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Intermediate-Layer Governance and the Coupling of an Effective Market and a Proactive Government: A Mechanism-Based Analysis of Practices in the Guangdong-Hong Kong-Macao Greater Bay Area

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Abstract

In accordance with the spirit of ”one country, two systems and three legal systems”, cross-border transfer of factors in the Guangdong-Hong Kong-Macao Greater Bay Area will be subject to institutional transaction barriers due to differences in legal systems, regulatory regimes and service standards. The governance system at the intermediate level in this paper will be employed to study how a proactive government, a middle-level institutional system and a healthy market can be coordinated without fully integrating the fundamental legal codes of the three regions. Qualitative and Mechanism-oriented Comparison of the Cross-border Data Verification Platform, the Hengqin EF Account System and the Guangdong-Macao Social Security One-stop Service Platform in a Case Study. According to the data and statistics released by all sides, it will be shown in this paper that interface-based rules can reduce the costs of search and matching, settlement and fulfilment, as well as administrative and trust expenses. Therefore, at the intermediate stage, there will be rule translation, platform integration and the combination of risk-averse services. The above charts are only examples and do not indicate cause and effect. The above work offers a way to promote cross-border rule compatibility and maintain institutional diversity in a particular manner.

Key words: Intermediate-layer governance; Proactive government; Effective market; Tripartite coupling; Cross-border factor flows

Introduction

The main goal of China’s economic reform and opening-up is to improve the government-market relationship. In line with the ”One Country, Two Systems and Three Legal Jurisdictions” framework of the Greater Bay Area, many legal norms, regulatory arrangements and market rules restrict the flow of economic factors among the different areas. Recently, the problems mentioned above have begun to be connected with structural complexity, cross-border regulatory cooperation and the politics of information and benchmarks in English literature [Coche et al., 2024, Liu, 2021, Sun et al., 2021, Xie et al., 2023].

The first two reasons are listed below. At first, to achieve institutional homogeneity, many changes would be required in the existing legal and regulatory system of all three countries, and the coordination costs would be too high; moreover, it might violate the fundamental autonomy of these institutions in each country, so this approach is not feasible. Second, the laissez-faire mode believes that market units will self-regulate according to all kinds of rules; however, this way will increase institutional transaction costs due to rule fragmentation and data asymmetry, and at the same time, the risk of market failure, such as adverse selection and moral hazard, will be amplified.

Therefore, the third practical way is to set up a mid-level government. Rather than fully integrating with the institution or having all participants learn the different regulations, we will establish practical rule interfaces, information channels and coordination mechanisms. This paper studies the interface of government functions and commercial activities in the two legally separate areas. Based on the above studies of regional networks and economic resilience plus innovation coordination in the Greater Bay Area, Tang and others (2022), Yang and others (2024), and Zhang and others (2022) have carried out related research.

Theoretical Foundations and Analytical Framework

Literature Review and Contribution

Recently, research has shown that the construction of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is not only due to proximity and government policies. There are many cities across the country, and they have developed at different speeds and under different jurisdictions. Research has shown that the combination of fiscal adaptability, digitalisation and creative networks can achieve good results in many cities, but the distribution

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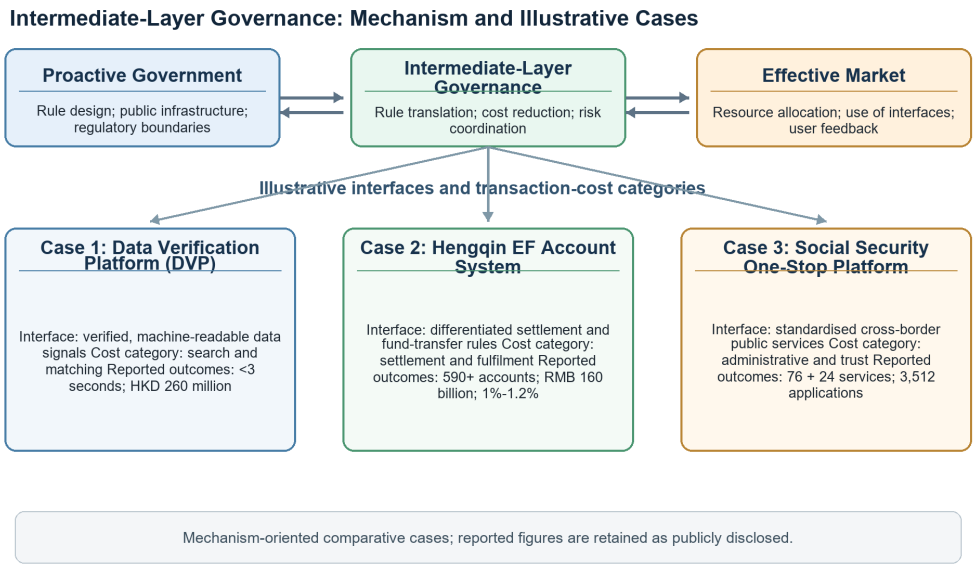


