FOREIGN AND LOCAL INCENTIVES OF GREEN SPENDING: THE CASE OF CHINA

Why does foreign direct investment lead to higher green spending in some cases and lower in others? An established school of thought in the environmental political economy literature suggest that multinational corporation (MNC) activity is often the driver of environmental degradation in foreign countries. This is because MNCs transfer pollution intensive industries to so-called "pollution havens," thereby exacerbate "race to the bottom" incentives in the destination countries. Research has shown some firms seek out areas with less stringent environmental regulations (Malesky and Mosley 2018). Yet another school of thought suggests that MNCs can also promote the upgrading of environmental practices as trade linkages can transmit environmental policy preferences across countries (Graham, Shipan, and Volden 2013). Further, there is only limited evidence suggesting that firms with pollution intensive practices are more likely to invest in areas with weak environmental regulation (Javorcik and Wei 2004).

Public spending has emerged as a crucial solution to counter environmental degradation, with the public procurement average spending ranging from 13% to 20% of GDP (World Bank 2020). With such a huge market being created due to this significant amount of public procurement can serve as a potent way to address environmental, societal, and economic challenges. The existing literature suggests that economic and environmental degradation directly impact the composition of public spending. However, the various patterns of spending emerge due to both foreign and domestic pressures.

This paper explores the causal mechanism that connects MNC activity to public spending, more specifically green spending in the context of China. I suggest that the incompatible findings in the literature can be reconciled when the influence of MNC activity is considered in the context of the destination. In particular, I argue that the variation in local green spending is partially a function of the MNCs' home country's environmental performance. The pollution haven hypothesis disregards the possibility that MNCs may engage in self-regulation. Yet in some cases MNCs are bound by home-countries' standards and regulations. Hence, and MNC with high environmental performance in their home country will lead, lower environmental degradation in the host country, which in turn would lead to lower green spending by the local

government. Where MNCs are subject to low environmental standards in their home-countries, however, environmental degradation in the destination would be higher, which in turn would lead to higher green spending by the local government.

Visible signs of climate degradation create incentives for local governments in China to improve environmental quality through spending on environmental services as a form of regime legitimization. I argue governments counteract pollution and reinforce regime legitimacy through green spending. However, an MNCs environmental performance and local environmental pollution do not operate in isolation. Hence, the latent local environmental pollution may also condition the impact of MNCs on green spending. The resulting interaction between foreign performance and local pollution lead to a variation in legitimacy outcomes thus a variation in spending patterns.

The most visible MNC involvement in local economic activity in the case of China is through FDI. I suggest that FDI assumes a significant role in transmitting foreign environmental performance to local outcomes. To test my argument, I use firm level FDI data to identify MNC home-countries that have the highest local economic influence at the city level between 2014 and 2019 and use these countries' environmental performance index to predict local green spending through a two-way fixed effects regression model. I also analyze the interaction of the latent local environmental pollution and the foreign environmental performance. My findings suggest that governments invest in green spending to complement or compensate foreign environmental performance impacts. The highest level of local green spending is where both foreign environmental performance of the FDI sending MNCs' home countries and local latent environmental conditions are the highest as both mechanisms create high incentives to spend. The lowest level of local green spending to the contrary is where foreign environmental performance is highest where pollution is low in which technological diffusion is high and local pollution is low.

I contribute to the literature in two ways. First, I introduce a theory of green spending that reconciles the seemingly contradictory findings in previous work. Second, I use two novel datasets to conduct my analysis, one on firm-level FDI inflows to China, and another on local

green spending at the city-level in China. The rest of the paper is as follows. Section two explores the research on FDI and environmental policy in the context of environmental political economy. Section three describes the mechanism by which FDI transfers foreign environmental technology, standards, and practices to the local context and thereby shape local green spending, while also exploring the local drivers, specifically legitimacy, as a driver of green spending. This section further derives testable hypotheses regarding the relationship between foreign environmental performance and local environmental pollution on green spending. Section four introduces the data and research design. Section five presents the results. Section six provides a discussion of the findings and concludes.

FOREIGN DIRECT INVESTMENT AND ENVIRONMENTAL OUTCOMES

The impact of trade liberalization and FDI on environmental outcomes has been scrutinized by academics, policymakers and environmentalists. Research shows that the relationship between FDI and environmental policy is complex and multifaceted and can vary significantly depending on a range of factors, including the nature of the investment (Ren et al. 2014), the regulatory framework in place (Ning and Wang 2018) and the environmental policies of the host country (Benzerrouk, Abid, and Sekrafi 2021). On the one hand, FDI can have negative environmental impacts, particularly in cases where investments are made in industries with high levels of pollution and resource consumption. Investors seek low cost production in what are called "pollution havens" leading to a cycle of diminishing environmental regulation and increasing pollution (Javorcik and Wei 2004). To remain competitive in the global market, some countries are incentivized to reduce environmental regulation standards which increase foreign investment. This process generates a "race to the bottom" (RTB) among those who compete for these investments and low cost export production (Kim and Rhee 2019).

On the other hand, FDI can have positive effects on environmental outcomes by facilitating the transfer of environmentally-friendly technologies and practices to host countries, promoting the development of green industries and providing financial resources for environmental initiatives (Ning and Wang 2018). FDI can provide financial resources and expertise that can be used to promote environmental protection and sustainability. For example, multinational corporations may invest in green technologies and production processes that are more efficient and

sustainable. Greener FDI might also stimulate green-technology and practice in host countries industries (Kim and Rhee 2019; Luo, Salman, and Lu 2021; Muhammad and Khan 2019; Yu and Li 2020). In fact Pan et al. (2018) argue, in China's case FDI has provided technical and financial support through foreign best management practices and green technology spillover. They may also bring environmental management systems that can help to improve environmental performance and reduce negative impacts. To meet home country standards or adjust to the export markets create incentives firms to continue to practice pro-environment policies (Haufler 2003). Firms especially from OECD countries may promote environmental ideas and practices (Walton, Handfield, and Melnyk 1998; Garcia-Johnson 2000). In the case of China environmental conditions improved following FDI (Zeng and Eastin 2007, 2011). Through technology transfer and knowledge sharing, FDI can help to build local capacity and promote sustainable development in the host country.

Firms can promote environmental protection, particularly in relation to reducing negative externalities associated with economic activity. FDI can also create opportunities and contribute to economic growth, which can lead to improvements in environmental quality through increase investment in pollution abatement and other environmental protection measures (Zhang et al. 2019). Globalization pressures may lead governments to allocate more resources towards developing and enforcing labor, consumer, and environmental standards, in order to attract foreign investments (Greenhill, Mosley, and Prakash 2009; Hurst and Thompson 1999; Millimet and List 2004; Millimet and Roy 2011). These foreign investors may have higher environmental standards and expectations than local firms, which can provide the opportunity for host governments to learn from their experiences and adopt best practices. Benzerrouk, Abid, and Sekrafi (2021) find that FDI from high-income countries to high-income countries improve environmental quality through the diffusion of modern technologies as well as the development of regulation on pollution emission, namely CO_2. Stringent environmental policies in a host country can curb FDI growth in polluting industries leading to green innovation (Cai et al. 2016; Zhang et al. 2019). Rather than developing a RTB approach, governments compete to achieve the highest standards and best practices as they race to the top. Thus, contrary to the RTB argument, lax environmental policies deter FDI while higher environmental standards attract investments (Dean, Lovely, and Wang 2009).

FDI can incentivize government pro-environment behavior by creating competition among host countries for foreign investment. When countries compete for FDI, they may be more likely to adopt pro-environment policies to attract environmentally responsible foreign investors. For example, a country that offers tax incentives for renewable investment may be more attractive to investors looking to invest in clean energy projects. Thus, incentivize governments to adopt pro-environment policies in order to maintain competitive and attract foreign investment. Lax environmental regulations by themselves are not enough to encourage firms to relocate abroad (Ferrantino 1997). In fact, standards similar to those of the home country can lower compliance costs and ease access to the home country market. In some cases, stable and predictable standards matter more than compliance costs (Neumayer 2004). Investing in locations where environmental standards are similar, stable, and predictable create better investment environments. Firm desirability to appear responsible, especially in line with corporate social responsibility messaging, has also created a market for environmental standards similar to those of labor standards (Bernhagen and Mitchell 2010; Elliott and Freeman, 2003; Greenhill, Mosley, and Prakash 2009; Malesky and Mosley 2018). Especially, those who seek to build and maintain long lasting relationships in host countries may be more inclined to protect their reputation. Consequently, states adopt or heighten their pro-environment policies to continue to be a desirable alternative for investments.

One under-explored area is how FDI can increase green spending thus incentivizing environmental reform. The information from degrading environmental standards related to FDI and its effects on domestic political economy provide strong reasons to think FDI would influence green spending. First, environmental degradation can be experienced first-hand by the public. Once water and air are polluted it is impossible to disregard their existence, engraining the phenomena into local lived experiences (Shen 2022). A growing body of research examines the growing sense of urgency to implement environmental policies to counteract environmental degradation and jumpstart climate action (Sisco et al. 2021). Given that firms also seek areas where environmental standards are high, governments are incentivized to implement policies or compensate for the damage by focusing public spending on environmental protection and sustainability.

