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ORIGINAL ARTICLE

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Uniqueness, complexities, and research issues of logistics and trade facilitation in Greater Bay Area of China

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Abstract

The Greater Bay Area (GBA) is to become a major innovation and technology hub of global impact. Such a transformation is to take place in the midst of a policy-driven economy in GBA's Mainland region and a market-driven economy in Hong Kong and Macau. In this paper, we examine the uniqueness and complexities of logistics and trade facilitation in GBA. This study establishes a discourse in GBA's logistics and trade facilitation between government and non-government stakeholders. Based on the discourse, we provide a conceptual context on the unique aspects of GBA, pinpointing critical issues such as the coexistence of differing institutional systems and interplay between state planning and market economy. A major objective of the paper is to identify and conceptualize unique logistics and trade features of GBA development, and to highlight opportunities for academic and policy research.

Keywords: Greater Bay Area of China, Logistics & trade facilitation and integration, Stakeholder concerns, Academic and policy research

Introduction

The Greater Bay Area (GBA) refers to the city cluster consisting of eleven cities in the Pearl River Delta (PRD): nine Mainland cities of Guangzhou, Shenzhen, Foshan, Dongguan, Zhuhai, Huizhou, Zhongshan, Jiangmen and Zhaoqing, and two Special Administrative Regions (SARs)—Hong Kong (HK) and Macau. PRD was considered one of the most vigorous manufacturing regions in China (Chen 2007; Ouyang et al. 2005).

Development of a city cluster in PRD

In 2009, the city cluster in PRD was first officially identified (Development Bureau, HKSAR 2009). Development concepts, including “9 + 2”, were addressed in the report. The plan for having a coordinated development for the city cluster in GBA has been suggested at the national level in 2017 (Hong Kong Special Administrative Region Government 2017).

The complexities of developing a city cluster are well documented in the literature, such as from the perspective of market forces in Silicon Valley (Klepper 2010), or in the

framework of public policy in the San Francisco Bay Area (Zhu 2021), or from a facility distribution perspective in Tokyo Metropolitan Area (Sakai et al. 2016). A variety of specific issues has been discussed in GBA development, such as transportation infrastructures (Chen et al. 2020), environmental policy (Chow et al. 2023), and hospitality planning (Chen et al. 2021). However, the GBA city cluster development in China is different from those of other countries in many important ways. There have not been studies that address the uniqueness and complexities of GBA in a holistic manner.

State driven policies, regional development and market driven dynamics

GBA's inherent complexity in deepening logistics and trade integration between Mainland cities and SARs under the "One Country, Two Systems" framework is immense. The co-existence of two economic systems within the same region remains a huge challenge. The Mainland GBA cities are predominantly driven by state policies, while both Hong Kong and Macau are driven by market dynamics.

It has been suggested that institution-based economic integration has taken place between Mainland China (especially PRD) and HK since 2000s (Yang 2004). In many cases, government initiatives have been the main driving forces for changes in regional economies in China (e.g., Liao and Chan 2011). The approach is top-down. Development of city regions in China is characterized by state driven policies and decisions, playing a directive policy-making role instead of a regulatory one (Ye 2014; Wei 2015).

In China, participation of non-governmental sectors in formulating development policies is not prevalent (Ye 2014). There have been reports of discrepancy, between planning and implementation in development of city regions in China, that may have undesirable outcomes (Qian 2013; Tian and Shen 2011; Wei 2015). In a complex and dynamic environment, plans developed in a top-down manner are less likely to satisfy needs of stakeholders¹ and address market uncertainty (Tian and Shen 2011). This is of particular importance as the GBA has to integrate nine Mainland cities and two SARs which have systems and practices that are shaped by years of market dynamics.

Discourse between government and stakeholders

A state-driven approach without adequate stakeholder engagement could create challenges and barriers hindering development projects. Such an approach on the massive GBA development should therefore necessitate adequate stakeholder consultation and engagement. An inclusive approach (Qian 2013) to inter-city development that engages major stakeholders in planning and implementation would be highly relevant for the GBA. Most importantly, it is vital that the unique features in GBA be understood.

While GBA development is highlighted in the 13th Five-Year Plan, there are little details on the development process. Stakeholders from the region are largely unaware of any specifics of its development. To minimize discrepancies between planning and implementation, continual discourse between stakeholders and government is highly encouraged. GBA development is an unprecedented endeavour embarked in a unique context. It is a massive initiative spanning multiple sectors and geographies that is not

¹ In this paper, the term stakeholders refers to non-government sectors only and does not include any government-related entities.

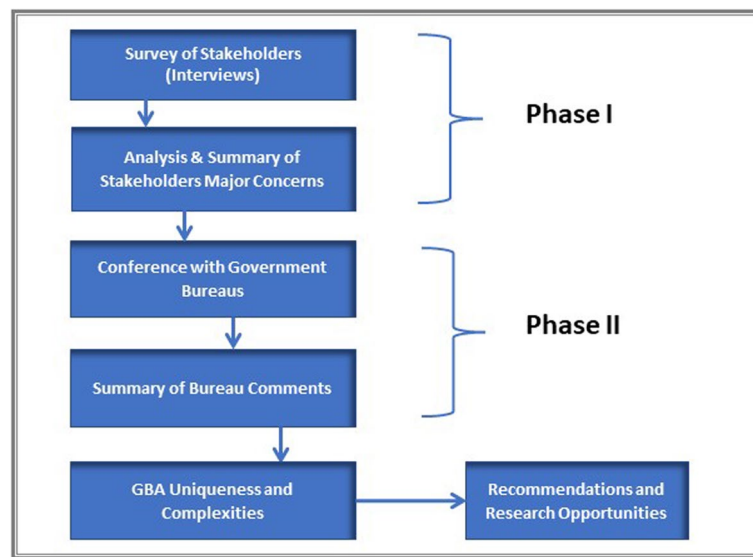


Fig. 1 Two-phase approach: discourse between stakeholders and state bureaus

found elsewhere. It demands concerted efforts of central government and local governments of nine Mainland cities and two SARs.