Fig. 1. Middle-tier management system and an example of case mapping.

Source: Researchers' compilation.

of such resources and advantages is still uneven [Tang et al., 2022, Yang et al., 2023, 2024, Zhang et al., 2022]. Research on the General Balancing Arrangement (GBA) for higher education, water-resource coordination and human-environment-socioeconomic systems has also found that cooperation should connect sectoral planning with regional organisational nodes, rather than using uniform implementation [Feng et al., 2022, Tan et al., 2022, Xie et al., 2023].

Another reason is that the rules, government capacity and economic incentives in the two countries are not the same. Abbott and Faude (2022), Eilstrup-Sangiovanni and Westerwinter (2022), and Sun et al. (2021) have studied institutional intricacy and focused on actors that operate in multiple overlapping rule systems but are not bound by any single, uniform legal system. According to the research on international climate change adaptation, in order to promote long-term cooperation, transparency in the division of responsibilities, data sharing and mutual recognition and adaptation among the parties to maritime governance and border cooperation need to be achieved [Adewumi et al., 2022, Böhm, 2021, Carter et al., 2021]. Given the current situation in China, transnational e-commerce and data regulations have shown that if the public standards are still not sufficiently reliable for integration and compliance, market integration will not be achieved [Liu, 2021, Yin and Choi, 2023].

The third type is the subject that embodies the above governance framework and carries it out effectively. Bouncken and Kraus (2022), Caloffi et al. (2023), and Rossi et al. (2022) have observed that innovation brokers and ecological oversight can integrate various parties, address their different interests, spread relevant information and collect all kinds of resources. According to the results of social testing sites and the digitalisation of private-public cooperation, it can be seen that to reduce data gaps and promote both transparency and collaborative development, optimal coordination is required; this coordination should not be based on official directives and should not replace market signals [Aben et al., 2021, Braun et al., 2023]. Based on the above research, the three types of interfaces for intermediary-level governance are organizational, procedural and technical.

Therefore, the front-end will be more and more digital. AlNuaimi and others (2022) found that in order to achieve the advantages of technology, leadership, agility and strong complementary organizational capabilities, all of them need to be present. According to the investigation of data flow and digital management, it has been determined that interoperability is a technical problem, but it is also related to legal jurisdiction, protection of rights, risk distribution and the political system for establishing standards [Chaisse, 2023, Coche et al., 2024, Xia et al., 2024, Yu and Wang, 2025]. Research on trustworthy and generative AI has shown that the management of the digital infrastructure for public decision-making should be open, accountable and secure [Zhang and Zhang, 2023, Schmitt, 2022, Reddy, 2024]. Based on the experience of cross-border e-government, interoperable services should be continually institutionalised and are not only technical problems [Hardy, 2024, Dwivedi et al., 2022].

Thus, although many recent studies have examined regional integration, there is still a lack of uniformity among them. The links in the above form are now called a mechanism. Governance at the intermediate level refers to the introduction of regulations to reduce transaction costs and risks, create a favourable business environment for a good life, and do not alter the basic legal system. The three GBA cases mentioned above are representative cases of the application of this integration in data verification, fund transfer and public services. It is not the cause of these cases; rather, it is an organised system to identify when cross-regional junctions have legal heterogeneity managed by it, and therefore should not be treated as a barrier to be eliminated.

Research Design and Evidence Boundary

According to the two-case method, the three research cases will be divided into the following three types of cross-border governance interface: information verification, financial settlement and public service integration. We need to know that no single policy is responsible for the failure of another; rather, we will examine the particular sequence of institutional deficiencies, intermediate links, transaction costs and reported implementation results for each case. Caloffi and others (2023), Sun and others (2021), Tang and others (2022), and Yang and others (2023-2024) have recently found that regional networks, institutional complexity and innovation coordination in cross-border areas need to be distinguished.