A second reason why negative impacts of FDI should lead to policy changes stems from the negative consequences on regime survival. One of the most established ideas in the literature about environmental politics is that there is a relationship between economic development and environmental consciousness. Following the Environmental Kuznet's Curve, as living standards rise, the demand for better environmental performance and the capacity to do so also rises, leading to a decline in environmental problems as a consequence (Cole 2004). However, there is still considerable uncertainty about the existence of a clear relationship and where the threshold for change stands (Cansino, Román-Collado, and Molina 2019; Dai et al. 2022). A prevailing perception regarding non-democracies is their apparent lack of concern for environmental standards. However this perception is not entirely accurate. While empirical evidence suggests that democracies are more inclined to prioritize environmental issues than non-democracies, this does not imply that non-democratic regimes are indifferent to environmental concerns.

The reality of climate change and environmental degradation pushes states to address these concerns as their survival depends on it regardless of regime type. It may be particularly important for non-democracies as they rely on output legitimacy both through economic performance and improved environmental outcomes. Establishing a form of legitimacy is vital to the survival and durability of authoritarian rule (Carlitz and Povitkina 2021; Povitkina 2018). Particularly, socioeconomic performance is used to legitimize authoritarian regimes (Dukalskis and Gerschewski 2017; von Soest and Grauvogel 2017). Scholars have also examined responsiveness to environmental concerns as a form of regime legitimacy. Poor air quality has led to mobilization around environmental issues particularly in China (Deng and Peng, 2018) and jeopardizes, and even lowers, political support for the Chinese leadership (Alkon and Wang, 2018). In 2017, air pollution caused around 1.24 million premature deaths in China alone (Yin et al. 2020). Engels (2018) posits, improving air quality is a means through re-establishing legitimacy, which is critical when air pollution has such devastating effects. Thus, non-democratic regimes have begun to take measures to improve environmental outcomes.

A THEORY OF GREEN SPENDING

Green public spending (hereafter green spending) refers to government investments aimed at mitigating the negative environmental impacts of economic activities. It is directly linked to the constantly increasing role of environmental protection and is a response to degrading environmental conditions. Green public spending is recognized as "an important tool to achieve environmental policy goals relating to climate change, resource use and sustainable consumption and production" (European Commission 2004). Governments participate in the market by purchasing and regulating often to support their social and environmental goals (Faith-Ell, Balfors, and Folkeson 2006; McCrudden 2004; Van Calster 2002). In many countries public sector spending amounts to a significant part of the economy which can help achieve desirable environmental outcomes through green tenders and procurements (Geng and Doberstein 2008; McCrudden 2004; Lundqvist 2001). Governments use green spending to stipulate development of green technologies (Y. Li and Georghiou 2016), improve social outcomes (McCrudden 2004), increase investment in renewable energy systems (Bulus and Koc 2021), even jumpstart the green economy movement (Zhang et al. 2021).

Given that FDI can influence market behavior and state policy preferences green spending can be influenced by foreign actors who also are influenced by their home country environmental performance. Green procurements, which is a component of green spending, can be instrumental in addressing environmental problems such as: deforestation (e.g. through the purchase of wood and wood products from legally harvested and sustainably managed forests), greenhouse gas emissions (e.g. through the purchase of products and services with a lower CO_2 footprint through their life-cycle), waste (e.g. by specifying processes or packaging which generate less waste or encouraging reuse and recycling of materials), air, water and soil pollution (by controlling chemicals and limiting the use of hazardous substances) (European Commission, 2023).

A country's environmental performance relates to the prescription and enforcement of environmental policies on environmental health, ecosystem vitality, and climate change mitigation for the purpose of regulating detrimental aspects of economic production. In particular, governments shape firm activity regarding emissions (air quality), waste management, water and sanitation, and heavy metal mining and production to ensure environmental health and regulate the negative externalities that threaten ecosystem biodiversity. The efficacy of these

policies depends on the government's institutional capacity. Per the established rule of the Environmental Kuznet's Curve, and all else being equal, countries with higher development levels have better environmental performance relative to developing countries. The environmental performance shapes firm behavior through economic and social incentives.

First, the attributes of a country's environmental performance leads to variation in business practices of firms headquartered within the country on the basis of purely economic rationality. Higher environmental performance decreases the incentives of non-compliance on the side of firms due to potential imposition of high costs by the government. Where costs of noncompliance outweigh profits, firms transform their production activities in line with prescribed policies. Over time, transformation rationalizes policy compliant production activity, and reversal of the transformation entails gradually increasing effort, particularly in the case of firms with high fixed capital. Hence, firm behavior with regards to environmental protection is partially a function of the economic incentives the firm's country's environmental performance produces.

Second, the constituent perspective towards environmental degradation creates social incentives for governments to enforce and firms to comply with environmental policy. Country environmental performance shapes constituent demand over accountability with regards to environmental degradation. Countries with higher environmental performance feature normalization of the demand for environmentally sustainable practices at the individual level. Socialization of individuals in organizations, may it be the government or firms, ingrains environmentally sustainable conduct in the long run to the organizations that they constitute. The enforcement of policies by the government and compliance with polices by the firms, in turn, increases the legitimacy and desirability of these organizations within the society. Local governments have an interest in improving local environmental pollution to satisfy constituents to prolong their tenure (Shen 2022). Hence, firm behavior with regards to environmental protection is also partially a function of the social transformation the firm's country's environmental performance produces.

Over time, the transformation of production practices and institutional cultures become self-reinforcing in the form of standards as deviation produces adjustment costs for the firm. In the case of MNCs, these standards can spillover to destination countries. One transmission belt in this regard is FDI. MNCs have control over the purpose of their investments. The transfer of these standards can shape the environmental conditions in the destination country for better or worse. In some cases, foreign firms undertake environmental projects, and in others, economic activity leads to knowledge spills between foreign and domestic parties. The knowledge processed by one agent becomes a function of the knowledge generation of another (Beaudry and Schiffauerova 2009; Feldman and Audretsch 1999).

Depending on its source, FDI creates two alternatives for local governments in the context of environmental services: complement or compensate. In the case where MNC is headquartered in a country with high environmental performance, its investments entail diffusion of environmentally sustainable standards in the local economy, thereby leading to improving local environmental conditions. In such cases, FDI functions as a substitute to local government's efforts in providing environmental services and the local government may choose to complement through additional environmental services. Where MNC is headquartered in a country with low environmental performance, however, its investments may entail diffusion of environmentally hazardous standards in the local economy, thereby leading to worsening local environmental conditions. In such cases, local government compensates the environmental degradation FDI entailed through spending. More formally:

H1: An increase in environmental performance of FDI providing countries is associated with a decrease in spending on environmental services by local governments.

Local environmental pollution refers to the release of harmful substances or pollutants into the environmental in a specific geographic area, such as a city or a region. These pollutants may come from various sources, including industrial activity, transportation, agriculture and household consumption. The local environmental pollution can have negative impacts on human health, wildlife, and ecosystems. When pollution levels become high and visible governments

are incentivized to step in and implement policies as failure to do so can have severe consequences on their legitimacy.

According to Lipset, legitimacy is "the capacity of a political system to engender and maintain the belief that existing political institutions are the most appropriate or proper ones for society" (1959, p.86). Spending on public goods in authoritarian regimes help parties reinforce their legitimacy and stay in power. Local environmental conditions provide incentives relating to legitimacy for governments to pursue different policy prescriptions through green spending. This type of spending is one way to build legitimacy. Faced with degrading environmental conditions the regime must respond to both show that their system is the proper one and that they capable of providing public goods to their society. Legitimacy comes from an authority's own sources of power, including institutionalized procedures to produce benevolent results through its performance. Improving local environmental conditions thus positively impacts legitimacy in the domestic sphere.

The level of pollution has important implications on the level of green spending. The mechanism that connects pollution to green spending is the legitimacy concerns of the government. Where pollution levels are high, it becomes increasingly difficult for the government to maintain its legitimacy in the eyes of the public. This is because the negative impacts of pollution, such as health problems, environmental degradation and reduced quality of life, are highly visible and effect people on a daily basis. As a result, the government may feel pressure to take action to address these concerns and maintain its legitimacy. One way to do this is through increased green spending, which can be seen as a visible and tangible response to the problem of pollution. The government demonstrates its commitment to addressing environmental issues and improving the quality of life for its citizens. Where pollution levels are low, the government is not as concerned regarding their legitimacy leading to less spending. It is important to note that green spending may persist due to the growing recognition of the long-term economic and social benefits associated with it. However, green spending in low pollution areas would be much lower compared to areas with high pollution. Formally:

H2: An increase in local environmental pollution leads to an increase in green spending by local governments.

However, foreign environmental performance of firms and local environmental pollution do not exist in isolation. Their interaction creates unique spending patterns as the need to respond and the incentives to do so are closely related to the potential benefit to regime legitimacy.

The type of legitimacy discussed so far can be categorized as domestic legitimacy. Another form of legitimacy that relates to change in government behavior with regards to spending is foreign legitimacy. Unlike domestic legitimacy which focuses on providing public goods to satisfy the public and limit civil unrest, foreign legitimacy is the capacity of a political system to engender and maintain the belief that existing political institutions are the most appropriate or proper to safeguard foreign investments. Establishing a green spending mechanism to reduce environmental damages is crucial for creating a favorable investment climate. When a government is capable of reducing environmental damages, it sends a clear signal to investors that there are mechanisms in place to support their economic and social incentives. This creates an atmosphere of stability and predictability, which is essential for attracting and retaining investment. This is particularly important for attracting investment from countries with high environmental performance that are looking for opportunities to support sustainable and responsible business practices elsewhere. Inability to respond to degrading environmental conditions not only reflects negatively on their foreign legitimacy but also shapes foreign investors who are in turn guided by economic and social incentives regarding environmental preferences.