Objective and research methodology

The objective of this paper is to provide a conceptual framework to examine the uniqueness and complexities of GBA, make recommendations for implementation of the GBA initiatives, and to highlight opportunities for academic and policy research. To that end, a two-phase data collection approach is first used to establish a discourse between GBA stakeholders and central government officials, followed by a comparative data analysis that examines concerns and develops recommendations (Fig. 1).

The first phase of data collection is to conduct semi-structured interviews with stakeholders—decision makers from logistics and trade-related organizations (both private and public) in GBA. This phase is to gain an understanding of the current state of GBA initiatives and to identify key strengths, weaknesses, opportunities, and threats therein. The interviews are conducted face-to-face, allowing for the gathering of nuanced information and stakeholder concerns on the GBA development.

The second phase involves semi-structured interviews with officials from four relevant central government bureaus in Beijing: National Development and Reform Commission (NDRC), Ministry of Transport & Communications (MTC), HK & Macau Affairs Office of the State Council (HMAOSC), and General Administration of Customs (GAC). This phase is to gain an understanding of the central government's policies and perspectives on GBA initiatives and related implementation strategies. Also importantly, the interviews are to establish a discourse between government and regional stakeholders by bringing forward the latter's concerns. The inclusion of central government bureaus in the data collection phase is a strength of this study. It provides a holistic perspective on the GBA development and the related policies and implementation strategies.

The two-phase data collection approach ensures that the concerns of stakeholders are adequately captured first, and that the policymakers would have an opportunity to address stakeholders' pressing concerns. This helps to identify any disconnects in the formulation and implementation of logistics and trade policies in the GBA.

Lastly, a comparative data analysis is performed to identify commonalities and differences between stakeholder and central government perspectives. The SWOT analysis is used as a framework for the comparative analysis. Here, data collected from the respective semi-structured interviews (regional stakeholders and government officials) are analyzed using a thematic analysis approach (Braun and Clarke 2012). The data are categorized based on themes that emerge from the interviews. Based on the data analysis, we examine the uniqueness and complexity of the GBA development and identify recommendations and research opportunities.

This paper is organized as follows. "[Phase I : concerns of stakeholders](#)" and "[Phase II: seeking clarification from the state bureaus](#)" sections depict respective results of Phase I (concerns of stakeholders) and Phase II (responses from Central Government Bureaus). In "[Uniqueness & complexities of GBA development](#)" section, we examine uniqueness and complexities in GBA development. "[Summary and conclusion](#)" section presents a conclusion on GBA uniqueness, along with a discussion on future research opportunities.

Phase I: concerns of stakeholders

To attain a holistic view, a series of semi-structured in-person interviews with stakeholders across the sub-regions of GBA are conducted (see also Appendix [Interview questions to stakeholders \(Phase I\)](#)):

- Cities: Guangzhou, Shenzhen, HK, and Macau.
- Stakeholders: Decision makers from logistics and trade-related companies.
- Interviews: In-person interview based on pre-structured questions.
- SWOT Questions: Asked to share their major concerns and to identify strengths (S), weaknesses (W), opportunities (O) and threats (T) of the GBA initiative.

Stakeholders' concern A voluminous set of feedbacks from stakeholders is obtained. Stakeholders express their concerns over a wide variety of issues and with varying degree of details in specificity. While a SWOT framework is requested, stakeholders often focus on their major concerns, each of which may have S, W, O and T dimensions within them. It is noteworthy that a common set of major areas of concern emerges. We are able to group their comments into the following four general areas of major concern, (with their respective SWOT elements shown in Appendix [Summary of stakeholders' responses of Phase I](#)). For easy reference, a table of abbreviations and glossary can be found in Appendix [Abbreviations and glossary](#).

1. Integration approach for nine cities plus two SARs (9 + 2);
2. Market versus state policy;
3. Positioning among cities;
4. Diverse customs policy and customs system.

These concerns speak to the interrelated components of the GBA development. Approach of integration is the key concern of stakeholders. The dynamics of integration is one of the issues frequently raised by stakeholders, as it is widely recognized that Mainland China adopts a policy-driven economy while both HK and Macau follow a market-oriented economy. The two types of economies have basic differences in the underlying institutional systems, processes and practices. It is also raised that cities in the GBA should be collaborating instead of competing for industrial positions—suggesting that there might be strategic positioning between cities. On the operational front, the Single Window technology is a seemingly important customs solution for stakeholders. Details of each concern are presented next. Their analyses are provided in "[Unique-ness & complexities of GBA development](#)" section.

Integration approach for nine cities plus two SARs

How are the nine Mainland cities and two SARs integrated? This is a fundamental question raised by the stakeholders. By integration, most stakeholders believe that there would be common policies across the region, typically to facilitate the free flow of people information, money and goods. However, the nine Mainland cities are directly under Mainland jurisdiction while the two SARs are under the “One Country, Two Systems” framework (Li et al. 2022). This means that the Mainland cities operate under a policy-driven economy while the SARs’ economic environments tend to be market-driven. Mainland cities and SARs have differing institutional systems. For instance, will integration necessitate that all the cities be under the same legal system and financial system? However, this might not be within the “One Country, Two Systems” framework.

From a practical standpoint, stakeholders wonder if the nine Mainland cities are to integrate first, following by integrating the Mainland cities with the two SARs. As it is, stakeholders point out that there are competitions among the nine Mainland cities, as individual city can implement different policies. The diverse characteristics of 9 + 2 cities mean opportunities and possibilities for differentiated development (Hu and Kim 2022). As raised by stakeholders, comprehensive free flow of labor, capital, and information is still a work-in-process for the GBA.

Market versus state policy impact

Stakeholders feel that it is important to address and clarify the role of market force and the role of government in the implementation of GBA. According to the signed agreement,² the principle of cooperation of the GBA is “...to fully leverage the decisive role of the market in the allocation of resources, better leverage the roles of governments, and facilitate the flow and optimum distribution of factors of production...” However, stakeholders are unclear about what happens when policy-driven forces meet market-driven forces. In general, stakeholders are wary of the changes of government policy and practice in Mainland.

