

## CHAPTER 1

# INTRODUCTION

## Clean Air at What Cost?

In February 2015, officials at China’s central Ministry of Environmental Protection<sup>1</sup> summoned the mayor of Linyi, in Shandong Province, to discuss his city’s pollution crisis. Environmental inspectors had recently uncovered major pollution violations in 13 of its 15 largest companies.<sup>2</sup> Five days after the summons, city leaders ordered 57 of Linyi’s largest factories to stop production. At the stroke of midnight, authorities cut off electricity to an entire industrial park without notice, even though some factories were in the midst of production; even companies that regulators had verified as compliant were forced to cease operations indefinitely.

In the ensuing weeks, local authorities ordered 412 more factories in Linyi to reduce their output and dismantled several smaller, older factories whose chances of cleaning up their operations had been deemed “hopeless.” These orders to stop production lasted for several months, until a looming debt crisis forced local authorities to lift the ban. A high-ranking official in Linyi later estimated that these measures had cost the city 60,000 jobs and led to the default of 100 billion RMB in business loans (approximately 15 billion USD).<sup>3</sup> Yet the city’s air quality did improve: Between January and May 2015, the level of harmful airborne micro-particles (PM<sub>2.5</sub>) dropped by 25%.<sup>4</sup>

In this book, I argue that the measures undertaken in Linyi characterize what I call a “blunt force” approach to regulation. This approach has three distinct features. First, the state applies crude, one-size-fits-all restrictions to regulated entities – even those that are complying with the law. Second, the state authorizes bureaucrats to use highly coercive means – such as forcibly destroying regulated entities – to ensure that

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regulatory action produces immediate change. Third, the state acts arbitrarily, suddenly imposing restrictions on companies without explaining why they are targeted.

Blunt force regulation has allowed the Chinese government to achieve noticeable improvements in pollution levels. According to the data I gathered for this study, between 2010 and 2015, thousands of factories in 11 highly polluting Chinese industries were forced to halt or reduce their production in 269 of the country's 287 prefecture-level cities (地级市) – the highest-level city administrative unit in China, ranking above a county. Further analysis demonstrates that these measures improved air quality across the country, and reduced pollution to a greater degree than conventional regulatory measures. These findings suggest that blunt force regulation allows governments to deliver policy outcomes that might otherwise take years to achieve if implemented through more conventional approaches.

However, blunt force regulation is an enormously costly strategy: It reduces pollution by interrupting production, violating property rights, and indiscriminately punishing both compliant and noncompliant firms. It is an inefficient strategy, because it deprives polluters of the chance to adapt to new regulatory standards while continuing to contribute to growth. It is also counterproductive because it devalues compliance, discourages firms from investing in abatement, and fosters adversarial relations between the regulators and the regulated.

Blunt force regulation is also politically risky: Widespread factory closures decimate local government revenue and increase the risk of unrest from workers who have lost their jobs, and from entrepreneurs who have lost their businesses. The state's outright disregard for property rights can also dissuade foreign companies from investing in local businesses and discourage local companies from expanding their ventures. In short, the rise of blunt force regulation raises three questions:

- 1) Why would governments choose such a costly solution to reduce pollution? Why destroy businesses, decimate jobs, and depress an area's economy just to clean up the air?
- 2) If a government can coerce polluters – even compliant ones – to shut down, why not force them to comply with legally enforceable pollution standards? Why shut down the economy if a more reasonable, sustainable alternative is available?
- 3) What are some realistic alternatives to blunt force regulation? Will China use them?

This book addresses each question in turn. With each answer, I explain why China – a state with the necessary will, resources, and political authority to develop more efficient regulatory solutions – nevertheless resorts to a costly, clumsy blunt force solution. This book also offers answers to some broader questions, such as, can governments enforce complex regulations even when lacking in resources and institutional capacity? Can states enforce regulations arbitrarily and still evade the consequences of heightened market uncertainty?

### 1.1 THE ARGUMENT IN BRIEF

I argue that blunt force regulation is, at its core, a response to principal–agent problems within the state apparatus. It emerges when political leaders (the principal) want to regulate, but lack sufficient control over local authorities or bureaucrats (the agents) to ensure the regulation will be enforced.