The interaction between the level of foreign performance and local pollution create variation in green spending. Where the government is concerned with both domestic and foreign legitimacy, green spending should be highest. The concern to both appease the domestic public and foreign MNCs incentivize the government to heavily invest to protect the environment and its legitimacy. Where foreign performance is high and pollution is low the government is less incentivized to focus on green spending and their legitimacy is not threatened. The MNCs from low performance countries may have harmful environmental practices as their focus on

sustainability in regard to the environment will be lower, causing a decline in the local environmental conditions. Consequently, where foreign performance is low and local pollution is low the government invests in green spending to maintain low pollution levels. However, this spending will be low since low pollution levels do not pose significant threat to the legitimacy of the government. Where low foreign performance and high local pollution interact there will be high green spending as the government's legitimacy will be threatened by degrading environmental conditions. Formally:

H3: An increase in foreign environmental performance where local environmental pollution is high leads to highest spending, whereas an increase in foreign performance where local environmental pollution is low leads to lowest spending.

H4: A decrease in foreign environmental performance where local environmental pollution is high leads to high spending, whereas a decrease in foreign performance where local environmental pollution is low least to low spending.

Table 1 summarizes the outcomes for the possible combinations of foreign and local performance. I test these expectations below.

	Low Pollution	**High Pollution**
High Foreign Performance	Lowest spending	Highest spending
Low Foreign Performance	Low spending	High spending

TABLE 1. THE PREDICTED INFLUENCE OF FOREIGN ENVIRONMENTAL PERFORMANCE AND LOCAL ENVIRONMENTAL POLLUTION ON GREEN SPENDING

THE CASE OF CHINA

In recent decades, environmental degradation, particularly air pollution, has become a major threat globally, with China being one of the most affected countries. The adoption of China's opening-up policy, market oriented strategies, and increased foreign investment has led to the adoption of international economic standards but also came with environmental costs. China has ranked the second largest economy (Song, Wang, and Zhang 2020) and the largest emitter of CO_2 (Climate Action Tracker, 2023) in the last 15 years. The rapid economic growth and energy-intensive resource consumption have posed severe environmental threats, not only to China but globally. Despite being a significant environmental power (Falkner and Buzan 2022) with the potential to provide environmental goods and cause significant harm China is still a developing country and authoritarian country which requires further investigation.

Researchers state-led environmentalism, particularly coercive environmentalism, have focused their attention on China to understand the implications of managing the environment through authoritarianism. Despite the efforts of Xi Jinping to consolidate power, the Chinese state is fragmented (Lieberthal 1992), making it difficult to implement environmental policies across the country. Thus scholars discuss how the state uses a variety of tools to manage the environment. Technocratic elites often in their roles define environmental problems in technical terms with technical solutions (Gilley 2012; Kostka and Zhang 2018). By setting quantitative goals and targets to monitor and enforce environmental standards the process has become mechanic. Indeed, after years of green GDP calculations (V. Li and Lang 2010), in 2016 China's State Council announced that environmental targets would outweigh economic growth measures starting in 2017. This shift in focus created incentives at the local level to increase local environmental regulations and claim green achievements. Faced with blunt force regulations that are also detrimental to ordinary citizens (van der Kamp 2017) non-state environmental actors and independent scientists started to question the legitimacy of these acts (Guttman et al. 2018).

Several scholars have explored the factors associated with regime legitimacy in China. Early analyses suggested that regime legitimacy was underpinned by traditional Confucian values (Chen 2004; Shi 2001). However other scholars have found that regime legitimacy is associated with evaluations of economic and political performance (Chu 2013; Zhong and Chen 2013),. Additionally, exposure to China's state-controlled media has been identified as a factor that influences regime legitimacy (Kennedy 2009; Stockmann and Gallagher 2011). Others have begun to examine the role of public goods provision as a way to bolster regime legitimacy when faced with public scrutiny. Michelson (2012) contends that in the first decade of the 21st century, the provision of public goods in rural residents contributed to improved assessment of government performance. Empirical evidence from a public opinion survey by Dickson et al. (2016) covering China's cities indicated that there are significant associations between local spending on public goods such as education, health and welfare and regime support for local and central governments. Still lacking in environmental standards, one avenue the government turned to was green procurement projects as a means to provide a public good and increase its legitimacy. As the economic costs of environmental degradation, particularly in terms of lost productivity, health costs, and damages to local ecosystems created a greater avenue for these procurement projects. The projects produce spillover effects and accelerate the diffusion of better environmental standards (Simcoe and Toffel 2014).

Public pressure and environmental activism have played a crucial role in pushing local officials to take environmental concerns seriously as their legitimacy is threatened by their activities (Li and Shapiro 2020). Citizen-led campaigns and protests have raised awareness about the health impacts of pollution and have called for stronger environmental protections. In response, officials have been taken action, by the promotion of green spending. As public dissatisfaction and political grievances in China increased so did the need to address these issues and enhance legitimacy. Furthermore, China recognizes that its environmental policies also affect its global image and attractiveness to foreign investors. Many foreign investors have strong environmental standards and failing to meet these standards could lead to a loss in investment. Therefore, in addition to domestic pressures, international legitimacy is also a driving factor in China's increased investment in green spending. Figure 1 provides variation in green spending in China

between 2014 and 2019. Figure 2 provides variation in use $PM_{2.5}$ pollution between 2014 and 2019 in China's cities.