In addition, there are many state-owned enterprises (SOEs) in the nine Mainland cities. It is well known that in Mainland, although SOEs are owned by the government,

² Signed on 1st July 2017, by National Development and Reform Commission, People's Government of Guangdong Province, HKSAR Government, and Macau SAR Government.

they do compete with one another, in addition to competing with private companies. Indeed, SOE relationships are quite complex (Wang 2014). When the nine cities are integrated with the two SARs, stakeholders are unsure about the relationship between SOEs and private sectors in the GBA. Will SOEs and private companies compete according to market forces? Will smaller SOEs be consolidated to form large SOEs, resulting in monopolistic or oligopolistic behavior. These are many of the stakeholders' concerns relating to consolidation of SOEs and free market competition in the region.

Positioning among cities

Stakeholders believe that policymakers would like to establish a certain division of services among cities in the region. It is well-known that there is a great deal of competition between Mainland cities in GBA. Some of the competition could be considered as unhealthy. For example, in the past, some cities had created incentive policies to attract business without coordination and synergy to a point that some of the policies create negative effects to the whole region. Division of services may eliminate such unhealthy competition in the GBA. But stakeholders question whether such division of services should be guided by government policy or simply are a result of market forces.

So far, some cities in the region could have already developed their own competitive advantages. For example, over the years, HK is an international financial center and is proficient in providing professional services for trading and logistics industries. Moreover, Shenzhen is the leading force in high-tech and innovation, Guangzhou has a well-developed heavy and light industry, and Macau and Zhuhai focus on tourism and hospitality industry. At this point, stakeholders are unsure about how such positioning of services between cities in the region will play out.

Figure 2 depicts the locations of airports and ports in the region. As another case of positioning of services, stakeholders point out that there is severe competition among airports in the GBA and express concerns over whether airports in the region will continue to compete or cooperate instead. Stakeholders acknowledge that consolidation of SOEs can also be a way to avoid unhealthy competition. For ports competition, their concern is that some state-owned terminal operators in the region could be consolidated, e.g., geographically—one company in PRD West and one in PRD East.

Diverse customs policy and customs system

Stakeholders view customs uniformity of the nine Mainland cities as a crucial element for fairness and overall effective integration. They believe that there have been major changes to achieve uniformity recently in the restructuring of customs policies in these Mainland cities. However, for customs policies alignment between the Mainland cities and the two SARs, they see many unresolved issues. Importantly, the customs body of Mainland is a national bureau, reporting directly to the State Council. In HK, customs belongs to the Security Bureau.

Integrating customs between the nine Mainland cities and the two SARs is a cross-border issue. Many stakeholders point out that Single Window would be a technology that could solve GBA's current problems related to customs. However, stakeholders also express their concerns regarding the slow pace of policy implementation in HK when comparing to

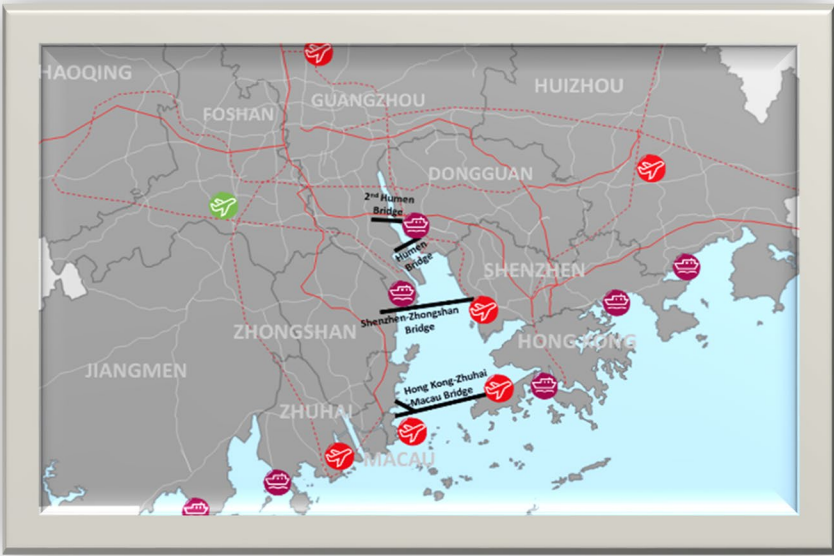


Fig. 2 Airports and Ports in GBA (Source: Jones Lang Lasalle) (<https://research.jllapsites.com/infrastructure-boost-to-the-greater-bay-area/>)

that in Mainland cities. For the case of Single Window, it is reported that a “single-window system” is adopted at all ports nationwide by 2017 (Zhang 2017). However, for HK, the expected time of full implementation is 2024. Clearly, stakeholders are aware of the lack of synchronization between Mainland cities and HK. Moreover, stakeholders are wondering if there will be connection issues between the Single Windows of different cities.

Phase II: seeking clarification from the state bureaus

In Phase II, we develop a set of questions based on the four areas of concerns that stakeholders have identified in the preceding section. Key questions for each area of concerns are provided in Table 1.

A visit was made in 2017, by a delegation representing HK transport sector, to respective Central Government Bureaus in Beijing: National Development & Reform Commission (NDRC), Ministry of Transport & Communications (MTC), HK & Macau Affairs Office of the State Council (HMAOSC), and General Administration of Customs (GAC). The questions in Table 1 were raised for comments. Table 2 summarizes the topics discussed during the bureau visits.

During respective visits to the four bureaus, the delegation seeks feedbacks by raising the questions we developed for this phase. Comments from the bureaus presented in this section are based on the notes taken by the Hong Kong delegation (Wong 2017). In the ensuing sections, we paraphrase the comments with respect to the four areas of concerns raised by stakeholders – we are hesitant to provide the exact quotes as the original discussions were in Putonghua.

Table 1 Key questions to government bureaus

Area of concern	Questions
Integration approach for nine cities plus two SARs	As for the integration of the GBA, would the central government plan to integrate the nine cities in Mainland then further integrate with HK and Macau at a later stage, or integrate these 9 + 2 cities as a whole? Any specific measures for the integration?
Market dynamics versus policy driven dynamics	Could the Central Government coordinate GBA city's complementary development? What is the development plan for the GBA? Any specific time table for the Initiative?
Positioning among cities	Would a special committee be setup to oversee the positioning strategy of airports and ports in the GBA?
Diverse customs policy and customs system	Would the customs process for Belt and Road be different from the normal practice – with respect to both land transport and rail transport? Would the Single Window development be discussed between custom authorities in Mainland and HK?

