

Research Assessment Exercise 2020

Impact Case Study

University: The Hong Kong University of Science and Technology

Unit of Assessment (UoA): 25 Political Science

Title of case study: Applied public policy research on innovation in Asia

(1) Summary of the impact

Hong Kong and Mainland China industrialists in China's economic powerhouse of Guangdong Province (pop: 111 million, private enterprises: 3.82 million, 27.5% of all exports nationwide – 2017) have conventionally looked to relocation, inland or overseas, or closure when faced with rising wages. HKUST research by Naubahar Sharif and co-researchers into an innovation-based “third dimension” and innovation's wider social and economic role in a Hong Kong and Mainland China context, together with Sharif's extensive dissemination, have a) directly led a Hong Kong-owned underwear plant in Guangdong changing its business model to focus on higher value output, saving jobs in the province; b) informed thousands of factory owners of an alternative strategy that facilitates remaining in situ; c) raised awareness among local policymakers and stimulated public debate on the role of innovation in development; d) contributed to the on-going global discussion of China's innovation leadership.

(2) Underpinning research

With the advent of China's economic reform policy in 1978, Hong Kong manufacturers rapidly established factories in the abundant and then low-cost labor market of neighboring Guangdong Province. The relocation saw Hong Kong's manufacturing employment drop from 39% to 10% from 1981-2000 and an expansion of services, leading to 80% employment in such sectors by 2000. As living standards in Guangdong rose, wages in the province remained cost-effective for factory owners through a flow of migrant labor from all over China to supply the manufacturing boom. In 2007, the province introduced a labor law which stipulated the benefits and responsibilities of both employers and employees, insurance coverage, and overtime pay. Since then, various cities within the province have introduced minimum wage legislation, prompting 70% of Hong Kong-owned manufacturers in the province to relocate, or close down, between 2003 and 2016. Strategies to both raise living standards for workers and keep employers in place are of critical social and economic concern for local, regional, and national policymakers and employers as well as workers, yet less well researched in specific local contexts for reasons of data availability and sensitivity.

Starting from 2003, a series of studies by Naubahar Sharif (Division of Social Science and Division of Public Policy, joined HKUST in 2005) and co-researchers at HKUST (e.g. Baark and Lau) and beyond (e.g. Huang, United Nations University) have explored innovation and R&D technology as a means for enterprise owners in Southern China to implement a “third way” of combining higher wages while remaining in their current location. This has been achieved through development of an evidence-based, policy-relevant framework grounded in applied public policy research, with a focus on technology and innovation [R1-2]. The key challenge to generating evidence-based research which feeds through to impact in this field is the lack of primary data and difficulty obtaining data that is often commercially sensitive. For example, there is no available registry of Hong Kong-owned manufacturers in Guangdong and it is difficult to convince companies to disclose sensitive information such as annual turnover, employment numbers, and R&D expenditures in a privately run survey. As such, before their study there had been no previous scholarly studies on relocation decisions on the part of Hong Kong-owned manufacturing firms.

However, through a deep collaboration with the Chinese Manufacturers Association of Hong Kong, Sharif and Huang were not only able to conduct an innovation survey but, by using the Fourth European Community Innovation Survey (CIS-4), draw comparative perspectives [R3]. Two additional questions were added to collect information about R&D or collaborative innovation activities in Mainland China and potential plans for closing or moving operations out of Guangdong,

thus ensuring especial relevance for industrialists in the region. These two additional questions were devised after discussions with senior industry managers. The survey was completed by 492 firms (out of a total sampling frame of 3,170), with 86% of the respondents being high-ranking members of management.

Sharif and Huang found that in the changing manufacturing environment of Guangdong, Hong Kong-owned businesses that generate a higher share in new product sales as a percentage of total sales or engage in R&D or collaborative innovation activities in China were more likely to survive and remain in Guangdong. While previous research on Hong Kong-owned manufacturers clearly identified the reasons for their success – lower factor input costs – they did not consider important aspects covered in the Sharif and Huang paper on survival, relocation, or innovation strategies, nor strategies for facing challenging business conditions. Existing literature had identified impediments created by legacies of macro-level Chinese reforms, bottlenecks in the institutional reform process, and inconsistencies in central government policies in China's industrialization. In contrast, Sharif and Huang took an innovative approach to identify, from a robust evidence base, areas that provincial authorities and other stakeholders in the public and private sectors could target for improvement. In other words, the research fed into a more positive framework of proactive means by which to tackle the changing business and policy environment in Guangdong and Hong Kong.

These ideas have been elaborated in recent work on industrial upgrading in Guangdong Province, as well as innovation policy in Hong Kong [R4-5]. R6, for example, was built on methodological innovations in this thematic area, including participant-observation and 63 expert interviews with policymakers and government officials in Dongguan, workers, labor-assisting non-governmental organization staff and volunteers, factory owners, and managers. Following on from this, Sharif has been given funding (HKD35,000 in 2019) from the School of Humanities and Social Science to develop knowledge exchange activities based on this new research.

