionals who seek career advancement and focuses on the development of managerial and analytic skills in the public sector. These goals make full-time work experience an important requirement for admission. Thus, students we have recruited have logged at least three years of work experience. The program has attracted students from diverse professional fields, not only working in governments, IGOs, and NGOs, including disciplinary forces, the Lands Department of HKSARG, the Hospital Authority, and the Hong Kong Productivity Council. Our students also include young professionals from financial, consulting, and technology companies, such as TOYOTA CONIQ Pro, Keruyun Canada, and AVIC-INTL Project Engineering Company.

MPhil/PhD in Public Policy

The Doctor of Philosophy (PhD) and Master of Philosophy (MPhil) in Public Policy Programs offer rigorous training in public policy research to academically outstanding students who are interested in policy research and teaching. The research fields that our current PhD and MPhil students explore include regulatory policy for chemicals and pharmaceuticals, science, innovation and technology policy, regulation of artificial intelligence technologies in construction, long-term care provision in China, sustainability transition policies, algorithmic governance, architecture, urbanism, emerging technologies, etc.

Scholarships for these programs include the Hong Kong PhD Fellowship Scheme (HKPFS), the Asian Future Leaders Scholarship Program (AFLSP), and the Tuition Waiver Scheme for Local MPhil and PhD Students. Depending on their academic and professional achievements, students can receive scholarships of more than HK$322,800 (US$41,400) per year.

MPhil Student Awarded The Joseph Needham Merit Scholarship

Miss LI Veronica Qin Ting, an MPhil student in Public Policy, has been awarded The Joseph Needham Merit Scholarship (JNMS) in 2021 for her PhD study in the Department of Science, Technology, Engineering and Public Policy at University College London.

Follow Us on Social Media

PPOL
Division of Public Policy
公共政策學部

Contact Us

(852) 3469 2721

ppol@ust.hk / ppolpr@ust.hk

The Hong Kong University of Science and Technology
c/o Division of Public Policy (PPOL)
Room 4611, Academic Building, Clear Water Bay,
Kowloon, Hong Kong