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From Poverty to Prosperity: Explaining China's Growth

Chen Changsheng, Yang Guangpu, Li Chengjian and Xin Xing

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Summary

This paper proposes an institutional analytic framework to explain the path an economy takes from poverty to prosperity. Close examination of the development history of China since the Xinhai Revolution in 1911 under this framework indicates that it is the combination of the unbiased single-peaked governance and an access-opening economy that makes the high-speed growth of China over 40 years. Furthermore, a political economic general equilibrium model under the analytic framework is sketched and it is shown that continuous economic growth can be cultivated by either unbiased single-peaked or compromise-oriented multi-peaked political governance, as long as political cohesion and common actions can be achieved and economic accessibility is guaranteed. Based on a panel data set, we provide strong econometric evidence supporting the conjecture that a society's cohesion can strengthen its economic growth, as can its degree of economic accessibility. But we cannot reject our third conjecture, that the single- vs multi-peaked character of political governance is a neutral variable in economic growth.

Keywords: growth; political governance; economic accessibility; cohesion; China.

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Acronyms

BOT	build-operate-transfer
BSPPG	Biased Single-Peaked Political Governance
COMMPG	Compromise-Oriented Multi-peaked Political Governance
CONMPG	Conflictual Multi-Peaked Political Governance
CPC	Chinese Communist Party
DID	difference-in-difference
KMT	Kuomintang
OLG	overlapping-generation
SEZs	Special Economic Zones
SOEs	State Owned Enterprises
USPPG	Unbiased Single-Peaked Political Governance

1 Introduction

The question has long caused puzzlement: why some countries have become rich while others on the same planet remain poor? China is on the path from poverty to prosperity, through the efforts of more than 1 billion people over 40 years; most advanced economies have followed an earlier model, involving the efforts of another billion people over two or three centuries. The experiences of these two billion people seem to indicate that some common factor underpins the economic development of human beings.

Based on the stylised facts of economic development across the world, we propose a new institutional analytic framework to explain the path a country takes from poverty to prosperity, with more emphasis on the fundamental factors underlying political institutions. In this framework, the economic development of a country mainly depends on its political governance and economic institutions, along with the interactions between them. In terms of political structures, if a type of governance can facilitate peaceful and stable social order, generate consensus and collective actions, and implement its policies effectively, we refer to it as 'cohesive governance'; we term the absence of these qualities or their opposites 'conflictual governance'. For economic structures, if an institution can ensure the accessibility of the economy by unlocking its citizens' willingness to participate, we refer to it as 'access-opening'; in contrary cases, we use the term 'access-impeding'. This paper argues that the combination of cohesive political governance and an access-opening economic regime plays a fundamental role in the path from poverty to prosperity. Based on the number of political interest groups in a country, political governance will fall into one of two categories: multi-peaked or single-peaked. Further investigation suggests that whether the political governance is multi-peaked or single-peaked is a neutral variable into the country's continuous development. Under our framework, both the compromise-oriented multi-peaked and the unbiased single-peaked versions of governance can achieve cohesion and can support continuous economic development; conflictual multi-peaked or biased single-peaked governance, by contrast, will have great difficulty attaining sustainable prosperity. We will provide econometric evidence to this effect.

This paper is organised as follows: Section 1 gives a brief review of related literature as well as the motivation of this study. Section 2 introduces the key concepts as well as a conceptual framework for the analysis in this paper, and Section 3 closely examines the development history of China since the Xinhai Revolution in 1911 under this framework. Section 4 sketches a theoretical model in two steps, with three major conjectures proposed. Section 5 provides econometric evidence for the theoretical model, with a focus on testing the three major conjectures. Section 6 concludes with discussion about further directions for study.

2 A literature review

A huge body of literature explores the paths that poor countries pursue towards prosperity; increasingly, more researchers as well as policy-makers have recognised the key role of institutions. However, a number of fundamental questions remain unanswered. For instance, although it seems that most developed economies in the world adopt democratic institutions, does that make this institutional type a prerequisite for achieving prosperity? If so, why do some democratic economies still struggle with poverty, while other economies have witnessed long-lasting rapid growth under different institutional arrangements? In particular, do other fundamental factors besides political institutions influence economic performance? In that case, what are they, and how do they interact with economic development?

The earlier literature focused on the implications of economic performance for political systems. For instance, when probing the causes of democratisation in his famous book, *The Third Wave: Democratisation in the Late Twentieth Century*, Huntington (1991) points out the strong correlation of economic development and cultural traditions with political democratisation. Though Huntington was aware that economic growth alone did not suffice for democratisation, he indeed found a positive correlation between the degree of economic development and democracy. As Seymour Martin Lipset (1960) puts it in his book *Political Man,* 'All the various aspects of economic development – industrialisation, urbanisation, wealth and education – are so closely interrelated as to form one major factor which has the political correlate of democracy.' Robert A. Dahl (1999) also argues that 'market-capitalism has typically led to economic growth; and economic growth is favourable to democracy.' The core of this theory is that economic growth expands the middle class and 'most active supporters of third wave democratisation came from urban middle class.' (Dahl 1999). Djankov *et al*. (2003) hold that higher per capita income, resulting from rising human capital, spurs the development of institutions. Glaeser *et al*. (2004) emphasise how a country that emerges from poverty accumulates human and physical capital, and then, once it gains in wealth, becomes increasingly likely to improve its institutions. Therefore, institutions might be the outcome rather than the cause of economic growth (Barro 2000). The above-mentioned economic determinism arguments underscore the fundamental role of economic growth in providing a better basis and context for the appearance and development of a democratic political system. Nonetheless, they fail to answer the question of how the economy brings prosperity, nor do they explain what underpins continued economic growth, or why different economies vary widely in economic performance and other core issues.

The quest to answer how an economy contributes to prosperity (and continues to grow with certain productive factors) has directed more and more attention to the role of institutions; this in turn has morphed into the influential theory of institutional determinism. Scholars of this view believe that institutional evolution plays a decisive role in economic growth, and thus holds the key to unravelling the mystery of the boom-and-bust cycle. In their book *The Rise of the Western World,* Douglass North and Robert Thomas (1976) offer an institutional-change theory to interpret European economic history. In a nutshell, North and Thomas argue that the establishment of institutional arrangements and property rights created an

incentive to channel individual economic effort into activities that would align private returns with social rates of return, giving a clear definition to the ambiguous term 'institution' for the first time. Daron Acemoglu, another representative scholar, introduces measurement tools and game models to political economic study, examining differences in economic performance under varying institutions. First, Acemoglu *et al.* (2001) studied European colonialism in the 17th century, concluding that the wide differences among former European colonies result from the different types of institutions and policies deployed by the colonisers. A second study (Acemoglu *et al.* 2002) cited additional examples demonstrating that political institutions are major determinants of per capita income in former colonies. To prove the universality of such institutional determinism, Acemoglu *et al*. (2005) then examined the reasons for the rise of Western European countries after the 16th century. Drawing on a wealth of statistics and empirical validation, they signalled the key relationship between the economic growth of Western Europe and the institutional changes brought by transatlantic trade.

Regarding the effect mechanism of institutional determinism, Acemoglu and Robinson (2000; 2006) hold that different political systems may influence economic growth via attitudes toward the introduction of technologies. Robert D. Kaplan (2000) conducted empirical analysis on nations undergoing institutional transition, concluding that the shift from a non-democratic system to democracy will improve economic efficiency. Rodrik and Wacziarg (2005) argue that better protection of private property and lower cost of market access will supply the keys to economic growth in a democratic society. In 2012, Acemoglu and Robinson elaborated on recent studies on institutional determinism, and improved and consolidated their theory in their masterpiece *Why Nations Fail*. In this work, they argue that economic and political institutions alike play a critical role in economic growth. While inclusive political and economic institutions boost economic growth, high-speed growth cannot sustain itself under extractive institutions, since they will prove unable to maintain an inclusive economic system in the long run. Compared to economic determinism, institutional determinism tries to answer which factors play a role in economic growth, but does not explain the reasons for institutional differences. In *Why Nations Fail,* Acemoglu and Robinson (2012) put forth the so-called 'institutional drift' hypothesis, which interprets initial formation of institutions as an external and random process. From North to Acemoglu and Robinson, from property theory to the influence of political and economic institutions, all these determinist approaches have centred on democratic politics. They believe that the Western democratic political system – due to its ability to use and allocate resources more efficiently, create incentives, and facilitate capital accumulation and technological advances – gives the best match for a market economy.

In reality, however, Argentina, Brazil, and other Latin American countries that have instituted democracies have fallen short of economic growth expectations, or even found themselves outright stuck in growth traps. Since the dawn of the twenty-first century, Iraq, Afghanistan, and other Middle Eastern countries have established post-war democracies, while Arab countries such as Tunisia, Egypt, and Libya have overthrown established authorities and elected new governments since the so-called Jasmine Revolution – only to find themselves

mired in political struggles, corruption, armed conflicts, and terrorist attacks. Western-style democracy does not restore economic prosperity in these countries. In contrast, many non-democratic East Asian economies have sustained rapid growth: Japan's beginning with the Meiji Restoration, and South Korea's taking off before the establishment of genuinely democratic institutions. When Taiwan first witnessed high-speed growth, the island had not yet put an election system in place. The era of Singapore's economic take-off, under the thumb of Lee Kuan Yew and his People's Action Party (PAP), in no sense resembles a genuine Western democracy. For nearly a century before the end of World War II, Japan had remained on the fast track without any fundamental change in its political institutions. Singapore still has the same political institutions as in Lee's time. It is worth mentioning that since 1978, China, the most populous country in the world, has sustained a nearly four decades of high-speed growth under its current political institutions, which do not follow Western democratic models. Thus, political institutions differing from Western democracy can also create long-term high-speed growth and economic prosperity; this indicates that the Western-style democratic framework and its political institutions may mask other underlying mechanisms with a more profound effect on economic growth.

Many researchers have explored these underlying causes in search of a deeper perspective on the economic role of institutions. North (1981) believes access to social organisations played a key role. Analysing degrees of access restriction, he differentiates between limited-access and open-access order in natural states, and proposes three 'doorstep' (threshold) conditions for transforming the former into latter: rule of law for elites, perpetual forms of organisations for elites (including the state itself), and political control of the military. But major questions remain about the means of meeting these conditions. Other scholars have emphasised the influence of the political order on economies; Huntington (1991) argues that political stability and order created a significant setting for economic and political progress. Additionally, North further proposes effective economic institutions as the key to growth, claiming that by creating political stability, they led to the rise of the Western world. Francis Fukuyama (1992) shares this view, arguing that liberal democracy might be the final stage of humankind's ideological evolution and the final form of human government, constituting the endpoint of history.

However, in recent years, Fukuyama has begun to admit the importance of effective nations, arguing that genuine political development means striking a balance between state-building, the rule of law, and democracy: state-building promotes economic growth through its monopoly over violence and by generating the neutrality and autonomy of bureaucratic organisations. We would argue that it is this lack of state-building that has led to failures in many African countries, as well as to the debt crisis in Greece and Italy. While wars, political reforms, and national identity can all enhance state-building, it does not follow that more state-building is better, as the case of fascism demonstrates (Boduszyski and Pickard 2013).

The foregoing theories have gone beyond the scope of discussions on electoral institutions *per se*, moving to a deeper level to explore the role of institutions in economies from the perspective of social access and social order, as well as political order stability.

Nonetheless, they do not explain how different institutions change into and influence one other dynamically; nor do they provide a convincing interpretation of the mechanisms through which institutional changes influence economies.

Take China, for example, where it becomes apparent that institutions have had a profound and fundamental influence on the economy that electoral arrangements cannot explain. The most populous country in the world, China has gone from dire poverty to a miracle of high-speed growth within nearly 40 years, with per capita GDP exceeding US$8,000.00.[1] An accumulation of studies on the 'China model' has witnessed more and more scholars turning to the institutional angle for answers. Nevertheless, two divergent views have emerged on the relation between Chinese institutions and economic growth. The more pessimistic view includes Acemoglu and Robinson (2012), who offer two interpretations for the Chinese economic miracle, arguing that it relies on *laissez-faire* and new classical economics on the one hand and wise state intervention on the other – not a fully convincing explanation, however, in the absence of a rigorous definition of terms. They hold that the institutional basis is critical for understanding economic development and growth, and yet defined Chinese political institutions as 'extractive' and unlikely to sustain such growth long-term. One might also cite Huang Yasheng (2008), who does not think that the so-called China model exists, because Chinese development benefits from reforms favouring a market economy, whereas a government-dominated economic model is an unsustainable one. Fukuyama (2011) argues that China's state capacity is an important condition of supporting economic development but that it comes with deficits in the rule of law and democracy.

By contrast, Justin Yifu Lin holds a more optimistic view, pointing out (2003; 2008) that a country's development strategies determine its institutional arrangements, which in the final analysis determine economic performance. Yao Yang (2009) proposes the concept of 'disinterested government' to interpret the China model, arguing that such a government has broad representation, does not favour any particular group of the population, sets the long-term welfare of the whole society as its priority, and can reject myopic demands for shorter-term distribution from certain groups – all of which position it well for adopting pro-growth institutions. Yao attributes this government 'neutrality' to social equality, but the hypothesis faces increasing challenges given the rising social inequality in China; nor does Yao analyse the mechanics of interaction between government institutions and economic development. Huang Shaoan (1997) points out that given that market forces and the government now pursue shared goals, China has achieved full transition to a market economy. Zhou Li-An (2007) further argues that the long-term breakneck economic growth has the official-selection system to thank. The competitive system gives officials incentives to actively push the economy, driving overall economic growth. However, these theories have not clarified the relations between governmental decisions and national strategic actions and institutions, nor do they explain how institutions come into being and change.

[1] Refer to www.stats.gov.cn/english/Statisticaldata/AnnualData/, the online database of National Bureau of Statistics (NBS) of China.

This paper provides a deeper exploration of how political institutions influence economies, drawing on the insights of the previous studies. We believe that such institutions have two principal ways of influencing economic growth. First, they create conditions for the society to act in unity. Second, they permit other economic actors to have ready access to markets. In the paper, we build an index of social cohesion through related economic and political data, incorporating concepts such as state efficiency, which serves as another dimension for measuring political features beyond the traditional democratic ones in the literature. We carry out econometric analysis, treating per capita GDP growth rate as the explained variable. The findings indicate that, in a series of robustness tests based on the benchmark model, democracy-related index variables produce little change, while social cohesion and economic accessibility variables exert actual influence on per capita GDP growth rate. In addition, we thoroughly investigate the interactive relation between economic accessibility (as the economic regime) and social cohesion (as a part of the political regime), and propose a new perspective on the pathway of institutional influence on economies – namely that social cohesion (rather than the level of political democracy) and accessibility are the core factors influencing economic growth.

3 Key concepts: an institutional analytic framework

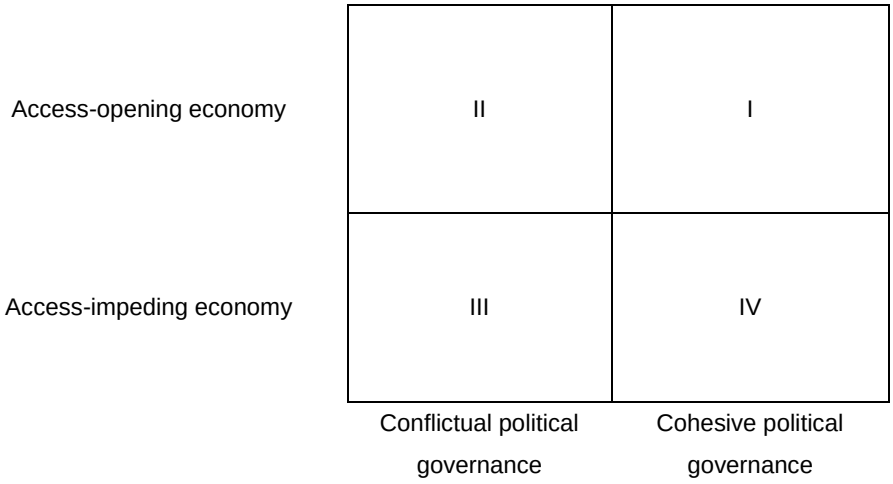
In line with the body of research literature cited above, we believe that institutions play a key role in economic development, and that a country's economic performance primarily depends on its political governance and economic institutions, as well as the interactions between the two. However, scholars have not reached an agreement on the definition of these institutions. Under our framework, political governance refers to the distribution structure and operational mechanism of political power in a state – a series of actual arrangements of power allocation among and within state political organisations. It also comprises power allocation and institutional arrangements in decision-making and the formulation and implementation of basic institutions and rules, which lie at the heart of political governance. Comparing with the literature about state capacity[2]such as Timothy Besley and Torsten Persson (2009, 2010, 2011), which focus on the outcome and mechanism of the state capacity, one can find the concept of political governance is broader and more fundamental. Economic institutions mainly refer to an array of institutional arrangements that determine the actions and incentives of economic bodies, with the possibility and convenience of voluntary access to economic opportunities as their core.

Specifically, we can classify political governance as either 'conflictual' or 'cohesive', based on whether or not it (a) permits a peaceful and stable social order to take shape, (b) can forge policy consensus, and (c) promotes collective actions. Fair accessibility to economic opportunities for different groups and regions allows us to classify economic institutions into

[2] One may refer to recent works about state capacity and its role in a country's development by Timothy Besley and Torsten Persson (2009; 2010; 2011).

two types, namely ‘access-opening’ and ‘access-impeding’. We build a basic institutional analytical framework (Figure 3.1) with political governance as the horizontal coordinate and economic institutions as the vertical coordinate. Through the four quadrants, we can assign most countries in the world to one of the four categories. Cohesive political governance and an access-opening economy are conducive to economic growth. A country with both in combination can better facilitate economic growth, and has the best chance of becoming rich. To put it another way, if a poor country wants to become wealthy, it should try its best to move towards cohesive political governance and continue to enhance economic accessibility.

Figure 3.1 An institutional framework for development



Source: Authors' own.

3.1 Different types of political governance and their evolution

3.1.1 Characteristics of two types of political governance

Cohesive political governance is a pattern of political governance that can maintain social stability and order, while allowing for compromise, the forging of consensus, and the advancement of collective actions, all within a certain structural distribution of political power. It possesses at least one of the following characteristics: (1) despite differences or conflicts among interest groups within a country, it can find effective mechanisms for compromise and consensus-building and translate them into practical collective actions; (2) no apparent exploitation and oppression exists among different groups; (3) the government has substantial capacity both to enforce rules and policies and to mobilise resources; (4) development is a priority, complete with incentives to create and accumulate new wealth and clear and consistent medium- to long-term development goals; and (5) the government has a legitimate and impartially-applied monopoly on violence.

Conflictual political governance refers to another pattern of governance, one that does not guarantee social order, wherein the society finds it difficult to make compromises and build consensus, and the structural distribution of political power does not favour collective actions. It possesses at least one of the following characteristics: (1) apparent conflicts exist among

different interest groups within the country, whose representative social organisations can barely reach consensus or take joint actions; (2) one group will tend to oppress or exploit the others; (3) the government lacks enforcement capability and is unable to mobilise resources; (4) the distribution of wealth and income inventory outweighs the creation and accumulation of new wealth, and the government lacks a clear and consistent medium- to long-term development goal; and (5) the government either fails to serve as a legitimate monopolist of violence or routinely abuses violence.

3.1.2 Evolution of political governance and its types

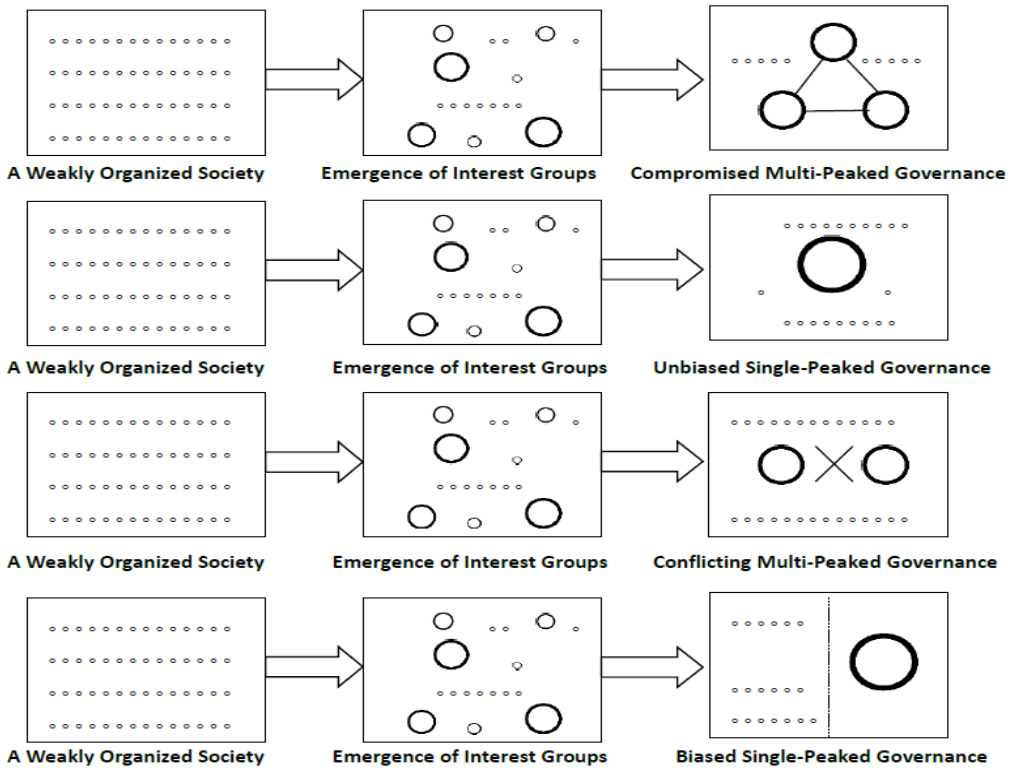
Political governance originates from the evolution of organised social structures. The basic form of organisation is the interest group, which may systematically represent political parties, religions, ethnicity, regions, cultures, and occupations, among other factions. Interest groups constitute a foundation for basic social governance structures, in which they play games, come into conflict with each other, make compromises and adjustments, and even rise and fall via political procedures such as elections. In many cases, the conflict and competition among interest groups give rise to four sub-types of political governance: Compromise-Oriented Multi-peaked Political Governance (COMMPG), Conflictual Multi-Peaked Political Governance (CONMPG), Unbiased Single-Peaked Political Governance (USPPG), and 3Biased Single-Peaked Political Governance (BSPPG). COMMPG and USPPG belong under cohesive political governance, while CONMPG and BSPPG fall into the conflicting category.

