Does China's anti-corruption efforts impact the fiscal position of local governments?

Samaneh Raiss Shaghaghi
Doctoral School of Economics,
University of Szeged,
Hungary
Email:
raiss.shaghaghi.samaneh@o365.u-szeged.hu
samasha1993@yandex.com

Corruption has been considered as one of the significant challenges to economic growth and development worldwide. In this study, partial least squares structural equation modelling techniques were used to integrate the determinants of China's anti-corruption efforts, and their causal relationship and effects on local government expenditure and revenues during President Xi Jinping's launch of the anti-corruption campaign were assessed. As per the results of the analysis, the determinants of anti-corruption efforts were found to have a direct effect on local government expenditure and revenues determinants.

Keywords:
China,
corruption,
local government,
partial least squares (PLS)

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Introduction

China has initiated its reform and opening-up policy in the late 1970s. Alongside pursuing economic development, the country has enforced anti-corruption policies and launched several targeted campaigns against major economic offences like bribery, smuggling and illicit foreign exchange arbitrage (UNODC 2011). China has stepped up its anti-corruption efforts and developed a three-pronged work pattern: ensuring that top cadres are self-disciplined and incorruptible; looking into and handling any violations of the law; and correcting malpractices in various departments and trades. To battle corruption and create a clean government, a holistic approach to treating its symptoms and causes must be taken, and efforts to eradicate the causes must be gradually increased.

Since the beginning of the 21st century, China has prioritised fighting against corruption and establishing a clean government (UNODC 2011). The country has also adopted the principle of addressing the root causes of corruption including its symptoms, enforcing comprehensive treatment, emphasising both prevention and punishment simultaneously and giving priority to the former. It established the national anti-corruption strategy by developing and refining a system for both punishment and prevention of corruption to fully support this endeavour. China is

more specific in its approach and more coherent in its thinking and employs more successful strategies to fight corruption and create a clean government, overall indicating a positive tendency of progress.

In China, the Communist Party of China and the Chinese government have taken measures to adjust and manage the corruption problem based on China's national conditions. In particular, since the 18th National Congress of the Communist Party of China in 2012, the Chinese government has implemented various anti-corruption policies and measures. Chairman Xi Jinping proposed the concept of 'cracking down on both tigers and flies' for the first time.

Moreover, China's leaders have emphasised that corruption would ruin the party as China has launched periodic anti-corruption campaigns against the Party and government officials. These campaigns have all followed a similar method and logic (Dong–Torgler 2010, Xu et al. 2017). The Chinese government has acknowledged that corruption 'is now worse than during any other period since New China foundation in 1949. It has spread into the Party, into government administration and into the entire part of society, as well as politics, economy, ideology, and culture' (Liang 1994: 122). A few low-level officials are punished in highly revealed criminal prosecutions, but then the campaign weakens until a new campaign is announced.

Unlike past anti-corruption policies, China's current crackdown is wide-ranging. In this current crackdown on public or Party officials, President Xi Jinping, the paramount leader of China, has announced that China will go after 'tigers and flies', meaning both higher and lower-level officials. In the past, Chinese crackdowns on public corruption have focused on lower-level officials ('flies') to demonstrate seriousness about corruption but have not pursued higher-level officials.

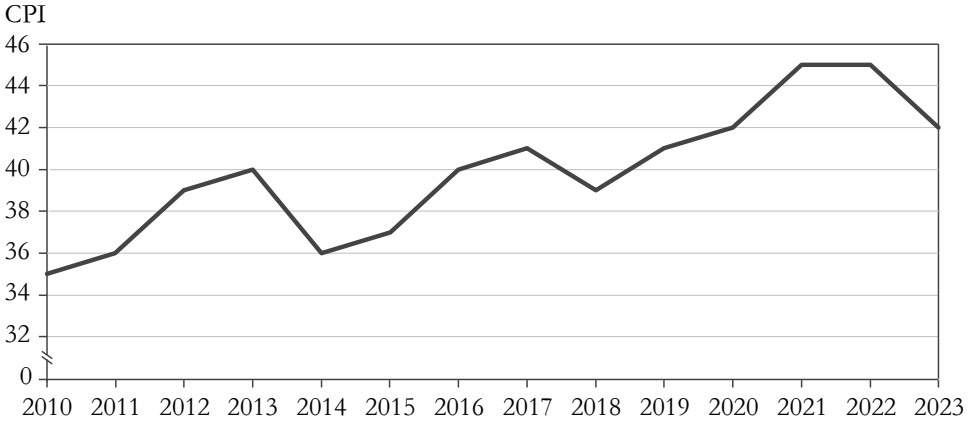
Subsequently, an inspection team headed by Wang Qishan embarked on a comprehensive anti-corruption campaign, conducting thorough investigations in many provinces. In 2012, an investigation was initiated that targeted officials at various administrative levels in Guangdong and Sichuan provinces, signifying the comprehensive commencement of the anti-corruption effort. In the subsequent 3-year period, inquiries were initiated in the remaining 29 provinces. Campaigns are executed covertly, with the provinces under investigation left uninformed until the announcement of the results.

In this research, the determinants of China's anti-corruption efforts are integrated, and their causal relationship and impact on local government expenditure and revenues during President Xi's anti-corruption campaign launch are examined using partial least squares structural equation modelling (PLS–SEM) techniques. This present manuscript is structured as follows. As stated in the introduction, the subject matter of this paper pertains to the impacts of anti-corruption efforts on local government revenues and expenditures in China. Then, a theoretical framework and an overview of the literature on corruption and anti-corruption in China, as well as China's local government and decentralisation are presented. Next, data modelling,

description and detailed explanation of the findings and the results of the data analysis are discussed. Finally, recommendations for future research are provided.