Table 2 Topics discussed during bureau visits

Bureaus	Topics Discussed
HK & Macau Affairs Office of the State Council (HMAOSC)	Alignment for Express Rail Link GBA development plan Positioning of GBA cities in tourism Transport arrangement of HKZM Bridge Airports in Southern China Liantang Control Point Free trade agreement Cross-border transport
General Administration of Customs (GAC)	Air transport custom Single Window Green channel of HKZM Bridge Liantang Control Point customs
Ministry of Transport & Communications (MTC)	Air traffic flow in Beijing and East China HKZM Bridge and Shenzhen-Zhongshan Tunnel Cross-border services
National Development & Reform Commission (NDRC)	GBA development plan Positioning of GBA cities in tourism Airport development in Southern China

Integration approach (two stages) for nine cities plus two SARs

On the integration issue for the nine Mainland cities and two SARs, representatives of the HMAOSC explain that process should follow a two-stage approach. At the first stage, the Mainland cities would integrate. At the second stage, the Mainland cities as a whole would integrate with HK and Macau. The bureaus comments are:

- On 9 + 2, the nine Mainland cities is to integrate first, follow by HK and Macau to realize integration of the whole GBA. (HMAOSC)
- The integration goal is to realize free flow of materials, capitals, and services. (HMAOSC)

- To see synergistic development in GBA cities, realizing there exists difficulties due to separate customs bases and legal structures. (HMAOSC)
- A committee involving representatives from both GBA cities and central government will be formed. The latter would coordinate and liaise. (HMAOSC)
- GBA cities should develop in the vein of integration and cooperation. (NDRC)
- We respect the HKSAR Government will uphold the “One Country, Two Systems” principle during the GBA initiative. (NDRC)
- GBA is to be an international Bay Area and a wonderful place to domicile, work and visit. (NDRC)

Market dynamics versus policy driven dynamics

On the role of market force and the role of government, representatives of the bureaus comment that the law of market should be respected:

- The dynamics of the market should be respected during GBA development. (NDRC)
- The development of the GBA should follow a bottom-up model. (NDRC)
- There should be innovative thinking transcending traditional approach in GBA development. (NDRC)
- There is no pre-set plan for GBA development, and suggestions are encouraged. (NDRC)

Positioning among cities

The representatives of bureaus point out that the cities in the GBA should have their own positioning strategy, and complementary development should be achieved in the GBA:

- Complementary development of GBA cities is encouraged. (NDRC)
- HK as a shipping center is supported, where high value-added services (e.g. marine insurance) could be developed. (NDRC)
- The Civil Aviation Administration of China (CAAC) is concerned about the excessive competition in GBA and will coordinate with HK to address this concern. (NDRC)
- GBA ports need to integrate. Geographical integration is one plausible approach (e.g. terminal operators might be consolidated to form a single company in PRD West and another company in PRD East. (NDRC)
- In principle, GBA airports should collaborate. (HMAOSC)
- GBA cities should have their respective positioning. (HMAOSC)

Diverse customs policy and customs system

Central bureaus assert that Single Window in Mainland is well developed, and is able to make connection to HK:

- WTO restrictions dictates customs uniformity in GBA—there are three tariff zones in GBA. (HMAOSC)
- Shanghai had a pilot run with Single Window, which will be followed in other parts of Mainland. The Shanghai Single Window consists of a platform of multi-functions. (GAC)
- To support the Belt and Road Initiative, a national Single Window would be launched by 2020. (GAC)
- Mainland Single Window is ready to interface with HK Single Window. (GAC)

Uniqueness & complexities of GBA development

The stakeholders' concerns and observations of State Bureaus are manifestations of the uniqueness and complexities of GBA development. In this section, we address the uniqueness and complexities of GBA development, by analyzing the discussions around the four major concerns.

Two-stage integration for nine cities plus two SARs

In general, the central government is pursuing a two-stage longitudinal approach to integrate the GBA: (1) integrate nine cities first, and then (2) integrate (or align) nine cities and two SARs.

In GBA, between Mainland cities and SARs, a multitude of alignment issues (e.g. practice, systems, and policies) exists. It is plausible to integrate Mainland cities first as they have similar institutional infrastructure, thus facilitating integration at this stage. Cross-border issues would be one of the biggest concerns in the 9+2 integration. Crossing border to HK also means alignment with international systems, as many systems in HK adopt international standards and practice.

Even at the initial stage, SARs participation is necessary to support a comprehensive GBA development. As an international city, HK can play a complementary role in areas where Mainland cities might still lag behind (Cheng and LeGates 2018). With respect to GBA's connectivity to the world, an effective alignment between Mainland cities and HK is vital.

A set of well-developed strategies are needed to create collaboration and synergy, and in avoiding unnecessary negative aspects in this unprecedented huge development. Clearly, this issue is unique and complex, as the success of such a time-phased integration approach depends on many inter-temporal and interdependent decisions, as well as participation.

Market dynamics versus policy-driven dynamics

Both stakeholders and Central Bureaus show indications that market force should be the basis for future development of GBA. However, a major characteristic of SOEs in Mainland is cross-ownerships, an element which could prohibit proper functioning of market dynamics. SOE cross-ownership has been recognized as a huge corporate governance research issue in Mainland. Some have referred to this phenomenon as “the China Model” or “the Beijing Consensus” (Breslin 2011; Ramo 2004; Zhao 2010).