Multi-Peaked Political Governance or MPPG, which we might also term diversified political governance, sees no dominant interest group among the small number of 'winners,' but rather a temporary balance among winning interest groups in terms of capability and power. Two different situations may occur under the MPPG. First, two or more interest groups achieve victory, find an effective mechanism for compromise (a presidential or parliamentary system, for instance), and reach short-term agreement to take effective collective action, without noticeably exploiting any other particular interest group. This is called *Compromise-Oriented Multi-Peaked Political Governance (COMMPG).* The second situation is what we term *Conflictual Multi-Peaked Political Governance (CONMPG),* where the two or more winning interest groups fail to reach compromise or consensus, and find themselves stuck in long-term confrontation and conflicts. Even after they gain power to rule for a brief stint through election or suppression, they would adopt policies oppressing and exploiting adversaries. Interest groups may take turns in gaining an upper hand and perpetuating such policies, sowing seeds of further conflict in a vicious cycle.

If only one interest group wins the competition with an overwhelming advantage over other interest groups with inferior organisational capacity, we term this unitary or *Single-Peaked Political governance (SPPG)*. The rising single-peaked organisation may take one of two forms, according to which actions and interest-distribution mechanisms it deploys after coming to power. One is *unbiased SPPG (USPPG),* under which the dominant interest group adopts a tolerant attitude towards the previously competing and conflicting groups, and discards the myopic concept of interest groups and maximisation of short-term self-interest.

Instead, it takes a long view, weighs up the interests of other groups, and makes an effort to grow the economy with a view to winning support from more interest groups in the long run. Meanwhile, it employs an open policy for organisations of other groups. Policy implementation shows no obvious bias, but rather aims to benefit the majority of people. The winning party may reconcile divergence and conflicts among interest groups via an unbiased mode of conduct, so as to further strengthen support for its absolute advantage and ruling legitimacy. By contrast, under the *biased SPPG (BSPPG),* the dominant interest group adopts a retaliatory attitude towards those with whom it has competed or conflicted. It pursues the narrow interest of the group, exploits and oppresses other interest groups in an unfair way, redistributes social wealth and the spoils from others, or even suppresses and eradicates other organisations. Under these circumstances, the discrepancy among interest groups would not resolve itself, but would only grow wider or become subject to temporary control by the advantaged group.

Figure 3.2 Evolution of political governance and its types



Source: Authors' own

3.1.3 Cohesion: the key to high-quality political governance

Whether a country enacts an MPPG or SPPG depends upon the evolution of particular social structures in its history, which we deem an exogenous variable. However, the proactive acts and choices of (or among) ruling political groups will decide whether the MPPG evolves into COMMPG or CONMPG, the SPPG into USPPG or BSPPG, or whether the MPPG and SPPG morph into each other. This is directly related to political legitimacy and approval ratings, as well as the discount function of the long-term interests of political groups.

In Western politics, the legitimacy of the state and enforcement authority often becomes an important criterion for assessing political regimes; bolstered by the social contract and popular sovereignty theories, legitimacy also underpins approval rates. A government and political governance are legitimate and lawful if they reflect the majority of votes; otherwise they are illegal and unlawful. This equates majority rule with legitimacy in Western politics, with an emphasis on procedural legitimacy. This criterion is often used to deny the legitimacy of the SPPG, especially when its victory does not arise from voting – an occurrence dismissed as lacking legitimacy by Western political standards.

The emphasis on procedure may, however, mask other mechanisms through which a government may achieve legitimacy, whether under a Western-style democracy or another set of institutional arrangements. Following the insights of scholars such as Yao Dazhi (2011) and Yu Keping (2011), we would argue that political action should always strike a balance between legitimacy and effectiveness, and that most citizens share a strong interest in the latter – in other words, that performance and result, rather than policy or strategic choices, have the greatest impact on citizen perceptions of legitimacy.

We assume that whether governance takes the form of the MPPG or SPPG, the objective function of political groups is to obtain more legitimacy and higher approval ratings; however, they differ in how they seek to achieve this objective.

Under an MPPG, a political group might hypothetically win political power through legal yet questionable procedures, such as making unrealistic promises, forming political unions, or resorting to oppression. It might then leverage its ruling status to revise the constitution and political framework, or use the state apparatus for violence to suppress opponents and carry out policies that serve its own interests. The conflict among interest groups would then rise, undermining social stability and order, and economic accessibility would drop, thus hurting growth. There is an obvious conflict between procedural legitimacy and performance legitimacy. In the opposite scenario, a political group would garner as much support or as many votes as possible – working to win over median voters and political allies, responding to people's concerns – and then assume the driver's seat supported by legitimacy and high approval ratings under the existing political framework. During its administration, it would strive to find ways to compromise with opponents, adopt pro-growth policies, improve economic performance, and bring benefits to the majority (including the opponents), aligning procedural legitimacy with performance legitimacy. Many OECD countries fit into the second category.

An SPPG's legitimacy has little to do with votes, but rather stems from its actions and the real benefits it can bring to more citizens; in turn, they enjoy a better life and give more support to the government. The legitimacy is different and rests on the performance of political governance. The better the governance execution and the greater the number of beneficiaries, the more support the regime will enjoy. One does not have to be selfish to achieve one's own goal; one can be selfless and pursue self-interest in the same breath. As the Chinese philosopher Laozi once said;

> Heaven is long-enduring and earth continues long. The reason why heaven and earth are able to endure and continue thus long is because they do not live of, or for, themselves. This is how they are able to continue and endure. Therefore, the sage puts his own person last, and yet it is found in the foremost place; he treats his person as if it were foreign to him and yet that person is preserved. Is it not because he has no personal and private ends, that therefore such ends are realised?[3]
> (Chapter 7, *Tao Te Ching*)

There is a household story in China about a blind man holding a lantern as he walked at night. When asked why he bothered with a lantern, he replied that it was for those who were not blind. But before someone could salute his altruism, he added that he did it so that people walking past could see him and keep out of his way. While a single-peaked political organisation fundamentally seeks to pursue self-interest, it does not necessarily do so by taking selfish actions or by exploiting and suppressing other interest groups. The single-peaked interest group knows only too well that if it pursues selfish and biased actions, the accumulation of injustices will build to a point that prompts its opponents to rise up in frustration and rebellion, posing a threat to its dominant position.

In addition, the interest group does not itself remain static. In the course of economic and social development, there are winners and losers – some becoming either richer or poorer – causing corresponding changes to interest groups and representations. The dominant interest group must prove adaptable to such changes in order to maintain its advantage. Therefore, under the SPPG, if the advantaged interest group has enough vision and patience and considers the possibility of opponents emerging, it will choose unbiased ways to improve growth performance, with a view to gaining permanent support and performance legitimacy. In the meantime, it will keep the organisation open, giving newly-established elites and representatives of other interest groups access to the advantaged interest group, or channels to speak for their interest claims. If the ruling single-peaked interest group has neither patience (discount rate) nor confidence in long-term ruling, the odds are that it will slide towards biased governance, with the ruling group attempting to maximise its own short-term interest at the cost of other interest groups and of the state's long-term growth potential. This will obviously come at a heavy price. The ruling group will see the rise of opponents and the gradual fall of its political advantages, or a transition to a CONMPG.

Whether or not the ruling authority is elected, or takes the form of the MPPG or SPPG, has no defining effect on growth performance. The key is whether the political governance is cohesive. Both the COMMPG (established through legitimate voting) and the USPPG (implementing impartial policies with performance legitimacy) create favourable conditions for reaching compromise and consensus, facilitating collective actions, adopting pro-growth measures, and enhancing economic accessibility, thus taking a poor country to prosperity.

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[3] The original Chinese for this citation is '天长地久。天地所以能长且久者，以其不自生，故能长生。是以圣人后其身而身先，外其身而身存。非以其无私耶？故能成其私。'

An initially MPPG-style country should look to evolve into a COMMPG, while a country starting with the SPPG needs to work towards unbiased governance.

3.2 Different types of economic institutions and mechanisms

3.2.1 Two types of economic institutions and their characteristics

Under our framework, the *access-opening economy* enables relatively easy citizen access to all economic opportunities, through a series of institutional arrangements around the activities and incentives of economic bodies. The main features include the following: (1) people can move freely and face few or no occupational limits based on intrinsic factors (nationality, gender, region, family, and others); (2) a unified domestic market exists with free flows of capital, goods, labour, and other factors; invisible internal barriers (such as discrimination) are generally eradicated, and the nation possesses a complete and functional national transportation network; (3) an easy climate for entrepreneurship exists, with free access to high-growth areas and strong protection for property rights and contracts; and (4) the economy participates in the global division of labour, actively explores international markets, and opens itself to international know-how and technologies. All in all, the access-opening economy is conducive to economic activities, capital accumulation, market exploration, and technology investment.

The access-impeding economy has obvious institutional barriers: its arrangements around activities and incentives make it difficult for citizens to locate economic opportunities. It has the following features: (1) unequal access to economic opportunities, with some groups excluded or treated unfairly; (2) a fragmented domestic market, impeding the flow of factors, and an incomplete national transportation network; (3) barriers to starting businesses or moving to high-growth areas, with few guarantees for property rights protection and contract enforcement; and (4) lack of ability or willingness to take part in international divisions of labour, and high barriers in international trade and capital flow. Overall, the access-impeding economy has restraints and barriers to economic activities, and lacks incentives for endogenous growth, capital accumulation, and technology investment.

3.2.2 Economic accessibility and its mechanism

The industrial revolution has a close bearing on the modern phenomenon of economic growth. Over time, different debates have occurred on how to account for the endogenous growth mechanism. Overall, most scholars tend to believe that technological advances promote productivity and economic growth (Kuznets 1966; Rosenberg 1982; Mokyr 1990). The new classical growth theory attributes growth to capital accumulation (Solow 1956), subject to the law of diminishing marginal efficiency of capital, meaning that as capital intensity rises, economic growth would gradually slow down. However, this does not appear consistent with the phenomenon of accelerated growth as observed in developed countries such as the US and Germany (Romer 1986). To solve the problem, neo-growth theory has begun to introduce human capital and knowledge inventory into the model; it accounts for increasing returns to scale through the inventory externality of public knowledge, the spillover effect of innovative knowledge, the externality of human capital, and other factors. In other

words, once the economy has conducted more R&D – with concomitant accumulation of knowledge and human capital – the cost of further R&D will drop. Better returns to R&D spending can help economies continue to grow (Romer 1990; Helpman, Melitz, and Yeaple 2004).

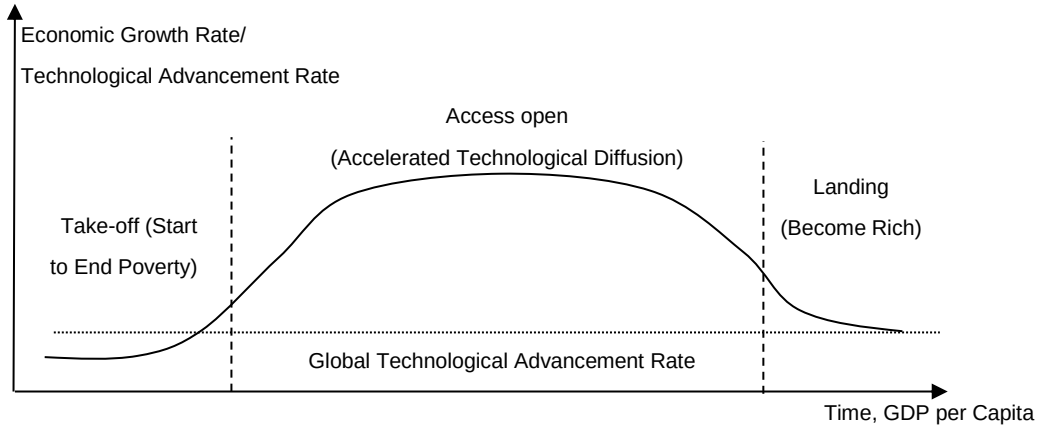
But this raises a new problem. Although the theory holds that knowledge inventory and R&D input determine economic growth, advanced economies that lead in R&D spending still see drops in productivity growth rates. The key issue in the so-called 'R&D difficulty' lies in the discrepancies in technological diffusion. Bronwyn Hall (2004) argued that the contribution of innovation and new technologies to economic growth depends to a large extent on the speed and scope of technological diffusion. In other words, advances in technology contribute to economic growth both through new technological inventions and the depth and width of their application and diffusion. Without sufficient diffusion, new technological advances would make few contributions to growth.

The global technology frontier arises from the knowledge accumulation and common expansion of all countries. As a matter of fact, developing countries – which invest very little in R&D – obtain most of their gains from the innovations of industrial countries. Advanced countries must innovate in order to extend the technology frontier, while less-developed countries garner productivity gains by catching up to it (Helpman *et al.* 2004; Caselli and Coleman 2000). Countries at different stages of development encounter different opportunities for technological progress, obviously seeing varying growth rates as a result. Most of the latecomers can leverage the favourable conditions supplied by a host of existing/older technologies, adopting and applying them instead of creating new ones.

Although wealth often seems a kind of absolute, in most cases it is a relative condition. Making a poor economy wealthy calls for technological advances, shifting the gears from a low-growth path to a relatively higher one, for a long enough period to create sustainability. Whether or not the latecomer can effectively adopt and rapidly diffuse the established technologies determines its growth performance. Economic accessibility plays a key role in the smooth adoption and diffusion of technologies.

The access-opening economy includes outward and inward accessibility. Outward accessibility manifests as an open economy that can draw on advanced technologies, know-how, and experience in the world; actively participate in the international division of labour; and explore global markets through trade and investment. Inward accessibility enables citizen access to economic growth, including the freedom to move, start a business, and locate a job, within an open environment that flows horizontally and vertically. A national unified market takes shape by ending fragmentation, via a transport network, tax arrangements, and other measures that permit free allocation of all sorts of production factors; these result in market access for every region and group in the country.

Figure 3.3 Growth path from poverty to prosperity



Source: Authors' own

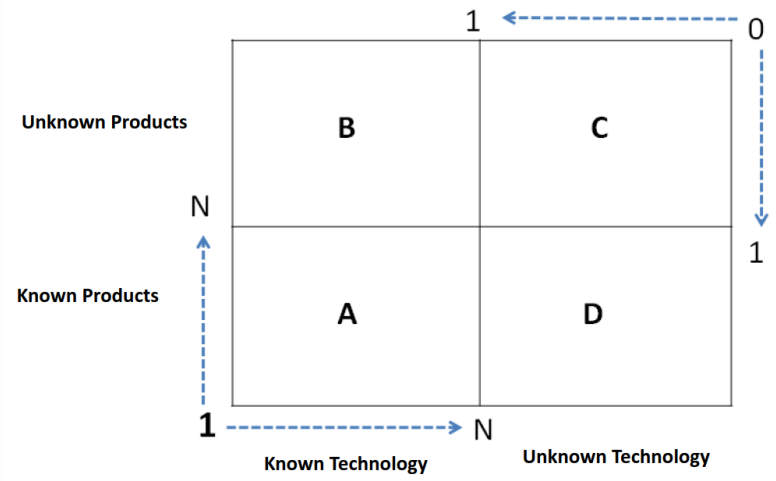
Based on the aforementioned features of open-access economy, Figure 3.3 shows the scale effects of a quickened pace in adopting and applying technologies, as they impact cost, allocation efficiency, and accelerated diffusion. To begin with, opening up enables a poor or backward country to imitate, learn from, and buy new technologies from other countries at a relatively low cost. For better returns, the country should push technology adoption and diffusion to a certain scale, bringing down cost through scale effects. A late-coming country that 'opens up' has recourse to an enormous foreign market, whose purchasing power is naturally far larger than its own domestic market. This established international purchasing power can make up for the shortage in the internal market, expanding the production scale of exports and channelling the capital into imports of both technologies and production material containing new technologies. More exports will provide more citizens with opportunities for economic participation and rising income, and so help grow the domestic market. As the export scale expands, import ability strengthens and the domestic market grows; thus the cost of adoption and diffusion of certain technologies will come down. There is no shortage of proof demonstrating that international trade and deeper division of labour have played a major part in accelerating diffusion of new technologies. Technologies developed since 1925 have had three times the speed of convergence of those developed before 1925 (Comin, Hobijn, and Rovito 2008).

Second, when inward economic accessibility improves, expanding exports and imports can facilitate a competitive domestic market. Those sectors and enterprises that adopt new technologies most efficiently will reap more profits. This creates a competitive environment for new technology adoption and thus raises the efficiency of resource allocation. Additionally, under a unified market, all sorts of groups across the board can have a share in adopting and applying new technologies. The more that competition fosters access to new technologies, the faster they will diffuse through the country. The competition pressure can generate a knock-on effect on industrial links or chains, such that the diffusion picks up momentum among enterprises and industries.

In addition, the outward and inward opening, especially the expanded production scale of new technologies, will increase direct labour force involvement in these sectors. The convergence of technologies will further accelerate through workers ‘learning by doing’, in addition to their conventional education. More importantly, as more enterprises and industrial sectors use the new technologies, the labour force will cluster in a notable way; this means that the urbanisation process of low-income countries will accelerate, which in turn will speed up the diffusion of know-how and technologies.

As shown in Figure 3.4, the optimal path for a poor (backward) country is not to create one from zero, but to use known technologies, creating more existing products, and sparing no effort in expanding its cost advantage – in other words, growing from one to N. The larger that N grows, the lower the cost of adopting and using known technologies. Moreover, in creating more existing products, domestic resources and the labour force will further flow into the new technological sectors, thus promoting technological progress and expanding the domestic market in the country. This is turn will introduce a virtuous interaction between outward and inward opening of access.

Figure 3.4 Technological path from poverty to prosperity



Source: Authors' own

The access-opening economy holds the key to economic prosperity. Only when the door opens can the country start on the path of economic growth. Political governance plays a key role in locating the door and creating the step-by-step ‘opening’ conditions, subject to the particular form it has taken (such as COMMPG or USPPG), and by taking effective collective actions. It is a gradual process, and not at all the case that the wider the opening, the better. Once the door opens, risks and attacks may follow. How fast and wide the door should open depends on whether the economy can maintain conciliatory political governance, social stability, and order. The economic achievements made through opening up tend to foster political consensus, which will further break down resistance and enhance economic accessibility. In general, outward opening should come earlier rather than later, and on a wider rather than narrower scale, to allow the domestic market and citizens access to economic opportunities; inward opening, meanwhile, should advance in a gradual and

orderly manner commensurate with the country's capability of managing risks. It is fair to conclude that the path to economic prosperity will see a poor country transitioning from an access-impeding economy to an access-opening one.

3.3 Interaction between political governance and economic institutions

Political groups further facilitate economic accessibility through political actions, such as legislation and policy adjustment, with a view to staying in power and maximising the returns for the interest groups they represent. To put it another way, promoting open economic accessibility is a basic means for political groups to obtain legitimacy and permanent support. As increased numbers benefit from the improved economic performance that accessibility promotes, this can raise both the ruling group's approval ratings and their potential for long-term governance.

Under the MPPG, in order to win more votes and longer terms, the group in power on the one hand reinforces the support from the interest groups it represents; on the other, it strives to garner support for its policies from median voters, and therefore broadens the numbers who benefit. This political need becomes a driving force for opening economic accessibility. The outcome of market competition leads to changes in relations among different interest groups, where some emerge as winners and others lose, or some benefit while others suffer losses. Such changing claims require representation, leading to competition among political parties vying for adjustments in both political and economic markets, and to interaction between the COMMPG and an access-opening economy.

Under the SPPG, patience for long-term governance, pressure from the rise of other adversary interest groups, performance legitimacy (approval ratings), and the openness of the dominant group constitute important conditions for steering towards unbiased SPPG. The discount coefficient of citizen patience for, or confidence in, long-term governance is not high. Facing the pressure of rising interest groups, the single-peaked group should ensure that there will be no serious deviation from the interests it represents. To obtain legitimacy, it must maximise efforts to win continued support from a greater number of people. Openness can guarantee a channel for elites and new interest groups to put forward their claims. The internal competition can ensure that the group stays clear of rigidness. Therefore, the legitimate pursuit of interests under the unbiased SPPG – and the openness and internal competition mechanism of the unbiased single-peaked group – enable changing interest groups and elites to express and reflect their interests, a phenomenon in harmony with the emergence of an access-open economy.

Political competition under the COMMPG is an externalisation of political market competition, while an open unbiased single-peaked group is an internalisation of political market competition. The preference for one over the other depends on the relative capacity for reaching political compromise and the relative cost of promoting collective actions. The lower the cost, the more economic growth will see the benefits.