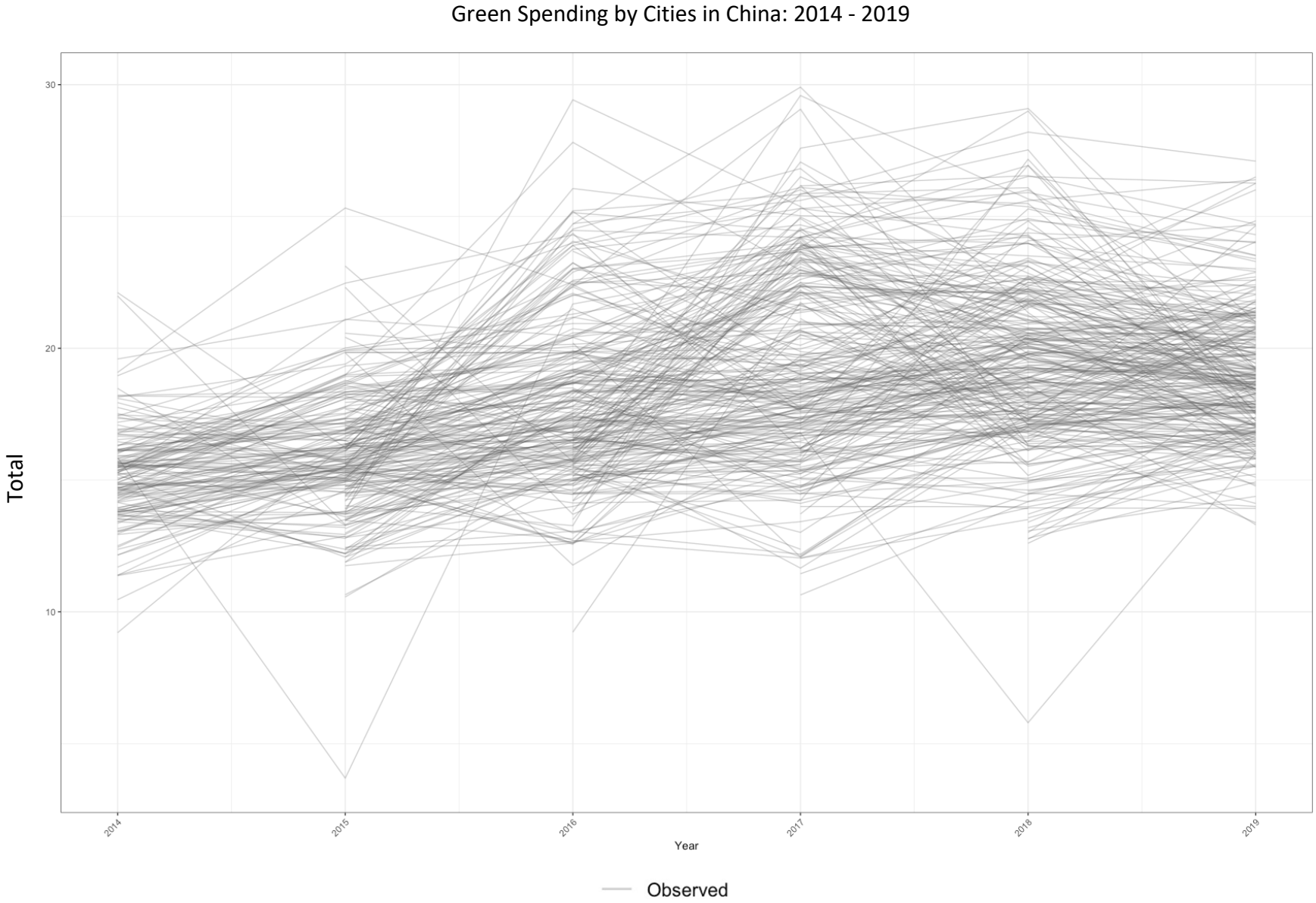

FIGURE 1. GREEN SPENDING BY CITIES IN CHINA 2014-2019

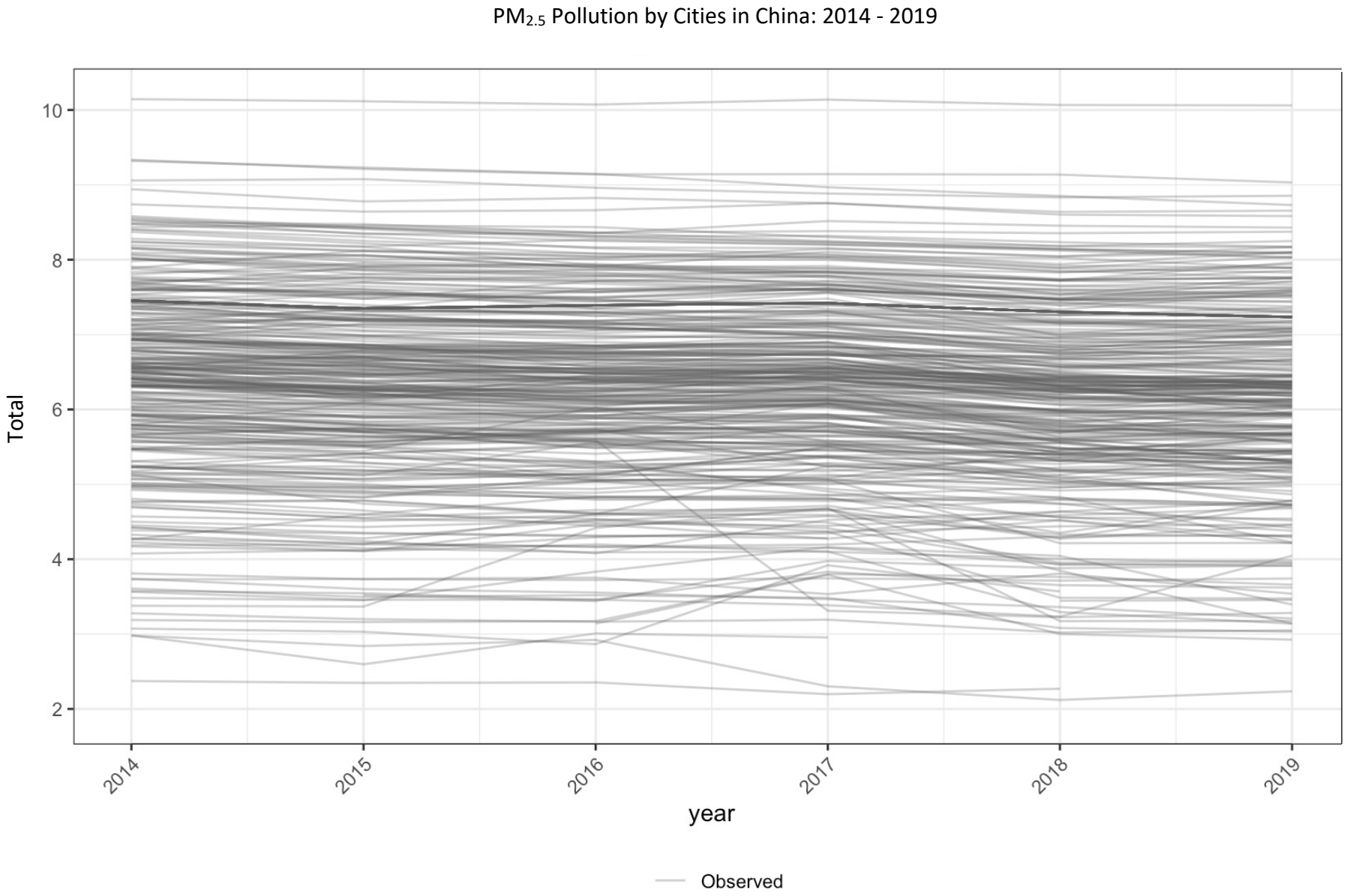

FIGURE 2. $PM_{2.5}$ POLLUTION BY CITIES IN CHINA 2014-2019

RESEARCH DESIGN

The argument suggests that (1) the FDI sending country environmental performance, (2) the local environmental pollution, and (3) their interaction, lead to variation in green spending. I use two-way fixed effects regression analysis to test my hypotheses in the case of China for the years between 2014 and 2019. I include summary statistics for all variables in table 2.

DATA

I use data from the Environmental Performance Index of Yale Center for Environmental Law & Policy (2023), an annual index measuring climate change performance, environmental health and ecosystem vitality using forty performance indicators across eleven issue categories at the country level. As of 2022, EPI provides data for 180 countries. The index assigns a score for each country ranging between 0 and 100, where the latter suggest commitment to higher environmental standards whereas the former suggests non-compliance. For environmental pollution I use particulate matter, $PM_{2.5}$, which are fine inhalable particles present in atmosphere with diameters that are generally 2.5 micro-centimeters or smaller (Murray et al. 2020). I use data aggregated from the grid-level dataset constructed by van Donkelaar et al. (2021). This dataset features the annual average of measurements for outdoor fine particulate matter in the atmosphere for a given geo-location. For green spending, I use aggregate procurement tender figures at the city level in China with data from the ChinaFile dataset (2022), which provides details of government procurement notices between the years of 2014 and 2019. I gather my FDI data from the Foreign Invested Enterprises in China (FIEC) dataset that is compiled using Chinese Ministry of Commerce registry records (Vortherms and Zhang 2021). This database is a geo-coded census of all foreign-invested enterprises operating in China from 2014 until 2022.

I operationalize my dependent variable, green spending, using aggregate procurement tender values at the city level in China. I begin with identifying the projects relevant to "environmental protection" and "environmental services" categories, and subsequently, aggregate the total government procurement notices in Renminbi at the city level for each year. This leads to 1448 city-year level observations based on data availability. I then log-transform and scale this variable.

I use FDI to both identify the relevant foreign countries that may influence the variation in green spending and operationalize a control variable. First, I use FIEC data to identify the country of origin for foreign investors that provide investment to cities in China for a given year. Second, I aggregate, log-transform, and scale the total foreign investment for each city-year to include it as the first control variable in my analysis.

I operationalize foreign environmental performance using the Environmental Performance Index (EPI). Figure 4. provides the individual average EPI scores for countries that send FDI to China between 2014 and 2019. To examine foreign environmental performance on local green spending, I calculate weighted average EPI scores of foreign countries that provide investment to China's cities. I carry out the calculation by grouping EPI values by city-years, multiplying each country's EPI score with a weight based on the percentage of FDI the country accounts for in the city-year's aggregate FDI inflow. I then scale this variable and refer to it as foreign environmental performance in my analysis. I operationalize local environmental pollution using a measure of pollution: particulate matter, $PM_{2.5}$. I aggregate $PM_{2.5}$ pollution of these locations at the city-year level and scale the aggregates for the analysis.

City GDP is the second control variable I include in my analysis through which I control for the influence of local economy's size on the extent of green spending. I use data from the EPS ChinaData measured in Renminbi (2023). I log-transform and scale this variable. In the analysis below, this variable is named *GDP*. All variables are continuous variables and have approximately normal distributions as figure 3 demonstrates.

Variable	**N**	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
Green Spending	1448	-0.444	0.966	-4.652	-1.12	0.195	2.631
Foreign Env. Performance	1444	-0.064	1.177	-5.971	-0.711	0.744	2.58
Foreign Env. Performance^2	1444	0.22	1.429	-0.568	-0.495	0.406	19.678
Local Env. Pollution	1444	-0.26	1.063	-2.449	-1.033	0.402	4.472
City GDP	1366	-0.645	0.961	-3.39	-1.38	0.022	2.045
Foreign Direct Investment	1444	-0.884	0.942	-4.609	-1.373	-0.351	2.676