Table 3 Ports' Market Share in GBA (HK and Nine Mainland Cities)

	Ports' Market Share in GBA						
	2015	2016	2017	2018	2019	2020	2021
Hong Kong	26.34%	25.84%	25.76%	23.42%	23.36%	22.12%	19.16%
Nine Mainland Cities	73.66%	74.16%	74.24%	76.58%	76.64%	77.88%	80.84%

In the process of GBA integration, consolidation of SOEs could be a strategy to achieve efficiency and competitiveness. But such consolidation must be practiced judiciously to avoid having an oligopolistic or a monopolistic effect in the GBA economy. As an example, consider GBA's maritime cargo terminal industry. Table 3 shows that the nine Mainland cities take up a significant portion of the market share in the GBA. And their market share is still growing. Many of the area's terminal operators are SOEs. Hence, if these terminal operators in the nine Mainland cities are to be consolidated, the market in the GBA may become oligopolistic or monopolistic. Here, there is a huge room for policy research to examine the impact of SOE consolidation in GBA, assessing the effect on the markets internally as well as globally. Forming a giant company by consolidation may be an appropriate way to compete in the world market. However, consumers in the internal market (within the GBA) may suffer; as such consolidation would distort market dynamics. The growth of monolithic SOEs may also harm the development of the private sector.

Is GBA integration to be driven by market dynamics or policy-driven dynamics, or simply a composite of both dynamics? In essence, policymakers need to consider the pros and cons of both market-driven and government-led initiatives and to achieve a balance of these two forces. Market-driven dynamics may be a suitable way for resources allocation; however, comparing to government-led, its process may be relatively slow. For example, the Single Window development is a good case in point, with Mainland moving very fast (policy-driven) and HK not nearly as so (market-driven). In the fast-changing environment, government-led initiatives could be a time-efficient way to effect changes. But this is really quite a complex issue as there are both short-term and long-term market behaviours, as well as impact across markets. It has been reported that a market of domestic rivalry has positive impact on its competitiveness in the global market (Clougherty and Zhang 2009). However, the relationship between domestic competition and international performance is recognized to be a complex one (Bramati et al. 2015).

Positioning among cities

During or even before integrating respective cities in the GBA, it has been widely acknowledged that strategic positioning in the form of division of services could be pursued to avoid unhealthy competitions. Should market dynamics be the driving force to achieve division of services? Both stakeholders and the central bureaus expressed that there exists uniqueness (e.g., geographical, functional) in different cities. In this connection, the bureaus recognize that respective cities could have their own positioning strategies. There have been practices of local municipal governments offering incentives

to shore up local industries, hence creating government-led subsidies. Should such practices of protectionism be discontinued? Is uniformity and control to be established among GBA cities so as to avoid unhealthy competition?

Competition exists between cities in the GBA. Cheung et al. (2020) examined the competition among airports in the GBA. Using the HK International Airport (HKIA) as the benchmark, they found that there were many common destinations served by the four major airports in the region. The traffic volume to those common destinations accounted for more than half of each airport's total volume. For Guangzhou Airport, nearly 90% of its passengers went to the destinations also served by the HKIA. Reducing competition requires efforts and cooperation between local governments of the 9 + 2 cities. A framework for strategic positioning within GBA should include considerations of economic policy, environment issues, and regulatory coordination. However, it may also be plausible that government strategically develop new policies to assist individual cities in their respective developments. Thus, the issue of preferential policies for individual cities needs to be addressed.

From a wider perspective, it is suggested that while each city or SAR needs to consider its own competitive advantage, they should also act in the best interests of the GBA. Trade and logistics sectors are vital to GBA. The financial sector is also expected to flourish. HK has been referred to as an international shipping center. HK has a long history of being an important gateway for China. On the other hand, Shenzhen has clearly emerged to assume a leading role in shipping, despite HK being the only free port in GBA.

Shenzhen's rise is due to a variety of reasons, chief among them are: it is closer to the source of goods, relative economic advantage, continual improvement of transport infrastructure, and HK's transshipment volume is negatively impact by cabotage policy relaxation (Wong et al. 2019). A research topic in its own right, a change in cabotage policy by the Central Government could drastically alter the traffic patterns between China's coastal cities and hence the positioning of ports in GBA. In 2021, HK, the once global leader in container throughput, continues its recent decline to around 18 million TEU—ranking 9th worldwide; while Shenzhen's throughput continues to rise, to around 26.5 million TEU – ranking 4th worldwide (China Daily, July 31, 2022; Grinter 2022).

Importantly, with considerable strategic support from State policies, Shenzhen's high-tech industry has flourished, making it an innovation and technology hub and bringing economic benefits to the GBA (Sharif and Chandra 2022). That Shenzhen has emerged to be the driving force of GBA development is beyond doubt. For Guangzhou, it has a large labor support making it a strong manufacturing base in its hinterland. Further, it is also the administrative centre of the region – likely to be tasked with initiating and executing integration policies of the GBA. Apparently, the strategic positioning of GBA cities is gradually taking shape in the midst of market and policy-led dynamics, along with historic, geographic and structural factors.

Diverse policy and system in customs

Custom policy is a crucial element in the alignment between GBA Mainland cities and two SARs. Mainland Customs and HK Customs are very different in terms of duties and authority. As a free trade port, HK charges excise duties on four commodity types. Thus,

the procedures of customs declaration and clearance are very simple in HK. On the other hand, there are taxes levied on all imported goods and articles in Mainland, which makes the clearance procedures much more complicated and time-consuming. To support and enable growth in international trade, Mainland Customs has been unveiling new policies and schemes (e.g. “Big Customs Clearance Policy” and electronic clearance).

An important consideration for both stakeholders and the central government is to have uniform customs regulation in the whole area. In the past, GBA Mainland cities had differing customs processes. In our survey, while some stakeholders opine that GBA customs processes remain cumbersome, others recognize that reforms have improved the customs processes – resulting in efficiency and uniformity across GBA.

Globally, Single Window has been adopted by more than 70 economies, including Singapore, Japan, Korea, Taiwan, Thailand, Philippines, and Vietnam (United Nations Conference on Trade and Development 2016). Single Window has substantial impact in facilitating the movement of goods (United Nations 2005). Single Window, supported by an e-platform, enables connection for end-to-end production with multimodal logistics network. Such features are fundamental to cross-border e-commerce. A GBA e-platform featuring Single Window is a great opportunity for academic and business research and development. For example, a cloud environment can be developed for the GBA e-platform supporting cities in the region. Further, an e-platform could support blockchain development, allowing tracking, tracing, and in-process correcting of goods and services. This is also the foundation for seamless product planning, production, and distribution.