Figure 1

China's corruption perception index



Source: Transparency International (2010–2023).

Literature review

Decentralisation

Decentralisation is defined as the systematic redistribution or delegation of planning and decision-making responsibilities inside an organisation. This process involves transferring authority and control from a central, authoritative entity or group to smaller factions operating within it (Merriam-Webster's Dictionary 2013). Fiscal decentralisation has been identified to be crucial within a decentralised system of government. The allocation of resources and responsibilities holds significant implications as it determines the nature of public services provided by subnational governments, their financial means, the extent of equity achievable in light of fiscal disparities and the sustainability of national public finances. Subnational revenues include several sources, such as fiscal transfers, taxes and revenue sharing and government borrowing and debt.

Fiscal transfers from the central government are crucial income sources for several subnational governments, especially in economically disadvantaged and geographically isolated regions. Transfers may fulfil various objectives and use diverse design alternatives. There is no definitive formula for a transfer scheme, but, for subnational authorities, such schemes must include qualities of predictability, reliability and adequacy in connection to the given duties.

Following China's reform and opening-up policy, the central government initiated a process of devolving economic and administrative authorities to local governments

(Azis 2018). This decentralisation is aimed to bolster local governance capabilities in terms of managing economic and social resources, with the overarching goal of revitalising the economy and addressing the aftermath of the Cultural Revolution. Before China's reform and opening-up policies, the concept of decentralisation did not encompass firms. This can be attributed to history when Chinese firms were closely intertwined with governmental administration and exhibited little autonomy for self-development. Nevertheless, decentralisation has resulted in the reconfiguration of the dynamics between central and local governments and, since then, has impacted the interactions between the government and enterprises. From the standpoint of the central–local relationship, local governments were granted increased autonomy in terms of economic and administrative issues. This was a consequence of the mobilisation of local government and the alleviation of the financial burden on the central government. Since 1980, the central government has introduced a 'financial contract system' that resulted in the division of the financial system into a central system and a local system (Li 1994). The financial contract system underwent improvements in 1985, resulting in a more defined delineation of responsibilities between the central and local governments with regard to economic activities and fiscal distribution (Li 1994). The local administration was granted many economic management rights, including the authority to approve capital construction plans, regulate prices and approve foreign investments. Numerous enterprises that were previously within the purview of central ministries were transferred to local governments (Zhang 2000). Furthermore, the central government bestowed a specific set of economic rights onto special economic zones, economic and technological development zones and central cities (Zhang 2000).

Despite the implementation of tax reforms in 1994, numerous challenges persist in achieving an equitable distribution of taxation. Following the reforms, taxes that possessed a consistent income stream and shown the potential for growth were classified as either central taxes or central–local shared revenues. As an illustration, a significant proportion of the regional industrial value-added tax, specifically 75%, was remitted to the central government, whereas the remaining 25% went to local governments. The 1994 reform has substantially increased the money that local governments are required to provide to the central government (Gong 2006). Additionally, they have been tasked to assume greater financial responsibility for social services, price subsidies and infrastructure development. In contrast to the central government, local governments are prohibited from running deficits due to their inability to borrow or issue bonds to cover deficits, unless authorised by the national government (Gong 2006). According to Huang (2010), the business tax levied on railways, banks and insurance businesses under the ownership of the central government (and subsequently transferred to the local government) represents a significant portion of revenue that is characterised by its instability, dispersed origins and challenges in collection and administration. In contrast to the bottom–up

approach shown in fiscal power adjustment, government power distribution exhibits a distinct top–down mechanism. Furthermore, subnational governments exhibit reduced flexibility and heightened rigidity in their exercise of administrative authority. For instance, a number of policies formulated at the central level primarily rely on funding from business tax, personal income tax, income tax and other key sources of local finance. This has led to an increase in workload for local government, while simultaneously experiencing a decline in cash resources relative to the amount of time invested. Table 1 allows for the observation of the fluctuation in terms of the proportion of fiscal revenue between central and local governments.

Table 1

Proportion of fiscal revenues and expenditure

Year	National fiscal expenditure, 100 million yuan	Proportion		National fiscal revenue, 100 million yuan	Proportion of	
		central	local		central	local
		fiscal expenditure, %			fiscal revenue, %	
2012	125952,97	14,90	85,10	117253,52	47,91	52,09
2013	140212,10	14,60	85,40	129209,64	46,59	53,41
2014	151785,56	14,87	85,13	140370,03	45,95	54,05
2015	175877,77	14,52	85,48	152269,23	45,49	54,51

Source: China's National Statistics (2012–2015).

The government's fiscal responsibility to deliver public goods was unduly decentralised, resulting in a fall in the fiscal self-sufficiency of local governments, which then led to local fiscal deficits. Meanwhile, the redistribution mechanism exhibited insufficient enhancements in effectively addressing these localised shortfalls. Currently, local governments are compelled to prioritise the augmentation of local economic and fiscal revenue. Local governments resort to certain 'inappropriate' practices when pursuing revenue, including government interference in market operations, market segmentation, local protectionism, self-promotion and more (Ping 2007). Furthermore, the tax-sharing system solely governs the revenue inside the budgetary framework, hence resulting in a lack of stringent monitoring over the extra-budgetary funds. Hence, local governments endeavour to secure additional sources of money outside of their allocated budgets; this is commonly observed in the form of 'land finance'. Since 1994, the responsibility for land premium collection, which is the income generated from land sales, has been transferred to local governments rather than being retained by the national government. Subsequently, the revenue generated from property sales has emerged as a significant supplementary source of funding for local governments (Ping 2007). The government engages in the practice of acquiring land from farmers at a reduced cost through land acquisition and then reselling said land at an elevated price to fulfil diverse financial obligations. In regions that have undergone significant development, there exists a substantial value associated with land, commonly referred to as land premium. According to Ping