TABLE 2. DESCRIPTIVE STATISTICS

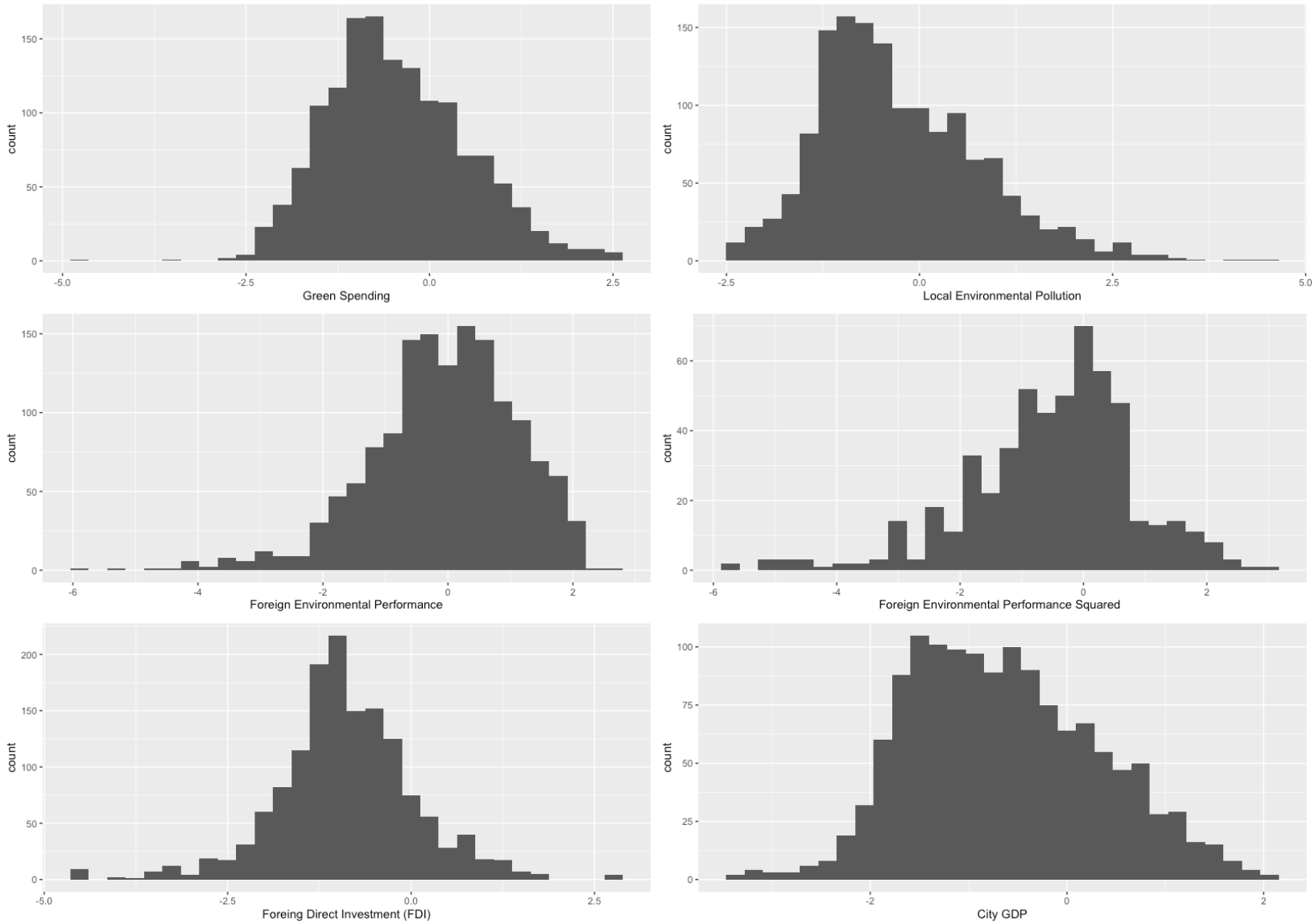

FIGURE 3. HISTOGRAMS

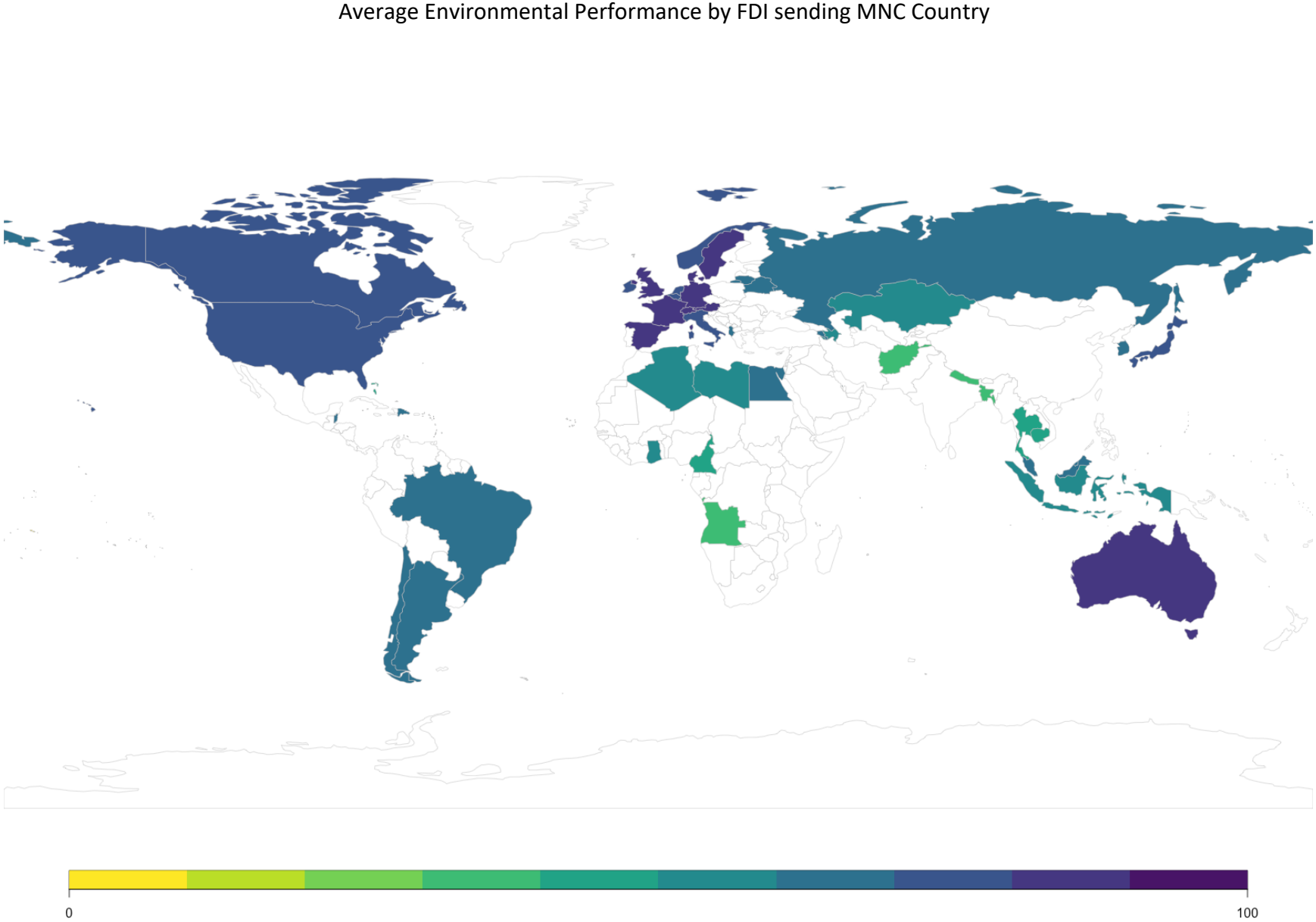

FIGURE 4. AVERAGE ENVIRONMENTAL PERFORMANCE BY FDI SENDING MNC COUNTRY 2014-2019

MODEL SPECIFICATIONS

The panel data I am working with involves repeated measures for cities and years. Accordingly, I conduct a multilevel regression analysis that includes city and time fixed effects to account for location and time specific characteristics. Through this approach I also take into consideration serial autocorrelation produced by year-on-year measurements. Accordingly, my model specification is as follows:

$$
\begin{aligned}
&green\ spending_{c,t} \\
&\quad = \alpha_C + \alpha_t + \beta_1 foreign\ env.performance_{\ t} + \beta_2 local\ env.pollution_{c,t} \\
&\quad + \beta_3 foreign\ env.performance_{\ t} * \beta_2 local\ env.pollution_{c,t} + \beta_4 FDI_{c,t} \\
&\quad + \beta_5 GDP_{c,t} + \varepsilon
\end{aligned}
$$

In the above equation, α represents the fixed effects *for* city *c*, and year *t*, β represent the regression coefficients for the variables where, *green spending* represents the aggregate environmental spending; *foreign env. performance* represents the weighted average environmental performance in FDI sending countries, *local env. pollution* represents the aggregate $PM_{2.5}$ pollution; *FDI* and *GDP* represent the control variables at the city-year level, and ε represents the error term.

The baseline argument I make is that there is a linear relationship between the two independent variables (and their interaction) and the dependent variable. Yet, foreign environmental performance and environmental spending may share a nonlinear relationship as the influence of countries with higher levels of commitments to environmental practices may lead to higher-than-expected variation relative to a median country's expected influence. This influence can grow further contingent on local conditions. Therefore, I include a quadratic term for the foreign environmental performance variable to account for any nonlinear association in an alternative specification. Thus, using the same symbols and titles:

$$green\ spending_{c,t} = \alpha_C + \alpha_t + \beta_1 foreign\ env.performance_t + \beta_2 local\ env.pollution_{c,t} + \beta_3 foreign\ env.performance_t * \beta_2 local\ env.pollution_{c,t} + \beta_4 FDI_{c,t} + \beta_5 GDP_{c,t} + \varepsilon$$

REGRESSION RESULTS

Overall, I find that the interaction between foreign environmental performance and local environmental pollution leads to nuanced and significant changes in green spending for the case of China. I present my findings in table 3. Further, given that both independent variables are continuous, I include plotted models for an intuitive interpretation of the interaction's effect on green spending in figures # and #. These figures show the predicted values for environmental spending where foreign environmental performance is interacted with minimum, mean, and maximum values of local environmental pollution. For all the tests, I adopt a significance level of 0.1. All models are significant ($p<0.001$) based on log-likelihood tests facilitated by ANOVAs in which the complete specifications are compared to their null forms that exclude foreign environmental performance and local environmental pollution.

Model 1 explores the relationship between foreign environmental performance and green spending in China's cities. The findings suggest that foreign environmental performance, individually, does not lead to a discernable change in green spending. Hence, I do not find support for H_1. The control variable FDI, to the contrary, leads to a statistically significant positive change in green spending. Model 2 explores the relationship between local environmental pollution and green spending exclusively. An increase in environmental pollution, on average, leads to eight percent increase in green spending. The statistically significant coefficient provides evidence towards the legitimacy mechanism: where there is environmental degradation, there is an increase their green spending. Hence, I find support for H_2. Further, an increase in FDI also leads to an increase in green spending.