Under this framework (Figure 3.1), most of the countries in the world fit into one of the four categories. Cohesive political governance and an access-opening economy are more conducive to economic growth. Countries with these characteristics have a better chance of continuing to grow their economies and becoming wealthy. Some additional conditions should also apply: (1) Continuous economic growth requires a society based on effective organisation. Neither anarchy nor a heap of loose sand can sustain growth; (2) An organised society has the means to achieve compromise, establish peaceful and stable social orders, and take collective actions to form cohesive political governance (such as the COMMPG and USSPG), thus providing incentives for economic growth; (3) The country should adopt an access-opening economy, gradually removing the obstacles to economic-factor and market access in an orderly fashion, with the speed and sequence suited to concrete national conditions; (4) Given that the markets of poor countries seldom function well and that no market can improve by itself, governments have a key role to play in establishing the market system, supporting its development, and upholding its order. The relation between the market and government does not rest on one replacing the other, nor one simply fixing the other's faults. The bigger the market and the more complicated the transactions, the stronger and bigger the government should be. The government and market help each other move forward. Sustained economic growth needs development-oriented and market-augmenting government; and (5) A mutually beneficial relation between market and political governance offers several development paths. For the path of Ⅲ→Ⅱ→Ⅰ, the country will prioritise enhanced economic accessibility, laying the economic groundwork for cohesive political governance. If the country puts cohesive political governance before economic reform with a view to promoting sustainable economic growth, it can choose the path of Ⅲ→Ⅳ→Ⅰ. In most cases, the country emphasises both cohesive political governance and enhanced economic accessibility in order to move towards the first type, i.e., the path of Ⅲ→Ⅲ/Ⅳ→Ⅰ.

4 The mode of China's growth under the framework

China's economic growth over the past four decades has always been viewed as a miracle; however, what has brought about this miracle remains a mystery, and numerous scholars have attempted to explain this mystery using various theories. Based on the analytical framework proposed above, we can summarise China's growth mode as follows: *After a difficult journey from the conflictual multi-peaked governance to the unbiased single-peaked governance, and a transition from an access-impeding economy to an access-opening economy, the combination of the unbiased single-peaked governance and an access-opening economy makes the high-speed growth of China over 40 years, leading the country from an impoverished country to a rich one gradually.*

4.1 Political governance: from multi-peaked to single-peaked

Looking back at China's political governance mode since 1911, we can identify two major trajectories from the complex historical changes. The first one is the continuous convergence

from multiple peaks to a single peak, and at the same time, it is also a winding process of moving from conflicts towards compromises. Under these two trajectories, we can divide China's political governance mode since 1911 into the following five stages.

4.1.1 Disintegration of autocratic monarchy and formation of a conflictual multi-peaked society (1911–1916)

With the outbreak of the Xinhai Revolution in 1911, the last Qing emperor abdicated, which marked the collapse of the last highly autocratic and centralised monarchy in China. Following a short period of conflicts and disintegration, a unified Republic of China was founded through the peace negotiation between the South and North, with Yuan Shikai maintaining the ostensible unity of China. However, after Yuan passed away in 1916, the Beiyang army fractured into competing factions, including Zhili clique and Anhui clique. Meanwhile, Shanxi, Guizhou, and Yunnan provinces were controlled by local warlords, and regional military skirmishes became frequent. Although the Beiyang government and the state were nominally under civilian control under a constitution, the Beiyang generals were effectively in charge of it, with various factions vying for power. In other words, the social structure of the autocratic monarchy had completely collapsed at this point, and a conflictual multi-peaked society was already in its rudimentary form in China.

4.1.2 A difficult journey from CONMPG to COMMPG (1916–1945)

Between 1916 and 1926, China manifested the quintessential characteristics of a conflictual multi-peaked society. There were continuous clashes among different interest groups, and they were unable to reach a common agreement, which made it even harder for them to take collective actions. Within the Peking Nationalist Government, there had always been two factions: the pro-Japanese faction led by Duan Qirui and the pro-US faction led by Li Yuanhong. The two factions had different agendas in a number of areas, and had an enormous disagreement on whether China should be involved in the First World War. On these issues, the two factions opposed each other and made no compromises, and collective decision-making was almost impossible. During this period, there were a number of conflicts and wars, including the National Protection War (1915–16), the Manchu Restoration[4] (1917), the war between Zhili and Anhui cliques (1920), the two wars between Zhili and Fengtian cliques (1922 and 1924), and Feng Yuxiang's coup in Beijing (1924). Besides, the united power of workers and peasants, represented by the Chinese Communist Party (CPC), had also emerged.

Before the Northern Expedition, Sun Yat-sen proposed the New Three Principles of the People, which advocated 'collaboration with the Soviet Union and collaboration with the Communists' and 'helping the workers and peasants'[5]. On the First National Congress of Kuomintang (KMT) in 1924, the first KMT-CPC Cooperation was established. In 1926, the Northern Expedition led by the Nationalist government started and many great progresses

[4] The Manchu Restoration of July 1917 was an attempt to restore monarchy in China by General Zhang Xun, whose army seized Beijing and briefly reinstalled the last emperor of the Qing dynasty, Puyi, to the throne. The restoration lasted only a few days, from July 1 to July 12, and was quickly reversed by Republican troops.

[5] It's a brief summary of the New Three Principles of the People, and was first seen in Chen Duxiu's Report on the Kuomintang Problem in 1926, two years after the Sun 's New Three Principles of the People

were achieved. In the first year, the Nationalist Revolutionary Army (NRA) annihilated many southern warlords, including Sun Chuanfang and Wu Peifu. On April 18th, 1927, the Nanjing Nationalist Government was established, and in July of the same year, the Wuhan Nationalist Government and Nanjing Nationalist Government were united. In 1928, the NRA defeated the Fengtian clique and took control of Beijing and Tianjin, which forced the Fengtian clique to retreat to the northeastern area. After the Huanggutun incident, the leader of the Fengtian clique, Zhang Xueliang, declared the allegiance of his Northeast Army to the Nationalist government in Nanjing. In 1930, Shanxi warlord Yan Xishan and northwest warlord Feng Yuxiang jointly fought against Chiang Kai-shek – that is the Central Plains War. The war ended with Chiang's final victory, and his ruling position was also established. Thus, the Nationalist government achieved the unification of China. Even though this unification did not substantially change the fact that the regional warlords were still relatively independent, and thus, the multi-peaked structure remained, the different interest groups now had a channel for negotiation under the leadership of the Nanjing Nationalist government, and the government was able to extend its actual mobilisation capacity to the whole nation.

Under the compromise-oriented multi-peaked structure, the Chinese social and economic development recovered rapidly. Between 1931 and 1936, the average industrial growth rate of China reached 9.3 per cent, and industries including transportation, telecommunication, and postal services developed quickly, with more than 20,000 kilometers of railroad and more than 80,000 kilometers of road constructed. During the period from 1927 to 1937, twelve flight courses were opened, with the total distance of over 15,000 kilometers. Education also witnessed great development between 1931 and 1937, with the number of primary school students increasing by 86 per cent and college students by 94 per cent. Meanwhile, the banking industry also demonstrated rapid growth. From 1928 to 1931, 23 new banks were opened in Shanghai. The total asset of the 28 major banks in China increased from 1.391 billion yuan in 1926 to 2.569 billion yuan in 1931.[6] In 1935, the Nationalist Government implemented a radical currency reform program – the legal currency must be used for all tax payments, public and private funds, and commercial transactions, while silver and silver coins were no longer acceptable. From the start of the reform program to the eve of the Lugou Bridge Incident (also known as the 'Marco Polo Bridge Incident') in 1937, the money supply kept growing steadily, the domestic price level remained stable and hence the purchasing power increased steadily. Moreover, people's saving kept accumulating, and investment in both industrial and agricultural sectors rose sharply. In addition, the stability in exchange rate also boosted international trade, with exports growing rapidly and the trade deficit shrinking drastically. In general, the national economy was showing promising momentums. During this period, although there are still many conflicting military and political interest groups, the Nanjing Nationalist Government achieved, to a certain extent, collective actions based on some consensus among different groups. The economic development was fair, and domestic conflicts were largely under control. The Chinese society demonstrated a brief trend of transitioning from a conflicting multi-peaked structure to a compromised multi-peaked structure.

[6] Refer to Feuerwerker, A. (1983). Economic trends, 1912–49. In J. Fairbank (Ed.), The Cambridge History of China (The Cambridge History of China, pp. 28-127). Cambridge: Cambridge University Press.

Objectively speaking, the outbreak of the Second Sino-Japanese War had significant impact on the formation of the consensus. On the one hand, the Japanese army invaded China from Manchuria to the South[7] and encountered great challenges before reaching the Yangzi river region. They destroyed the local military powers along their path of invasion, which challenged the multi-peaked structure in some sense. On the other hand, the collective desire to fight against the invader and protect the homeland helped to unite the domestic classes and powers. Many forms of cooperation, including the second KMT-CPC Cooperation and the United Front,[8] emerged. Although China was still in the war, it was moving towards the direction of social reconciliation. In 1945, the negotiation about founding a coalition government between the CPC and Kuomintang took place in Chongqing. Up to this point, a compromise-oriented multi-peaked structure was finally about to take shape in the war-damaged China.

4.1.3 Formation of a single-peaked society and efforts from biased governance to unbiased governance (1945–1957)

However, China did not continue on the path to a compromise-oriented multi-peaked society. The *Double Tenth Agreement*[9] between KMT and CPC was soon torn up, and from June 1946 onwards, violent military clashes started to break out in many regions, including Henan and Hubei provinces, which evolved into a full-scale civil war between the two parties. The People's Liberation Army led by the CPC gradually shifted from its early defensive strategy to a more aggressive one and achieved decisive victories in the three famous battles, and thus, achieved the unification of mainland China. After the Chinese Civil War between 1946 and 1949, the Communist regime was established in mainland China.

As the CPC founded the People's Central Government, the single-peaked governance mode became the main characteristic of political governance. After the founding of the People's Republic of China, the CPC created a highly centralised model of governance, including the Party, the Army, and the Government. Primary party organisations were set up inside the local governments, military units, and other organisations to lead these entities. Within the CPC, centralised decision-making was implemented through democratic centralism. Meanwhile, the grass-roots social structure was also adjusted during the subsequent socialist reforms. Through people's communes, production teams, and primary party organisations, the Communist government obtained the capability to mobilise people and resources across the whole country. As the political governance system where the CPC has the absolute authority was formed, a single-peaked political governance mode was also established gradually.

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7 In 1931, the Japanese army invaded Manchuria. The Chinese were defeated and Japan created a new puppet state, Manchukuo. Many historians and the PRC government cite 1931 as the beginning of the Second Sino-Japanese War.

8 The simplest formulation of United Front work in the early period was to 'rally as many allies as possible in order to... defeat a common enemy.'

9 The Double Tenth Agreement, formally known as the Summary of Conversations between the Representatives of the Kuomintang and the Communist Party of China, was an agreement between the Kuomintang and the Communist Party of China that was concluded on 10 October 1945, after 43 days of negotiations.

During the development of the single-peaked governance mode in the People's Republic of China, the CPC also underwent a transition from biased governance to unbiased governance. At the early stage of the CPC, the Party focused on the working and peasant classes and set its goal on overthrowing the landowners and the bourgeois class. The Party had relatively low tolerance for different classes and groups, and it is extremely biased. Fortunately, as the domestic circumstances changed, the CPC had kept adjusting its actual practices for self-development, emphasising the unification of different groups and the resolution of their conflicts, and promoting the formation of consensus for the realisation of common goals. Meanwhile, by setting up new primary party organisations and political commissars, the CPC was able to extend its influence to the grass-roots organisations and achieved strong mobilisation capability. During this stage, the CPC demonstrated the characteristic of transitioning from a biased party to an unbiased party. After the first Chinese People's Political Consultative Conference in 1949,[10] this unbiasedness became increasingly evident. The first article of the Common Program of the Chinese People's Political Consultative Conference dictates that;

The People's Republic of China is a New Democratic or a People's Democratic state. It carries out the people's democratic dictatorship led by the working class, based on the alliance of workers and peasants, through uniting all democratic classes and all ethnic groups in China. It opposes imperialism, feudalism and bureaucratic capitalism and strives for independence, democracy, peace, unity, prosperity and strength of China.[11]
To some extent, one can see the CPC's vision of building an unbiased governance mode from this article.

After the CPC stabilised the internal political power, the government began to push forward the 'three transformations' to reform the existing private ownership in agriculture, handicraft business, and capitalist industrial and commercial sectors. Since the reforms involved the most basic property right issues, conflicts and clashes were inevitable. However, through effective internal negotiations and reasonable arrangements, the government adopted a series of transitional policies, including agricultural cooperation and asset buyout. With the tremendous mobilisation capability, the 'three transformations' were completed in just three years. On the 8th National Congress of the CPC in 1956, it was pointed out that;

> as the socialist system has been basically established in China, the principal contradiction within the country was no longer the contradiction between the proletariat and the bourgeoisie but the one resulted from the need of the people for rapid economic and cultural development which fell short of their requirements. The chief task confronting the entire nation was to concentrate all efforts on developing the productive

[10] In 1949, with the Communist Party having gained control of most of mainland China, they organised a 'new' Political Consultative Conference in September, inviting delegates from various friendly parties to attend and discuss the establishment of a new state. This conference was then renamed the People's Political Consultative Conference. The first conference approved the Common Program, which served as the de facto Constitution for the next five years. The conference approved the new national anthem, flag, capital city, and state name, and elected the first government of the People's Republic of China. In effect, the first People's Political Consultative Conference served as a constitutional convention.

[11] It was seen in Common Program of the Chinese People's Political Consultative Conference, the version we used here is from *The CPC Central Committee's Suggestions on Revising Part of the Constitution,* China Legal Publishing House, 2004, p110.

forces, industrializing the country and gradually meeting the people's growing economic and cultural needs.
(Source: http://english.cpc.people.com.cn/206972/206981/8188361.html)

Evidently, economic development had replaced class struggles and became the focal point in the work of the Party and the nation. In 1957, China's First Five-Year Plan (1953–57) was completed in advance, with a complete industrial system built up and the nation's economy growing rapidly.

Up to this point, the democratic consultation and democratic centralism supported the political inclusiveness, the ruling party had a strong ability to mobilise resources, the government was participating in social and economic development actively, with clear goals and plans, and there was no serious discrimination or deprivation among different sectors of the society. All in all, under the leadership of the CPC, the People's Republic of China had begun to have the embryonic form of an unbiased single-peak governance.

4.1.4 Interruption of the unbiased single-peaked governance and development of biased governance (1957–1978)

The progress of China's unbiased single-peaked governance did not last long. In 1957, the Anti-Rightist Movement started and soon escalated, and the prevention of the restoration of the bourgeois class became the main task. The escalation of the movement made class struggle the focal point of political work. Based on the comprehensive and detailed reviews and statistics following the Third Plenary Session of the 11th CPC Central Committee shows that there were about 550,000 people labeled as rightists, and they suffered various types of discrimination within their organisations. They were deprived of many opportunities including education and employment, and oftentimes, their personal safety and their property ownership were also threatened. In addition, their family, friends and offspring were also affected. At this point, the CPC's policy returned to focusing on class struggle, and the conflicts among different social groups kept escalating. Due to the class struggle, China's unbiased single-peaked governance shifted towards biased singled-peaked governance. Since the escalation of the anti-rightist movement, CPC's internal thinking became increasingly leftist, and eventually led to the Socialist Education Movement[12] and the Cultural Revolution.

Guided by the philosophy about 'continuing the revolution under the dictatorship of the proletariat', the Cultural Revolution primarily targeted at the 'persons in power within the party taking the capitalist road' (for short, 'capitalist-roaders') and the 'bourgeois reactionary academic authority', and promoted the 'great political revolution of one class overthrowing another'. The Cultural Revolution, which lasted from 1966 to 1976, brought about disastrous damage to the nation's development and people's life. In the context of class struggle, the target of the dictatorship of the proletariat was continuously expanding, and social

[12] The Socialist Education Movement, also known as the Four Cleanups Movement, was a movement launched by Mao Zedong in 1963 in the People's Republic of China. The goal of the movement was to cleanse politics, economy, organisation, and ideology (the four cleanups).

discrimination and suppression were unnecessarily deepened, with numerous party members, intellectuals, scientists, and cultural workers persecuted. Moreover, the government almost became paralysed, and the nation's legislation and judiciary were greatly impacted. According to statistics (Wang 2009), 75 per cent of the central and national officials above the vice-ministerial class plus the local and provincial senior officials were investigated, including Liu Shaoqi, Peng Dehuai, Chen Yi, He Long, Tao Zhu, and Luo Ruiqing, all of whom suffered a lot and even paid their lives. During the decade of chaos, the total number of people who suffered persecution exceeded 100 million (Ye 1978).[13] The Cultural Revolution also caused serious damage to the nation's economy. As Li Xiannian released on the National Planning Conference held in December 1979,[14] the loss of national income caused by the Cultural Revolution during the 10 years was estimated to amount to 500 billion yuan, which is equivalent to 80 per cent of the total amount of infrastructure investment over the 30 years since the founding of People's Republic of China, and exceeds the total of national fixed assets over the same 30 years. The emergence of the biased single-peaked social structure disrupted the development process under the unbiased single-peaked governance after the Korean War.

4.1.5 The restart and recent development of the unbiased single-peaked governance in China (since 1978)

The Third Plenary Session of the 11th CPC Central Committee was held in December 1978, and it symbolised the restart of unbiased single-peaked governance, after two decades of biased governance. After the meeting, the CPC brought things back to order from the chaotic Cultural Revolution and returned to their original ideological, political, and organisational lines – the wrongfully convicted 'rightists' got vindicated, and the party and the government shifted their focus from class struggle to economic development. More importantly, various social sectors reached a consensus on the series of challenges and social issues that China was faced with – the biased line resulting from political discrimination and lack of coordination was abandoned, and more social groups were absorbed to serve for the nation's development.

Firstly, the dynamics of the number and composition of the CPC members indicate evidently that the CPC has been developing along two directions – greater openness and wider social representativeness. When the CPC was first established in 1921, there were only 53 members. The number reached 4.448 million when the People's Republic of China was founded in 1949. By the end of 2016, the number has reached 89.447 million.[15] As for the composition, at the early stage of the CPC, most members were workers. For instance, there were 57,967 party members in 1927, and 50.8 per cent of them were workers, with 18.7 per cent peasants, 19.1 per cent intellectuals, 3.1 per cent military personnel, 0.5 per cent small and medium business owners, and the rest 7.8 per cent. However, as the Great Revolution

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13 Ye Jianying stated on the Closing Meeting of the Central Work Conference on 31 December 1978, that 'more than 100 million people suffered, including those who were implicated, and it is one-ninth of China's total population. This is a very painful lesson.'

14 Li Xiannian's speech on the National Planning Conference, 20 December 1979. Li Xiannian Selected Works, People's Publishing House,1989, pp.395-409.

15 Data sources: http://en.people.cn/n3/2017/0630/c90000-9235562.html, Organization Department of the CPC Central Committee.

in 1927 failed, the CPC was forced to find its roots in the rural areas, and the majority of the party members became peasants during the land reform era. When the 6th National Congress of the CPC was held in 1928, peasants made up 76.6 per cent of the more than 40,000 party members while the workers' percentage dropped to 10 per cent. The percentage of workers fell to as low as 1.6 per cent in 1930. This composition where peasants made up the majority remained until the founding of the People's Republic of China. During the Sino-Japanese War and the Chinese Civil War, military party members became the second largest category, with the percentage of military party members reaching 24 per cent in 1949. After the People's Republic of China was founded, the percentage of workers in the party gradually rose up, and it reached 8.8 per cent in 1956. Since China's reform and opening-up, the composition of the CPC members became more diversified, with a great number of intellectuals, professionals, and private enterprises absorbed into the party. Elites from the newly emerged economic and social organisations were also recruited into the Party. According to the latest statistics[16] at the end of 2016, out of the 89.447 million party members, workers account for 7.9 per cent, peasants 29.0 per cent, business owners and employees 25.2 per cent, government officials 8.5 per cent, retired personnel 18.9 per cent, and students and other occupations 10.5 per cent. In terms of gender structure, 25.7 per cent of the members are female. In addition, 7.0 per cent of the 89.447 million members come from minority ethnic groups. Among the non-public sector enterprises, 67.9 per cent of them had established primary party organisations. Out of the 4.518 million primary party organisations in the CPC, 41 per cent, or 1.855 million, were established by non-public sector enterprises. It is evident that the CPC has moved gradually from only representing certain class or groups during its early days to representing the collective interests of the society.

Secondly, the evolution of the party's governance philosophy indicates that the CPC, at the centre of the single-peaked governance, has also shifted gradually from being biased to being unbiased. On June 27, 1981, the 6th Plenary Session of the 11th CPC Central Committee passed the *Resolution on Certain Questions in the History of our Party since the Founding of the People's Republic of China*. This marked the Chinese government, led by the CPC, was comprehensively correcting their deviated political governance. The 13th National Congress of CPC in 1987 put forward the basic line of the Party for the primary stage of socialism, that is;

> to lead the people of all ethnic groups in a concerted, self-reliant and pioneering effort to turn China into a prosperous, strong, democratic, culturally advanced and harmonious modern socialist country by making economic development the central task while upholding the Four Cardinal Principles and the reform and opening up policy.[17]
> (CPC Central Literature Research Office 1991)

[16] Data sources: Same as above.

[17] CPC Central Literature Research Office, Follow the path of socialism with Chinese characteristics (Zhao Ziyang's Speech in 1987) , Selection of important documents since the 13th National Congress, 1991, People's Publishing House, p59.

This further established the Party's political inclination towards unbiased development. In 1992, Deng Xiaoping proposed the 'Three Favorable Circumstances' during his southern tour, and made 'how it benefits development of the productive forces in China's socialist society, adds to the overall strength of socialist China and improves the people's living standards' as the general starting point and criterion for judging all the Party's work. The 'Three Favorable Circumstances' cleared people's doubts about whether the Chinese society is a capitalist one or socialist one, and it re-focused the society's attention onto economic development. As a result, more social resources and forces were mobilised. In 2000, Jiang Zemin proposed the important thought of 'Three Represents' during an inspection tour in Maoming, Guangdong province, that is, 'the Communist Party of China should always be representative to advanced social productive forces, advanced culture, and the interests of the overwhelming majority.'[18] The 'Three Represents' expanded the representativeness of the CPC by a further step and united social forces in a greater range. In 2003, Hu Jintao proposed the 'Scientific Outlook on Development', which set 'comprehensive, balanced and sustainable development' as the goal and gave priority to 'people-oriented' governance. This is the continuation of the CPC's efforts on the path of unbiased governance. In 2012, Xi Jinping, general secretary of the Central Committee of the CPC, proposed the 'Chinese Dream', and he defined it as 'the great rejuvenation of the Chinese nation', which is 'the greatest dream of the Chinese people in the recent history of China'. Furthermore, Xi interpreted it as 'the common dream of 1.4 billion of Chinese people', which further emphasised the importance of putting people at the centre of the nation's development.