(2007), the local government's revenue from land sales in 2004 amounted to 615 billion yuan. Additionally, local governments acquired a total land area of 1,612.6 square kilometres, encompassing regions such as Guangdong, Shandong, Jiangsu and Hunan. The amount of land that was expropriated by these four provinces was almost equal to 50% of the total land acquisition acreage at the national level during that particular year. According to Ping (2007), the provincial money generated from land sales in Jiangsu, Zhejiang and Hunan in the same year amounted to 325.8 billion yuan, which is about equivalent to half of the total national land sale revenue. The implementation of this particular form of land financing adversely affects the welfare of farmers whose land is subject to requisition, hence potentially leading to societal instability. Based on the data from 2005 from the National Bureau of Rural Economic Surveys, as reported by the Rural Development Institute of the Chinese Academy of Social Sciences and the Team for the Development of the Rural Economy, the allocation of benefits resulting from land acquisition is distributed as follows: local governments receive approximately 20–30%, enterprises receive approximately 40–50%, and farmers receive approximately 5–10% (Ping 2007).

Defining corruption

Determining corruption is one of the challenges in studying it. Though it can seem like a semantic quarrel, the idea of corruption changes according to characterisation. 'Corrupt' comes from a Latin verb that means 'to shatter'. Here, 'corruption' literally translates to 'the shattered item' (Latin). A pattern of action that transgresses civic virtue, ethics, morality, tradition and the law is called corruption. Transparency International defines 'corruption' as the use of one's public position for improper personal gain. Both in the public and commercial sectors, individuals can work together to misuse power and pursue personal benefit (Dye 2008). Political corruption, conflict of interest, fraud, embezzlement, bribery, extortion and nepotism are examples of corruption that vary by country. There are various circumstances in which government actions are especially vulnerable to corruption, such as customs revenues, trip claims, tax collection, procurement contract administration and more. The most common types of corruption in countries' public sectors are asset misappropriation, patronage, bribery and influence peddling.

When it comes to the reasons for corruption, they can differ across countries, and although defining corruption is difficult, there is agreement that it refers to activities in which the power of public office is exploited for personal gain in a way that breaches the rules of the game.

Certain illegal activities, such as drug trafficking, money laundering, fraud and black-market activities, do not qualify as corruption as they do not entail the abuse of official power. However, those who believe that for these operations to thrive, politicians and public officials must usually be involved as these efforts are rarely

successful without widespread corruption (Shelley 1998). Furthermore, these actions have the power to affect governmental policy even in the most basic forms (Naylor 2004). Politicians, bureaucrats and public servants often abuse the authority entrusted to them by the people to further their own financial interests at the expense of the general welfare. If these activities were found, they would, at the very least, be viewed as unlawful and be met with significant public criticism. There is some agreement in the literature that corruption occurs when a public official (A), acting for personal gain, violates the norms of public office and harms the interests of the public (B) to benefit a third party (C) whom A rewards for access to goods or services that C would not otherwise obtain (Philp 2006).

Empirical studies on corruption

The empirical investigation of corruption in China has attracted considerable interest from policymakers and academics on account of its widespread occurrence and consequential effects on economic growth and governance. Studies in this field commonly concentrate on understanding the factors, expressions and outcomes of corruption within the Chinese context. An important area of research focuses on how institutional elements, such as political institutions, legal frameworks and regulatory environments, influence corrupt activities. Research conducted by Tanzi–Davoodi (1997) and Mauro (1995) specifically focus on the correlation between corruption and bureaucratic discretion. These researches underscore the significance of implementing institutional changes to effectively reduce corrupt practices among public officials.

Furthermore, empirical studies on corruption in China generally examine its economic consequences, such as its influence on company performance, market competitiveness and allocation of resources. Wei's (2000) research investigates the detrimental impact of corruption on the influx of foreign direct investment, illustrating how corruption discourages international firms from investing in China. Meanwhile, Shleifer–Vishny (1993) and Li–Xu (2002) conducted research that examine the negative impact of corruption on market efficiency and resource allocation. These studies emphasise the need of implementing anti-corruption legislation to promote a favourable economic climate.

Moreover, empirical studies provide insight into the ways in which corruption affects several socio-economic results, including but not limited to income disparity and the provision of public services. The study conducted by Lin–Liu (2000) examines the correlation between corruption and economic inequality in China, wherein the findings indicate that corruption worsens income inequalities by showing preferential treatment towards the affluent and influential individuals. Furthermore, research conducted by Wu–Chen (2001) and Gong et al. (2011) investigates the influence of corruption on the delivery of public services, emphasising how corrupt

activities can weaken the standard and availability of vital services like healthcare and education. These findings highlight the complex and diverse impact of corruption and emphasise the urgent need to tackle corruption as a systemic problem in China's development plan.

Moreover, Aidt et. al. (2020) have investigated the demographics of individuals involved in corruption and the monetary amounts exchanged in bribery transactions using the data from the China Corruption Conviction Databank. Employing econometric techniques, they analysed the characteristics of bribe-takers, revealing that government officials and executives in state-owned enterprises are more likely to engage in corrupt activities. Additionally, they found regional and sectoral disparities in bribery incidence, suggesting the influence of local economic conditions and regulatory frameworks. Their study also explores the determinants of bribe size, indicating that larger bribes are associated with transactions involving higher economic stakes and lower enforcement risks. These findings underscore the importance of targeted anti-corruption measures and enhanced enforcement mechanisms to effectively combat corruption in China.