Single Window facilitates business-to-business (B2B) and business-to-consumer (B2C) commerce. There are many research and business opportunities in the applications of Big Data, Cloud Computing, AI and Blockchain in logistics and trade e-platforms, where Single Window is a key enabler. For GBA, it is quite obvious that the development of Single Window and e-platforms should be of imminent need.

As mentioned in “[Market dynamics versus policy-driven dynamics](#)” section, the development of Single Window in Mainland is very effective and is likely to be adopted by Mainland cities of the GBA in the very near future, if not so already. This is the effectiveness of State-led policy dynamics. On the other hand, in HK, Single Window is still very much a work-in-process and its future is highly uncertain (Panel on Commerce and Industry 2022).

Summary and conclusion

This paper examines the uniqueness and complexities of logistics and trade facilitation in GBA, highlighting academic and policy research opportunities within the GBA context. Through a two-phase empirical approach, this study establishes discourse in the logistics and trade facilitation of GBA development between government and private sector stakeholders. The first phase develops a holistic view of GBA’s development by stakeholders, based on an empirical survey of a cross-section of stakeholders (per industrial sectors and sub-regions). In the second phase, utilizing results and analysis of the survey, a delegation approached the Central Government Bureaus with stakeholders concerns of the GBA development. The Bureaus provided considerable insights and

overall guidelines on how GBA should be developed. Portion of the results of Phase I and Phase II were presented at a symposium in Hong Kong (Leung et al. 2017).

Such a discourse is vital to the understanding of a development that is as massive, complex and unique as the GBA initiative. With the discourse, this study is able to bring out unique issues and insights in logistics and trade facilitation in GBA that are interesting for both academic and policy research. Our analysis pinpoints critical yet unresolved issues of integration as characterized by the coexistence of different institutional systems and interplay between state planning and market economy. Specifically, major concerns surrounding logistics and trade facilitation in GBA are conceptualized: 1) integration stages for nine cities plus two SARs, 2) market dynamics versus policy-driven dynamics, 3) positioning among cities, and 4) diverse customs policy and customs system.

On integrating 9 cities and 2 SARs cities, the fundamental concern is the differences in their systems and regulations (e.g., legal and financial systems). The strategy to achieve integration of 9 cities first followed by alignment with the 2 SARs is a sound one. The interplay between market forces and State-led policies has to be a key concern, such as where policy-driven growth of monolithic SOEs may harm private sector development. Positioning strategies between cities could reduce unhealthy competition, allowing synergistic collaborations and mutual beneficial positioning of cities. The concern that customs digitization in HK is out of phase with the rest of GBA cities is a worrisome one. Asynchronous development of Single Window in HK and Mainland cities may hinder GBA's customs digitization and interaction with global markets.

Concerns such as the aforementioned highlight the uniqueness and complexities of GBA development, where integration is needed for many interdependent components and across different levels. There are integrations on many fronts: policy integration, economic and institutional integration, geographic integration, information integration, etc. They include: striking a balance between state-driven dynamics and market dynamics, integrating differing institutional and economic practices, aligning different production enterprises geographically to achieve collaboration and efficient allocation of resources, integrating components of domestic units to become a strong competitor in the international market, and integrating GBA regions using advanced information technology to facilitate efficient movement of information, money, goods, and people. These are unprecedented and massive undertakings.

It should be pointed out that a more recent 14th Five Year Plan and Vision 2035 (14th Plan) was issued by the Chinese Central Government.³ The findings of the present paper are consistent and affirmed with the themes of the 14th Plan, which emphasizes the need for greater integration and connectivity among the 11 cities in GBA, but also acknowledges the challenges posed by differences in economic policies, customs systems, and regulatory frameworks.

In particular, our research highlighted the challenges of integrating the 9+2 cities in GBA and recommended a phased approach. This approach is consistent with the 14th Plan's promoting greater integration among cities while recognizing unique economic and regulatory conditions in each city. Moreover, our study points out that

³ <https://en.ndrc.gov.cn/policies/202203/P020220315511326748336.pdf>

the differences in customs policies and systems among the 11 cities pose a major challenge to integration and connectivity in GBA. This suggestion is also reflected in China's efforts to promote greater customs cooperation and integration among GBA cities, as outlined in the 14th Plan.

There are two new GBA initiatives in the 14th Plan: infrastructure development and cross-border integration. The 14th Plan aims to invest in key infrastructure projects in the GBA, including the construction of a high-speed rail network, an expansion of Baiyun International Airport in Guangzhou, and the development of smart cities. For cross-border integration, the 14th Plan aims to promote the development of a new cross-border economic zone between Guangdong Province, Hong Kong and Macau.

In conclusion, this paper develops a discourse in GBA trade and logistics development. As socio-economic and geo-political factors shaping the GBA landscape may change rapidly, periodic reviews are encouraged.⁴ Most importantly, a major objective of the paper is to identify and conceptualize the major features of GBA, providing a context within which academic and policy research topics can be pursued. This paper merely scratches the surface of research opportunities in the GBA initiative. There are unprecedented opportunities for research on critical issues of logistics and trade facilitation in a unique context. For example, there could be challenging researches such as examining the impact of SOE consolidation on logistics and trade in GBA, modelling the collaboration between ports in Mainland and ports in Hong Kong, modelling flight collaboration between airports in GBA, modelling the impact of cabotage policy on traffic patterns of coastal cities of Mainland and on GBA, developing e-Commerce blockchains or blockchains of a specific product type or service (e.g. cold chains, pharmaceuticals, dangerous goods, etc.) in GBA, developing e-platform for Big Data on logistics and trade in GBA, using AI and Cloud Computing in logistics and trade in GBA, developing sustainable environmental policies in supply chain management in GBA, and modelling supply chain risk management and finance in GBA.

Appendix

Interview questions to stakeholders (Phase I)

In Phase I, several teams perform interviews with 17 stakeholders, representing a cross-section of companies in the logistics and trade sector within GBA. Stakeholders are asked to characterize the strengths (S), weaknesses (W), opportunities (O) and threats (T) of the GBA development. They are also asked of their general concerns in the GBA development:

- What are the key issues when implementing the GBA initiative?
- What are the benefits of the GBA initiative to trade and logistics industry?
- What are the challenges when integrating the 11 cities in the GBA?
- What is your opinion on the driving forces of the GBA development?