Blunt force regulation solves this problem by standardizing – to an extreme – the actions that local authorities are ordered to take against regulated entities. This makes it easier for central leaders to identify and punish local authorities who deviate from higher-level governments' implementation orders. For instance, central leaders who order local officials to enforce blanket production bans will find it easier to confirm that total bans have been imposed than to check whether local regulators are correctly policing emissions from a variety of factories in different regions.

Blunt force regulation also reduces the number of stages between enforcement action and outcomes. A citywide forced reduction in industrial capacity, for instance, will improve air quality much faster than introducing stricter pollution standards over time. This one-shot approach to delivering outcomes increases the chances that local officials will be discovered – and punished – for disobeying central orders, as central leaders only need to check once to see if a city's air quality has improved. In short, blunt force regulation improves implementation outcomes by temporarily increasing central leaders' ability to monitor, motivate, and sanction local state actors.

This argument – that blunt force regulation is a response to weak bureaucratic control – challenges a longstanding perception that the Chinese state has immense enforcement powers and coercive capacity. After all, this is a state that has managed to control birth rates, censor the Internet, defuse collective action, and deliver decades of economic

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growth – all of which would have been impossible without bureaucrats who respected and responded to central orders.

In the following sections, I reexamine China's reputation as a strong state. Through investigating the three research questions outlined earlier, I show how blunt force regulation reveals that, in the sphere of environmental governance, the Chinese leadership faces a new set of challenges that is weakening its fabled bureaucratic control. Thus, blunt force regulation represents much more than a leadership's attempts to bring pollution under control.

### 1.2 WHY SUCH A COSTLY SOLUTION?

When I describe the scale of blunt force regulation in China, people often ask “But what about the risk of social unrest?” and “What about the risk of economic slowdown?” or “Why would the state choose to disrupt the economy on such a large scale?”

These questions are amplified in China's case because authoritarian regimes are more vulnerable to social unrest. Without regular elections to create the appearance of political responsiveness, authoritarian leaders are much less likely to withstand sustained, concerted challenges to their authority (Gandhi and Przeworski 2006; Haber 2006; Huntington 1991; Nathan 2003). This is why China puts so much effort into repressing or segregating contentious actors, making it impossible for them to organize and breach the collective action barrier (Cai 2010; Deng and O'Brien 2013; Lee 2007; O'Brien and Li 2006; Walker 2008). Why, then, would the regime allow thousands of workers with shared identities, locations, and grievances to be laid off without compensation, over a short period of time, effectively creating the conditions for coordinated labor unrest? Further, why would the state disregard property rights and shut down businesses, sowing resentment and distrust in the business class on which it depends to maintain economic stability?

One possible explanation is that the Chinese government is driven to blunt force regulation out of a sense of urgency. Widespread contamination of the groundwater has made drinking water a serious public health concern (Han et al. 2016). Air pollution is contributing to a decline in life expectancy (Ebenstein et al. 2015; Rohde and Miller 2015). This scarcity of clean air and water will increase the public health burden, overwhelming an already overstretched health system.

Moreover, China's environmental degradation has galvanized protests among wealthy, well-connected urban elites (van Rooij et al. 2016; Wang 2016; Wang and Jin 2007), on whom top leaders depend for regime support, and are therefore reluctant to repress or silence. Thus, for all the talk of authoritarian long-term horizons (Beeson 2010; Wright 2010), China's leaders are finding that – like their democratic counterparts – they must take immediate action to appease popular demands to control pollution.

However, unlike their democratic counterparts – and in contrast to the vast majority of states – China's leaders wield enormous coercive power. The regime is adept at discouraging or demobilizing labor unrest, and can use its concentrated political authority to control even the most powerful industries (Dickson 2003; Friedman 2014; Fu 2017; Gallagher 2006; Lee 2007; Pearson 2011; Tsai 2011; Naughton and Tsai 2015). In one northern Chinese county I visited, blunt force measures against the local cement industry led to the loss of 90% of the township's tax revenue and more than 50% of local employment. However, instead of uniting in protest against the government, laid-off workers despondently drifted home to wait for new jobs to appear or sought jobs in other cities.<sup>5</sup> Business owners accepted small sums of compensation from the government and took on the Herculean task of turning hollowed-out cement factories into more acceptable green businesses, such as agrotourism ventures.<sup>6</sup> News reports<sup>7</sup> and my interviews with factory owners around China<sup>8</sup> suggest that acquiescence to blunt force regulation is the norm.