Gutmann et. al (2020) investigated the dissonance between perceived and experienced measures of corruption. Through an analysis of microdata, the study finds that various factors contribute to the gap between perceived corruption levels and actual experiences of corruption. Socio-economic factors, institutional quality, cultural norms and media influence all play significant roles in shaping corruption perceptions. Importantly, the research suggests that improving transparency, strengthening institutional integrity and promoting cultural changes regarding corruption attitudes are crucial policy recommendations derived from the findings. By addressing these factors, policymakers can design more effective anti-corruption strategies and further enhance governance mechanisms to effectively combat corruption.

Local government in China

Since the 'reform and opening' movement, local governments have had more freedom in directing local programmes and modifying local regulations to fit local circumstances (Yu–Guo 2019). The early 2000s had a number of significant reforms implemented that altered the nature of local policymaking in China (Ahlers 2014). These included the tax-for-fee reforms, the expansion of a fiscal transfer system and the creation of new state-funded initiatives aimed at promoting rural–urban integration and rural development. Local party and government cadres, who must deliver results to the upper levels to secure their future careers or to maintain their current rank and social status, are the strategic agents that shape contemporary Chinese local state manoeuvring (Yu–Guo 2019). These mechanisms are primarily

institutional control ones, including centrally designed policies (tax competition, cadre and performance evaluation and promotion) (Heberer–Schubert 2012).

In China, policymaking is shaped by a complex interplay between institutional restraints, strategic agency on the part of local cadre bureaucracies and central state 'signalling'. Neither top–down directives nor bottom–up collusion and simple 'muddling through' determine policymaking. In other words, current local governance setup and effective policy implementation are the outcomes of central state claims to political steering and local responses to these claims.

Local government units function within a bureaucratic hierarchy wherein all governmental levels are answerable to one another, and province governments are obligated to submit to the State Council's unified leadership (Cheng 2016). The Party's nomenklatura system, which strictly regulates the appointments of officials at all levels, supports the government system. Although local government representatives are not required to respond to voters, they are required to submit to yearly, in-depth performance evaluations conducted by their superiors.

As per the provisions outlined in article 107 of the Constitution, the primary responsibility of the local government is to administer and oversee various economic and other matters within its designated authority such as:

- The jurisdiction of the entity includes the management and development of various sectors, including the economy, education, science, culture, health, sports, and urban and rural construction.
- The administration is responsible for overseeing several aspects of governance within its jurisdiction, including finance, civil affairs, public security, national affairs, judicial administration, supervision, and other administrative tasks.
- The organisation possesses the authority to appoint, dismiss, provide training for, assess the performance of, provide incentives to, and impose disciplinary measures on administrative personnel under its purview.

Local governments function within a hierarchical structure of leadership across many levels, wherein the lower levels are theoretically submissive to the higher levels (Yang 2003). Moreover, it plays a big part in economic growth. The provincial governments assume a leadership role over the municipal governments. In this hierarchical structure, city governments are above county governments, while county governments exercise authority over town governments. Governments operating at subordinate levels primarily operate under the guidance, direction and oversight of higher ranked governments. This implies that local governments possess autonomous authority while operating inside the framework established by higher-level governments. However, they may also be required to fulfil obligations mandated by the government at a higher level (Yang 2003).

China's history on fighting corruption

To reduce corruption, the Chinese Communist Party (CCP) has implemented anti-corruption measures, including the creation of agencies and regulations. The CCP has formulated strict guidelines in 2004 for officials taking up positions in business and enterprise. In a joint circular, the CCP's Organisation Department and the Central Commission for Discipline Inspection (CCDI) directed all levels of CCP committees, governments and related departments not to permit Party and government officials to hold concurrent positions in businesses (Transparency International 2006).

The National Corruption Prevention Bureau (NCPB) was founded in 2007, with the primary goals of intelligence gathering and interagency collaboration (Quah 2011). The bureau was tasked with 'implementing preventive measures, monitoring the transfer of assets across organisations, facilitating and promoting information sharing between agencies, and policing corrupt practices within the nongovernmental sphere, including private enterprises, social organisations, and NGOs', in contrast to the Ministry of Supervision, Procuratorate, or CCDI (Becker 2008). However, the NCPB's lack of independence meant that its influence on real corruption was limited.

Commercial bribery is forbidden by the Anti-Unfair Competition Law and thus is subject to legal and administrative repercussions. Offering or accepting bribes while buying or selling products is against the law. Companies that engage in misbehaviour face fines ranging over 10,000–200,000 RMB (renminbi, also known as Chinese yuan). China's Criminal Law forbids the transfer of property for the purpose of gaining an unfair advantage, and its consequences include fines, property seizure, incarceration or even death. However, because the pertinent laws are not sufficiently enforced, such measures are deemed essentially ineffectual (Kaufmann–Pei 2020). Researchers are also uncertain about the methods used by the CCDI to discipline and penalise allegedly corrupt officials due to its mostly secretive operations. Corrupt practices are low-risk, high-return activities with less than 3% of corrupt officials ending up in jail or prison. One of the primary causes of China's severe corruption problem is the laxity of punishments (Kaufmann–Pei 2020).

Additionally, anti-corruption laws have not been improved significantly, despite corruption having expanded in scope and complexity (Johnston 2010). Like in the 1950s, public campaigns in the communist style including moral injunctions, slogans opposing corruption and conspicuously displayed miscreants continue to play a significant role in government policy (Kaufmann–Pei 2020).

Internal CCP statistics state that 106,000 officials were found guilty of corruption in 2009, which is a 2.5% increase from 2008. In that period, there was a 19% increase in the number of officials found to have embezzled more than one million RMB (US$ 146,000). Corruption has thrived in the absence of independent scrutiny provided by nongovernmental organisations (NGOs) or free media (Sommerville 2009).