According to both the dynamics of the composition of the CPC members and the evolution of the party's governance philosophy since the reforms and opening-up, one can find that the CPC has realised the primary transition from biased single-peaked governance to unbiased single-peaked governance. And this kind of unbiased single-peaked governance has become an important consensus for political and social governance. During this period of four decades of reforms and opening-up, China witnessed the significant effects of the political governance transition from being biased towards being unbiased, with rapid social and economic development. Through the unbiased single-peaked governance, the CPC devoted more social forces and resources into the process of economic development, and the reforms benefited all social groups, which generated greater public support to the Communist government, facilitated collective social decision-making, and prompted collective actions. Moreover, China's social inclusiveness grew continuously, and the government's policies benefited more and more people, which help to accumulate strength for further reforms. At the same time, coordination and conflict resolution mechanisms are playing their important roles under the current political system, and the government still has the capability to push collective actions and mobilise resources effectively. In 2016, China's per capita GDP exceeded 8,000 US dollars (current price) and 13,000 Geary-Khamis dollars in purchasing

[18] The formal statement of the theory is: 'This experience and the historical experiences gained by the Party since its founding can be summarised as follows: Our Party must always represent the requirements for developing China's advanced productive forces, the orientation of China's advanced culture and the fundamental interests of the overwhelming majority of the Chinese people. These are the inexorable requirements for maintaining and developing socialism, and the logical conclusion our Party has reached through hard exploration and great praxis.' (Source: Jiang Zemin's work report at the 16th CPC Congress, 8 November 2002)

power parity (PPP) terms, showing that China is moving towards a high-income country from a middle-income country.

Through revisiting the dynamics of China's political governance over the past century, one can see two main trajectories vividly: one is the evolution from a multi-peaked mode to a singled-peaked mode and the second is the difficult journey from a conflictual mode to a compromise-oriented mode. Putting the historical background and details aside, we can find that China's evolution from multi-peaked governance to single-peaked governance is consistent with China's political and cultural traditions as well as Chinese people's national identity over the past two thousand years. It is also closely connected to the desire for unification, which is full of national sentiment and native land emotion. In this sense, this trajectory is filled with the features of oriental political civilisation, and this may differ across different countries and nations in the world. However, the journey from conflict to compromise is more about human's desire for stability and order, hope of communication, and internal longing for changing the world and creating better lives. The pursuit of a compromise-oriented society radiates the light of humanity, and it should be the universal value for all races, regions, and nations.

4.2 From an access-impeding economy to an access-opening one

China's economic take-off started from the reforms and opening-up, coupled with the transition from a planned economy to a market economy. Theoretically, the planned economy does not conflict with the access-opening economy. If there is sufficient information, the planned economy can allocate resources efficiently and ensure the accessibility to external economies, internal markets, and various groups. However, there is no such central planner with complete information in reality, and therefore it is difficult to allocate capital to the most effective productions, allocate workers to the most appropriate job positions, or find the optimal proportions and relationships in the economic structure. Thus, in practice, the planned economy would inevitably be faced with hindrance to economic access, and this would lead to low economic operation efficiency, distorted proportions, and shortage of supply. The planned economy based on the public ownership of factors of production denies commodity economy, market, private ownership, and price mechanism. China's transition from a planned economy to a market economy is essentially the process of the re-opening economic access to individuals, enterprises, and domestic and international markets. One can follow the four clues below to examine the transition.

4.2.1 From the people's commune to the household-responsibility system: economic access to peasants was opened

Soon after its founding, the People's Republic of China launched a series of socialist reforms through taking the Soviet Union as a model. In 1957, China began to adopt the collective economic system, where the people's commune and government were integrated. Under this system, the nation monopolised the purchase and sale of agricultural products, and the farmers had no autonomy during the production. Moreover, a fixed work-rewarding regime, called the 'work-point regime', was adopted in most places – people got rewarded based on the number of work points, which is calculated based on the number of working days, age,

gender, and other factors. In general, people of similar ages and of the same gender received the same work-point standard – each working day represents a fixed amount of work points. Hence, this rewarding regime could not serve as an effective incentive mechanism to the members of the commune (peasant households), which made it hard to increase agricultural productivity. In addition, the people's commune system was essentially a typical dualistic social structure with a division between the urban and the rural areas. Due to the restrictions of the household registration system, the food coupon system, and the food ration system, the peasants completely lost their right to freely allocate their wealth and labour (Wu 2003). The people's commune and the production teams decided what to produce, how much to produce, and how to produce. The peasants had no freedom of mobility, since visiting other cooperatives, shopping in the cities, and even visiting relatives and friends required some approval, referred to as an introduction letter, which needed to be approved by the officials of the village or the commune. Under this circumstance, economic accessibility was greatly impeded.

In fact, many people saw the disadvantages of the people's commune system when the system was first implemented. Some villages in Zhejiang, Anhui, and Sichuan provinces volunteered to introduce measures such as 'household contract system', under which peasants were paid or rewarded based on their total production. However, during the 'anti-rightist movement' and the escalation of the movement, these measures to liberate productivity were banned. Until the end of the Cultural Revolution, 18 households in Xiaogang village, Fengyang County, Anhui Province, took risk and signed a contract with local cadres in November 1978. The cadres secretly allowed farmers to produce by household and if the cadres were punished for this, the farmers agree to take care of the families of the cadres. And the secret experiment proved very successful. Unlike previously, and especially after the Third Plenary Session of the 11th CPC Central Committee in 1978, the political trends had changed, and the local and central officials held a more supportive attitude towards those measures. In 1979 similar experiments began in Sichuan and Anhui provinces, both seeing dramatic increases in agricultural productivity. Deng Xiaoping openly praised these experiments in 1980, and the Household-Responsibility System was adopted nationwide soon, and the system of collective operation and allocation by the production teams was abolished. The Household-Responsibility System, or the 'big contract system', has become the basic economic system for rural China. Through reforming the rural economic system, the transition from people's commune to the Household-Responsibility System was realised. The freedom of production and mobility was returned to the peasants while the collective economy was reserved. This released the farmers' enthusiasm greatly, and it resulted in increases in both agricultural income and agricultural productivity. And it also helped to improve the peasants' living standards. Moreover, this also created the conditions for maintaining the overall stability of the rural society and for peasants' participation in non-agricultural production with abundant agricultural labour freed up.

4.2.2 From class exploitation to entrepreneurial spirit: access to entrepreneurs was opened gradually

During the Cultural Revolution, to alleviate urban employment pressure and cultivate the revolutionary spirits in the rural areas, many educated youths responded to the call of Chairman Mao, and 'went to the villages to receive re-education from the poor and lower-middle peasants'. The movement of educated youth 'to go and work in the countryside or mountain areas' distributed the urban employment pressure to a large number of villages. When the Cultural Revolution ended, around 20 million 'sent-down' educated youths returned to the cities and exerted tremendous pressure to cities without supporting industries. The large amount of unemployed youths imposed great pressure to social stability, and the government was forced to gradually open up individual industrial and commercial units as well as private enterprises so as to allow the unemployed youths to find their own ways of survival. The market economy began to grow in the corner of the state economy and the collective economy. The youths who started their own business at that time became China's first batch of entrepreneurs. Meanwhile, with the promotion of the Household-Responsibility System in the rural areas, the people's communes were dismissed, and many previous commune officials considered their original commune enterprises as a good place to stay (Coase 2012), and this gave birth to the township and village enterprises under the rural collective economic system. In 1978, more than 28 million peasants, about 9.5 per cent of the total rural workforce, worked in township and village enterprises that were converted from previous commune enterprises (Wu 1999). These township and village enterprises have some natural advantages over the state-owned enterprises (SOEs). For instance, they were overlooked by the governments, and thus received little intervention from bureaucratic agencies. These enterprises were not included in the nation's industrial production plans, and they were able to determine the use of their profits. In this sense, the township and village enterprises were market-oriented from the very beginning. Additionally, most of employees in these enterprises were farmers from nearby villages, particularly the surplus labour forces freed up by the Household-Responsibility System, and thus, hiring and firing were rather flexible. The performance-based rewarding system, including bonuses and wage rates, was adopted by the township and village enterprises at a very early stage.

Moreover, due to the heavy industry-centred policies, the light manufacturing industries were neglected, and there was a continuous shortage of light manufacturing products. The township and village enterprises, limited by their capital and technology, targeted at this shortage from the beginning, and produced goods according to the market demand. These factors stimulated the rapid development of the township and village enterprises, and these enterprises accounted for 26 per cent of China's GDP at their peak in 1996, 56.1 per cent of gross industrial output, and employed around 135 million people (Lin Yifu and Yao 2001; Naughton 2007). More than 80 per cent of these township and village enterprises later became private enterprises.

As Deng Xiaoping once said, 'Among the rural reforms, what we achieved totally unexpected is the development of the township and village enterprises. All in a sudden, we have got many types of sectors committed to commodity economy and many different types of small

enterprises. The unexpected emergence of these new forces cannot be credited to the central government.' It is true that the unexpected fast growth of the individual economy, the private economy, and the township and village enterprises was not a result of the design of China's government system, but the overall open-minded attitudes of the government towards these new economic bodies, in some sense, was an attempt to open the economic access to private entrepreneurs. The unexpected development encouraged the subsequent rapid growth of China's entrepreneurship. In turn, the great vitality of the private enterprises and the township and village enterprises further enhanced China's determination and confidence to reform and expand its economic access. For instance, the reform of 'decentralisation of power and transfer of profits' was also implemented within the state-owned enterprises, and the job position allocation regime for college and university students was also reformed to a self-choice regime. All of these reforms helped to open up wider access to various economic participants.

4.2.3 From an inward economy to an export-oriented economy: the access to international markets was opened

After the Cultural Revolution, the Cold War mind-set was shattered, and China gradually opened its long-shut door to the international society. In 1978, China dispatched many a high-level government representative groups, including a group of 13 vice-premier level officials paying 20 visits to nearly 50 countries in Eastern Europe, Japan, Hong Kong, and Western Europe. The visits greatly broadened the vision of the Chinese people. Among the visits, the delegation to Western Europe led by Vice-Premier Gu Mu from May 2nd to June 6th had the greatest impact. The report by this delegation pointed out that a more flexible payment method is required to attract foreign technology and equipment on a great scale. Local governments and ministries should be given greater authority in the area of foreign trade. China needs to implement an industrial revolution guided by latest science and technology through enhancing international communication about technology, such as sending as many exchange students to study abroad as possible. This report received the support from many retired senior leaders such as Ye Jianying and Nie Rongzhen as well as Deng Xiaoping. When talking about the historical status of these delegations, Ezra Feivel Vogel (2011) regarded them equally as that of the Iwakura Mission in 1871 during Japan's Meiji Restoration. The most significant effect of these intensive delegations was to let the decision-making body of China see the discrepancy between China's development and the outside world, the huge potential in learning from the West, and the urgency to accelerate China's opening-up. At the Meeting of the State Council on Theoretical Matters in 1978, the Chinese government announced that China could no longer maintain its isolated economy but must utilise the favourable conditions to attract foreign technology, equipment, capital, and management experiences to accelerate the development of China and push the economy into a new era of opening-up. Shortly after the Third Plenary Session of the 11th CPC Central Committee, the State Council approved the establishment of the Shekou Industrial Zone in January 1979. In July of the same year, the Central Committee of CPC and the State Council jointly approved setting up 'Special Economic Zones (SEZs)'. In August 1980, the National People's Congress passed the Regulations of Guangdong Special Economic Zones. China's access to the international market was opened rapidly.

Through opening up, setting up SEZs, stimulating international trade, and actively attracting foreign capital, the domestic market and the global market got connected promptly. These kinds of production activities which aimed at the global market created many employment opportunities in the urban areas, and this absorbed more labour forces liberated from the rural areas, which resulted in huge population influx into cities. Furthermore, the huge amount of exports brought about more foreign reserves and could provide sufficient funding for importing more advanced technology from abroad. In terms of goods categories, China was exporting low-end consumer goods, raw materials, and primary processed products and importing productive materials that contained more advanced technology. During this process, imports had a very significant impact on productivity and technological advancement. Lawrence (1999) discovered similar circumstances while studying the experience of Japan, Korea, and the US.

To sum up, China's opening-up process had five aspects of effects on the economy: accelerating the absorption and distribution of technology, maintaining the general balance of trade, learning the experience and knowledge of the global market, promoting the population aggregation, and facilitating the growth of the domestic market. Besides, through participating in the international production, both the entrepreneurs and the workers of China achieved significant improvement under the mechanism of 'learning by doing'.

4.2.4 From segmented markets to a unified market: the access to the domestic market was opened

In the central-planned economy, all economic activities follow the nation's central plan, like moves in a chess game. However, due to incomplete information, the government's intervention to the economy seems too much and too rigid and the central planning suffered from the significant problem of low efficiency. Thus, even though China had been continuously exploring the practices of centralisation and decentralisation of power, the economy was still faced with the dilemma that 'centralisation causes inflexibility, but chaos follow decentralisation'[19]. After the Cultural Revolution, the Chinese government realised the disadvantages of the highly-centralised planning and launched another round of decentralisation-oriented reforms along two dimensions – one is the administrative decentralisation, giving the power of making administrative decisions to local governments, and the other is the economic decentralisation, giving the power of making economic decisions to the production units or the enterprises (Schurmann 1966; Wu 1991). The decentralisation-oriented reforms effectively mobilised the enthusiasm of the local governments and enterprises and liberated great vitality.

However, local protectionism began to emerge during the process of decentralisation for several reasons. One was that many provinces had relatively independent and self-supporting industrial foundation that was established during the Third Front Movement[20]

[19] A traditional Chinese saying means that there is always some problem whichever way you choose.

[20] The Third Front Movement (Chinese: 三线建设) was a massive industrial development by China in its interior starting in 1964. It involved large-scale investment in national defence, technology, basic industries (including manufacturing, mining, metal, and electricity), transportation, and other infrastructure investments.

during the 1960s and 1970s. Another is that the 'fiscal contracting system' adopted during the reforms and the economic decentralisation to the SOEs gave the local governments and the SOEs more incentives to earn more revenues and profits. There used to be severe regional mutual blockade and market segmentation in the mid-1980s – the local governments took a number of measures to protect local enterprises and economic activities, for instance, through charging additional permission fees and taxes to external enterprises. This gave rise to the so-called 'duke economy', which significantly obstructed the formation of a nationwide integrated market.

To solve the problem of market fragmentation, the central government adopted a series of reforms and made various strategic compromises so that the enthusiasm of local governments could be maintained. The most representative actions include building a nationwide infrastructure network, establishing a fiscal framework based on the tax-sharing system,[21] and adopting the economic-development-oriented promotion appraisals for local government officials. There is a Chinese saying that 'if you want to be rich, you must build roads first'. In 1980s, China proposed the strategy to develop expressways and adopted many financing innovations such as franchising operation and build-operate-transfer (BOT). In 1988, the expressway from Shanghai to Jiading, the first in the mainland of China, was built and opened to traffic; in 1992, the national expressway plan of 'five longitudinal and seven horizontal' was set up and implemented in China; and by the end of 2016, the total length of expressway in China had exceeded 130,000 kilometres.

Other infrastructures such as railways, communication, and energy also witness similar development. Many studies have found that the infrastructure and network can lower down the production cost and transportation cost significantly and can contribute to the growth of local economy positively (Zheng, Zhou and He 2014; Zhang 2012). The introduction of the tax-sharing system maintained part of the vested interest of the local governments through tax rebates (for every 1 CNY growth in VAT and consumption tax, the central government returns 30 per cent of the incremental amount to the local governments), and the clarification about the rule for tax transfer won the support of the relatively poorer provinces. Thus, the central and local governments achieved common interests through sharing the main types of taxes (VAT and the later enterprise income tax). This reform not only strengthened the central government's capabilities of tax centralisation and balancing regional financial resources, but also approximately clarified the respective financial and administrative responsibilities of the central and local governments. Besides, it also helped to build the foundation for clearing extra-budgetary revenues and standardising various administrative fees that functioned as barriers to entry. In some sense, the fiscal reforms also helped to strengthen the competition among different regions. In the promotion tournament of local officials, economic growth became a major criterion of evaluation for the central government (Zhang 2000). Government officials competed against each other in attracting investments and developing the local economy through improving infrastructure, connecting to the national infrastructure network, and improving living and commercial environment. Moreover,

[21] In 1994, China introduced the tax-sharing system, which categorised China's tax revenues into central taxes and local taxes. Thus, the tax revenues are shared between the central and local governments.

through mutual learning across regions and the transfers or promotion of officials, the successful experience would be disseminated to other regions.

The construction of national infrastructure network, the fiscal reforms, the spillover effects of local competition, and the authority of the central government were crucial for China in breaking the market fragmentation, establishing an integrated market, increasing the opportunities to participate in economic activities for various regions, and opening economic access to the domestic market. Of course, integrating China's market is a gradual process. There is no doubt that protectionism still exists, and that fragmentation in the labour and financial markets are still quite visible. There is still huge room and potential for integrating the market.

To sum up, one can see that China's process of rapid economic development is essentially a process of continuous economic access-opening. As a matter of fact, economic access opening exhibits a kind of snowball effect, where a little bit of access-opening would benefit some people significantly, and thus they would demand for wider opening to benefit more people. In this way, the economic access would be opened further and further. Moreover, the rule of law was also encouraged and cultivated during this process. Development might bring about more developmental issues, and these issues in turn would push forward the reforms under cohesive governance. This would accompany the entire transition from poverty to prosperity.

4.3 Interaction of unbiased single-peaked governance and access-opening

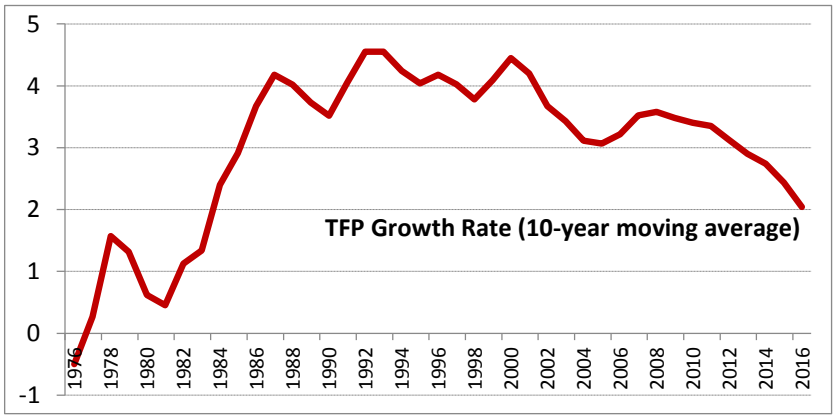
During the process of China's reform and opening-up, while implementing various development strategies at different stages, the central government always emphasised that the relationship among stability, reforms, and development must be dealt with carefully and their balance must be maintained. This looks like a political slogan, but it actually reflects the interactive relationship between political governance and economic system.

The emphasis on stability refers to the maintenance of social order, avoidance of social turmoil, trying to reach consensus, and advancing collective actions. The emphasis on reforms means the reduction and elimination of the barrier to social development, opening internal and external economic access, bringing opportunities to more people, improving efficiency, and advancing productivity. The essence of reforms is to solve problems. The emphasis on development means enlarging the increments, expanding the scale of the economy, lowering down the average cost, and encouraging the dissemination of technology and knowledge to have more people benefit from development. Development is also a process of discovering new problems.

The Chinese government has repeatedly stated that 'development is the top priority, reforms are the fundamental path (to a stronger country), and stability is the foundation and

premise.[22]' Reaping the benefits of development and having more people benefit from development are necessary for getting more support to push for the formation of consensus on new policies and reforms and strengthening the single-peaked governance of the CPC. This is not only a mechanism to achieve the performance legitimacy, but also an important channel for reaching social compromises and consensus. Reform, as the fundamental path to a stronger country, focuses on responding to new issues and new expectations during development, breaking through the system obstructions, creating more opportunities, and promoting more efficient competition to achieve greater development. The wider the economic access is, the greater the potential for economic development. Stability, as the foundation and premise, focuses on the fact that without a stable environment and social order, there will be no effective social consensus, reforms cannot be advanced, and development will not take place. Meanwhile, the gains of reforms and development can benefit most people and further improve social stability. During the process of development, the efforts to achieve the interaction and balance of the three factors make the Chinese miracle that 'it always makes things happen'.

Figure 4.1 China's TFP growth rate: 1976–2016



Source: Authors' own

As shown in Figure 4.1, throughout the past four decades of rapid development in China, besides the fast growth of GDP per capita, the total factor productivity (TFP) also displayed the features of technological catch-up: after breaking away from the low growth model since 1977, it maintained over 2 per cent growth rate in multiple years. Under the premise of social stability and order, the formation of an unbiased single-peaked governance structure propelled effective implementation of policies and gradually increased economic access. Through absorbing foreign technology and large-scaled domestic production, the diffusion of technology was accelerated, and thus, the TFP has kept growing at a high rate. It should be noted that China's TFP growth rate declined slightly after the financial crisis in 2008.

In the interaction between China's political governance and economic system, special attention should be paid to the following several Chinese characteristics.

[22] This statement is always seen in many government reports, while most of them are report of meeting or speech rather than academic paper. It can be found in the education material such as Theory of Socialism with Chinese Characteristics (2010), chapter 6. Beijing, Central Document Press.