Model 3 explores the interaction between foreign environmental performance and local environmental pollution. The findings suggest a statistically significant association between the interaction of foreign and local conditions and green spending. I observe that the relationship

between foreign environmental performance and green spending becomes discernable based on different values of local environmental pollution. Specifically, a one-unit increase in foreign environmental performance is associated with an increase of 0.03, on average, when local environmental pollution increases by one unit. Therefore, I find support for H_3. Following the extensive discussion around the Kuznet's Curve in the literature, I suspect that foreign performance may have a distinguishable nonlinear effect on local spending. Model 4 and model 5 summarize the findings where a quadratic term for foreign environmental performance is involved. Overall, while all coefficients in Model 5 carries the same signs they do in Model 3, I do not find a statistically significant impact of the quadratic term for foreign environmental policy, along with the interaction with the quadratic term, on green spending.

Unpacking the implications of the interaction effect is important for the overall theory I present above. In brief, H_3 is about the interactive impact of (1) incentives relating to government domestic and foreign legitimacy concerns, and (2) incentives relating to firm economic and social preferences, on green spending. The interpretation of the Model 3 coefficients is most intuitively grasped through the interaction chart in Figure 5, where each line defines the highest, median, and lowest levels of local environmental pollution for the cities in the sample distinguished by line type, the horizontal axis defines the level of foreign environmental performance, and the vertical axis defines green spending. I exclude the interaction plot for the model with the quadratic term because it is almost identical to Figure 5.

The interaction suggests that where local pollution is highest, represented by the dashed line, an increase in foreign environmental performance leads to an increase in green spending at the city level. This outcome is in line with my argument: local governments increase the provision of environmental services to build foreign legitimacy for drawing in investment from foreign countries with high environmental performance where firms are driven by economic and social incentive mechanisms. This in turn, allows the government to reinforce its domestic legitimacy through displaying its capabilities with regards to environmental governance and financial prowess. In addition, MNCs that are headquartered in countries with high environmental performance would be disincentivized to invest in cities with unchecked environmental degradation. Hence local governments spend most in areas where MNCs from countries with

high environmental performance are interested in and local pollution is the worst to compensate for the degradation.

The interaction also suggests that a decrease in foreign environmental performance where pollution is highest leads to relatively lower—yet still higher compared to cities with low pollution—green spending. This provides evidence for the local legitimacy mechanism: where firms from low environmental performance countries invest in China, these firms do not lead to the betterment of local environmental conditions, and in turn, the local government has to provide environmental services to compensate for the degradation that entails firm activity with lower economic and social incentives for environmentally sustainable production activities. Overall, local environmental pollution incentivizes local governments to invest in environmental services to build domestic legitimacy in the absence of potential investment from foreign countries with high environmental performance.

The interaction takes on a different outcome in the case where local pollution is lowest, represented by the dash-dot line. Based on the coefficients, an increase in foreign environmental performance, where local environmental pollution is the lowest, leads to a decrease in green spending. This indicates two probable outcomes: first, the government has already established mechanisms that curtail pollution thereby safeguarding its domestic and foreign legitimacy, or second, the government's provision of services is substituted by the firms that are driven by economic and social incentives to improve environmental conditions in their investment destinations. Therefore, foreign environmental performance matters for green spending in conjunction with local conditions.

Finally, a decrease in foreign environmental performance leads to relatively higher green spending where local pollution is low. It is worthwhile to note the extent of spending is still lower in cities with higher pollution. This is the case where a city with ideal environmental conditions receives investment from countries in which MNCs do not have robust economic and social incentives. Therefore the foreign investment, in turn, does not lead to the betterment of the environment. In such cases, the local government has to compensate for the degradation the FDI entails in order to maintain its domestic legitimacy.

	Model 1	Model 2	Model 3	Model 4	Model 5
Foreign Env. Performance	-0.012		0.008	-0.007	0.009
	(0.027)		(0.029)	(0.033)	(0.034)
Local Env. Pollution		0.093***	0.082**	0.094***	0.083**
		(0.035)	(0.035)	(0.035)	(0.036)
Local Env. Pollution* Foreign Env. Performance			0.034**		0.033*
			(0.017)		(0.019)
Foreign Env. Performance^2				0.006	0.000
				(0.018)	(0.022)
Local Env. Pollution* Foreign Env. Performance^2					-0.002
					(0.016)
City GDP	0.014	0.020	0.019	0.022	0.019
	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)
Foreign Direct Investment	0.304***	0.268***	0.274***	0.268***	0.275***
	(0.042)	(0.044)	(0.044)	(0.044)	(0.045)
(Intercept)	-0.298	-0.305	-0.308	-0.306	-0.308
	(0.229)	(0.242)	(0.238)	(0.241)	(0.239)
AIC	3097.750	3090.382	3101.876	3105.572	3118.404
BIC	3134.267	3126.899	3148.827	3152.523	3175.788
Log Likelihood	-1541.875	-1538.191	-1541.938	-1543.786	-1548.202
Num. obs.	1362	1362	1362	1362	1362
Num. groups: Receiver	291	291	291	291	291
Num. groups: Year	6	6	6	6	6
Var: Receiver (Intercept)	0.278	0.276	0.277	0.277	0.277
Var: Year (Intercept)	0.300	0.336	0.327	0.335	0.328
Var: Residual	0.406	0.404	0.403	0.404	0.403

***p < 0.01; **p < 0.05; *p < 0.1

TABLE 3. REGRESSION RESULTS

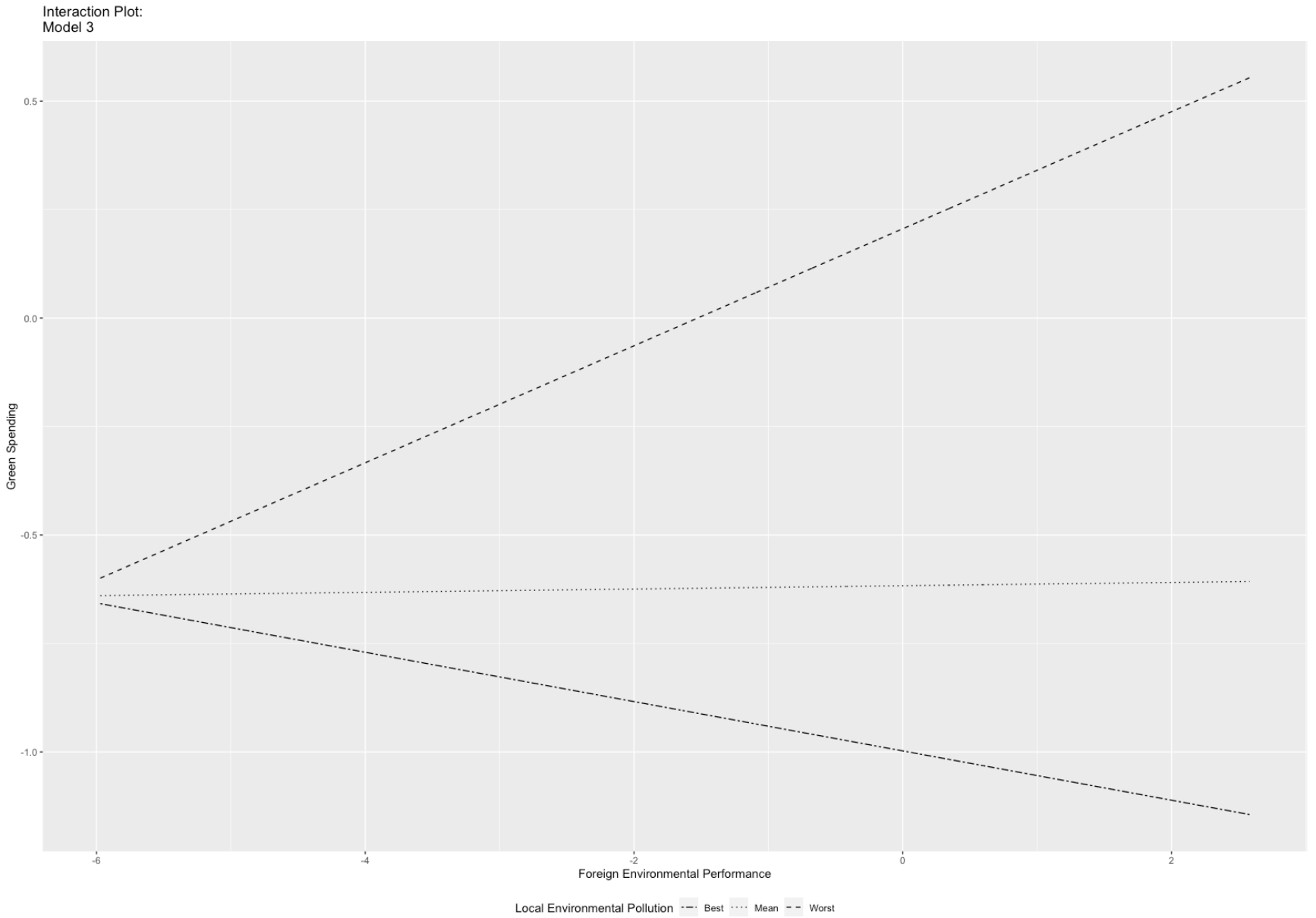

FIGURE 5. INTERACTION PLOT

DISCUSSION AND CONCLUSION

This project aimed to explore the conditions under which FDI acts as a catalyst for environmental change in host economies. Drawing on theoretical literature and empirical analyses, this study examined the relationship between FDI, foreign environmental performance, local pollution and green spending. While the findings do not provide evidence to support the notion that foreign performance alone leads to an increase in green spending, they highlight the importance of considering the interaction between foreign performance and local pollution. The study demonstrates that the impact of foreign performance on green spending is contingent upon the level of local pollution. This suggests that external influences alone may not be sufficient to drive environmental change and that the presence of high levels of local pollution creates a stronger incentive for green spending.