An occasional severe prison sentence for serious offenders, or even execution, serves as a break between these endeavours. However, the standards and principles governing corporate and bureaucratic behaviour are often dynamic, occasionally incoherent and 'deeply politicised' (Kaufmann–Pei 2020). Systematic anti-corruption efforts in many nations include free media, watchdog organisations like NGOs and independent trade and professional associations that help minimise corruption by enforcing strict codes of conduct and enforcing swift sanctions. These policies are non-existent in China because of the CCP's methods of governance; therefore, few citizens or observers think corruption is being systematically tackled, even if CCP disciplinary organs and prosecution agencies generate impressive figures on corruption complaints received from the public (Kaufmann–Pei 2020).

Additionally, the scope of anti-corruption initiatives remains to be limited. For instance, Chinese internet portals and Party-controlled media were instructed not to report about Hu Jintao's son's involvement in a corruption probe in Namibia (Barboza 2009).

Simultaneously, local authorities were found to participate in 'corruption protectionism', a term coined by the province Party Discipline Inspection Commission Director of Hunan. These mechanisms prevent corruption investigations against their own agency personnel, effectively sparing them from punishment. In many instances, this has compelled senior officials to establish special investigative teams with authorisation from the national government in order to circumvent local opposition and ensure compliance (Lü 2000). However, CCP anti-corruption authorities find it difficult to look into lower levels since vertical and horizontal leadership structures frequently clash in China. Therefore, the ruling Party still struggles to adequately manage corruption and uses it as a propaganda tool to deceive the Chinese population with false promises (Lü 2000).

According to a December 2020 article in Foreign Policy, the CCP's internal corruption for decades had left gaps that foreign intelligence services, especially the Central Intelligence Agency of the United States, took advantage of. At least some of the CCP anti-corruption purges were driven by counterintelligence concerns (Dorfman 2020).

Previous research on anti-corruption results

Chen et al. (2021) have looked at how anti-corruption initiatives affected listed Chinese companies' corporate environmental responsibility (CER) performance between 2010 and 2016. The empirical analysis uses the anti-corruption campaign as an exogenous policy shock and uses a difference-in-differences design to determine the causal influence. The results showed that high-corruption firms' CER performance is significantly improved by China's anti-corruption campaign, which was initiated in 2012. State-owned businesses, particularly those held by local

governments and those engaged in pollution-intensive industries, are most affected by this.

Empirical studies on corruption and government revenue and expenditure

In China, the primary suppliers of regional public goods and services are local governments, and the primary objective of government spending is to guarantee the efficient provision of these public goods and services. However, the absence of stringent oversight and approval processes for local government spending, unclear data and inadequate oversight mechanisms have created a grey area where dishonest and rent-seeking behaviour by individual officials is permitted. This suggests that the amount and composition of government spending are probably connected to the corruption at the grassroots level and that corruption might influence the amount and composition of government spending.

Corruption and government revenue

Researchers generally believe that corruption has a major detrimental effect on tax revenue. Research conducted in developing nations shows that because of corruption and tax evasion, government treasuries frequently are unable to track down more than half of taxes due. While some scholars have suggested that corruption might increase tax revenue collection efficiency by discouraging tax evasion and encouraging tax authorities to work harder, other experts have noted that it ultimately lowers tax revenues (Tunggodden–Fjeldstad 2003).

The research by Tanzi–Davoodi (1997), who examined the correlation between gross domestic product (GDP) in 97 countries and levels of corruption (as determined by corruption perception indexes), supported these conclusions. They discovered a 1.5 percentage point reduction in the revenue-to-GDP ratio, a 2.7 percentage point decline in the tax-to-GDP ratio and a 1.3 percentage increase in the non-tax revenue-to-GDP ratio for every 1-point increase in the corruption perception index (CPI).

The International Monetary Fund has conducted research in 39 sub-Saharan African nations in 1998 and found significant statistical evidence that increased corruption decreases the tax revenue-to-GDP ratio. This conclusion prompted the organisation to conclude that measures to reduce corruption would significantly enhance tax collections (Ghura 1998).

This demonstrates that, aside from non-tax income, higher levels of corruption are associated with lower levels of all sorts of revenues. The latter result is in line with the observation that natural resource income account for the majority of non-tax revenues, at least for emerging nations. Conversely, research has indicated that the quantity of natural resources is a significant factor in the determination of corruption (Tanzi–Davoodi 2000).

Based on these results, Tanzi–Davoodi (1997) concluded that corruption affects direct taxes more heavily in developing nations due to their higher prevalence of corruption. They postulated that direct taxes in developing nations as a whole may rise by 7.2% of GDP for every 4 points less in the CPI.

Imam–Jacobs (2007) used the generalised method of moments (GMM) technique to investigate the link between tax revenues and corruption in 12 Middle Eastern nations between 1990 and 2003; they found that trade and personal taxes had a more noticeable detrimental effect on the levels of corruption.

Using the GMM approach, Attila (2008) investigated the link between taxation, economic development and corruption using the data from 80 nations for 1980–2002. The study's findings revealed that, while corruption may have a favourable impact on economic growth in some situations, taxes may have a detrimental effect. Furthermore, corruption might result in high tax rates, which could then be detrimental to economic expansion.

Tunc Yilanci–Saşmaz (2023) have utilised the Westerlund–Edgerton (2007) panel cointegration test and the Emirmahmutoglu–Kose (2011) panel causality tests to investigate the link between tax revenues and corruption in 11 European Union transition economies between 2003 and 2015. The findings show a bidirectional causal link between the two variables including a long-term association between tax revenue and corruption.

Hunady–Orviska (2015) used panel data analysis to examine the link between total tax receipts of 46 Organisation for Economic Co-operation and Development (OECD) and Latin American nations between 1998 and 2013. The study showed that the overall tax revenues of the sample countries were significantly and negatively affected by corruption.