⁴ After report of stakeholders' concerns, further efforts are made by Central Government. To make the GBA policy clearly, The Central Government has announced the "Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area" on February 18th, 2019 to serve as a general guideline for the GBA development.

- What would be the future development of the GBA?

Remark

Selection bias could occur as the stakeholders from four major cities (Guangzhou, Shenzhen, HK, and Macau) were interviewed. To this end, while a stakeholder might be biased because of her/his location or because of the size of her/his company, the face-to-face interviews were conducted with a list of questions served as a guide. They are designed to guide the stakeholders to regard the development of GBA as a whole, without limiting the scope to a specific location.

Summary of stakeholders' responses of Phase I

In general, when stakeholders respond to the SWOT analysis, they mainly discuss them within the context of major issues, most of which might have S, W, O, and T within themselves. It is also apparent that stakeholders' comments do fall into four categories of major issues. Detail responses of individual stakeholder are to be placed in <https://prisc.hsu.edu.hk>. Next, we provide a summary of stakeholders' answers per four respective major areas of concern. The (...) at the end of each comment indicates the respective (S,W,O,T).

Integration approach for nine cities plus two SARs

- Is 9 Mainland cities to be integrated with consideration of development in HK and Macau? (O, T)
- Within the One-Country-Two-System framework, it is unclear how integration would develop? (O, T)
- Could GBA be a Free Trade Zone (FTZ)? Could GBA strengthen the multimodal logistics network for more efficient use of airports and ports in GBA? (S, O)
- Hong Kong has a well-established legal system, which is different from the China's legal system. This may present a large barrier to business development in the GBA. (S,T)
- Free flow is the main problem for the GBA. (W)
- The problem of the GBA is that elements are not circulated freely (compared to other Bay Areas). The central government may hope the GBA policy could strengthen Hong Kong's role as a window to the outside world. For example, in order to support Hong Kong's air transport, Guangzhou Airport has not been included in the "free trade zone." (W)
- It is more complicated for the regions to collaborate because they have different institutional systems that are difficult to merge, such as the legal system and financial system. For logistics industry, it is easier. (W,T)

- HK firms may cross the line in China due to the unfamiliarity with the local rules and regulations. On the other hand, HK firms are usually familiar with practices and cultures of international companies. (S,T)
- Collaboration with China logistics companies is the key to the survival of HK logistics companies, as the former has resources and the latter has customer relationship management. (O)
- Barriers on labor mobility (e.g. salary level control) needs to be removed. (W,O)
- Streamlining of the two systems but the institutional system of China has to be upgraded if success of Bay area is expected. (W,O)
- There will be more cooperation between HKG and Zhuhai airports due to the HKZM Bridge. There will still be competition between Guangzhou airport, HK airport and Shenzhen airport. (S,O)
- The infrastructure for HZM Bridge will improve land transport, which when will help cross-border logistics – thus also helping e-commerce. (S,O)
- Compared with other Bay Areas, the biggest advantage of GBA is the large amount of people. (S)

Market dynamics versus policy driven dynamics

- There are subsidies in Guangzhou for the companies if they (carriers) are berthing in their port or if they are shipping their (freight forwarders) goods through their ports. (T)
- The frequency and feeder cost of barge in Nansha is also very competitive and this attracts the transshipment business to Nansha. (S,T)
- Market forces need to be the basis for the GBA initiative and not state policies. (O)
- In GBA, the division of services should not be decided by policy, instead, it should be decided by market as market driven approach is good to all the cities. (O)
- The Microsoft episode suggests that HK's market can be affected by state policy in China. (O,T)
- Some state policies (e.g. consolidation of SOEs) could be positive in eradicating negative competition in GBA, but such actions are against free market dynamics. (O,T)
- Careful policy execution should be carried out in order not to discourage business investing and using Hong Kong in maritime hub, some recent issues like (i) Cabotage, (ii) Tsing-Ma Bridge Air-draft, (iii) Pilotage, and (iv) Block exemption have affected companies in using HK maritime hub. Individual alone might not affect ship liners to invest and set offices in HK, but all four together will likely affect international corporations setting offices in HK. (O.T)
- HK needs to have more incentives for a better business environment. (O)
- A possible positioning is: Hong Kong port is the center, while Guangzhou port and Shenzhen port is the hub. (remark: according to the interviewee's view, a center is more important than a hub.) (O)

- The division of services for Guangzhou port and Shenzhen port could be achieved by geographical location division: Guangzhou port handle the cargo from west PRD, while Shenzhen port handle the cargo from east PRD. (O)

Positioning among cities

- On-time delivery performance is expected. (S)
- Service quality of HKIA is high and HK does not have flow control of air traffic. (S)
- Solid management system and well-trained talents in aviation in HK (S)
- E-commerce growth in HK lags behind Mainland due to lack of companies (like Taobao). (W)
- Low collaboration between sea and freight (W)
- HK is an air transshipment hub (S)
- Complete the development of Third runway in 2024 (S)
- Timeslot for airlines is limited though terminal capacity is still sufficient (W)
- Limited land for further expansion. (W)
- HK ports not close to source of exports. (W)
- Customs conformance can be done in Shenzhen warehouses while consolidation can be done in HK. (O)
- Shenzhen could be the backup support of HKG and GUA airport. (O)
- Truckers integration – currently logistics firm finds difficult to hire truckers. This also impacts shipper not selecting cargos to export through HK. (W)
- Truck license – it is difficult for logistics firm to apply license as it involved the need of China license with HK drivers for HK-Mainland vehicles. The license cost is high as well. (W)
- Hong Kong could also be developed as the brain of Hong Kong and Shenzhen area, i.e. the coordination on the particular incident or recovery action could be managed and directed by Hong Kong, where the physical movement could be operated in Hong Kong and Shenzhen.(O)
- For GBA cities, competition is the prevailing situation and not cooperation. (W, T)
- HK is the logistics hub of Asia Pacific. Currently there are still a lot of international brand relying on Hong Kong to assist them to be responsible for the planning and operation of the logistics flow of China, both in the physical logistics and e-commerce business. (S)
- The efficiency of Hong Kong airport is higher than that of Shenzhen airport and Baiyun airport. (S)
- For passengers, there is lack of incentive for them to cross the border to fly from a nearby city. (W,T))
- For cooperation (between airports), an opportunity is the connection of high-speed rail with airport between Hong Kong and Guangzhou. (O)
- Guangzhou plays the role as a hub for railway transport. (S)
- Positioning of cities need to be market based.(O)
- Hong Kong to be an international logistics hub. (S)