A regime that can bring about this level of acquiescence is unlikely to be deterred by the social costs of blunt force regulation. Thus, previous research suggests that China's leaders accept concentrated short-term risks because the problem is urgent, brutal implementation efforts will yield immediate results, and the regime commands tried and tested tools for neutralizing social resistance (Josephson 2004; Shearman and Smith 2007).

This is why some outside observers perceive China's blunt force pollution regulation as a lesson in authoritarian efficiency, and praise the government for its "authoritarian environmentalism" (Gilley 2012). In a short space of time, the Chinese state reduced pollution, contained dissent, and drove entrepreneurs to invest in cleaner industries. In Japan, the same process took a decade, and required protracted negotiations with businesses and expensive compensation schemes for workers (Peck et al. 1987; Tilton 1996). Not so in China.

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China's success in reducing pollution through blunt force regulation could lend credence to theories that the regime's centralized, top-down governance model makes it more resilient. A group of scholars led by Heilmann and Perry (2011a) argue that the leadership's concentrated authority enables an ad hoc governance style characterized by a lack of binding rules, stable norms, or clearly specified policies. This institutionalized ambiguity allows the regime to respond quickly and inventively to urgent policy issues such as pollution. It also enables it to implement policies decisively, even when formal enforcement institutions are lacking (Ang 2016; Heilmann and Melton 2013; Heilmann and Perry 2011a; Strauss 2009; Zhi and Pearson 2017).

To an extent, blunt force regulation illustrates the advantages of this flexible mode of governance. When stock markets go into free fall, Beijing can suspend trading and ban securities houses from short selling to prevent shares from bottoming out, as occurred in an infamous case in 2015.<sup>9</sup> When air quality soars to dangerous levels, local officials can order factories to cease production and force cars off the roads.<sup>10</sup> And if the state cannot enforce complex regulatory measures, it can simply apply punitive sanctions to all possible violators. Elsewhere in the world, governing bodies – out of respect for property rights or the legislative process – must work within the law, and apply compromise solutions until more drastic regulatory measures are approved. Not so in China.

### 1.3 THE LONG-TERM CONSEQUENCES

However, a deeper look at the aftermath of blunt force regulation reveals at least three long-term consequences that may be harder for the regime to overcome.

First, the extralegal nature of this type of regulation has contributed to a highly unstable business environment. Constant uncertainty over when governments will stop production or seize factory assets has increased businesses' fear of state interference. Business owners are also reluctant to make new investments or expand their ventures due to fears of arbitrary closures in the next anti-pollution campaign.

Second, by applying sanctions so indiscriminately, blunt force regulation discourages businesses from complying with the law. Instead of incentivizing polluters to adhere to environmental standards, the state imposes compliance via production bans. Rather than reward firms that reduce pollution *and* generate local revenue, the state closes them down

and then tries (during an economic slowdown, no less) to rebuild the economy anew. Why would any company comply with emissions standards amid this level of uncertainty?

This risk became apparent during my interviews with factory owners in a southern Chinese county after blunt force regulation decimated a 40-year-old waste recycling industry. Months after the crackdown, local officials were urging a few remaining factories to move into the “cleaner” industrial parks. Some factory owners stoically resisted government orders, choosing instead to risk a further crackdown. As one surviving factory owner retorted, “why should I move into that industrial park? Why should I pay higher rent to go to that place? Even if I do move into that industrial park, will that really make me clean enough? I don’t trust these people [the government]!”<sup>11</sup> His concerns were justified. When I later interviewed the owner of one of these designated industrial parks, he revealed that at that point, only the most basic infrastructure was available.<sup>12</sup>