Corruption and government expenditure

According to Tanzi–Davoodi (1997), corruption primarily results in higher public expenditures because it impairs the effectiveness of public administration and the smooth operation of the public revenue–expenditure system; examining the data from 1980 to 1995 for 63 countries, they found that corruption is positively correlated with public expenditures and increases spending in this regard.

Using statistics on public spending, Mauro (1998) noted that a country's economic success is influenced by the makeup of its public spending. Government officials may have a tendency to spend more in places where corruption is more likely to occur in corrupt nations. Mauro's (1998) study used data from around 100 nations between 1970 and 1985, wherein it was found that there is an inverse link between education spending and corruption. According to Delavallade (2006), corruption has undermined the structure of public spending by reducing spending on social safety, health and education in 51 developing and 13 developed nations between 1996 and

2001. Conversely, corruption is seen to increase spending on public services, defence, energy and fuel and culture. Karagöz–Karagöz (2010) studied the link between corruption, economic growth and public spending in Türkiye, but they were unable to establish a link between public spending and corruption.

Using the data from 36 highly indebted nations, Ryu (2020) showed a positive correlation between the general government's consumer spending and the CPI over 1996–2017. For ten sub-Saharan African countries covering 2009–2020, Victor–Leyira (2021) found a statistically weak but significant link between general government final consumption expenditures and corruption.

Aktaş (2021) used GMM panel data analysis to analyse four different corruption indexes for robustness check and forecasting covering 2002–2018 for 37 OECD countries. It was found that three models' corruption indexes were significantly and positively correlated with public expenditures, while the other corruption index was positively but not significantly correlated.

Methodology and data analysis

Methodology and data collection

Based on the PLS estimation method, this section explains how the anti-corruption variable relates with the local government revenue and expenditure measures. In this study, the main variables are anti-corruption (corruption cases collected by Wang 2020), local government revenue factors (local government general revenue [100 million RMB]) and local government expenditure (local government general expenditure [100 million RMB]).

The corruption cases investigated during Xi Jinping's anti-corruption campaign was collected by Wang (2020) and from Tencent – the largest internet company in China. Tencent created a searchable online database of all corruption probes conducted in China from 2011 to the beginning of 2016. The database contains officials' names, positions, localities, ranks and grounds for investigation, based on the data provided by Party disciplinary committees, courts and procuratorates from the central to local levels. After data cleaning and sorting processes, the number of instances in each province, municipality and autonomous area from 2012 to 2015 was taken for this study from this dataset. The U4 Anti-corruption Resource Centre's guideline 'Guide to using corruption measurements and analysis tools for development programming' categorises corruption-related statistics into three main types: population surveys and user surveys, criminal or legal statistics and administrative statistics. The number of corruptions takes part under the criminal or legal statistics. Moreover, although most corruption cases remain unreported, more arrests or convictions may indicate increased anti-corruption efforts rather than increased corruption, making this data 'countable' but untrustworthy as a measure of

corruption. Therefore, the corruption cases have been considered as anti-corruption efforts.

The analysis relies heavily on the secondary data from Wang's (2020) 'China's Corruption Investigations Dataset' and the National Bureau of Statistics of China. Before being utilised in the research, the dataset was checked for consistency with other sources and proved to be consistent. The dataset covered information from 31 provincial-level local government across 2012–2015.

Table 2

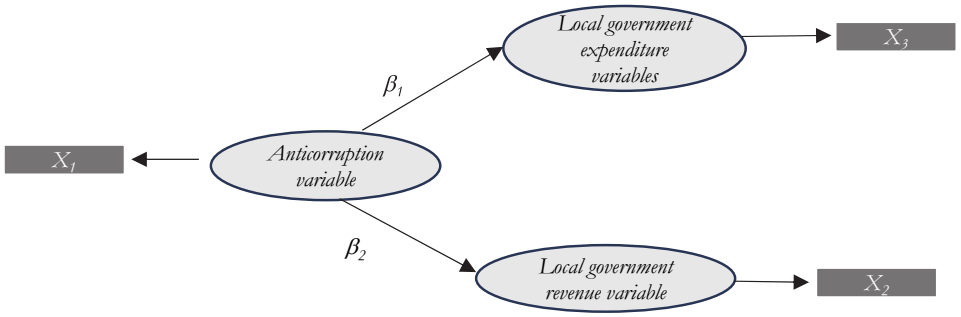
Latent and manifest variables

Latent variable	Manifest variable
Anti-corruption variable	Corruption cases (includes information on almost 20,000 officials who were investigated during Xi Jinping's anti-corruption campaign) (Wang 2020)
Local government expenditure variable	Local government general expenditure (100 million RMB)
Local government revenue variable	Local government general revenue (100 million RMB)

The PLS path modelling comprises simultaneous regression and factor estimations, pointing to latent variables' indirect and direct impacts. Because this technique is highly adaptable to both small and large sample sizes including nonnormally distributed datasets of variables, it was selected for the demonstration (Hair et al. 2012). The PLS approach helps establish a connection between the variables and the constructs' related indicators. The structural connections between the construct measurements of variables should also be specified. The inner reliability of the PLS model is determined using the composite reliability (*CR*) test, while its convergence validity is evaluated by means of discriminant validity (based on the average variance exp [*AVE*]) and indicator reliability. The coefficient of determination (R^2) and the correlation coefficient (*R*) help assess the structural model's explanatory power, which determines the variance in each of the endogenous constructs; (f^2) indicates the variables' effect size.

Figure 2

Proposed structural model



As shown in Figure 2, variables X_1–X_3 are the construct or manifest variables. The path coefficients (β) demonstrate the causal relations between the key variables.