- Hong Kong should focus on transshipment and import, Shenzhen may focus on export, while Guangzhou can concentrate on domestic trade.(O)
- Currently there exists competition instead of cooperation for the terminal business in China. (W,T)
- From a macro-view and as a country policy, there will be a division of function among the cities involved. (O)
- Positioning of function: Macau airport should be closed for other development in order to cope with the country policy and the city's development strategy. Zhuhai airport faces the similar situation (tourism). HK and Shenzhen could be major centres for technology and innovation. (O)
- The division of function is appropriate, and air transport should be assigned to HK. (O)
- HK can play a regional education center for logistics industry. (O)
- It is the service collaboration that should always be emphasized. (O)
- Land, rental, and manpower in HK are costly and their supplies are limited. (W)
- A lot of piers should be removed for the scatter of cargo loading. Should be consolidated in Hong Kong and Shenzhen. (S,O)
- Every city has its own strategy that competes with each other. Since Bay area is an integration effort that each party should be clearly positioned so that each party is able to exploit its own advantage. (O)
- Political reform and infrastructure alignment are critical to GBA's success. More importantly, there should be clear positions for each city. (O)
- Currently, there are still many restrictions to integrate since some of the system practices in China are very rigid to overseas customers such as pharmaceutical packaging (lack of flexibility), and sampling policy. (W)
- For sea transport, besides the suggestion on the roles of super-connector and strengths of well-established legal system, there are suggestions that HK will focus on transshipment cargos and direct cargo will be handled by SHZ East West. (O)
- HK should also both explore more on high value-added maritime services, like chartering, brokerage, arbitration, ship finance, etc., and maintain the competitiveness as its well-known as terminals in catching up time loss for liners. (O)
- Between nine GBA Mainland cities, is it possible that a single company could own all the ports? And as such, HK ports would be in a major disadvantage (T).
- Cities in the GBA should have their own positioning based on the competitiveness advantage.(O)

Diverse customs policy and customs system

- Changes in custom policy are frequent. (W)
- Changes in tax policy are often headaches for logistics firms. (W)
- Pharmaceutical products clearance is complex. (W)
- It is clear that China's customs policies are getting better – however, differing customs procedures still exist (e.g. Zhongshan and Shenzhen). (W)

- The customs procedure is different for Hong Kong and Shenzhen. Different customs have different policies. (W)
- The customs and cross-border policies in China is continuously improving and simplified, and sometimes even more advanced than Hong Kong, there is a threat that the goods export or import China do not need to pass through Hong Kong. (T)
- One of the expectations or wish list from industry on the GBA would be the simplification and improvement of the customs procedure.(O)
- Simplified procedure for cross-border trucks. (W,O)
- It is observed that some cargos at the Fedex's hub in Guangzhou are channelled to Hong Kong and exported to other countries, because customs clearance time is more predictable in Hong Kong. Customs in Hong Kong has a competitive advantage. (W,O)
- The development of Hong Kong–Zhuhai–Macau Bridge (HKZMB) presents opportunities to the industry. (S,O)
- Tariffs have to be removed. (O)
- The customs processes in China is still complex while HK is still flexible and with a free-port trade policy. There is still strength in HK on the customs processes. (S,O)
- The single window needs eight years to be completed (in HK). This is far behind the development in China. (W)
- While many shipping documents are digital, many paper works are still needed for cargo shipments. (W)
- Hong Kong should fasten the Single Window system and also link with the system in China. (O)
- Many logistics SMEs in HK lack adequate resources. (W)
- Since automation is the trend for competitiveness, HK firms seem not able to compete with those in China who can pursue automation to boost up the competitiveness, such as those in Shenzhen. (W,T)
- Not much chance for HK SME logistics companies, either go bankruptcy or absorbed by large companies. (W,T)
- GBA initiative might not be a threat to large logistics companies in HK, but could threaten SMEs. The survival of SME logistics firms depends on the positioning of HK as a shipping hub. (O,T)
- The GBA initiative does not help HK logistics companies. (T)
- Regarding tax incentives, it is not needed in Hong Kong as Hong Kong is a free port (no tariffs). Customs in Mainland is a must because of its duty of tax collection. (S, W)

Abbreviations and glossary

B2B	Business-To-Business
B2C	Business-To-Consumer
CAAC	Civil Aviation Administration of China
GAC	General Administration of Customs
HKIA	HK International Airport

HKSAR	Hong Kong Special Administrative Region
HMAOSC	HK & Macau Affairs Office of the State Council
MTC	Ministry of Transport & Communications
NDRC	National Development & Reform Commission
SAR	Special Administrative Region
SOE	State-owned Enterprise
SWOT	strengths (S), weaknesses (W), opportunities (O) and threats (T)
TEU	Twenty-foot Equivalent Unit
Belt & Road	A development strategy by China in 2013 to promote infrastructure development, trade, and investment among more than 70 countries in Asia, Europe, and Africa
Cabotage Policy	An international shipping right where foreign ships must not dock at consecutive ports of a sovereignty
One Country, Two Systems	A framework from China, allowing Hong Kong a high degree of autonomy
Single Window	A digital system that enables international traders to submit regulatory documents at a single location or portal, rather than through multiple government agencies

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Author contributions

EW drafted the manuscript. DH participated in the analysis and SN is the corresponding author. LL conducted analysis and interpreted the analysis results. He also edited the manuscript to enhance its readability and logical presentation. All authors read and approved the final manuscript.

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