The third long-term consequence is that blunt force regulation fails to address the deeper problem of regulatory capture because it simply sidesteps the issue of corrupt bureaucrats. High-profile, one-off campaigns may reduce pollution, but they do not improve the regulatory apparatus or make the threat of punishment more credible in the long term. Instead, bureaucrats and regulators can easily revert to their old habits of shielding firms from environmental regulation once blunt force measures have ended. As a result, months after local officials obey Beijing’s edicts to curb production, polluting industries revive their production, and industrial output recovers (and surges).<sup>13</sup> Or months after Beijing sends in teams of inspectors to uncover violations, provincial officials revert to protecting noncompliant cadres (Tian and Tsai 2020), and pollution returns to prior levels (van der Kamp 2021). Moreover, it is these old habits – regulatory capture, shirking policy implementation, and protecting noncompliant firms – that give rise to China’s frequent regulatory crises. Time and time again, when chemical spills poison rivers,<sup>14</sup> schools collapse in earthquakes,<sup>15</sup> or chemical explosions rip apart city districts,<sup>16</sup> reports reveal it is because bureaucrats have turned a blind eye to ongoing regulatory violations.

These problems suggest that China’s coercive powers may be misapplied. If the state can force companies to stop production indefinitely, why not use this power to make them obey pollution laws? If leaders can order local officials to shut down their economies, why not order them to enforce existing pollution regulations,

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which could address China's pollution crisis more effectively and sustainably in the long term?

### 1.4 WHY NOT REGULATE THROUGH THE LAW?

One possible explanation for states choosing blunt force regulation over standard enforcement procedures is the need to overcome resource limitations. According to this explanation, the state *intends* to act through the law; it even builds the institutions and enforcement mechanisms to do so. However, local agencies lack the necessary personnel and funds to adequately implement the law, which leads to prolonged lapses in enforcement. To prevent further lapses, the state initiates concentrated waves of enforcement – known in the literature as “campaigns” – in the hope that one “big push” implementation effort can scare actors into compliance and quickly close the gap between the leadership's ambitious goals and their inadequate implementation resources (Biddulph et al. 2012; Dutton 2005; Liu et al. 2015; Manion 2004; Tanner 2000; Strauss 2006; Zhu, Zhang, and Liu 2017). The problem is that this idea of a resource-poor Chinese state with limited monitoring powers is increasingly at odds with the reality of China's modern, data-driven governance.

The Chinese state is wealthy. Its control over key sources of revenue (including land and state-owned industrial sectors) has given it a share of revenue that constitutes over 20% of the country's GDP – comparable to that of the Organization for Economic Co-operation and Development countries (Naughton 2017, 56). Local governments may have limited resources, but this is because Beijing uses fiscal policy to keep local authorities on a short leash by controlling decisions on how much revenue can be collected and disbursed (Wang and Herd 2013, 9–14; Wu and Wang 2013, 179; Ong 2006; Huang 2008; Kennedy 2013, 1010–11; Tsui 2005; Zhang 1999). When the central government is committed to a policy issue – such as pollution control – the leadership can (and does) disburse money to local governments to fund its implementation.

For instance, Figure 1.1 tracks the resources that Beijing has invested in the country's formal environmental enforcement apparatus over the past two decades. It illustrates a steady increase in the number of environmental personnel and enforcement organizations, which has vastly enhanced local governments' monitoring and enforcement capabilities.

The Chinese state is also becoming known (or even notorious) for its information-gathering capacities. Its sophisticated surveillance



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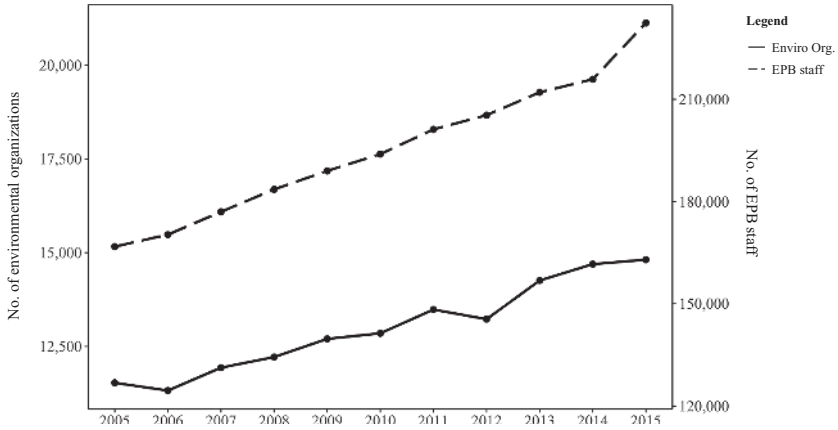