Firstly, there is a mutually promoting relationship between the government and the market. Since all reforms started from the planned economy, the government's role in the marketisation reforms is more than just decentralising its authority, but instead, the government played a significant role in establishing the market and promoting the development of the market. The government and the market mutually promoted each other, instead of complementing each other in a way that the government does what the market is incapable of and the market does what the government is incapable of. Moreover, the borders between the government and the market saw efficient dynamic adjustment. While the government decided to stop intervening the market directly, its functions in regulating the market are also being expanded and adjusted accordingly.

Secondly, the dual-track system played an important role during the reforms. There are three main manifestations of the dual-track system. One is the incremental reform, under which new institutions or organisations, such as individual economies and township and village enterprises, can emerge and grow. With the accumulation of incremental reforms, the institution structure gradually changed. Another manifestation is the special economic zone (SEZs) and the industrial zone, in which economic participants can enjoy different policies. A third manifestation is the reform piloting zone, which is used to test the reforms in a small area. Only successful reforms were promoted while the failed ones were discarded. The benefits of this approach include minimising the resistance to reforms (including both interest-related and ideological), limiting the risks to a small scale, and making use of the partial result and effects to gain support for the reform. Incremental reforms and piloting zones, in which benefits of reforms are obvious, are both quite practical strategies under the single-peaked governance to achieve consensus and form collective actions – as people, including the objectors, gained actual benefits, social consensus on advancing further market reforms could be achieved more easily.

Thirdly, the Party and the government's ability to penetrate to the grass-roots level and to mobilise people is also critical. The Communist government can penetrate villages or village groups, neighbourhood committees, and various enterprises and organisations. Thus, it has tremendous mobilisation capability. Every order from the central government can reach every corner of the country in a very short period and be executed through the bureaucratic system. This completely changed the historical situation that 'imperial power would never be extended to the rural area'[23] for the limitation of ruling capability and local financial resource. Compared with any of the dynasties in Chinese history, this is one of the most significant features of the People's Republic of China. Furthermore, the government makes use of land, taxes, and the state-owned financial system to actively convert its saving mobilisation capability into investment.

Fourthly, the role of a strong central government and competing local governments cannot be neglected. The tournament mechanism among the local government officials

[23] Wen Tiejun (1993) proposes the term that 'imperial power would never be extended to the rural area' when summarising the governance structure of China in the history. Similar idea could be found in Fei Xiaotong (1947a; 1947b), and recent discussion could be found in Hu Heng (2015).

under the authority of the central government achieved the compatibility between market integration and regional competition. During the competition, the local governments increased the improvements in infrastructure and business environments, strengthened the connectivity between the local area and the national transportation network, and enhanced the fast dissemination and spillover of local management experience to attract funding and projects, and this accelerated the process of market integration in turn.

5 The model

This section will sketch a theoretical model in two steps. First, we develop a political economic model under the analytic framework proposed above; we prove that (a) faced with the emergence of potential competing group, and (b) assuming patience and the pursuit of long-term governance, the optimal choice under a single-peaked political arrangement is unbiased governance, while under multi-peaked governance, the optimal choice favours compromise, consensus, and common actions. Second, we introduce this political model into a three-sector overlapping-generation (OLG) model, and show that continuous economic growth relies on the combination of access-opening institutions and political cohesion, which could result from either unbiased single-peaked or compromise-oriented multi-peaked governance. Following the model presentation, we will propose three conjectures in a summary section.

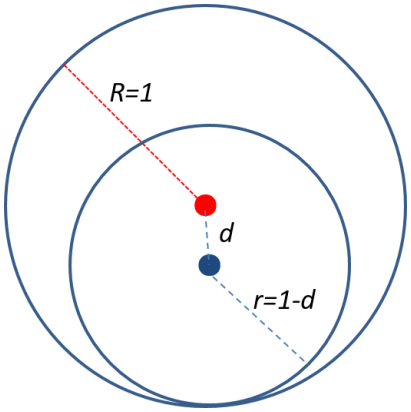
5.1 A political economic and governance model

Based on the building blocks proposed above, we would start with a simple political economic model to investigate the optimal choice under different types of political governance. We should clarify at the outset that we have no intention here of determining how a state comes to develop single-peaked or multi-peaked political governance, but will focus only on the optimal choices of a patient interest group or party pursuing long-term governance.

5.1.1 Optimal choice under single-peaked political governance

Consider a society with its original state of governance single-peaked. For the sake of illustration, let's use a unit circle to represent the total population of the society as Figure 5.1 shows. If the political position of an interest group or party is at the centre of the circle, we say that the political governance of the society is unbiased; otherwise, it is biased, and the distance between the political position of the interest group or party and the centre of the circle, denoted by *d*, refers to the degree of bias.

Figure 5.1 Illustration of political governance bias



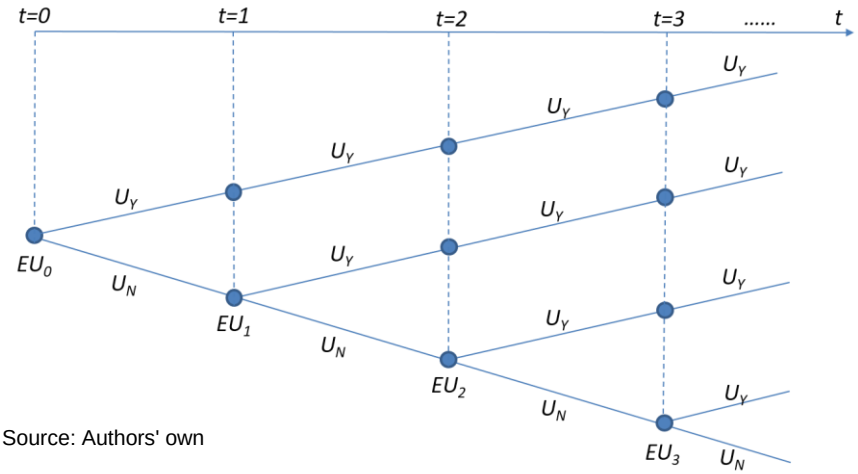
Source: Authors' own

Without loss of generality, we assume that

1. The original single-interest group or party needs to choose a degree of governance bias *d* at *t=0*, and once decided, *d* will not change over time.
2. When the governance is biased, i.e. $d \neq 0$, another competing interest group or party is likely to emerge, with a probability of *P(d, t)*, which is an increasing function of both *d* and the bias duration *t.*
3. Once a competing interest group emerges, the state governance would not be able to revert to the single-peaked type.
4. When the governance is biased without a competing interest group, the payoff for the original single-interest group is greater than with unbiased governance; that is, $U_N(d > 0) > U_N(d = 0)$.
5. All groups pursue long-term governance.

Furthermore, we will not discuss the evolution of political governance when a competing interest group emerges, but simply assume that the payoff for the original single-interest group will be lower than under unbiased governance; that is, $U_N(d = 0) > U_Y$. Figure 5.2 describes an evolution of single-peaked political governance; we will reserve discussion about the optimal choice under multi-peaked governance for the next subsection.

Figure 5.2 Evolution of single-peaked political governance



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Thus, we have the lifelong expected payoff for the original single-interest group or party at *t=0* as follows:

$$EU_0 = \big(1 - P(d,1)\big)(U_N + \beta EU_1) + P(d,1)(U_Y + \beta U_Y + \beta^2 U_Y + \cdots)$$

$$= \big(1 - P(d,1)\big)(U_N + \beta EU_1) + P(d,1)\frac{U_Y}{1-\beta}$$

Moreover, the expected payoff at t follows a similar recursive structure; that is,

$$EU_t = \big(1 - P(d,t+1)\big)(U_N + \beta EU_{t+1}) + P(d,t+1)\frac{U_Y}{1-\beta}$$

For simplicity, let's assume $\boldsymbol{P(d,t+1) = P(d,t) = d}$, and we have

$$EU_0 = (1-d)(U_N + \beta EU_1) + d\frac{U_Y}{1-\beta}$$

$$= (1-d)\left\{U_N + \beta\left[(1-d)(U_N + \beta EU_2) + d\frac{U_Y}{1-\beta}\right]\right\} + d\frac{U_Y}{1-\beta}$$

$$= (1-d)U_N[1 + \beta(1-d)] + (1-d)^2\beta^2 EU_2 + [\beta(1-d)+1]d\frac{U_Y}{1-\beta}$$

$$= (1-d)U_N[1 + \beta(1-d)] + (1-d)^2\beta^2\left\{(1-d)(U_N + \beta EU_3) + d\frac{U_Y}{1-\beta}\right\}$$
$$+ [\beta(1-d)+1]d\frac{U_Y}{1-\beta}$$

$$= (1-d)U_N[1 + \beta(1-d) + (1-d)^2\beta^2] + (1-d)^3\beta^3 EU_3$$
$$+ [(1-d)^2\beta^2 + \beta(1-d) + 1]d\frac{U_Y}{1-\beta}$$

$$= (1-d)U_N[1 + \beta(1-d) + (1-d)^2\beta^2 + \cdots + (1-d)^t\beta^t] + (1-d)^{t+1}\beta^{t+1}EU_{t+1}$$
$$+ [(1-d)^t\beta^t + \cdots + (1-d)^2\beta^2 + \beta(1-d) + 1]d\frac{U_Y}{1-\beta}$$

Taking the limit when t approaches the infinite future, we have

$$\lim_{n\to\infty}(1-d)^{t+1}\beta^{t+1}EU_{t+1}=0$$

and

$$EU_0=(1-d)U_N\frac{1}{1-\beta(1-d)}+\frac{dU_Y}{1-\beta}\frac{1}{1-\beta(1-d)}$$

That is,

$$EU_0=\frac{1}{1-\beta(1-d)}\left((1-d)U_N+\frac{dU_Y}{1-\beta}\right)$$

As one might note, the lifelong expected payoff for the original single-interest group or party at *t=0* is a function of the degree of political governance bias, d. And thus to maximise the expected payoff, the interest group needs to choose an optimal degree of political governance bias.

As a trial investigation, we can assume that both U_Y and U_N are independent of d, and then, taking the partial derivative of EU_0 with respect to d will give us

$$\frac{\partial EU_0}{\partial d}=\frac{U_Y-U_N}{(1-\beta+\beta d)^2}$$

Obviously, as long as $U_N>U_Y$, as assumed at the very beginning, we always have $\frac{\partial EU_0}{\partial d}<0$.

Hence, the optimal degree of governance bias is

$$d^*=0$$

In other words, under a single-peaked arrangement, when U_N and U_Y are independent of d, the optimal choice of an interest group or party pursuing long-term governance is unbiased governance.

But we do not need to assume independent U_N and U_Y for the model to function. A more realistic assumption is that $\frac{\partial U_Y(d)}{\partial d}<0$ and $\frac{\partial U_N(d)}{\partial d}>0$. That is, when a competing interest group emerges as the result of the original governance bias, the expected payoff for the original group would decrease in accordance with the degree of bias; however, in the absence of a competing group, the expected payoff would increase. Following this assumption, we have

$$\frac{\partial EU_0}{\partial d}=\frac{(1-d){U_N}'(d)}{1-\beta+\beta d}+\frac{d{U_Y}'(d)}{(1-\beta)(1-\beta+\beta d)}+\frac{U_Y(d)-U_N(d)}{(1-\beta+\beta d)^2}$$

Numerically, let's assume

$$U_Y(d) = 1 - d$$

and

$$U_N(d) = \frac{1}{1-d}$$

Hence

$$U_Y{}'(d) = -1$$

$$U_N{}'(d) = \frac{1}{(1-d)^2}$$

Plugging these expressions into $\frac{\partial EU_0}{\partial d}$ yields

$$\frac{\partial EU_0}{\partial d} = \frac{(1-d)\frac{1}{(1-d)^2}}{1-\beta+\beta d} - \frac{d}{(1-\beta)(1-\beta+\beta d)} + \frac{1-d-\frac{1}{1-d}}{(1-\beta+\beta d)^2}$$

That is,

$$\frac{\partial EU_0}{\partial d} = \frac{(1-\beta)^2 - 2d(1-\beta) - \beta d^2}{(1-\beta)(1-\beta+\beta d)^2}$$

Setting $\frac{\partial EU_0}{\partial d} = 0$ will give us the optimal degree of governance bias; that is,

$$d^* = \frac{1-\beta}{\sqrt{1+\beta}+1}$$

According to this expression, we find the following:

1. When $\boldsymbol{U_N}$ increases and $\boldsymbol{U_Y}$ decreases in accordance with the degree of governance bias, an interest group of party pursuing long-term governance will choose a non-zero degree of governance bias, but the optimal bias remains quite small (for instance, when β=0.96, d^* =1.67%);
2. d^* is a decreasing function of β — the smaller the value of β (that is, the less patient the interest group), the greater the optimal governance bias;
3. Even if it possesses no patience ($\beta = 0$), an interest group or party that pursues long-term governance would not choose 100 per cent governance bias, but an optimal one, d^* =0.5.

5.1.2 Optimal choice under multi-peaked political governance

In this section, let's turn to multi-peaked political governance, with a focus on the double-peaked case.

Consider a game with two players (interest groups or parties), A and B. In this game, each of the two players has two options – 'Confrontation' and 'Compromise', and both have complete information. The payoff matrix appears in Table 5.1 as follows, where numerical values are assumed to satisfy $c > d > a > b$.

Table 5.1 Payoff matrix of the game

		Interest Group A	
		Confrontation	Compromise
Interest Group B	Confrontation	a, a	c, b
	Compromise	b, c	d, d

Source: Authors' own

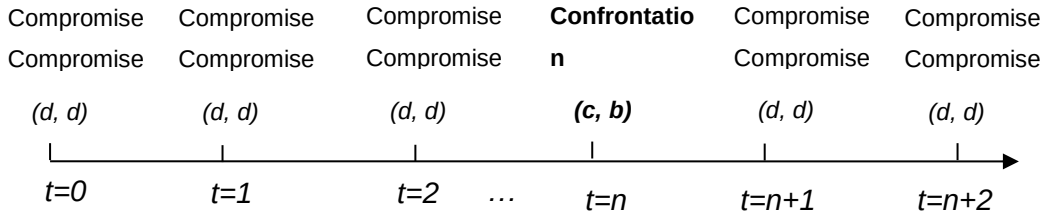
As one might observe, this game has a unique, dominant-strategy Nash equilibrium, which is (Confrontation, Confrontation). Furthermore, one can also see that this game presents a typical 'Prisoner's Dilemma' – the equilibrium payoff for each interest group is strictly lower than the payoff if both choose 'Compromise'; that is, $(a, a) \ll (d, d)$. However, it seems almost impossible for them to compromise with one another in this one-shot game.

Fortunately, if both interest groups pursue long-term governance, and especially when they exercise enough patience, more encouraging results emerge, with the payoff (d, d) achievable under some appropriate mechanism.

Now, let's take the Prisoner's Dilemma game above as a stage game, which will be repeated an infinite number of times. According to Friedman's (1971) Folk Theorem, one finds that if the player has enough patience and farsightedness (i.e. if the discounting factor β is high enough), then the preferred strategy will not be a Nash variant of the stage game, but cooperation and a socially optimal strategy. The question naturally arises of how to ensure that this happens.

For the sake of illustration, let's think about the following mechanism. The two players start by choosing 'Compromise' at the beginning of the repeated game, and the payoff of each player in the stage game is d. However, if $c > d > a > b$ as assumed above, each player always has the incentive to deviate from 'Compromise' to 'Confrontation' and obtain a higher payoff, c. For instance, say that Interest Group A explores the feasibility of a one-shot deviation from the repeated cooperative strategy, as shown below in Figure 5.3:

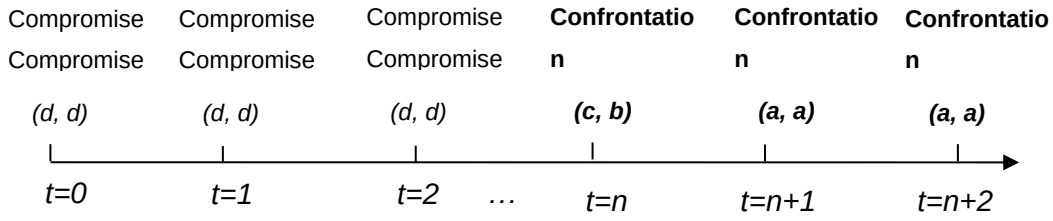
Figure 5.3 One-shot deviation from the repeated cooperative strategy



Source: Authors' own

As a matter of fact, when Interest Group A chooses to deviate, the counter-player (Interest Group B) may realise that this will damage his/her own payoff ($b < d$). If this kind of deviation can happen once, then the Interest Group A will deviate again and again, eventually destroying the cooperation. So to prevent this, Interest Group B may punish the counter-player who deviates by abandoning the cooperative strategy and choosing 'Confrontation', as illustrated below in Figure 5.4. This strategy with such a punishment mechanism is referred to a *trigger strategy.*

Figure 5.4 One-shot deviation from the repeated cooperative strategy



Source: Authors' own

With this punishment mechanism introduced, Interest Group A will not deviate as long as the present value of the lifelong payoff of deviation + punishment remains lower than that of simply following the cooperative strategy. That is,

$$c + \beta a + \beta^2 a + \cdots + \beta^t a + \cdots < d + \beta d + \beta^2 d + \cdots + \beta^t d + \cdots$$

Or equivalently

$$\beta > \frac{c - d}{c - a}$$

In other words, as long as both interest groups or parties pursue long-term governance (i.e. take a far-sighted view) and have enough patience (i.e. the discounting factor β is higher than the threshold), an effective trigger strategy can ensure that both players cooperate and play a socially optimum strategy, such as (Compromise, Compromise). However, if one or

both are too impatient (i.e. the discounting factor β is too small), the trigger strategy may not work.

As one can see, punishing players who deviate from this cooperative strategy forms an essential part of strategies in the infinitely repeated game. The punishment may take the form of a strategy leading to reduced payoff for both players for the rest of the game. A player may tend to act selfishly and increase his/her own reward, rather than playing the socially optimum strategy. However, with the knowledge that the other player is following a trigger strategy, he or she would expect deviation at this stage to create to receive reduced payoffs in the future. An effective trigger strategy ensures that cooperation has more utility to the player than acting selfishly now and facing the other player's punishment in the future.

To sum up, drawing on the concept of a trigger strategy in an infinitely repeated game, we have shown that compromise could become the optimal choice of interest groups or parties under multi-peaked political governance, as long as these groups pursue long-term governance and possess enough patience.

5.2 A three-sector overlapping-generation (OLG) model

We will now introduce the political model above into a three-sector overlapping-generation (OLG) model under the framework of endogenous growth theory, and then use simulations to investigate the effects of political governance and economic institutions on growth. The three sectors are production, consumption, and government. For political governance, we chiefly focus on the representativeness of political interest groups – whether they represent all or just a part of the population. Concerning economic institutions, we focus on accessibility, with external accessibility captured by the scale of international trade and internal accessibility captured by differences in commodity prices and wage rates.

5.2.1 The consumption sector and external accessibility of the economy

Consider an economy with two types of workers/consumers. Type 1 can only produce intermediate goods and Type 2, only consumption goods. Both types of workers live on consumption goods, either produced domestically or imported from abroad. Moreover, let's assume that each consumer has a life of T (say, T=55) periods (years), working for the first J (J=40) periods and then retiring.[24] $\boldsymbol{P}_{t,i}$ denotes the total population of Type i workers/consumers born in period t, with a constant growth rate $\boldsymbol{g}_P$ for both types.

A representative consumer's lifelong utility could be given as

$$u_{i,t} = \sum_{j=1}^{55} \beta_i^{j-1} \left[\left(c_{t,j,i}^{in} \right)^{\varphi} + \left(c_{t,j,i}^{out} \right)^{\varphi} - a l_{t,j,i}^{b} \right] \qquad i = 1, 2$$

where, for a Type i consumer born in period t ($i = 1, 2$):

- $u_{i,t}$ denotes the consumer utility;

[24] In this sense, the life of a worker from period 1 to period 55 in the model corresponds to life from 21 to 75 years old in real life, with [21, 60] as the working age and [61, 75] as the period of retirement.

- $c_{t,j,i}^{in}$ and $c_{t,j,i}^{out}$ respectively denote the amount of domestic and foreign consumption goods (differing in kind) consumed by this consumer at the age of j;
- $l_{t,j,i}$ denotes the labour amount provided by this consumer at the age of *j*;
- β_i denotes the discounting factor of Type i consumer;
- a is a coefficient for the disutility of working; and
- φ and b are constant coefficients.

The consumer faces the lifelong budget constraint that the total present value of lifelong consumption cannot exceed the present value of lifelong income; that is,

$$\sum_{j=1}^{55}\{[\prod_{z}^{j-1}(1+r_{t+z,i})^{-1}](p_{t+j-1,2}c_{t,j,i}^{in}+p_{t+j-1,3}c_{t,j,i}^{out})\} \leq \sum_{j=1}^{40}\{[\prod_{z}^{j-1}(1+r_{t+z,i})^{-1}]w_{t+j-1,i}l_{t,j,i}\}$$

where $p_{t+j-1,2}$ and $p_{t+j-1,3}$respectively denote the price of domestic and foreign consumption goods. If $e_{t,j,i}$ denotes the total asset (saving) held by Type i consumer born in period t at age j, then we have the rule for asset accumulation as follows:

$$e_{t,j,i}=\begin{cases}e_{t,j-1,i}(1+r_{t+j-1,i})+w_{t+j-1,i}l_{t,j,i}-p_{t+j-1,2}c_{t,j,i}^{in}-p_{t+j-1,3}c_{t,j,i}^{out} & j=1,\dots,40;\\ e_{t,j-1,i}(1+r_{t+j-1,i})-p_{t+j-1,2}c_{t,j,i}^{in}-p_{t+j-1,3}c_{t,j,i}^{out} & j=1,\dots,55.\end{cases}$$

where $q_{t,j,i}$ is the amount of intermediate goods imported by this consumer at the age of j, and $p_{t+j-1,1}^{o}$ is its price. If $k_{t,j,i}$ denotes the consumer's capital stock $i\,t$ at age j, then we have

$$k_{t,j,i}=k_{t,j-1,i}+q_{t,j,i}+(e_{t,j,i}-e_{t,j-1,i}-p_{t+j-1,1}^{o}q_{t,j,i})/p_{t+j-1,1} \qquad j=1,\dots,55.$$

where $q_{t,j,1}=0\ and\ q_{t,j,2}\geq 0$.