Empirical evidence refers to the academic materials in the cited bibliography and the available government data from the three selected cases. Given the numerical data, they will be kept in their original form and marked with specific dates. There is no particular confirmation of causality or comparison with other cases. The two sources are different,

and the investigations were carried out at different times and under different government departments.

Core Logic and Operational Mechanism of Tripartite Coupling

The new integration framework will strive to build a good government, a strong middle class and a healthy market economy. The government has built a system of regulations and institutions for foreign cooperation, established an orderly path for the convergence of rules, and market participants have provided supply indicators and responses. The aim is not to impose a single norm, but rather to reduce the cost of doing business and build more stable cross-border cooperation. Collaboration is regarded as a kind of continuous supervision and does not need to be organised through legislative coordination at a particular time [Abbott and Faude, 2022, Eilstrup-Sangiovanni and Westerwinter, 2022, Sun et al., 2021].

A progressive government will issue regulations, build community services and keep track of laws in an organised manner. Its purpose is to coordinate problems in many areas that cannot be solved through the market alone, and to ensure fairness in law and prevent the free movement of economic choices. Recently, some studies have shown that governments are working with other organisations to create a good operating environment and respond more quickly to changes in the ecosystem [Aben et al., 2021, Bouncken and Kraus, 2022, Braun et al., 2023].

Intermediate-level supervision refers to the framework, rules, brokerage, coordination schemes and data platforms under the authority of the top-level government and stock exchanges. The three are rule adaptation, reduction of transaction costs and risk distribution. The roles have different ways of meeting the various legal obligations. According to the latest research by intermediaries, corporate structure should be in line with the ecosystem; thus, we need to clarify the roles of brokers, institutionalize electronic coordination and allow for regional innovation [Bouncken and Kraus, 2022, Caloffi et al., 2023, Rossi et al., 2022].

A streamlined market will spread the capital and data on the ease of going abroad. Reduce the volatility of the interface, query expenses and regulatory pressure, so that both the firms and the clients can fully enjoy the benefits of international cooperation, and the responses from these patrons can indicate which part of the intermediary chain needs improvement. Therefore, in the study of digital tactics and global e-administration, interface participants are considered to be agents in the development of governance rather than passive consumers of products [AlNuaimi et al., 2022, Dwivedi et al., 2022, Hardy, 2024].

Illustrative Cases of Intermediate-Layer Governance in the Guangdong-Hong Kong-Macao Greater Bay Area

The three cases are examples and do not represent the general case statistically. They have data, financial and public service transfers, and show how all kinds of operating expenses are managed through various regulatory channels. Table 1 shows the institutional obstacles, governing structures, expense classifications and results for all the cases.

Cross-Border Data Verification Platform: Reducing Search and Matching Costs

The purpose of the Cross-Border Data Verification Platform is to address problems in data management and verification resulting from different standards around the world. A large number of notarisation and certification procedures in cross-border trade by enterprises and individuals will increase the cost of information collection and identification. Therefore, it can be seen from the above that in the design of interoperable data interfaces, clear commitments need to be made to ensure the legitimate transfer of data and protect rights and responsibilities [Chaisse, 2023, Coche et al., 2024, Xia et al., 2024, Yu and Wang, 2025].

It has an integrity check, is locally scoped, and only includes certified staff. The old API is used to convert the certification and credit data into a machine-readable form and then distribute it to all parts. The public goals are to reduce the length of the health code processing from many seconds to less than three seconds, allocate an extra HKD 260 million in foreign funds, and shorten the admission decision period from three working days to a few seconds. The data has been released publicly and is only to show the interface structure; no causal links have been confirmed.

In short, the public rule interface will reduce the cost of locating, discussing and carrying out verification work in all places. Establish common rules and regulations for all countries, and clarify who is responsible for resolving disputes that cross borders. Based on the study of data management, in order to reduce regulatory costs, the technical gateway should be simple enough for both individuals and supervisors to learn the basic rules, obligations and responsibilities [Coche et al., 2024, Schmitt, 2022, Zhang and Zhang, 2023].