I also show that local air pollution is an important driver of green spending discussed in the legitimacy literature. The efforts of particularly non-democratic regimes to improve environmental outcomes is an important way to maintain output legitimacy by demonstrating a commitment to sustainable development and protecting public health and safety. These efforts appease the general population, who may be increasingly concerned about the impacts of environmental degradation and the ability of the government to respond to such conditions. Governments have successfully implemented policies such as feed-in tariffs and tax incentives to promote the adoption of renewable energy (Van De Graaf and Sovacool 2014) that would improve environmental conditions.

In this study, the findings reveal that a combination of foreign performance and local pollution influences the incentive for green spending on environmental protection and services. The specific dynamics differ based on the interplay between foreign performance and local pollution, shaping the government's approach to green spending. In cases where foreign performance is high but local pollution levels remain low, there is a flow of knowledge and practices related to environmental standards from the home country of FDI. Consequently, the government prioritizes green spending as a complementary tool to further enhance environmental protection and sustainability. On the other hand, when foreign performance is low but local pollution levels remain also low, the government focuses on green spending as a means to compensate for the

practices of the foreign firms. This compensatory approach aims to address the gaps and shortcoming associated with foreign actors, ensuring adequate environmental protection measures are in place. In scenarios where both foreign performance and local pollution levels are high, the government faces pressure from both external and internal stakeholders to implement green spending and improve environmental conditions. These pressures stem from the need to address environmental concerns, improve sustainability practices and attract future investments. The combines influence of foreign actors and local populations play an important role in shaping green spending. In cases where foreign performance is low and local pollution levels are high, the government invests in green spending primarily to appease the local population rather than to cater specifically to foreign actors. This approach recognizes the growing awareness and concerns of the local population regarding environmental degradation and the government's responsibility to mitigate these issues. Improving the conditions are a matter of legitimacy.

There are several limitations that constrain the generalizability of the findings of this study. First the sample is limited to China that is categorically known for its quintessential attributes when it comes to governance and investment. Second, the sample is limited to a short period of six years. Third, the accounting for environmental spending does not show extensive variation across years for individual cities, where for some they do not change between the six years. Fourth, given the city-year level of analysis and more generally the limited attention that is diverted to city level indicators—which will become increasingly central in the environmental political economy literature in the coming years—I was not able to include controls for local institutional quality, technological diffusion, intervening political factors such as interest groups, and corruption that could directly shape green spending and perceptions towards the environment. Beyond the two control variables, I suggest that the use of city and time fixed effects should remedy this limitation. A final limitation concerns the absence of data to measure the extent of "green investment" provided by firms from countries with varying degrees of environmental performance, which I intend on exploring in future research.

China pledged that its emissions would peak by 2030 and decrease the carbon intensity of its economy by 60-65% relative to 2005 levels. These ambitious commitments require innovative strategies which will most certainly include green spending as a crucial tool. Governments may

design policies to influence the behavior of other socio-economic actors by setting the example, and by sending clear signals to the marketplace. Future research can explore the spillover effect of green spending and procurement projects and their guidelines. Environmental policy at the city level could also be used to address the link further. For example, do firms that invest in cities with strict environmental and pollution targets perform better compared to those who do not? If they do, does that lead them to move production to other areas within China or outside? Scholars should also consider how FDI especially from those of MNCs affect environmental related outcomes in host economies. In the cases where environmental regulation attracts FDI, future research should identify the conditions under which firms adopt forms of environmental self-regulation and ascribe to strict implementation.

BIBLIOGRAPHY

Alkon, M. and Wang, E.H., 2018. "Pollution lowers support for China's regime: Quasi-experimental evidence from Beijing." *The Journal of Politics*, *80*(1), pp.327-331.

Beaudry, Catherine, and Andrea Schiffauerova. 2009. "Who's Right, Marshall or Jacobs? The Localization versus Urbanization Debate." *Research Policy* 38(2): 318–37.

benzerrouk, Zakia, Mehdi Abid, and Habib Sekrafi. 2021. "Pollution Haven or Halo Effect? A Comparative Analysis of Developing and Developed Countries." *Energy Reports* 7: 4862–71.

Brødsgaard KE (2012) Politics and Business Group Formation in China: The Party in Control? *The China Quarterly* 211624–211648.

Bulus, Gokay Canberk, and Suleyman Koc. 2021. "The Effects of FDI and Government Expenditures on Environmental Pollution in Korea: The Pollution Haven Hypothesis Revisited." *Environmental Science and Pollution Research* 28(28): 38238–53.

Cai, Xiqian, Yi Lu, Mingqin Wu, and Linhui Yu. 2016. "Does Environmental Regulation Drive Away Inbound Foreign Direct Investment? Evidence from a Quasi-Natural Experiment in China." *Journal of Development Economics* 123: 73–85.

Cansino, José M., Rocio Román-Collado, and Juan C. Molina. 2019. "Quality of Institutions, Technological Progress, and Pollution Havens in Latin America. An Analysis of the Environmental Kuznets Curve Hypothesis." *Sustainability* 11(13): 3708.

Carlitz, Ruth D., and Marina Povitkina. 2021. "Local Interest Group Activity and Environmental Degradation in Authoritarian Regimes." *World Development* 142: 105425.

Chen, Jie. 2004. Popular Political Support in Urban China. Stanford, CA: Stanford University Press.

ChinaFile. 2022. Procurement data. www.chinafile.com

Chu, Yun-han. 2013. "Sources of Regime Legitimacy and the Debate over the Chinese Model." *China Review 13*, no. 1: 1–42.

Climate Action Tracker. 2023. China country profile. Retreived from: https://climateactiontracker.org/countries/china/

Cole, Matthew A. 2004. "Trade, the Pollution Haven Hypothesis and the Environmental Kuznets Curve: Examining the Linkages." *Ecological Economics* 48(1): 71–81.

Dai, Yating et al. 2022. "Whether Ecological Measures Have Influenced the Environmental Kuznets Curve (EKC)? An Analysis Using Land Footprint in the Weihe River Basin, China." *Ecological Indicators* 139: 108891.

Dean, Judith M., Mary E. Lovely, and Hua Wang. 2009. “Are Foreign Investors Attracted to Weak Environmental Regulations? Evaluating the Evidence from China.” *Journal of Development Economics* 90(1): 1–13.

Deng, X. and Peng, S., 2018. "Trust, norms and networks in social media environmental mobilization: a social capital analysis of Under the Dome in China". *Asian Journal of Communication*, *28*(5), pp.526-540.

Dickson, Bruce, Landry, Pierre, Shen, Mingming, and Yan, Jie. 2016. “Public Goods and Regime Support in Urban China.” *China Quarterly*, November 21.

van Donkelaar, Aaron et al. 2021. “Monthly Global Estimates of Fine Particulate Matter and Their Uncertainty.” *Environmental Science & Technology* 55(22): 15287–300.

Dukalskis, Alexander, and Johannes Gerschewski. 2017. “What Autocracies Say (and What Citizens Hear): Proposing Four Mechanisms of Autocratic Legitimation.” *Contemporary Politics* 23(3): 251–68.

Engels, A., 2018. Understanding how China is championing climate change mitigation. *Palgrave Communications*, *4*(1).

European Commission, Europe 2020. "A Strategy for Smart, Sustainable and Inclusive Growth, 2020 final".

Faith-Ell, Charlotta, Berit Balfors, and Lennart Folkeson. 2006. “The Application of Environmental Requirements in Swedish Road Maintenance Contracts.” *Journal of Cleaner Production* 14(2): 163–71.

Falkner, R. and Buzan, B. eds., 2022. *Great powers, climate change, and global environmental responsibilities*. Oxford University Press.

Feldman, Maryann P, and David B Audretsch. 1999. “Innovation in Cities: Science-Based Diversity, Specialization and Localized Competition.” *European Economic Review*.

Ferrantino, Michael J. 1997. “International Trade, Environmental Quality and Public Policy.” *The World Economy* 20(1): 43–72.

Geng, Yong, and Brent Doberstein. 2008. “Greening Government Procurement in Developing Countries: Building Capacity in China.” *Journal of Environmental Management* 88(4): 932–38.

Gilley, B., 2012. "Authoritarian environmentalism and China's response to climate change". *Environmental politics, 21*(2), pp.287-307.

Graham, Erin R., Charles R. Shipan, and Craig Volden. 2013. “The Diffusion of Policy Diffusion Research in Political Science.” *British Journal of Political Science* 43(3): 673–701.

Greenhill, Brian, Layna Mosley, and Aseem Prakash. 2009. “Trade-Based Diffusion of Labor Rights: A Panel Study, 1986–2002.” *American Political Science Review* 103(4): 669–90.