Data analysis and results

PLS calculations aid in identifying the structural pathway that links variable constructs and the cause-and-effect connection between a variable construct and its related indicators. R^2 is used to evaluate the validity of the structural route modelling. It estimates the variations in the dependent variable that the independent variables explain. As a result, it is a representation of the modified path model's quality. The analysis demonstrates that 36.6% of the variation is predicted by the local government expenditure variable and 18.8% by the local government revenue variable (Figure 2). According to Cohen's (1988) classification of the effect size, R^2 values are as follows: $R^2 < 0.02$ is very weak; $0.02 \leq R^2 < 0.13$ is weak; $0.13 \leq R^2 < 0.26$ is moderate; and $R^2 \geq 0.26$ is substantial. As per these results on the endogenous latent variables, local government revenue impacts the model moderately; however, local government expenditure factor significantly impacts the model.

Figure 3

Model illustrating the interactive relationships between variables and the path analysis

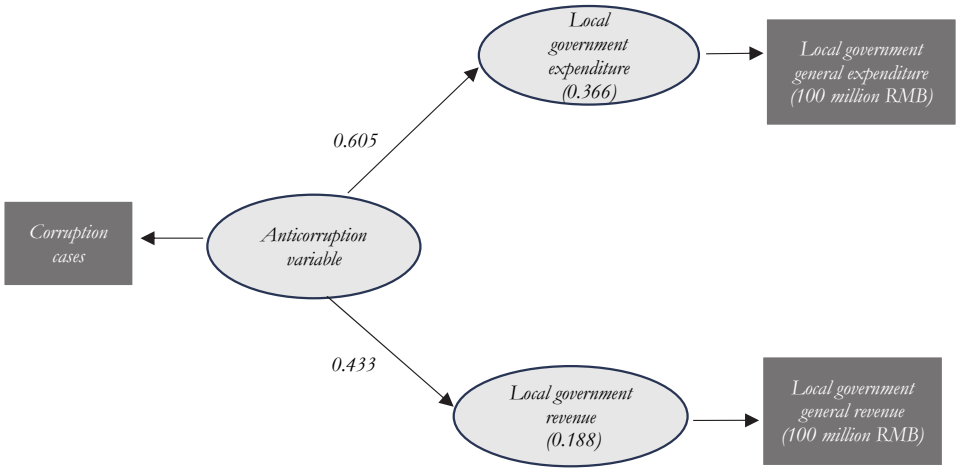


Table 3a reveals that the predictive validity of the explained latent local government revenue variable (Q^2) is 0.165, whereas the local government expenditure variable is 0.348; all are greater than 0. This validates the model's predictive validity.

Table 3b shows that when correcting the model, the value of f^2 used to measure the importance of the construct variables predicts a significant impact size for the anti-corruption latent construct variable.

Table 3a

Indicator validity predictive size

Latent variables	Validity (Q^2)
Anti-corruption	–
Local government revenue	0.165
Local government expenditure	0.348

Table 3b

Indicator effective predictive size

Latent variables	Effect size (f^2)
Anti-corruption → Local government revenue	0.231
Anti-corruption → Local government expenditure	0.579

These findings show that the anti-corruption efforts, local government revenue and local government expenditure factors may all have a substantial impact on the model modification, which is consistent with Hair et al.'s (2014) evaluation criteria: Q^2 values should be more than 0; and f^2 values greater than 0.02, 0.15 and 0.35 represent modest, medium and large impact sizes, respectively.

The model's adjustment quality is evaluated using *CR*, R^2 and *AVE*. Internal consistency (construct reliability) is measured by *CR*, while convergent validity is demonstrated by AVE. Table 4 shows that the *CR* values are over 0.7, and the *AVE* values are greater than the 0.5 threshold, which is regarded acceptable. According to Hair et al. (2009), these findings support the validity of the construct variables in model modification.

Table 4

Indicators for the adjustment quality of the model

Latent variables	AVE	CR	R^2
Anti-corruption	1.000	1.000	–
Local government revenue	1.000	1.000	0.188
Local government expenditure	1.000	1.000	0.366

Fornell–Larcker (1981) have proposed doing a discriminant validity evaluation of the models. As per the authors, the square root of *AVE* for each component of the latent construct should exceed the construct factor's highest correlation with any other variable. The discriminant values were determined by taking the square root of the AVE of the latent construct variables (Table 5) and comparing it to the *R* in each sectional column. Moreover, cross-loadings were observed for discriminant validity, i.e. whether each item loading on a construct factor is higher than all of its cross-loadings with other construct factors. The data confirm that there are no matters. A different method was used to assess the discriminant validity. The cross-loadings between the observed variables and the underlying constructs were analysed to

ascertain the associations between the observed and latent variables. The investigation revealed no issues as regards discriminant validity. The result further indicates that the measurement model has discriminant validity.

Table 5

Fornell–Larcker criterion analysis for checking the discriminant validity of the model

Latent variables	Anti-corruption	Local government revenue	Local government expenditure
Anti-corruption	1.000		
Local government revenue	0.433	1.000	
Local government expenditure	0.605	0.909	1.000

Bootstrapping calculations were used to determine the relevance of route coefficients. Based on Hair et al. (2011) criteria, the number of sub-examples are 5,000. The results in Table 6 show that the anti-corruption construct variable has a positive correlation with local government revenue and local government expenditure.

Table 5 further shows a positive total direct effect of anti-corruption factors on local government revenue (β = 0.433) and a positive total direct effect of anti-corruption on local government expenditure factors (β = 0.605).

Table 6

Bootstrapping results

Causal relationship	β (original sample)	Sample mean	Standard deviation	Test statistics	p-value
Anti-corruption → Local government revenue	0.433	0.430	0.095	4.555	0.000
Anti-corruption → Local government expenditure	0.605	0.600	0.070	8.681	0.000

Conclusion

Corruption has become an endemic problem in most nations with weak legal systems, acting as one of the world's greatest challenges and the most crucial issue on a country's path to sustainable development (Rose-Ackerman 2004). Furthermore, corruption is often regarded as a country's most significant impediment to economic and political growth, because it takes advantage of economic incentives to invest, weakening public institutions, redistributing money and power to undeserving individuals and finally breeding distrust in society. For this reason, it is very important to detect and prevent corruption for the future sake of developing countries as it has a wide-ranging influence on impoverished areas.