Hengqin EF Account System: Reducing Settlement and Fulfilment Costs

Hengqin EF Account System is a cross-border capital infrastructure platform. The old system of multi-level residential areas is too slow and costly. Therefore, this case is regarded as a way to promote ethical financial behaviour and keep up with the times. According to the research by Tang and others (2022), Yang and others (2023), and Zhang and colleagues (2022), the integration of GBA is a geographically specific process that has been shaped by the economic health of the region, urban connectivity and regional disparities; it is not solely the result of market opening.

The four categories in the EF framework have different transfer rules and are thus divided into many capital-flow channels. It can be seen that the main branch is not restricted, but the second part is under control. By the end of 2025, more than 590 EF accounts had been opened, and the total amount settled cross-border had exceeded 160 billion yuan; the disclosed cross-border financing rate had fallen to 1.2% from 1%. The above statistics are the original ones that have not been modified in this study.

It is not a liberalisation. Instead, it is an organisation that handles transactions, is aware of prudential supervision and other risk control responsibilities, and so on. Therefore, it can be concluded that the monetary framework will reduce settlement and delivery costs and does not need to be closely supervised. The two are soft channels and delayed responses; they are typical of foreign rule with an irregular system [Abbott and Faude, 2022, Eilstrup-Sangiovanni and Westerwinter, 2022, Sun et al., 2021].

Guangdong-Macao Social Security One-Stop Service Platform: Reducing Administrative and Trust Costs

The problems in the social security system are due to weak policies and poor service quality. Residents of Macau who need to receive services from the mainland often have to bear travel and other costs, and it is inconvenient. Research on GBA partnerships, digitalisation of public-private cooperation and cross-border e-government has shown that open facilities do not need to be only technologically integrated but should also have common standards, joint governance and channels for the public to report implementation problems [Aben et al., 2021, Dwivedi et al., 2022, Hardy, 2024, Xie et al., 2023].

Guangdong-Macao Social Security One-Stop Service Platform has standardised the norms, standards, training and cross-border interaction interfaces for 76 social security service items in Guangdong and 24 in Macao. By the end of February 2024, it had processed 3,512 applications for pension insurance eligibility certification and achieved instant seamless certification. The above figures will serve as the open-ended reference.

Efficiency is not a goal of the model. Together, we will reduce the administrative burden and make life more convenient for the public by

Table 1. Comparison of Mechanism Maps for the Three Cases of Intermediate-Layer Governance

Dimension	Case 1: Cross-Border Data Verification Platform (DVP)	Case 2: Hengqin EF Account System	Case 3: Guangdong-Macao Social Security One-Stop Service Platform
Core Pain Points	Information asymmetry across legal jurisdictions; high costs of notarization and repeated verification for cross-border financing and transactions.	Reliance on multi-tiered intermediaries (e.g., SWIFT); high implicit settlement costs (fees of $20–$50 per transfer, implicit costs ¿1.2%).	Disparities in social security systems and service standards; administrative difficulties requiring multiple trips and repeated document submission.
Intermediate-layer Tool / Mechanism	Hash value verification; standardized API interfaces transforming complex qualification and credit rules into machine-readable signals.	Four-category entity-based classification management; three-tier fund transfer rules (”unrestricted across the first line, precise control across the second line”).	Integration of 76 Guangdong and 24 Macau services; unified standards and standardized cross-border public service interface.
Transaction Costs Addressed	Search and matching costs	Settlement and fulfilment costs	Administrative and trust costs
Key Outcomes & Empirical Data	Health code conversion time reduced from dozens of seconds to ¡3 seconds; generated an additional HKD 260 million in cross-border loan funding; tuition fee approval shortened from 3 working days to seconds.	590+ EF accounts opened; settlement amounts exceeding RMB 160 billion; enterprises’ cross-border financing costs reduced by 1%–1.2%.	3,512 applications for pension insurance eligibility certification processed; achieved ”zero-trip” processing and instant ”seamless certification” response.

Reference: Compilation of experts from publicly available documents published by the relevant bureaus and departments. The above figures are the disclosed amounts, and they will not be recalculated in this paper.

simplifying the application and implementation procedures. Therefore, it can be inferred that the new governance model will promote good and inclusive cross-border cooperation, and public officials will be responsible for achieving the joint-service objectives [Braun et al., 2023, Reddy, 2024, Zhang and Zhang, 2023].