Haufler, V., Meidinger, E., Elliott, C. and Oesten, G., 2003. "New forms of governance: certification regimes as social regulations of the global market."

Javorcik, Beata Smarzynska, and Shang-Jin Wei. “Pollution Havens and Foreign Direct Investment: Dirty Secret or Popular Myth?” : 34.

Kennedy, John James. 2009. “Maintaining Popular Support for the Chinese Communist Party: The Influence of Education and the State-Controlled Media.” *Political Studies 57*, no. 3: 517–36.

Kim, Yeseul, and Dong-Eun Rhee. 2019. “Do Stringent Environmental Regulations Attract Foreign Direct Investment in Developing Countries? Evidence on the ‘Race to the Top’ from Cross-Country Panel Data.” *Emerging Markets Finance and Trade* 55(12): 2796–2808.

Kostka, G. and Zhang, C., 2018. Tightening the grip: environmental governance under Xi Jinping. Environmental Politics, 27(5), pp.769-781.

Li, Vic, and Graeme Lang. 2010. “China’s ‘Green GDP’ Experiment and the Struggle for Ecological Modernisation.” *Journal of Contemporary Asia* 40(1): 44–62.

Li, Yanchao, and Luke Georghiou. 2016. “Signaling and Accrediting New Technology: Use of Procurement for Innovation in China.” *Science and Public Policy* 43(3): 338–51.

Li, Y. and Shapiro, J., 2020. *China Goes Green: Coercive Environmentalism for A Troubled Planet*. John Wiley & Sons.

Lieberthal KG (1992) Introduction: The “Fragmented Authoritarianism” Model and its Limitations. In: Lieberthal KG, Lampton DM (eds) Bureaucracy, Politics, and Decision Making in Post-Mao China, pp. 1–30. University of California Press, Berkeley.

Lipset, Seymour Martin. 1959. “Some Social Requisites of Democracy: Economic Development and Political Legitimacy.” American Political Science Review 53, no. 1: 69–105. doi.org/10.2307/1951731.

Lundqvist, L.J., 2001. "A green fist in a velvet glove: The ecological state and sustainable development". *Environmental Values, 10*(4), pp.455-472.

Luo, Yusen, Muhammad Salman, and Zhengnan Lu. 2021. “Heterogeneous Impacts of Environmental Regulations and Foreign Direct Investment on Green Innovation across Different Regions in China.” *Science of The Total Environment* 759: 143744.

Malesky, Edmund J., and Layna Mosley. 2018. “Chains of Love? Global Production and the Firm-Level Diffusion of Labor Standards: CHAINS OF LOVE.” *American Journal of Political Science* 62(3): 712–28.

McCrudden, Christopher. 2004. “Using Public Procurement to Achieve Social Outcomes.” *Natural Resources Forum* 28(4): 257–67.

de Mello, L. 1999. “Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data.” *Oxford Economic Papers* 51(1): 133–51.

Michelson, Ethan. 2012. “Public Goods and State-Society Relations: An Impact Study of China's Rural Stimulus.” In *The Global Recession and China's Political Economy*, edited by Yang, Dali, 131–58. New York: Palgrave Macmillan.

Millimet, Daniel L., and Jayjit Roy. 2011. “Three New Empirical Tests of the Pollution Haven Hypothesis When Environmental Regulation Is Endogenous.” *SSRN Electronic Journal*. https://www.ssrn.com/abstract=1913618 (December 11, 2022).

Muhammad, Bashir, and Sher Khan. 2019. “Effect of Bilateral FDI, Energy Consumption, CO2 Emission and Capital on Economic Growth of Asia Countries.” *Energy Reports* 5: 1305–15.

Murray, Christopher J L et al. 2020. “Global Burden of 87 Risk Factors in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019.” *The Lancet* 396(10258): 1223–49.

Neumayer, Eric. 2004. “The WTO and the Environment: Its Past Record Is Better than Critics Believe, but the Future Outlook Is Bleak.” *Global Environmental Politics* 4(3): 1–8.

Ning, Lutao, and Fan Wang. 2018. “Does FDI Bring Environmental Knowledge Spillovers to Developing Countries? The Role of the Local Industrial Structure.” *Environmental and Resource Economics* 71(2): 381–405.

Pan, Xiongfeng et al. 2018. “Exploring Dynamic Impact of Foreign Direct Investment on China’s CO $$_{2}$$ 2 Emissions Using Markov-Switching Vector Error Correction Model.” *Computational Economics* 52(4): 1139–51.

Povitkina, Marina. 2018. “The Limits of Democracy in Tackling Climate Change.” *Environmental Politics* 27(3): 411–32.

Ren, Shenggang, Baolong Yuan, Xie Ma, and Xiaohong Chen. 2014. “International Trade, FDI (Foreign Direct Investment) and Embodied CO2 Emissions: A Case Study of Chinas Industrial Sectors.” *China Economic Review* 28: 123–34.

Shen, Shiran Victoria. 2022. *The Political Regulation Wave: A Case of How Local Incentives Systematically Shape Air Quality in China*. 1st ed. Cambridge University Press.

Shi, Tianjian. 2001. “Cultural Values and Political Trust: A Comparison of the People's Republic of China and Taiwan.” *Comparative Politics 33*, no. 4: 401–19.

Simcoe, Timothy, and Michael W. Toffel. 2014. “Government Green Procurement Spillovers: Evidence from Municipal Building Policies in California.” *Journal of Environmental Economics and Management* 68(3): 411–34.

Sisco, Matthew R., Silvia Pianta, Elke U. Weber, and Valentina Bosetti. 2021. “Global Climate Marches Sharply Raise Attention to Climate Change: Analysis of Climate Search Behavior in 46 Countries.” *Journal of Environmental Psychology* 75: 101596.

von Soest, Christian, and Julia Grauvogel. 2017. “Identity, Procedures and Performance: How Authoritarian Regimes Legitimize Their Rule.” *Contemporary Politics* 23(3): 287–305.

Song, Malin, Shuhong Wang, and Hongyan Zhang. 2020. “Could Environmental Regulation and R&D Tax Incentives Affect Green Product Innovation?” *Journal of Cleaner Production* 258: 120849.

Stockmann, Daniela, and Gallagher, Mary E. 2011. “Remote Control: How the Media Sustain Authoritarian Rule in China.” *Comparative Political Studies 44*, no. 4: 436–67.

To, Anh Hoang, Dao Thi-Thieu Ha, Ha Minh Nguyen, and Duc Hong Vo. 2019. “The Impact of Foreign Direct Investment on Environment Degradation: Evidence from Emerging Markets in Asia.” *International Journal of Environmental Research and Public Health 16*(9): 1636.

Van Calster, Geert. 2002. “Green Procurement and the WTO – Shades of Grey.” *Review of European Community & International Environmental Law 11*(3): 298–305.

Van De Graaf, Thijs, and Benjamin K. Sovacool. 2014. “Thinking Big: Politics, Progress, and Security in the Management of Asian and European Energy Megaprojects.” *Energy Policy* 74: 16–27.

Van der Kamp, D.S., 2021. Blunt force regulation and bureaucratic control: Understanding China's war on pollution. *Governance*, 34(1), pp.191-209.

Vortherms, Samantha, and Jiakun Jack Zhang. 2021. “Political Risk and Firm Exit: Evidence from the US-China Trade War.” *SSRN Electronic Journal*. https://www.ssrn.com/abstract=3916186 (December 14, 2022).

Walton, Steve V., Robert B. Handfield, and Steven A. Melnyk. 1998. “The Green Supply Chain: Integrating Suppliers into Environmental Management Processes.” *International Journal of Purchasing and Materials Management* 34(1): 2–11.

World Bank. 2020. "Global Public Procurement Database: Share, Compare, Improve." Accessed February 30, 2023. https://www.worldbank.org/en/news/feature/2020/03/23/global-public-procurement-database-share-compare-improve#:~:text=Public%20procurement%20is%20the%20process,%25%20to%2020%25%20of%20GDP.

Yin, Peng et al. 2020. “The Effect of Air Pollution on Deaths, Disease Burden, and Life Expectancy across China and Its Provinces, 1990–2017: An Analysis for the Global Burden of Disease Study 2017.” *The Lancet Planetary Health* 4(9): e386–98.

Yu, Xiao, and Yong Li. 2020. “Effect of Environmental Regulation Policy Tools on the Quality of Foreign Direct Investment: An Empirical Study of China.” *Journal of Cleaner Production* 270: 122346.

Zeng, Ka, and Josh Eastin. 2007. “International Economic Integration and Environmental Protection: The Case of China.” *International Studies Quarterly* 51(4): 971–95.

Zeng, Ka, and Joshua Eastin. 2011. *Greening China: The Benefits of Trade and Foreign Direct Investment*. Ann Arbor: University of Michigan Press.

Zhang et al. 2019. “Effects of FDI on the Efficiency of Government Expenditure on Environmental Protection Under Fiscal Decentralization: A Spatial Econometric Analysis for China.” *International Journal of Environmental Research and Public Health* 16(14): 2496.

Zhang, Dongyang et al. 2021. “Public Spending and Green Economic Growth in BRI Region: Mediating Role of Green Finance.” *Energy Policy* 153: 112256.

Zhong, Yang, and Chen, Yongguo. 2013. “Regime Support in Urban China.” *Asian Survey 53*, no. 2: 369–92.