Figure 1.1 Growth in institutional resources for conventional regulation, 2005–16.  
 Data Source: China Environment Yearbooks, MEP

technology, use of citizen feedback through protest, and online posts to preempt unrest all demonstrate the regime's rapidly expanding ability to monitor society (Distelhorst and Hou 2017; King, Pan, and Roberts 2013; Kostka 2019; Lorentzen 2014; Truex 2017). These information-gathering efforts extend deep into the environmental sphere. Figure 1.2 illustrates that there has been a major spike in spending on environmental inspections since 2012. This increase can be attributed to the widespread installation of continuous emissions monitoring systems, automated devices that measure, in real time, the level and type of pollutants that factories emit – a technology on par with what is used in the United States. They have been installed in all major industrial sources of pollution, including power plants, wastewater treatment plants, and large industrial factories, making it easier for regulators to quickly identify key culprits.

In certain respects, China's use of technology to enforce regulation even outpaces America's. For instance, a US Environmental Protection Agency (EPA) regulator who had recently returned from an official visit to China in 2018 was struck by the ubiquity of mobile app usage in everyday life there. He noted that "China is so far ahead of the US in some systems," and pondered:

If everyone is on this platform for sharing information [WeChat], why can't the regulatory agencies use it to share data quickly from local to

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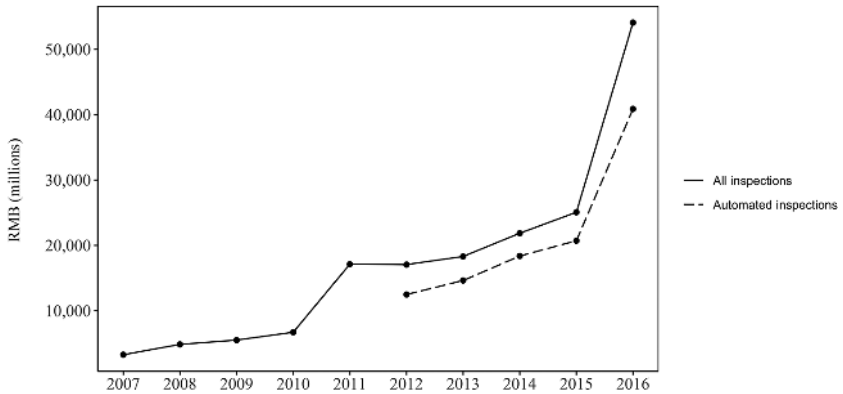


Figure 1.2 Growth in expenditure for conventional regulation – inspections, 2007–16.  
*Data Source:* China Environment Yearbook, MEP

national levels? They could use a barcode to scan a company’s emissions data and upload it directly to a national system. . . Then central agencies could crosscheck the uploaded data with business registration data to see if all sources had been reported.<sup>17</sup>

Once upon a time, China’s environmental agencies were derided as “retirement bureaus” – irrelevant, underresourced agencies where aging cadres were put out to pasture. Thus, blunt force regulation (a regular occurrence throughout the 1980s and 1990s) did seem like a necessary corrective to the ineffectual actions of weak, poorly trained local enforcement agencies.

But today’s environmental agencies are increasingly well staffed and sophisticated. In my fieldwork I came across municipal regulators who use complex quantitative models to identify and target specific sources of pollutants,<sup>18</sup> as well as county regulators who use high-tech monitoring techniques to catch secret sources of emissions.<sup>19</sup> Some of China’s most prestigious universities are also consulting with regulators, sending teams of graduate students to assist them in their monitoring efforts.<sup>20</sup>

Since 2015, Beijing has armed regulators with a strict new environmental law that gives polluters clearer rules to follow and provides bureaucrats with a stronger toolkit of formal, legal mechanisms with which to sanction rule breakers. For the first time, these sanctions include a provision to criminally prosecute company owners and local