(3) References to the research

- [R1] Sharif, N, Baark, E, and Lau, A. (2012). 'Innovation Activities, Sources of Innovation and R&D Cooperation: Evidence From Firms in Hong Kong and Guangdong Province, China'. *International Journal of Technology Management* 59(3-4): 203-234. [12 citations including leading journals such as *Technological Forecasting and Social Change*; funding support: School-Based Initiative (SBI) Grant, HKUST.]
- [R2] Sharif, N and Baark, E. (2006). 'From Trade Hub to Innovation Hub: The Role of Hong Kong's Innovation System in Linking China to Global Markets'. *Innovation* 8(1-2): 193-209. [29 citations including in leading journals such as *Research Policy*; funding support: School-Based Initiative (SBI) Grant, HKUST.]
- [R3] Sharif, N and Huang, C. (2012). 'Innovation Strategy, Firm Survival and Relocation: The Case of Hong Kong-Owned Manufacturing in Guangdong Province, China'. *Research Policy* 41(1): 69-78. [42 citations including in leading journals such as *Scientometrics*.]
- [R4] Huang C and Sharif N. (2015). 'Global Technology Leadership: The Case of China'. *Science and Public Policy* 43, no. 1: 62-73. [15 citations including leading journals such as *Research Policy*; funding support: School-Based Initiative (SBI) Grant, HKUST.]
- [R5] Baark E and Sharif, N. (2014). 'Hong Kong Special Administrative Region – The Hong Kong Experience with Public Procurement for Innovation"', in *Public Procurement, Innovation and Policy: International Perspectives*, eds: Lember, Kattel, Kalvet. Berlin: Springer: 171-190.
- [R6] Sharif, N and Huang, Y. (2019). 'Achieving Industrial Upgrading Through Automation in Dongguan, China'. *Science, Technology and Society* 24(2): 237-253

(4) Details of the impact

The main impacts and beneficiaries of Sharif's innovation policy framework and extensive dissemination between 2013-19 in diverse media and presentations have been: i) direct *economic impact* on a Hong Kong-owned industrial plant in Guangdong and its workers through management's decision to remain in the province and upgrade in light of Sharif's research [S1]; ii) *economic impact*

for Guangdong Province and Hong Kong, through the plant's subsequent model role for other industries in the province [S2]; *impact on policy discussion* by contributing to the global debate on China's innovation leadership [S3-10].

i) Economic impact: Staying in Guangdong, upgrading and becoming a role model

Tensuel Company Limited is a Hong Kong-owned manufacturer engaged in lamination and molding of fabric and pads/cups used in bras and related garments, with a large factory in the city of Dongguan, Guangdong Province. The company, established in 2004, has over 150 employees worldwide and has an annual turnover of around US\$10 million. Like other factories in the province, in the past decade it has faced a “*wage dilemma which affected competitiveness*”, driven by “*demographic and policy affecting minimum wages*”, according to director Li Jun [S1]. However, Li states, influenced by reading Sharif's research [R4] and learning more through a Sharif presentation and direct contact, “*my conviction that Tensuel could survive only through R&D was cemented*”. Tensuel then underwent “*an expensive and lengthy process of machinery upgrade and automation*”, which helped the company raise the quality of the brassiere accessories it produces, with the following effects: “*As a result of our upgrading, and through staying in Guangdong Province, we have been able to give our employees a higher salary and job stability. Our employees offer testimony that these improved conditions and the removal of the need to move again for work provides them with great satisfaction. In other words, the engagement with this research has indeed demonstrated that rising wages did not automatically mean social dislocation. In this regard, we believe that our business model (of higher wages accompanied by industrial upgrading) can serve to be an example to other manufacturers both in the province and beyond. Without the research article and also subsequent meetings between myself and Prof Sharif, Tensuel would not have engaged in the period of production and quality upgrade that we did.*”

In line with this role model development, Tensuel agreed to be featured along with Sharif in a 2014 feature article [S2] published in *The Hong Kong Industrialist*, a monthly magazine published by the Federation of Hong Kong Industries and focused on issues of interest to Hong Kong entrepreneurs (readership 35,000; magazine circulation 7,000, including over 2,000 industrial members, 850 CEOs and senior executives of industry, financial organizations, etc, along with senior Hong Kong government officials and members of the media). The article also noted that after adopting continuous innovation as its business model, Tensuel had set up a side business to help other companies in Dongguan improve the cost-effectiveness and efficiency of their enterprise resource planning systems, supporting the wider economic development of the city and province.