Corruption prevention has always been a hot topic and a critical concern in all countries worldwide. Additionally, in the digital era, it is often disguised and thus

difficult to uncover. As a result, corruption might present unique obstacles during the detecting phase. China's fragmented power structure and decision-making capabilities, along with a highly centralised and government-controlled fiscal distribution system via restricted channels and ambiguous links, contribute to the prevalence of corruption as an inherent characteristic. These details may be identified in relation to the hierarchy within public administration, as well as the connections between public administration and state-owned enterprises (SOEs) and private companies. The prevention of corruption has always been a prominent and crucial issue. Thus, this study examined the relationships between the determinants of anti-corruption and its effects on local governments' fiscal revenue and expenditure by applying PLS–SEM modelling to mainland China's data, spanning across 2012–2015, covering the launch of the anti-corruption campaign. The model structure and measurements were verified for the causal model (see Figure 2). The latent constructs were verified by examining convergence validity, AVE, CR and factor loading (Hair et al. 2009). Table 4 shows that $CR > 0.7$ and $AVE > 0.5$ for each latent variable and that the factor loadings are greater than 0.5; thus, all the factor loadings for the constructs are deemed reliable. As shown in Table 5, discriminant validity was justified as the discriminant values of the latent variables are greater than the square of the correlation between the latent variable and other constructs (for the criterion, see Fornell–Larcker 1981).

Table 3 shows that the latent constructs, local government revenue and local government expenditure had higher predictive relevance because the predictive validity (Q^2) > 0; furthermore, the effect size (f^2) for the latent anti-corruption construct was considered large (for f^2 values, see Hair et al. 2014). As per the R^2 results, local government expenditure is affected by latent anti-corruption construct. With a R^2 value of 0.188, the latent anti-corruption construct is also noted to influence the local government revenue latent construct.

The results for the total effects of the latent constructs on local government expenditure show that the latent anti-corruption construct ($\beta = 0.605$, $p = 0.000 < 0.050$) has a positive and statistically significant effect on local government expenditure. Upon closer examination of the various local expenditures, education has borne the largest share of spending over the years. The precise figure is unknown; however, United Nations reposts on China's anti-corruption strategies indicate that one of their tactics was to educate and inform every citizen about corruption and its repercussions (UNODC 2011). China actively encourages the implementation of integrity education and the establishment of a culture of clean government. The country has implemented initiatives aimed at promoting clean governance education among civil servants, with the primary objective of cultivating proper values and encouraging adherence to laws and regulations. The goal is to foster a sense of integrity and fortify their moral defence against corruption. Additionally, integrity education programmes have been introduced to students at various educational levels.

These programmes aim to instil moral consciousness and develop a strong understanding of integrity, honesty and adherence to the law. Furthermore, China has launched initiatives to promote a culture of incorruptibility throughout society, with the aim of fostering a societal norm that values integrity and condemns corruption. Emphasis is also placed on preserving and promoting the essence of incorruptibility culture within Chinese traditions, with various media platforms guiding social trends. Additionally, a portion of the budget might be allocated towards investigations into corruption cases, given that general public services expenditure ranks third in terms of expenses.

The path coefficient, i.e. the total effect of the anti-corruption latent construct ($\beta = 0.433$, $p = 0.000 < 0.050$) on local government revenue factor, is also positive and significant. Upon examining the primary source of revenues for the local government, the majority of its revenues is derived from taxes with a significant portion stemming from business taxes. Following the collection of taxes, it is seen that non-tax revenue holds a significant proportion. This occurrence may be linked to the revenue generated by SOEs and the operational income derived from state-owned capital. Additionally, anti-corruption initiatives have likely helped in preventing corrupt officials from misappropriating these funds. Furthermore, it is evident that there has been an increase in local fiscal income from penalties and confiscations throughout the research period. This might be attributed to the confiscation of assets from corrupt officials.

Based on these findings, it can be concluded that China's anti-corruption campaign and efforts have a direct and positive effect on the local government expenditure and local government revenue in the short run. Currently, President Xi seeks to add an additional focus to cover fugitives overseas accused of committing serious economic crimes. Introducing this new strategy might alter the perception of the western media, which currently thinks that this anti-corruption drive serves as a tool for political purges. Fisman–Gatti (2002) aimed to conduct an initial evaluation of the correlation between decentralisation and corruption. Their findings revealed a robust and consistent negative correlation between these two variables across various countries. Considering this paper's results of anti-corruption efforts on the local government expenditure, it is worth noting that theories on decentralisation offer inconclusive predictions regarding this association.

The findings obtained using PLS–SEM demonstrate the significance of including the anti-corruption determinant into the model to evaluate its impact on local government spending and local government income. One of the limitations that should be considered is the restricted availability of data during a limited time frame. Nevertheless, this model may be used to scrutinise other nations or groups of nations that adopt a similar anti-corruption strategy. Further research is thus required to get a definitive judgement in the long term.

Appendix

Regions included in research

Beijing	Anhui	Sichuan
Tianjin	Fujian	Guizhou
Hebei	Jiangxi	Yunnan
Shanxi	Shandong	Tibet
Inner Mongolia	Henan	Shaanxi
Liaoning	Hubei	Gansu
Jilin	Hunan	Qinghai
Heilongjiang	Guangdong	Ningxia
Shanghai	Guangxi	Xingjiang
Jiangsu	Hainan	
Zhejiang	Chongqing	

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