5.2.2 The production sector and internal accessibility of the economy

There are two types of firms in the economy: one specialising in the production of intermediate goods, and the other specialising in consumption goods. Assume that the intermediate goods market is monopolistic ($\boldsymbol{N_1}=1$) while the consumption goods market is perfectly competitive ($\boldsymbol{N_2}\to\infty$). Moreover, capital can flow freely across the two types of firms, but a natural barrier exists for labour mobility – as assumed above, each type of worker can only produce one type of goods. Given the monopolistic market structure for the intermediate goods, we would anticipate a higher wage rate paid by monopolistic than by competitive firms, but there might be more underemployment in the monopolistic intermediate goods market. When the number of Type 1 firms increases, i.e., with improvement in the internal accessibility of the economy, the price of intermediate goods

tends to approach the competitive price; the quantity of intermediate goods produced would increase, and the underemployment level of Type 1 workers would drop, with a reduction in the marginal return of labour.

The objective of either a Type 1 or Type 2 firm is to maximise its profit at each period; that is,

$$\underset{L_{t,i},\ K_{t,i}}{Max}\ p_{t,i}K_{t,i}^{\alpha_i}\left(A_{t,i}L_{t,i}\right)^{1-\alpha_i} - w_{t,i}L_{t,i} - \left(r_{t,i}+\delta_i\right)K_{t,i} \quad ,\ \ i = 1,2$$

where the following values apply to Type *i* firms at period *t:*

- $p_{t,i}$ denotes the goods price;
- $K_{t,i}$ denotes the capital stock;
- $L_{t,i}$ denotes the labour investment;
- $w_{t,i}$ denotes the wage rate paid;
- $r_{t,i}$ denotes the interest rate;
- δ_i denotes the depreciation rate of capital; and
- $A_{t,i}$ denotes the technology.

Moreover, we assume $A_{t,i} = B_{t,i}K_{t,i}^{\theta_i}$, which obviously belongs to the family of capital-driven 'learning-by-doing' models. Technological improvement might arise from various factors, including improvement in external accessibility, economy of scale, and accumulated working experience.

In period t, the total labour investment by Type i firm is $L_{t,i} = \sum_{j=1}^{40} l_{t-j+1,j,i}\boldsymbol{P}_{t-j+1,j,i}$, where, for a Type i consumer born in period $t-j+1$,

- $l_{t-j+1,j,i}$ denotes the labour amount provided, and
- $\boldsymbol{P}_{t-j+1,j,i}$ denotes the total population of this consumer type.

In addition, Type 2 firms in this economy might be allowed to import intermediate goods from abroad and export consumption goods. Moreover, the imported intermediate goods are assumed to be cheaper (say the price is $p_{t,2}^{o}$) and more productive. However, the government might set a quota for the imports, say at $Q_{t,i}$. If the quota is not big enough, Type 2 firms might still have to buy intermediate goods from the domestic Type 1 firm, most likely at a higher price.

5.2.3 The capital market and the goods market

In the capital market, the equilibrium condition requires the total capital stock of the economy in some period t to equal the sum of capital stock belonging to every consumer, which would be used for production in the next period $t+1$; that is,

$$\sum_{j=1}^{55} k_{t-j,j,1}\boldsymbol{P}_{t-j,j,1} + \sum_{j=1}^{55} k_{t-j,j,2}\boldsymbol{P}_{t-j,j,2} = K_{t,1} + K_{t,2}$$

where for a Type i consumer born in period $t-j$,

- $k_{t-j,j,i}$ denotes the total assets held in period $t-1$, and
- $\boldsymbol{P}_{t-j,j,i}$ denotes the total population of these consumers.

In the intermediate goods market, the equilibrium condition is that the total output of Type 1 firm(s) plus the total imported intermediate goods will equal the total investment demand of both types of firms; that is,

$$K_{t,1}^{\alpha_1}\left(A_{t,1}L_{t,1}\right)^{1-\alpha_1} + Q_{t,2} = I_{t,1} + I_{t,2}$$

where $I_{t,i}$ represents the incremental investment of each type of firm. The capital accumulation of each type of firm also satisfies

$$K_{t+1,i} = K_{t,i} - \delta_i K_{t,i} + I_{t,i}$$

In the consumption goods market, the market-clearing condition is that

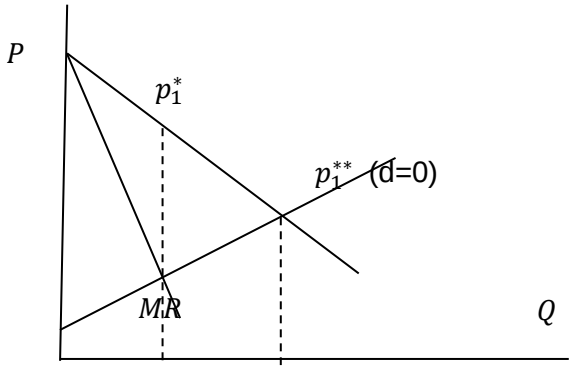
$$\boldsymbol{N_2} K_{t,1}^{\alpha_1}\left(A_{t,1}L_{t,1}\right)^{1-\alpha_1} = \left(C_{t,1}^{in} + C_{t,2}^{in}\right) + \frac{p_{t,3}\left(C_{t,1}^{out} + C_{t,2}^{out}\right)}{p_{t,1}} + \frac{p_{t,1}^{o} Q_{t,2}}{p_{t,1}}$$

where $C_{t,i}^{in}$ and $C_{t,i}^{out}$ respectively denote the domestic and foreign goods consumed by Type *i* consumers.

5.2.4 The political governance

Without government intervention, the monopolistic firm producing intermediate goods would choose a monopolistic price that maximises its profit, for instance p_1^* as illustrated in Figure 5.5. Theoretically, we can also figure out the competitive price, say p_1^{**}, as illustrated in Figure 5.5. In general, the government can intervene in the monopolistic intermediate goods market by setting a ceiling price for the goods, with that price reasonably falling between p_1^* and p_1^{**}. In line with the political model in the previous section, when the ceiling price is set at p_1^{**}, we say that the political governance is unbiased, that is, *d*=0; when the ceiling price is set at p_1^{**}, we say the political governance is fully biased, that is, *d*=1.

Figure 5.5 Monopolistic price, competitive price and political governance bias



Source: Authors' own

At the same time, the government can also balance the interests of different groups by adjusting $Q_{t,i}$, the quota of intermediate goods imports – when $Q_{t,i} = 0$, it means completely biased governance; when $Q_{t,i}$increases, it means more competition pressure upon the domestic Type 1 firm, such that they would choose to cut the price of domestically produced intermediate goods. When $Q_{t,i}$ is large enough – say, exceeding a threshold where the price of domestically-produced intermediate goods is as low as the completely competitive level – one could consider the governance unbiased. One can also see that adjusting the quota of intermediate goods imported has effects equivalent to those of intervening directly in their price.

As shown above, as long as a far-sighted interest group pursues long-term governance, it would not choose bias (to the intermediate firms) for too long of a period. In this set-up, the government will choose an optimal price for the intermediate goods by balancing the payoffs for both types of firms as well as their workers. In the following section, we will run a series simulation to investigate the growth effects of choices in degrees of governance bias.

In addition, the government can also adjust the quota of foreign consumption goods, and two types of consumers can buy them. Since the foreign consumption goods can increase utilities for all people, the government will liberalise their import restrictions. For convenience, when we analyse the effects of governance bias, we set foreign consumption goods at a completely restricted level. Afterwards, we will liberalise the restrictions and simulate the effects on economic growth.

5.2.5 Specification and values of parameters

To conduct the simulation, numerical values need to be assigned to the parameters in the model above, as shown in Table 5.2.

Table 5.2 Numerical values of parameters

Coefficients	Value	Coefficients	Value	Coefficients	Value	Coefficients	Value
$\alpha_i\ (i = 1,2)$	0.4	$B_{t,1}$	0.03	C_{T+0}^{out}	0	p_1^*	1.1
$\beta_i\ (i = 1,2)$	0.94	$B_{t,2}$	0.05	$\boldsymbol{g}_P$	0.006	p_1^{**}	1
$\theta_i\ (i = 1,2)$	0.5	$Q_{t,1}$	0	a	2	$p_{t,1}^o$	1
$\delta_i\ (i = 1,2)$	0.06	$Q_{T+0,2}$	0	b	2	$p_{t,2}$	1
$K_{T+0,1}$	187	$\boldsymbol{P}_{T+0,1}$	208	φ	0.5	$p_{t,3}$	1
$K_{T+0,2}$	499	$\boldsymbol{P}_{T+0,2}$	592				

Source: Authors' own

5.2.6 Political governance and economic cohesion in the model

As assumed above, the monopolistic firm's objective is to maximise the present value of its employees' 40-year utility by setting a price for the intermediate goods. Consider the case when the quota of intermediate goods imports is zero, $Q_{t,i} = 0$. When the discounting factor

β_i is 0.94 $(i = 1,2)$, the optimal monopolistic price is $p_1^* = 1.1$.[25] If the monopoly is broken down and sufficient competition introduced, say $\boldsymbol{N_1} \to \infty$, the competitive price of the intermediate goods is $p_1^{**} = 1$. Then we can release the quota of intermediate goods imports, say by increasing values of $Q_{t,i}$. As a result, the demand for domestically-produced intermediate goods will decline as expected, and their price will also drop accordingly. This adjustment will not stop before the price drops to the competitive level, 1. Simulation results indicate that when the ratio of imported intermediate goods over the domestically-purchased intermediate goods is 1:10, the optimal monopolistic price is 1.108, at which level Type 1 consumers have the same utility as under complete competition, 1502.5. Meanwhile, the amount of imported intermediate goods comes to roughly 4.2 units.

To achieve long-term governance, the interest group will have to balance the interests of both types of firms as well as their workers, and choose a ceiling price for the intermediate goods, anticipated to fall between p_1^* and p_1^{**}. Alternatively, as shown above, adjusting the quota of intermediate goods imports has equivalent effects as intervening directly in their price. The remainder of this section will focus on price intervention and quota adjustment to analyse two types of political governance.

1. Double-peaked political governance

Two interest groups represent the two types of workers/consumers, respectively. Naturally, each interest group tends to choose a price level preferred by their own supporters. However, if the one representing the monopolistic sector insists on setting the price of the intermediate goods at p_1^* while the other representing the competitive sector insists on p_1^{**}, then we can anticipate that the groups could not reach consensus and would remain mired in conflict. For the sake of analysis, assume each interest group holds power for 10 years in turn. Simulation gives Type 1 workers a utility of 1524.4 and Type 2 workers a utility of 4163.7.

However, both interest groups, in pursuit of long-term governance, might choose to compromise with each other and cooperate on the price-setting for the intermediate goods. A trigger strategy might ensure this cooperation: once one group chooses a different price rather than the agreed price at some period, the other group will impose a punishment by choosing never to cooperate in the future. Although the equilibrium in this case is not unique, the price upon which both groups would agree when compromising with each other must fall between p_1^{**} and p_1^*. Taking $p_1 = 1.06$ as an example, simulation gives Type 1 workers a utility of 1525.9 and Type 2 workers a utility of 4165.5 – both higher than in the conflictual case.

Similarly, in the case of quota adjustment, the following scenario ensues if the two parties do not compromise: the one representing the monopolistic sector insists on setting the quota of intermediate goods imports at Q_2^*, while the other representing the competitive sector insists on Q_2^{**} or more, cutting the domestic price of intermediate goods to 1. In this case, we again anticipate no consensus and no remaining alternative but conflict between them. The simulation gives Type 1 workers a utility of 1520.2 and Type 2 workers a utility of 4111.3. Again, if both interest groups, in pursuit of long-term governance, choose to compromise with each other and cooperate on the quota setting for the intermediate goods imports, the scenario alters. When $Q_{T+1,2} = 1.4$ and $p_1 = 1.1$, Type 1 consumers can have a utility of 1521.1 and the Type 2 utility is 4114.2, both higher than the conflictual values of 1520.2 and 4111.3.

[25] If the discounting factor is changed to 0.9, the optimal monopolistic price turns out to be 1.153.

2. Single-peaked political governance

Suppose there is only one interest group in the economy, representing the Type 1 workers. But when the original interest group's governance is biased, the possibility exists that another interest group could emerge. As assumed previously, the probability of this is an increasing function of both the degree and duration of bias. If the original interest group's governance is unbiased, then there will be no chance or incentive for a new interest group to emerge, because it would not improve the situation of Type 2 consumers. For simplicity, let's assume the probability of a new interest group's emergence to be $\frac{p_1'-p_1}{p_1^*-p_1}$ if the existing group chooses a price $p_1' > p_1$. Moreover, once a new interest group emerges, we would be back to the double-peaked case as discussed above. Hence, the objective of the existing interest group is to maximise

$$Max \sum_{t=1}^{40} \beta_1^{t-1} \left[\left(1 - \frac{p_1' - p_1}{p_1^* - p_1} \right) U_{t,1}(p_1') + \frac{p_1' - p_1}{p_1^* - p_1} U_{t,1}(p_1) \right]$$

Simulation results for this case indicate that the optimal price of intermediate goods, p_1', is 1.08. And when no new interest group emerges, the Type 1 consumer utility in the first 40 years is 1527.4, which is higher than 1525.9, the utility level when the price is p_1. Noting that $p_1' > p_1$, the probability of a new interest group emerging is not zero; hence the maximised expected utility of the existing interest group should be lower than 1527.4. Thus, the optimal price should fall between 1.06 and 1.08.

Similarly, if the interest group chooses to use the import quota for intermediate goods rather than intervene directly in setting their price, the simulated optimal quota will fall between 0.7 and 1.4.

If the existing interest group has more patience and farsightedness, it might choose an even lower price or an even higher quota. For instance, taking $\beta = 0.98$ and $T = 200$ as an example, we find that when the import quota is set at the level that cuts the domestic monopolistic price to 1 (the competitive level), the Type 1 consumer utility becomes 8331.1 – higher than 8169.3, the utility level in a closed economy, i.e., the where the quota is zero. Of course, if the price of intermediate goods is set directly at 1, the competitive level, we have the same utility, 8331.1.

5.2.7 Numerical simulation results for economic growth

Scenario 1: a benchmark scenario

Suppose that initially the economy has no external accessibility, that a monopolistic power dominates the market, and that the political governance is biased. In this case, we assume that as the import quota for intermediate goods is gradually reset to become larger, the economy will open up. As a result, the price of intermediate goods would accordingly drop from 1.1 to 1. Starting with the initial economic growth rate at 1.81 per cent, as the simulation results indicate, we would expect the transition to take 100 periods to finish – from the initial balanced growth path to a new one, as shown in Figure 5.6 (a). During this period, the highest GDP growth rate is 2.44 per cent, the highest rate for capital growth is 2.49 per cent, and the highest technological growth rates for the consumption and intermediate goods are 1.27 per cent and 1.19 per cent respectively. The dynamics of key variables appear in Table 5.3.

Table 5.3 Dynamics of key variables for the benchmark scenario

Variables	$t = T + 0$	$t = T + 100$	Note
$p_{t,2}$	1.1	1	The economic accessibility varies at different values.
K_t	686	5478	The average growth rate is 2.1%.
L_t	800	1455	The constant growth rate is 1%.
GDP_t	211	1643	The average growth rate is 2.1%.

Source: Authors' own

Scenario 2: Faster transition

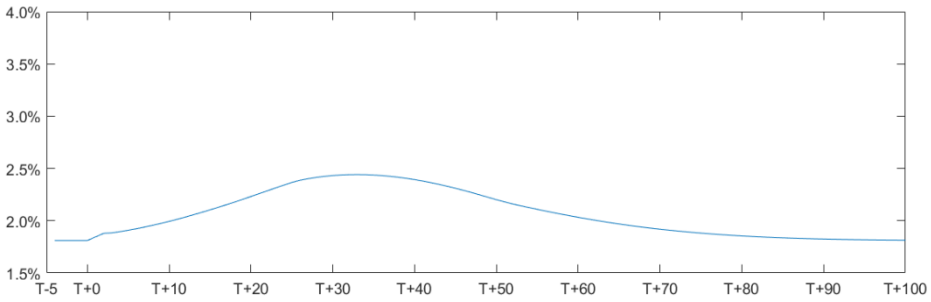
Consider another scenario, with the same assumptions for the initial status of the economy. The difference lies in the speed of transition – both the import quota and the price of the intermediate goods are adjusted more rapidly. This would predict a transition taking 70 periods from the initial balanced growth path to the new one, as shown in Figure 5.6 (b). During this period, the growth rates would change as follows: highest GDP 2.64 per cent, highest capital 2.69 per cent, and the highest technological for consumption goods at 1.37 per cent and 1.25 per cent for intermediate goods.

Scenario 3: Importing consumption goods

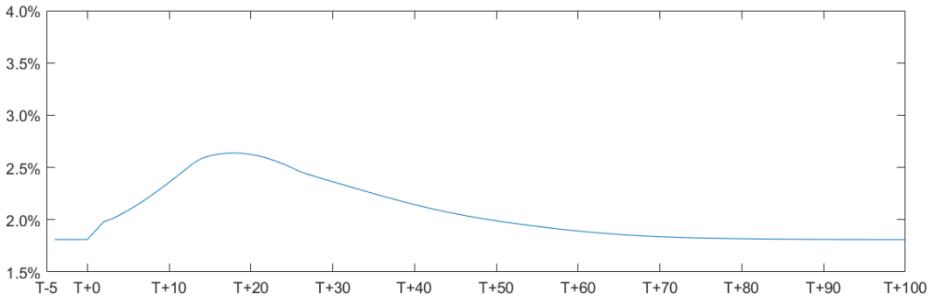
Now we consider the effect of importing consumption goods on economic growth. With the same assumptions for the initial status of the economy, the difference lies in gradually liberalising import restrictions on foreign consumption goods. In the end, all consumers will be able to consume whatever foreign consumption goods they need. As with scenario 2, the full transition is expected to take 70 periods from the initial to the new balanced growth path, as shown in Figure 5.6 (c). During this transition phase, growth rates will adjust as follows: highest GDP at 3.69 per cent, the highest capital at 3.65 per cent, and the highest technological for the consumption goods and intermediate goods both at 1.82 per cent.

Figure 5.6 Simulated growth rate in the benchmark scenario

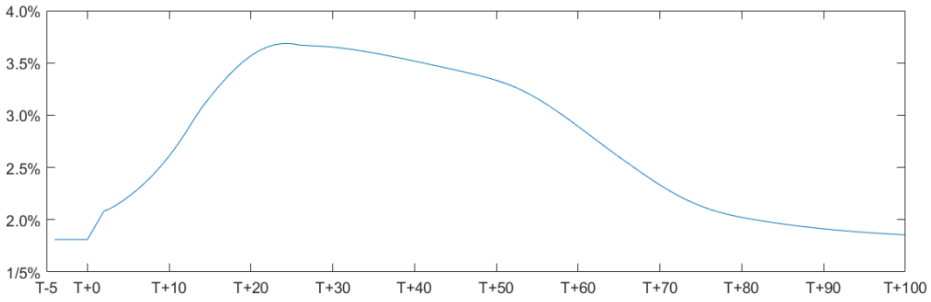
(a) The benchmark scenario



(b) The faster transition scenario



(c) The imported consumption goods scenario



Source: Authors' own

5.3 A summary with three conjectures

To sum up, we are ready to propose the following three conjectures as the main implications of the theoretical model above.

- **Conjecture 1:** A society's cohesion can strengthen its economic growth.
- **Conjecture 2:** An economy's accessibility can facilitate its growth.
- **Conjecture 3:** Whether the political governance is single-peaked or multi-peaked is a neutral variable in the economic growth of a country.

6 The econometric evidence

This section provides some econometric evidence for the model above, with a focus on testing the three main conjectures. Firstly, we give a brief introduction for key variables of interest, including their definition and construction, as well as a statistical summary. Then we turn to the specification of the econometric model and the estimation results, followed by a series of robustness checks.

6.1 Variables and statistical description

6.1.1 Variables about political governance and index construction

In line with the concepts in the theoretical framework above, variables about political governance aim to capture the distribution structure of political power within one economy. Two dimensions are considered here. One is the cohesion index, which measures the degree of bias in political policies – whether the policy-makers can represent as many people as possible outside of a small interest group, and their effectiveness in implementing policies. The other dimension is the peak index, basically the number of political peaks – whether political power concentrates in one dominating group or is shared by many, or whether the political governance is single-peaked or multi-peaked. Thus, an economy would fall into one of the four categories: biased single-peaked governance, unbiased single-peaked governance, compromise-oriented multi-peaked governance, or conflictual multi-peaked governance.

We construct the *cohesion index* from three sub-indices. The first maps government effectiveness, including policy quality and implementation; it aims to capture whether an economy's policymakers are as representative as possible and capable of ensuring policy effectiveness. The second sub-index concerns social consensus around policies, including policy accountability and public discussion; it reflects the expectation that such public discussion will have an impact on the policy process. The third sub-index addresses the policymakers' capacity to mobilise economic resources, as measured by the share of tax revenue in total GDP. All of the raw data is available in the World Bank Databank.[26] We should clarify that we do not simply apply the raw data but take the strategy of standardising it into a scale of [0, 5] (see Annexe I). We then take the average of the three sub-indices and obtain the country's cohesion index for each year with available data.

We construct the **peak index** from two sub-indices. One is the score for different election systems of a country or an economy, as illustrated in Table 6.1, also derived from data available in the World Bank Databank. One reason for using this index is that a country's election system may reflect its power distribution. Since the raw data is scaled from 1 to 7, we also take the projection of the raw index to a scale of [0, 5]. The other sub-index is the Herfindahl Index, measuring the concentration of political power in the congress of a country. Similarly, we standardise the [0, 1]-scaled Herfindahl Index into the scale of [0, 5]. The

[26] One can gain access to the World Bank Databank via http://databank.worldbank.org/data/home.aspx

average of the standardised election system score and the standardised Herfindahl Index gives us the peak index.