The influence of Sharif's research reaches beyond southern China. After reading *The Hong Kong Industrialist* article [S2], the Consul General of Pakistan in Hong Kong was “*convinced that the message was relevant for [Pakistan]... and began spreading the word*” to Pakistan textile manufacturers, he states in testimony [S3]. In particular, through interaction with one of the largest such employers in Pakistan (Nishat Mills in Lahore), there is a direct link between Sharif's research leading through to “*genuine attempts to automate their production lines*” to “*lead at an international level*”. As the letter concludes, the research had an impact not only on the “*thinking [of the Consul General] on the subject of industrial upgrading*” but also “*the thinking and subsequent behaviour of at least one notable conglomerate ... – Nishat Mills Limited*” [S3].

ii) Informing policy and stakeholders on the role of innovation in economic development

Sharif's work is deeply embedded with the needs of stakeholders and wider audiences. For example, his EY *Hong Kong Emerging Market Insights Series* presentation in 2016 focused on China's potential to become the global technology leader of this century [S4]. Elliott Shadforth, partner of EY (Ernst and Young), confirms over 100 EY clients and other stakeholders attended, and the presentation was also available for viewing online [S5]. This led to “*several positive and cascading activities... [e.g.] several clients expressed an interest in receiving the findings in writing*”. EY then requested that Sharif write a Thought Leadership Brief, which was published in 2016 as part of the HKUST Institute for Emerging Market Studies series of briefings for local and international

companies, decisionmakers, and the public to gain insights on issues based on HKUST research [S6]. Thought Leadership Briefs are circulated in print to >100 individuals and organizations, with open access online. Sharif's original presentation has also accumulated 20,000 views on YouTube. Following the presentation, EY published a joint research report with the Association of Chartered Certified Accountants (ACCA), on the Greater Bay Area's journey to becoming an innovation and technology hub [S7]. Shadforth affirms this includes expert opinion sought from Sharif, who is acknowledged in the report.

Elsewhere, Sharif's work has had influence in shaping the regional and global public policy agenda relating to innovation and technology. For example, [R5] was cited four times in a European Chamber of Commerce in Hong Kong Information and Communication Technology Business Council (ICTBC) position paper in 2017 [S8]. Furthermore, [R4] was cited in a 2017 report [S9] by US bipartisan policy research organization Center for Strategic & International Studies (CSIS), which benchmarked China's innovation drive and has been the focus of a series of talks and lectures by author Scott Kennedy at chambers of commerce in Asia, and online promotion by CSIS. CSIS states on its website that it is "regularly called upon by Congress, the executive branch, the media and others to explain the day's events and offer recommendations to improve US strategy". EY's Shadforth also indicates the influence of Sharif's work on clients, which: "*contributed to our (and our clients') understanding of innovation and technology development issues in China and Guangdong (the Greater Bay Area) in particular. Therefore we are grateful to have Prof. Sharif's research which has demonstrable impact to highlight the importance of these issues to our clients*" [S5].

(5) Sources to corroborate the impact

[S1] Letter, Li Jun, Director, Tensuel Limited. [On file]

[S2] Hong Kong Federation of Industries, *Hong Kong Industrialist*, "Innovation Leads Enterprises to New Heights" (April 2014).

<https://www.industryhk.org/upload/media/file/12ff08a3ad34f435297c22ddd084810e.pdf> [On file]

[S3] Letter, Abdul Qadir-Memon, Consul General of Pakistan to Hong Kong. On file.

[S4] EY Hong Kong Emerging Market Insights Series, "China as the World Technology Leader in the 21st Century: Dream or Reality?" (April 2016).

<https://www.youtube.com/watch?v=A0rA0JJu7q4>

[S5] Letter, Elliott Shadforth, Partner, EY Ltd. [On file]

[S6] Sharif, N. (2016). China as the World's Technology Leader in the 21st Century: A Dream or Reality? *HKUST IEMS Thought Leadership Brief*, No. 11. <https://iems.ust.hk/publications/thought-leadership-briefs/china-as-the-worlds-technology-leader-in-the-21st-century-dream-or-reality>

[S7] ACCA, EY. 2019. Greater Bay Area – Navigating the Road Toward an International Innovation and Technology Hub. [https://www.ey.com/Publication/vwLUAssets/ey-gba-navigating-the-road-toward-an-international-i-and-t-hub-en/\\$FILE/ey-gba-navigating-the-road-toward-an-international-i-and-t-hub-en.pdf](https://www.ey.com/Publication/vwLUAssets/ey-gba-navigating-the-road-toward-an-international-i-and-t-hub-en/$FILE/ey-gba-navigating-the-road-toward-an-international-i-and-t-hub-en.pdf)

[S8] European Chamber of Commerce in Hong Kong (2017) "EUBIP Position Paper", Information and Communication Technology Business Council, pp.17-18.

<https://www.eurocham.com.hk/wp-content/uploads/2017/03/EUBIP-ICTBC-Position-Paper-2017.pdf>

[S9] Kennedy, S. Center for Strategic & International Studies, (2017) "The Fat Tech Dragon: Benchmarking China's Innovation Drive". <https://www.csis.org/analysis/fat-tech-dragon>