Practical Constraints and Optimization Directions

Based on the above assessment, the three deficiencies in the development of intermediate-layer oversight have been determined to be isolated interfaces, a lack of stable coordination, and enforcement hazards caused by the lag in legal reform and technological progress. As Chaise (2023) has studied, the deficiencies found are in line with the problems listed above; foreign regulations are especially complex, and there is only one technical view on data administration [Coche et al., 2024, Liu, 2021, Xia et al., 2024].

Initially, considerable funds will be needed to organise all the various pilot projects and there are no unified regulations for different industries and areas. Therefore, the first is to set up a common technical reference and an open-and-transparent system. Based on studies of international coordination, it is necessary at present to specify the responsibilities of all parties, simplify procedures, ensure the synergy among them, and keep their divisions of labour distinct [Carter et al., 2021, Adewumi et al., 2022, Böhm, 2021].

Strengthen the coordination of cross-border cooperation and clarify responsibilities, communication channels, division of labour, etc. Strategic advice should not be uniform in all areas; instead, according to the risks and different regulatory environments in various places for each sector, various mechanisms can be employed. Based on the research by Bouncken & Kraus (2022), Braun et al. (2023), Caloffi et al. (2023), and Rossi et al. (2022) on intermediaries and ecosystem governance, although some effects have been achieved, more needs to be done to improve their participation in and dissemination of knowledge.

Protect the privacy and security of the data on the digital platform, be responsible for it, and deal with any disputes. In addition to improving the speed of data and fund transfer, we need to ensure that cross-border cooperation can also be conducted lawfully and in an orderly manner through technology. Based on the study of global data governance and AI governance, it is necessary to build some level of compliance, clear authorisation and verifiable governance frameworks [Coche et al., 2024, Schmitt, 2022, Xia et al., 2024, Yu and Wang, 2025].

Conclusion and Implications

In accordance with the ”one country, two systems and three legal jurisdictions” framework, coordination among all institutions and free-market reforms will not reduce the pressure on cross-border trade. The third way to implement this is intermediate-level governance; that is, public institutions will create a good and open regulatory system, convert all kinds of laws into practical rules, and market participants and consumers will also provide their own assessments of how effective these measures are in practice. At all times, the governance activities in question do not aim to eliminate legal differentiation formally but rather to make it more transparent, uniform and responsive to changes in the actual situation.

This paper proposes the following three ideas. At first, the intermediate-layer governance was seen as an attribute of the general government, not as an independent organisation, and it was hoped that such platforms, rules and procedures would carry out rule translation at the interface of public power and market economy. Second, there are transaction costs at these junctions. The two main parts of the data-verification case are the search and matching fees; the EF Account System has settlement and delivery charges; and the social-security platform has administrative and trust fees. Finally, it can be seen that efficiency and regulatory capacity are in harmony and not opposed to each other. A good user interface is reasonable, and people will trust and use it willingly.

Policies will also have some delayed effects. First, find the particular places where cross-border trade has problems, then build a module interface to organise data, rules, accountability for dispute resolution, and finally create a feedback channel for businesses and individuals to report any issues. Promote the development of data-intensive and financial services, and at the same time ensure data sovereignty, privacy, supervision, auditability, etc. Therefore, the two undesirable errors of believing that all institutional differences need to be corrected and equating technical interoperability with good governance are avoided.

Do not draw any conclusions from the data. This is a qualitative evaluation of the three selected interfaces, and it does not examine the causal effect in the Greater Bay Area. The disclosed execution records have been spread by many government departments at different times, so they cannot be used to evaluate specific cases or determine the general scale of the impact. Based on the above assessment, we will assume that a reasonable institutional framework has been established and consider the reported decrease in duration or expenditure as indicators; however, it cannot be concluded that the interface was the sole cause of this result.

In the future, the above reasons will be stronger. Establish a stable, multi-region database to store the period of use, cases of regulatory failure and litigation results, evaluate the success of thriving experimental zones compared with obstructed or unsuccessful channels, integrate process monitoring with consumer information from companies and individuals, etc. Based on the results of the above investigations, determine whether rule conversion is adequate and whether further formal legal integration is necessary, apply market knowledge fairly and openly, etc. The above problems are very serious for the Greater Bay Area and other places that need to manage the flow of economic and civic services.

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