Table 6.1 Scores of different selection systems by World Bank

Conditions	Score
No legislature	1
Unelected legislature	2
There is an election system, but with only 1 candidate.	3
There is only 1 party, but multiple candidates in the election.	4
Multiple parties are legal but only one party wins seats.	5
Multiple parties win with the largest party receiving more than 75% of the seats.	6
Multiple parties win with the largest party receiving less than 75% seats.	7

Source: World Band Political Index Handbook（2015）

6.1.2 Variables about economic accessibility and index construction

As argued above, accessibility is highly related to the economic performance of a country or region, and includes both inward and outward measures of access to economic opportunities. To recap, free flow of production factors and consumption goods will reflect internal accessibility, as will market discrimination, restrictions, or barriers; the ability of domestic economic actors to participate in the global market reflects external accessibility. Therefore, we will construct the economic accessibility index in two steps, first arriving at an internal and external index for each country or region, and then averaging them to obtain the overall accessibility index.

We construct the *internal accessibility index* from three sub-indices corresponding to accessibility of the capital, labour, and goods markets. We measure each of these as follows: capital market by the cost of business start-ups, e.g. the ratio of the cost of business start-ups over GNI per capita; labour market by the percentage of regularly salaried workers out of the total employed population, and the number of passengers carried by each kilometre of railway in one year; goods market by the logistics performance index, scaled from 0 to 5. We construct the *external accessibility index* from sub-indices about the scale of international trade, the scale of foreign direct investment (FDI), and export varieties. Again, all sub-indices (raw data available in the World Bank Databank) are standardised, with outliers adjusted or removed.[27] As noted, the average of the two give the overall **accessibility index** for each country and each year. Table A.1 in Annexe II shows the ranking of the top 50 countries/regions according to the accessibility index for the year 2015.

[27] One can refer to Annexe I for details about the index construction.

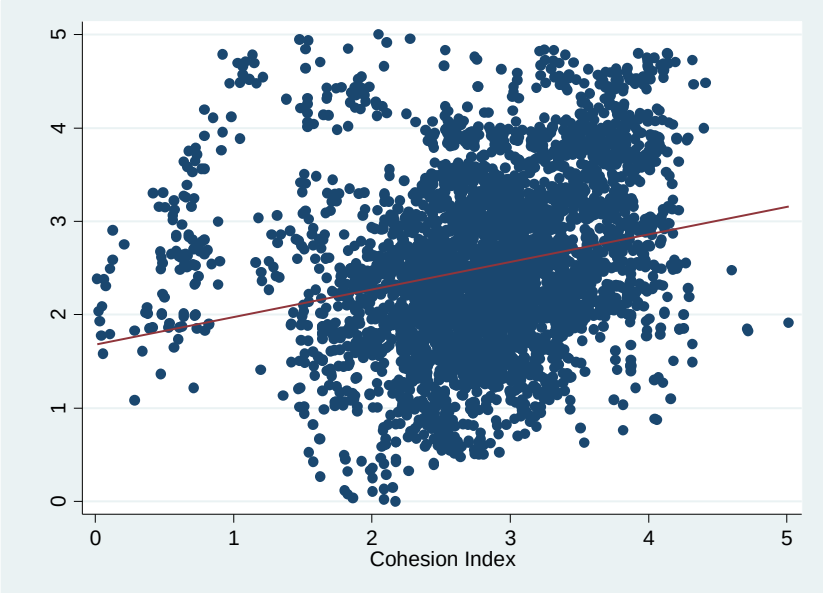
6.1.3 Other variables and data coverage

Besides the key variables of interest discussed above, we also collected data about GDP as well as its growth rate, total population as well as GDP per capita, total area of each country/region, and other variables. Given the missing data for many countries in earlier years, the panel data of 209 countries/regions in this study only covers the 20 years from 1996 to 2015. Imputation of missing data is discussed in Annexe I, and a detailed statistical summary appears in Annexe III.

6.1.4 Interaction between political cohesion and economic accessibility

According to the regression results above, the degree of political cohesion and the degree of economic accessibility are both positively correlated with economic growth, so it becomes a natural step to investigate the interaction between these two variables. Figure 6.1 shows a scatter plot for the Cohesion and the Accessibility Indices, with a linear regression fitted line.

Figure 6.1 The cohesion index and the accessibility index



Source: Authors' own

For an in-depth investigation of the potential causality between economic accessibility and political cohesion, we make use of the difference-in-difference (DID) approach. By setting observations with a cohesion index lower than the average of the variable as a control group, and setting those with a higher-than-average cohesion index as a treatment group, we find that higher political cohesion tends to boost higher accessibility. As Table 6.2 reports, this effect is statistically significant. Taking the same strategy, we also examine the potential causal effect of accessibility on political cohesion, but the Difference-in-Difference (DID) test, as reported in Table 6.3, does not support this direction of causality.

Furthermore, we also explore the causality between accessibility and political cohesion by controlling the development stage, as reported in Table 6.4. Notably, there is no significant

causality between the two indices when the GDP per capita falls below USD 4000 or rises above USD 12,000, but the causality becomes significant when the GDP per capita falls within [4000, 12,000]. In particular, both directions of causality are extremely significant when the GDP per capita falls within [8000, 12,000].

Table 6.2 DID test for causal effect of political cohesion on economic accessibility

Outcome var.	Accessibility	S. Err.	t	P>t
Baseline				
Control	-35.052			
Treated	-33.658			
Diff (T-C)	1.394	9.538	0.15	0.884
Follow-up				
Control	-35.033			
Treated	-33.640			
Diff (T-C)	1.393	9.533	0.15	0.884
Diff-in-Diff	-0.000	0.005	-0.10	0.921
R-square	0.06			

Note: (1) *** p<0.01; **p<0.05; * p<0.1

(2) Means and Standard Errors are estimated by linear regression

Source: Authors' own

Table 6.3 DID test for causal effect of economic accessibility on political cohesion

Outcome var.	Cohesion	S. Err.	t	P>t
Baseline				
Control	-4.498			
Treated	8.241			
Diff (T-C)	12.739	7.736	1.65	0.100*
Follow-up				
Control	-4.494			
Treated	-29.956			
Diff (T-C)	8.239	7.732	1.65	0.100*
Diff-in-Diff	12.733	0.004	-1.61	0.107
R-square	0.06			

Note: (1) *** p<0.01; **p<0.05; * p<0.1

(2) Means and Standard Errors are estimated by linear regression

Source: Authors' own

Table 6.4 Test for causality direction between economic accessibility and political cohesion

Development Stage	Accessibility as the Cause	Cohesion as the Cause
(GDP per capita)		
0-4000	0.131	0.779
4000-8000	0.018**	0.1*
8000-12,000	0.007***	0.008***
12,000-16,000	0.438	0.821

Note: (1) *** p<0.01; **p<0.05; * p<0.1

(2) Means and Standard Errors are estimated by linear regression

Source: Authors' own

6.2 Specification of the econometric model

Given the data structure discussed above, a dynamic panel model could be specified as follows:

$$y_{it} = \alpha + \beta X_{it} + \gamma Z_{it} + u_{it}$$

where, for country i in year t:

- y_{it} denotes the growth rate of GDP per capita (constant price, local currency);
- X_{it} is a vector of explanatory variables, ($x_{1it}, x_{2it}, x_{3it}, x_{4it}$), with
  - x_{1it} denoting the accessibility index,
  - x_{2it} denoting the cohesion index,
  - x_{3it} denoting the peak index, and
  - x_{4it} denoting the development stage[28];
- Z_{it} denotes a set of control variables, including lagged terms of y_{it}, population, area, etc.
- As usual, β denotes a vector of coefficients（β_1, β_2, β_3, β_4）before X_{it}, γ denotes a vector of coefficients before Z_{it}, and u_{it} is the error term of the model.

If the conjectures proposed in Section 3.3 hold, both $\beta_1$and β_2 are expected to be positive while β_3 is expected to be not significantly different from 0. Moreover, in line with the literature about economic development, we anticipate β_4 to be negative; that is, the economic growth rate is lower for economies at higher development stages.

6.3 Estimation results

6.3.1 Pooled OLS estimation

We first run an OLS regression and estimate a benchmark model without controlling any other variables, with results reported in column (1) in Table 6.5. Since our data have been

[28] The development stage of country i in year t is defined based on the GDP per capita of the country in that year. If the GDP per capita falls within [0, 4000] (US$), then the development stage receives a value of 1; if the GDP per capita falls within [4000, 8000], a value of 2; within [8000, 12,000], then 3; within [12,000, 16,000], then 4; above US$16,000, then 5.

standardised, the value of the coefficients estimated does not tell much about the relative importance of the explanatory variables, and we care more about the signs (positive or negative) of these coefficients. As expected above, the coefficients before the accessibility and cohesion indices are both positive, which seems to support Conjecture 1 and Conjecture 2; meanwhile, the insignificance of the coefficient before the peak index suggests that we cannot reject Conjecture 3.

However, the low R^2 value in Table 6.5 column (1) indicates that these four variables are very insufficient to fully explain economic growth. Taking this point into consideration, we introduce the lagged terms of y_{it} into the model as control variables, with estimation results reported in columns (2) - (4) of Table 6.5. One may note here that the overall fitness of the model has improved significantly with the lagged terms controlled, according to the higher R^2 values. More importantly, although the values of the relevant coefficients have changed, their signs have not. This offers continued support for Conjecture 1 and Conjecture 2 while still not allowing us to reject Conjecture 3.

Table 6.5 Pool OLS estimation results for the benchmark model

Dependent	**Growth Rate of GDP per Capita (y_{it})**			
Variables	(1)	(2)	(3)	(4)
Accessibility Index	0.509	0.331	0.291	0.302
	(5.01)***	(3.44)***	(2.96)***	(3.02)***
Cohesion Index	0.392	0.229	0.237	0.28
	(4.06)***	(2.51)**	(2.53)**	(2.95)***
Peak Index	-0.016	0.011	0.005	0.011
	(0.30)	(0.23)	(0.10)	(0.21)
Development Stage	-0.518	-0.342	-0.339	-0.346
	(9.32)***	(6.47)***	(6.25)***	(6.26)***
y_{it-1}		0.394	0.358	0.348
		(26.41)***	(21.57)***	(20.54)***
y_{it-2}			0.083	0.056
			(5.12)***	(3.16)***
y_{it-3}				0.088
				(5.35)***
Constant	1.326	0.738	0.696	0.436
	(3.53)***	(2.07)**	(1.91)*	(1.17)
Observations	3899	3695	3491	3287
R-squared	0.02	0.18	0.19	0.2

Note: (1) Standard errors in parentheses; (2) *** p<0.01, ** p<0.05, * p<0.

Source: Authors' own

6.3.2 Estimation results based on panel analysis

Given the balanced panel structure of our data, we respectively estimate both a random-effect and a fixed-effect model with different lagged terms of y_{it}; the estimation results appear in Table 6.6. Here we can see that the three columns of results for the random-effect

model are exactly the same as the pooled OLS estimation results[29] – as before, supporting Conjecture 1 and Conjecture 2 without permitting rejection of Conjecture 3. In the fixed-effect model, while the coefficient before the cohesion index is not always significant, we still have a positive sign across all of the three columns.

Table 6.6 Estimation results for the random effect model and the fixed effect model

Dependent	**Growth Rate of GDP per Capita (y_{it})**					
Variables	RE (1)	RE (2)	RE (3)	FE (1)	FE (2)	FE (3)
Accessibility Index	0.331	0.291	0.302	0.811	0.724	0.654
	(3.44)***	(2.96)***	(3.02)***	(3.43)***	(2.99)***	(2.61)***
Cohesion Index	0.229	0.237	0.28	0.441	0.393	0.338
	(2.51)**	(2.53)**	(2.95)***	(2.12)**	(1.83)*	(1.54)
Peak Index	0.011	0.005	0.011	-0.017	-0.024	0.006
	(0.23)	(0.10)	(0.21)	(0.19)	(0.25)	(0.06)
Development Stage	-0.342	-0.339	-0.346	-0.846	-0.804	-0.912
	(6.47)***	(6.25)***	(6.26)***	(3.98)***	(3.55)***	(3.85)***
y_{it-1}	0.394	0.358	0.348	0.251	0.249	0.243
	(26.41)***	(21.57)***	(20.54)***	(15.42)***	(14.48)***	(13.82)***
y_{it-2}		0.083	0.056		-0.019	-0.013
		(5.12)***	(3.16)***		(1.11)	(0.74)
y_{it-3}			0.088			-0.004
			(5.35)***			(0.25)
Constant	0.738	0.696	0.436	0.623	0.927	1.44
	(2.07)**	(1.91)*	(1.17)	(0.65)	(0.93)	(1.39)
Observations	3695	3491	3287	3695	3491	3287
Number of ID	204	204	204	204	204	204
R-squared				0.07	0.07	0.07

Note: (1) Standard errors in parentheses;

(2) *** p<0.01, ** p<0.05, * p<0.1;

(3) RE refers to 'Random Effect', and FE refers to 'Fixed Effect'.

Source: Authors' own

In addition – and consistent with the pooled OLS estimation results – the coefficient before the development stage is robustly negative, meaning that an economy at a higher development stage tends to grow at a lower rate. At the same time, the coefficient before the first-order lagged term of y_{it} is robustly positive, indicating a significant autoregressive property in the economic growth rate.

Furthermore, conducting the Hausman test on the columns RE(1) and FE(1) suggests a systematic difference between their coefficients. But, as mentioned earlier in this section, our

[29] In general, estimation results of the random-effect model are not the same as the pooled OLS estimation. However, when there is a lagged term of the dependent variable on the right-hand side of the random-effect model, there will not be any difference in the estimation results between it and the pooled OLS. Theoretical support for this result appears in Badi H. Baltagi (2001). Given this property, we will not report pooled OLS estimation results, but only the random-effect estimation results as long as the model retains the lagged term as noted on the right-hand side.

data has been standardised, and we care more about the signs of these coefficients than about their value. In this sense, the econometric support for the three major conjectures, at least based on the benchmark analysis, remains solid.

6.4 Robustness checks and discussion

In this section, we conduct a series of checks to test the robustness of the results obtained based on the benchmark model. First, we add more control variables; second, we examine the interaction between key variables and economic development level; third, we replace the key index variables with the sub-indices to expand the details investigated. A short summary concludes this section.

6.4.1 Robustness with more control variables

Based on the model with the first-order lagged term of the dependent variable, we now add the following control variables: the area of the country/region, which could approximately represent its natural resources; its population, considered another kind of fundamental resource; and GDP per capita. The estimation results appear in Table 6.7 and are comparable to the results in column RE(1) and FE(1) in Table 6.6. We see that there is no significant change in the results, especially no change in the signs of the most relevant coefficients. Furthermore, when we also replace the area and the population by the area per head, no significant change is found.

Again, as mentioned earlier in this section, the consistent coefficient signs across different model specifications are sufficient to support the conjectures, although the coefficient values differ. Up to this point, we can say that our econometric results are robust.

Table 6.7 Robustness with more control variables

	Growth Rate of GDP per Capita (y_{it})					
Dependent Variables	RE (1)	RE (2)	RE (3)	FE (1)	FE (2)	FE (3)
Accessibility Index	0.303	0.295	0.333	0.816	0.766	0.774
	(3.11)***	(3.03)***	(3.28)***	(3.45)***	(3.21)***	(3.22)***
Cohesion Index	0.231	0.25	0.274	0.438	0.446	0.456
	(2.53)**	(2.74)***	(2.97)***	(2.10)**	(2.14)**	(2.18)**
Peak Index	0.012	0.016	0.027	-0.017	-0.012	-0.01
	(0.23)	(0.32)	(0.55)	(0.19)	(0.13)	(0.11)
Development Stage	-0.335	-0.321	-0.264	-0.845	-0.858	-0.753
	(6.32)***	(6.05)***	(3.49)***	(3.97)***	(4.03)***	(3.37)***
y_{it-1}	0.393	0.387	0.387	0.25	0.25	0.251
	(26.33)***	(25.91)***	(25.58)***	(15.41)***	(15.37)***	(15.26)***
Area	0	0	0	0.013	0.016	0.014
	(1.68)*	(0.23)	(0.22)	(0.76)	(0.92)	(0.84)
Population		0.002	0.002		0.011	0.012
		(3.75)***	(3.75)***		(1.52)	(1.56)
GDP per Head			-0.009			-0.037
			(1.46)			(1.55)
Constant	0.746	0.649	0.415	-7.702	-9.804	-9.073
	(2.10)**	(1.82)*	(1.09)	(0.70)	(0.88)	(0.80)
Observations	3695	3695	3615	3695	3695	3615
Number of ID	204	204	196	204	204	196
R-squared				0.07	0.07	0.08

Note: (1) Standard errors in parentheses;

(2) *** p<0.01, ** p<0.05, * p<0.1;

(3) RE refers to 'Random Effect', and FE refers to 'Fixed Effect';

(4) The unit of Area is 1000 squared km;

(5) The unit of Population is 1 million;

(6) The unit of GDP per Head is 1000 USD (2010 Price).

Source: Authors' own

6.4.2 Interaction between key variables and economic development

Next, we choose to introduce the product terms of the three key variables along with the variable of development stage, to investigate potential interaction between economic development and accessibility, political cohesion, and political power concentration. For instance, we can look at whether the effect of accessibility on growth would be greater or smaller at different development stages. For brevity, we report only estimation results for the fixed-effect model in Table 6.8 below, along with the benchmark result (column FE(1) in Table 6.6) for the sake of comparison.

First, we find that the partial effect of accessibility on growth has a significant negative correlation with the development level. For instance, as columns FE(2) and FE(5) in Table 6.8

suggest, when an economy is at development stage 1 (see note 8 and Annexe I), the partial effect is 1.19, but when the development stage is at 3, the partial effect is expected drop to 0.51.[30] In other words, accessibility is generally more important to economies at lower development levels. In addition, the inclusion of the interaction term of accessibility and development does not change the coefficients of other variables, which we can verify by comparing columns FE(1) and FE(2).

In contrast, it seems that political cohesion plays an increasingly more important role as the economy's development level rises. For instance, the partial effect of political cohesion on growth is not significantly different from 0.25 at development stage 1, but for a country at stage 3, the partial effect is expected to be roughly 0.54. We have almost the same finding in column FE(5). From another perspective, we find that at higher levels of political cohesion, countries/regions will tend to see a slow drop in growth rate. Again, comparison of columns FE(1) and FE(3) indicates that the inclusion of the political cohesion/development stage interaction term does not change the coefficients of other variables such as the accessibility or the peak indices and y_{it-1}.

However, no significant interaction appears between the peak index and the development level; the neutrality of growth vis-à-vis political power concentration seems to hold for countries/regions across all development levels. This finding is robust to different specifications, as shown in columns FE(1), FE(4) and FE(5) in Table 6.8.

[30] As mentioned earlier, since all key explanatory variables have been standardised, it makes little sense to compare the values of coefficients across variables; however, the partial effect of the same variable remains comparable with an interaction term in the model.

Table 6.8 Interaction between key variables and economic development

	Growth Rate of GDP per Capita (y_{it})				
Dependent Variables	FE (1)	FE (2)	FE (3)	FE (4)	FE (5)
Accessibility Index	0.811	1.529	0.823	0.809	1.543
	(3.43)***	(4.15)***	(3.48)***	(3.42)***	(4.19)***
Cohesion Index	0.441	0.441	0.103	0.446	0.129
	(2.12)**	(2.12)**	(0.30)	(2.14)**	(0.37)
Peak Index	-0.017	-0.024	-0.016	0.037	0.035
	(0.19)	(0.26)	(0.17)	(0.25)	(0.23)
Development Stage	-0.846	0.153	-1.265	-0.723	-0.104
	(3.98)***	(0.34)	(3.12)***	(2.12)**	(0.16)
y_{it-1}	0.251	0.248	0.25	0.25	0.248
	(15.42)***	(15.28)***	(15.37)***	(15.41)***	(15.21)***
Accessibility * Development		-0.34			-0.342
		(2.54)**			(2.55)**
Cohesion * Development			0.147		0.138
			(1.21)		(1.13)
Peak * Development				-0.033	-0.034
				(0.46)	(0.48)
Constant	0.623	-1.153	1.505	0.422	-0.546
	(0.65)	(0.97)	(1.25)	(0.40)	(0.36)
Observations	3695	3695	3695	3695	3695
Number of ID	204	204	204	204	204
R-squared	0.07	0.08	0.07	0.07	0.08

Note: (1) Standard errors in parentheses;

(2) *** p<0.01, ** p<0.05, * p<0.1;

(3) FE refers to 'Fixed Effect'.

Source: Authors' own

6.4.3 Robustness tests with China dropped from the data

Since China has grown very fast over the observation period, one might wonder how well the model performs with China dropped from the data. This subsection test the robustness of the econometric results above in both section 6.4.1 and section 6.4.2, through dropping China's data. For brevity, we only report estimation results for the fixed-effect model in Table 5.9 below, with columns FE(1)-(3) corresponding to FE(1)-(3) in Table 6.7 and columns FE(4)-(7) corresponding to FE(2)-(5) in can find, there is little change in the estimation results.

Table 6.9 Robustness tests with China dropped from the data

	Growth Rate of GDP per Capita (y_{it})						
Dependent Variables	FE (1)	FE (2)	FE (3)	FE (4)	FE (5)	FE (6)	FE (7)
Accessibility Index	0.814	0.764	0.772	1.525	0.822	0.808	1.54
	(3.44)***	(3.19)***	(3.20)***	(4.13)***	(3.47)***	(3.41)***	(4.17)***
Cohesion Index	0.427	0.437	0.447	0.431	0.082	0.435	0.109
	(2.04)**	(2.08)**	(2.13)**	(2.06)**	-0.23	(2.07)**	-0.31
Peak Index	-0.017	-0.012	-0.01	-0.024	-0.016	0.04	0.037
	-0.19	-0.13	-0.11	-0.26	-0.18	-0.27	-0.25
Development Stage	-0.838	-0.84	-0.734	0.157	-1.269	-0.707	-0.104
	(3.90)***	(3.91)***	(3.26)***	-0.35	(3.12)***	(2.04)**	-0.16
y_{it-1}	0.25	0.249	0.25	0.248	0.249	0.25	0.247
	(15.34)***	(15.30)***	(15.19)***	(15.22)***	(15.30)***	(15.34)***	(15.14)***
Area	0.013	0.016	0.015				
	-0.76	-0.93	-0.86				
Population		0.012	0.013				
		-1.53	-1.56				
GDP per Head			-0.037				
			-1.55				
Accessibility * Development				-0.339			-0.341
				(2.52)**			(2.54)**
Cohesion * Development					0.151		0.142
					-1.25		-1.16
Peak * Development						-0.035	-0.036
						-0.48	-0.5
Constant	-7.143	-9.244	-8.553	-1.145	1.532	0.408	-0.528
	-0.69	-0.89	-0.81	-0.96	-1.27	-0.39	-0.35
Observations	3676	3676	3596	3676	3676	3676	3676
Number of ID	203	203	195	203	203	203	203
R-squared	0.07	0.07	0.08	0.08	0.07	0.07	0.08

Note: (1) Standard errors in parentheses;

(2) *** p<0.01, ** p<0.05, * p<0.1;

(3) FE refers to 'Fixed Effect';

(4) The unit of Area is 1000 squared km;

(5) The unit of Population is 1 million;

(6) The unit of GDP per Head is 1000 USD (2010 Price).

Source: Authors' own

6.4.4 Analysis with the sub-indices

Given the limits on key variable construction above, in this subsection we would like to replace them with the sub-indices to elicit further details, as shown in Table 6.10 below.

First, we replace the accessibility index with the internal and external accessibility indices, with all other variables fixed (including the first-order lagged term of y_{it}); the random-effect estimation result appears in column (1). As we find, both internal and external accessibility are important to a country/region's growth, but external accessibility appears to have a relatively higher impact. Furthermore, when we replace both sub-indices by their sub-sub-indices, as reported in column (3), we find that the business start-up index (measuring internal accessibility of the capital market) and the FDI-based external accessibility index (which provides a measure of external accessibility) outperform other indices in explaining the contribution of accessibility to growth.

Second, we replace the cohesion index with its three sub-indices, again with all other variables fixed (including the first-order lagged term of y_{it}) and the random-effect estimation result appearing in column (2). We find that both government effectiveness and policy accountability share a significant positive correlation with a country/region's economic growth, while the share of taxes in total GDP does not have a significant non-zero explanatory power.

Lastly, when we replace both the accessibility and the cohesion indices with their sub-indices, with estimation results reported in column (4), the following variables still have significant non-zero partial effects: the indices for business start-ups, FDI-based external accessibility, government effectiveness, and policy accountability. Additionally, coefficients before other variables, including the peak index development stage, and lagged growth rate of GDP per capita, remain quite robust.

Table 6.10 Pool OLS estimation results for the sub-index model

	Growth Rate of GDP per Capita (y_{it})			
Dependent Variables	(1)	(2)	(3)	(4)
Accessibility Index		0.284		
		(2.89)***		
Internal Accessibility Index	0.152			
	(1.79)*			
Logistics Index			-0.044	-0.089
			(0.81)	(1.50)
Wage Index			0.084	0.083
			(1.20)	(1.19)
Business Start-up Index			0.218	0.233
			(3.38)***	(3.42)***
External Accessibility Index	0.237			
	(2.98)***			
FDI Based External Accessibility			0.586	0.58
			(7.09)***	(7.01)***
Trade Based External Accessibility			-0.121	-0.104
			(1.79)*	(1.53)
Structure Based External Accessibility			0.037	0.003
			(0.82)	(0.06)
Cohesion Index	0.235		0.149	
	(2.57)**		(1.61)	
Government Effectiveness Index		0.385		0.263
		(2.94)***		(1.75)*
Accountability Index		0.23		0.257
		(2.55)**		(2.67)***
Share of Tax out of GDP		0.053		0.006
		(0.78)		(0.08)
Peak Index	0.018	0.031	0.004	0.056
	(0.35)	(0.55)	(0.07)	(0.97)
Development Stage	-0.333	-0.388	-0.344	-0.344
	(6.10)***	(5.76)***	(6.10)***	(5.04)***
y_{it-1}	0.393	0.392	0.372	0.369
	(26.38)***	(26.23)***	(24.65)***	(24.40)***
Constant	0.541	-0.123	-0.437	-1.394
	(1.42)	(0.21)	(1.05)	(2.22)**
Observations	3695	3695	3695	3695
R-squared	0.18	0.18	0.19	0.19

Note: (1) Standard errors in parentheses;

(2) *** p<0.01, ** p<0.05, * p<0.1

Source: Authors' own

7 Concluding remarks

This paper proposes a new institutional analytic framework for explaining a country's path from poverty to wealth. We first build a political economic model under our analytic framework; we prove that, faced with the emergence of a potential competing group, a patient interest group or party seeking long-term governance will optimally choose an unbiased approach under single-peaked political governance, while compromise, consensus, and common actions provide the optimal choice under multi-peaked governance. Moreover, we introduce this political model into a three-sector overlapping-generation (OLG) model, and show that continuous economic growth relies on the combination of an access-opening regime and political cohesion; either unbiased single-peaked political governance or compromise-oriented multi-peaked governance may support this scenario.

Following the theoretical model, we propose three conjectures and test them based on a panel dataset of 209 economies from 1996 to 2015. To recap: we have specified and estimated a benchmark econometric model, based on both the pooled OLS and panel analysis approaches. Overall, the coefficient before the accessibility index is significantly positive, supporting Conjecture 1 - *an economy's accessibility can facilitate its economic growth;* we also have a significantly positive coefficient for the cohesion index, supporting Conjecture 2 – *a society's cohesion can strengthen its economic growth.* However, the coefficient before the peak index does not differ significantly from zero, which suggests that Conjecture 3 cannot be rejected - *the presence of single- vs. multi-peaked political governance is a neutral variable in the country's economic growth.* The model also adds evidence to the literature about the relationship between growth and development level; that is, the economic growth rate is lower for economies at higher development stages.

We tested for robustness by introducing additional control variables, examining interactions between key variables and development level and between political cohesion and accessibility, and adduced further details by replacing variables with their sub-indices. While the estimated coefficient values for major variables may vary, their signs remain robust across specifications – giving statistically sufficient support for our theoretical results.

As it happens, this study has strong implications for China. If it seeks to become a modern, high-income country, it should maintain unbiased political governance and take further actions to increase the economy's accessibility. In particular, the country needs more efforts to avoid the degeneration of unbiased single-peaked governance. Beyond this, the econometric work of this study suggests the feasibility and value of generalising its proposed framework on an international scale, by conducting case studies for a set of representative countries, including the U.S., Japan, India, Russia, Argentina, British, Germany and even the whole of Europe, as well as Africa. Such a panel of studies could supply additional evidence for the model's robustness across a range of governance arrangements and development levels, eliciting additional data of immense value.

Annexes

Annexe I Definition and construction of variables/indices

In this annexe, we give a detailed introduction to our means of constructing the key variables/indices in this study.

A 1.1 Variables about economic performance

In this study, we collected the following variables about economic performance from the World Bank Databank:

- GDP per capita (2010 Constant Price, USD)
- GDP per capita (2011 PPP, International Dollar)
- GDP per capita (Current Price, Local Currency)
- Growth Rate of GDP per capita (Constant Price, Local Currency)

With several exceptions, we have complete data for these variables for 209 countries/regions during the period from 1996 to 2015. Based on the GDP per capita (2010 Constant Price, USD), the development stage of country i in year t is defined as follows: if the GDP per capita falls within [0, 4000] (USD), it receives a stage 1 designation; within [4000, 8000], stage 2; within [8000, 12000], stage 3; within [12000, 16000], stage 4; for GDP per capita above USD 16000, stage 5.

Moreover, close examination of the data on GDP per capita growth indicates substantial volatility across countries, with the range falling between -100 per cent and 134 per cent, – the volatility being especially marked in small economies with high vulnerability to shocks. For this reason, we take a data-smoothing strategy to reduce the effects of outliers. Firstly, we set 20 per cent as a threshold for the data imputation, i.e., if the GDP per capita growth of an economy in a given year is higher than +20 per cent or lower than -20 per cent, we consider it an outlier. Secondly, if the observations before and after an outlier appear regular, we replace the outlier with their average; if one outlier is followed by another, or even by a series of outliers, we assume that the GDP per capita growth changes at a smoothing rate over the period, and that we might obtain the change rate from the two closest regular observations and the number of successive outliers, and replace them accordingly; if an outlier falls in the year of 1996 or 2015, we simply replace it with the closest regular observation. In addition, we take the same strategy to impute the series with missing data.

A 1.2 Construction of variables about economic accessibility

Accessibility has great importance during the development of an economy. Internally, accessibility means that production factors, including labour and capital, have sufficient opportunities to participate in production activities, and that products can also move freely on the market at low costs, with little discrimination and few barriers to mobility. Externally, accessibility means the integration of the domestic market into the global one and its

openness to foreign economic participants. Hence, we construct two sub-indices – internal and external – to capture the economy's accessibility.

As noted above, we construct the **internal accessibility index** from three sub-indices corresponding to accessibility of capital, labour, and goods markets.

Capital market accessibility: measured via the cost of business start-ups, say the ratio of the cost of business start-ups over GNI per capita. The ratio is standardised as follows: first, the top 2.5 per cent observations are assigned a value of 5 and the bottom 2.5 per cent observations a value of 0; for other observations, the rule is

$$value\ assigned = \frac{Raw\ value\ of\ an\ observation - 2.5\%\ Lowest\ value\ in\ the\ samlpe}{2.5\%\ Highest\ Value\ \ in\ the\ samlpe - 2.5\%\ Lowest\ value\ in\ the\ samlpe} * 5.$$

Next, considering that a higher value (higher cost) means lower capital market accessibility, we subtract the assigned value from 5 and finish the standardisation of the variable. Missing values are imputed using the same approach as for the GDP per capita growth rate.

Labour market accessibility: measured by the number of passengers carried by each kilometre of railway in a year, and the percentage of regularly salaried workers out of the total employed population. For the passenger-rail calculation, we first impute the missing data for each country using the same approach as the GDP per capita growth rate; second, we take the base 10 logarithm of the imputed series. Third, we follow a standardisation procedure similar to that for the capital market index and arrive accordingly at the standardised index: we first assign a value of 5 the top 2.5 per cent observations and 0 to the bottom 2.5 per cent observations, and for other observations, we assign values as follows:$value\ assigned = \frac{Raw\ value\ of\ an\ observation - 2.5\%\ Lowest\ value\ in\ the\ samlpe}{2.5\%\ Highest\ Value\ \ in\ the\ samlpe - 2.5\%\ Lowest\ value\ in\ the\ samlpe} * 5.$

As for the percentage of regularly salaried workers out of total employed population, we also first impute the missing data, but follow a slightly different standardisation procedure – not cutting the top or the bottom 2.5 per cent observations, but simply following the rule $value\ assigned = \frac{Raw\ value\ of\ an\ observation - Lowest\ value\ in\ the\ samlpe}{Highest\ Value\ \ in\ the\ samlpe - Lowest\ value\ in\ the\ samlpe} * 5$ to obtain the standardised index.

Goods market accessibility: measured by the logistics performance index, also scaled from 0 to 5. The imputation procedure is the same as for all variables above, and the standardisation procedure is also similar to the capital market index: we assign the 5 and 0 values to the 2.5 per cent top/bottom observations as before; for other observations, we assign values as per the rule:

$$value\ assigned = \frac{Raw\ value\ of\ an\ observation - 2.5\%\ Lowest\ value\ in\ the\ samlpe}{2.5\%\ Highest\ Value\ \ in\ the\ samlpe - 2.5\%\ Lowest\ value\ in\ the\ samlpe} * 5.$$

In total, we have four standardised indices. The average of the four gives us the **internal accessibility index,** standardised in turn following the same procedure.

We construct the **external accessibility index** from sub-indices about the scale of international trade and FDI, and export varieties. First, we use the average of two ratios $\frac{Total\ Exports\ of\ An\ Economy/\ GDP\ of\ the\ Economy}{Total\ Exports\ of\ the\ World/Total\ GDP\ of\ the\ World}$ and $\frac{Total\ Trade\ of\ An\ Economy/\ GDP\ of\ the\ Economy}{Total\ Trade\ of\ the\ World/Total\ GDP\ of\ the\ World}$ to measure the relative scale of the external market for domestic goods. Second, we use the average of the following two ratios to measure the openness of the domestic and the accessibility of the international capital markets: $\frac{Total\ FDI/Total\ GDP\ of\ the\ Economy}{Total\ FDI\ of\ the\ World/Total\ GDP\ of\ the\ World}and\frac{Total\ ODI/Total\ GDP\ of\ the\ Economy}{Total\ FDI\ of\ the\ World/Total\ GDP\ of\ the\ World}$; Third, considering that an economy's openness is not only reflected in the scale of the international market, but also by its diversity and structure, we construct another index based on the variety of exports to capture this point.

Trade-based external accessibility: as discussed above, this index is constructed based on the average of the two ratios $\frac{Total\ Exports\ of\ An\ Economy/\ GDP\ of\ the\ Economy}{Total\ Exports\ of\ the\ World/Total\ GDP\ of\ the\ World}$ and $\frac{Total\ Trade\ of\ An\ Economy/\ GDP\ of\ the\ Economy}{Total\ Trade\ of\ the\ World/Total\ GDP\ of\ the\ World}$. For each ratio, missing values are imputed in the same way as for dealing with outliers above, and the cubic root of the ratio is taken for each observation. We then standardise the cubit roots by assigning the top/bottom 2.5 per cent the values of 5 and 0 as before, and assign values for other observations following the rule:

$$value\ assigned = \frac{Raw\ value\ of\ an\ observation - 2.5\%\ Lowest\ value\ in\ the\ samlpe}{2.5\%\ Highest\ Value\ \ in\ the\ samlpe - 2.5\%\ Lowest\ value\ in\ the\ samlpe} * 5.$$

FDI-based external accessibility: measured by the average of the following two ratios: $\frac{Total\ FDI/Total\ GDP\ of\ the\ Economy}{Total\ FDI\ of\ the\ World/Total\ World\ GDP}$and $\frac{Total\ ODI/Total\ GDP\ of\ the\ Economy}{Total\ FDI\ of\ the\ World/Total\ World\ GDP}$. The imputation and standardisation procedure is exactly the same as for the trade-based external accessibility index. For each ratio, missing values are imputed in the same way as for dealing with the outliers above, again taking the cubic root of the ratio for each observation. We standardise the cubic roots according to the same top/bottom + 5-and-0 method as before, assigning values to other observations as follows

$$value\ assigned = \frac{Raw\ value\ of\ an\ observation - 2.5\%\ Lowest\ value\ in\ the\ samlpe}{2.5\%\ Highest\ Value\ \ in\ the\ samlpe - 2.5\%\ Lowest\ value\ in\ the\ samlpe} * 5.$$

Structure-based external accessibility: measured by varieties of exported goods. We first sum up the shares of agricultural goods, minerals, and fuels in an economy's total exports. After imputing the data, we impose a standardisation procedure on the series, similar to that for the **capital market accessibility index** – according to the usual 2.5 per cent top/bottom 5 and 0 values, and the following rule for other observations: $value\ assigned = \frac{Raw\ value\ of\ an\ observation - 2.5\%\ Lowest\ value\ in\ the\ samlpe}{2.5\%\ Highest\ Value\ \ in\ the\ samlpe - 2.5\%\ Lowest\ value\ in\ the\ samlpe} * 5$. Considering that a higher value means that an economy relies more heavily on primary goods exports, we subtract the assigned value from 5 and finish the standardisation of the variable.

In total, we have three standardised indices. Taking the average of the four gives us the **external accessibility index,** which we then standardise again following the same procedure. Given the internal and external accessibility indices, we take the average of the two and obtain the overall **accessibility index** for each country and each year.

Annexe II The accessibility index of top 50 countries/regions in 2015

Table A.1 The accessibility index of top 50 countries/regions in 2015

Rank	Country/Region	Accessibility Index	Rank	Country/Region	Accessibility Index
1	Hong Kong	4.761	26	France	3.665
2	Singapore	4.731	27	Saudi Arabia	3.570
3	Qatar	4.662	28	Slovak Republic	3.556
4	Netherlands	4.630	29	Czech Republic	3.546
5	Kuwait	4.526	30	Malaysia	3.511
6	Switzerland	4.316	31	Slovenia	3.510
7	Iceland	4.186	32	South Africa	3.489
8	UAE	4.070	33	Cyprus	3.485
9	Norway	4.067	34	Spain	3.469
10	Germany	4.064	35	Malta	3.467
11	Ireland	4.010	36	Lithuania	3.463
12	Darussalam	3.999	37	Finland	3.454
13	Luxembourg	3.980	38	Bahamas, The	3.436
14	Sweden	3.961	39	United Kingdom	3.374
15	Bahrain	3.940	40	Korea, Rep.	3.358
16	Angola	3.929	41	United States	3.336
17	Kazakhstan	3.865	42	China	3.308
18	Canada	3.849	43	Latvia	3.300
19	Russian	3.822	44	Belgium	3.299
20	Denmark	3.795	45	Belarus	3.228
21	Australia	3.794	46	Bulgaria	3.219
22	Austria	3.765	47	Japan	3.210
23	Trinidad	3.744	48	Israel	3.171
24	Oman	3.712	49	Mongolia	3.163
25	Chile	3.689	50	Italy	3.161

Source: Authors' own

Annexe III Statistical summary

Table A.2 Original growth rate of GDP per capita (constant local currency)

	Percentiles	Smallest		
1%	257.114	122.486		
5%	417.22	186.919		
10%	547.291	190.957	Obs	3,827
25%	1283.39	194.169	Sum of Wgt.	3,827
50%	4272.48		Mean	12539.9
75%	14480.4	108182	Std. Dev.	18266.16
90%	40429.6	111069	Variance	$3.34*10^{8}$
95%	49366.6	140103	Skewness	2.281435
99%	85321.2	145221	Kurtosis	8.962301

Source: Authors' own

Table A.3 Adjusted growth rate of GDP per capita (constant local currency)

	Percentiles	Smallest		
1%	-9.598471	-18.87481		
5%	-4.428827	-17.80674		
10%	-2.272727	-17.53277	Obs	3,899
25%	0.1243468	-16.55811	Sum of Wgt.	3,899
50%	2.325342		Mean	2.379248
75%	4.545455	18.00259	Std. Dev.	4.161236
90%	7.366479	18.48745	Variance	17.31589
95%	9.090909	18.50895	Skewness	-.1946895
99%	13.6366	18.98937	Kurtosis	5.171056

Source: Authors' own

Table A.4 Distribution of total population

	Percentiles	Smallest		
1%	20118	9264		
5%	66143	9298		
10%	109049	9334	Obs	4,011
25%	1261319	9374	Sum of Wgt.	4,011
50%	6114534		Mean	$3.26*10^{8}$
75%	$2.14*10^{7}$	$1.35*10^{9}$	Std. Dev.	$1.27*10^{8}$
90%	$6.13*10^{7}$	$1.36*10^{9}$	Variance	$1.60*10^{16}$
95%	$1.20*10^{8}$	$1.36*10^{9}$	Skewness	8.657534
99%	$3.21*10^{8}$	$1.37*10^{9}$	Kurtosis	82.8496

Source: Authors' own

Table A.5 Distribution of total area (square km)

	Percentiles	Smallest		
1%	29.9	2		
5%	320	2		
10%	610	2	Obs	4,011
25%	18270	2	Sum of Wgt.	4,011
50%	106440		Mean	640138.6
75%	469930	$1.60*10^7$	Std. Dev.	1796019
90%	1300000	$1.60*10^7$	Variance	$3.23*10^{12}$
95%	2400000	$1.60*10^7$	Skewness	5.484667
99%	9200000	$1.60*10^7$	Kurtosis	37.48108

Source: Authors' own

Table A.6 Distribution of economic accessibility index

	Percentiles	Smallest		
1%	0.5689773	0.0001555		
5%	1.067816	0.0224922		
10%	1.41832	0.0378827	Obs	4,011
25%	1.919779	0.0726487	Sum of Wgt.	4,011
50%	2.46387		Mean	2.508516
75%	3.07239	4.939485	Std. Dev.	0.8937671
90%	3.795123	4.947343	Variance	0.7988196
95%	4.075285	4.954062	Skewness	0.2173619
99%	4.658958	4.999506	Kurtosis	2.876116

Source: Authors' own

Table A.7 Distribution of cohesion index

	Percentiles	Smallest		
1%	0.5681818	0.0126263		
5%	1.622314	0.0252525		
10%	1.969603	0.0315657	Obs	4,011
25%	2.45012	0.0441919	Sum of Wgt.	4,011
50%	2.853374		Mean	2.812628
75%	3.257232	4.603872	Std. Dev.	0.7075269
90%	3.697931	4.715909	Variance	0.5005943
95%	3.871294	4.722222	Skewness	-.7466589
99%	4.146333	5.012626	Kurtosis	4.430902

Source: Authors' own

Table A.8 Distribution of governance peak index

	Percentiles	Smallest		
1%	0	0		
5%	0.0007477	0		
10%	0.5201714	0	Obs	4,011
25%	2.337371	0	Sum of Wgt.	4,011
50%	2.640255		Mean	2.681837
75%	3.502648	5	Std. Dev.	1.25166
90%	4.529181	5	Variance	1.566653
95%	4.778799	5	Skewness	-.1823232
99%	5	5	Kurtosis	2.861105

Source: Authors' own

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