

An Exploration of System Justification in China: Public Opinion on Air Quality

by

Alyssa Martinec

Submitted to the Graduate Faculty of
Dietrich School of Arts and Sciences in partial fulfillment
of the requirements for the degree of
Bachelor of Philosophy

University of Pittsburgh

2019

UNIVERSITY OF PITTSBURGH
DIETRICH SCHOOL OF ARTS AND SCIENCES

This thesis was presented

by

Alyssa Martinec

It was defended on

March 25, 2019

and approved by

Andrew Lotz, PhD, Political Science

Michaël Aklin, PhD, Political Science

Jeffrey Javed, PhD, University of Michigan, Lieberthal-Rogel Center for Chinese Studies

Thesis Advisor: Iza Ding, PhD, Political Science

Copyright © by Alyssa Martinec

2019

An Exploration of System Justification in China: Public Opinion on Air Quality

Alyssa Martinec

University of Pittsburgh, 2019

The following paper explores the global phenomenon of environmental degradation as a result of economic growth by focusing on how educated middle class urbanites respond to air pollution in Shanghai, China. Data was gathered through 16 semi-structured interviews that gauged public opinion on air quality. Ultimately, the results of this study support the hypothesis of system justification theory, which suggests that individuals justify the status quo at the expense of their material interest. By isolating three mechanisms of system justification—denial, rationalization, and deflection—I found that subjects are most likely to cope with air pollution by deflecting responsibility away from themselves, followed by relatively low levels of rationalization and denial.

Table of Contents

Preface.....	viii
1.0 Introduction.....	1
1.1 Background.....	3
1.2 Methodology.....	8
2.0 Research Results	17
2.1 Analysis.....	24
3.0 Discussion.....	27
4.0 Conclusion	30
Appendix A Codebook.....	32
Bibliography	34

List of Tables

Table 1 Research Results	17
Table 2 Statements Referencing Economic Growth.....	18
Table 3 Statements Referencing Government or Industry Responsibility.....	20
Table 4 Statements Exhibiting False Attribution.....	21

List of Figures

Figure 1 Variables.....	16
-------------------------	----

Preface

I would like to thank my committee, especially my thesis advisor Iza Ding, for helping me throughout the writing process, Michael Goodhart and Roger Rouse for their guidance on incorporating a global perspective, Kory Gentle for research assistance and emotional support, and E.L. Kreiser, Dan Meyers, Catherine Costello, Nicholas Pito, Elena Castiglioni, and Jackson Watson for research assistance. Finally, thank you to my family, Natalie, Ronald, Ashley, and Steven for the endless support.

1.0 Introduction

Global emissions are at an all time high, with the most recent IPCC report claiming we have less than a dozen years to keep warming at a maximum of 1.5C lest the consequences of climate change irreversibly increase in severity (IPCC 2018). The conflict between economic development and environmental protection is glaring in the current global political arena, which is dominated by neoliberal ideals that have deepened since the 2008 economic recession.

Since 1978, China's GDP growth has been nearly 10 percent a year on average (World Bank). No other country in history has experienced such rapid growth, let alone the most populated country in the world with over 1.3 billion residents. This level of growth required vast amounts of energy to sustain, and China's primary energy source was and continues to be coal. The consequence of relying on dirty energy sources for the most condensed economic growth in history is, of course, widespread environmental degradation. China's greenhouse gas emissions have been the highest of any country since 2007. According to the UN Greenhouse Gas Inventory Data, China emitted 11,895,765 Gg of greenhouse gas in 2012 (UNFCCC).

China's level of pollution reflects years of "pollute now, control later" approach used to attain rapid economic growth in a short timeframe. However, China has now reached a point where sustainable development could be prioritized to a far greater extent. More than 800 million people have been lifted out of poverty, and all of the Millennium Development Goals were achieved by 2015 (World Bank). Still, China has just barely managed to curb further environmental degradation and remains painfully weak on restoration. However, China has faced insignificant backlash from the global community from doing so little and more so has been celebrated for managing to plateau emissions alongside such rapid economic growth. In March

of 2018, the Executive Secretary of UN Climate Change, Patricia Espinosa tweeted, “Excellent news coming out of China - very encouraging as the international community seeks to accelerate the transition to low carbon and to raise ambition to achieve the #ParisAgreement #climate goals” (as quoted by UNFCCC).

While some may consider environmental degradation to be a scientific matter, the problem is and always has been fundamentally political. It is the result of perverse incentive structures with which scholars and policymakers have grappled for years. To provide insight on this, I have framed this paper to address the global phenomenon of environmental degradation by narrowing down to a specific case study that seeks to answer:

1. How do people in China remain passive in response to air pollution?

Throughout this paper, I will use the term action to refer to political action done explicitly to improve air quality, such as public demonstrations, boycotting an industry, disseminating information about air pollution, or becoming a member of an environmental protection organization. In China, there is currently no national environmental movement to address air pollution. To shed some light on this, I conducted sixteen semi-structured interviews with educated middle class urbanites in Shanghai to assess public opinion on air quality. I hypothesized that subjects would deploy system justification to rationalize the existence of air pollution, which is when individuals bolster the status quo at the expense of their material interest. In this case, the system is air pollution and the individual's material interest would be clean air. I isolate three mechanisms of system justification, denial, rationalization, and deflection, and assess their prevalence throughout the interviews. I hold that system justification is necessary because the conflict between economic development and environmental protection forces people to choose between two outcomes that are independently desirable. Because people

do not want to be without either, they justify the system in place and enter a state of cognitive dissonance, which effectively reinforces the status quo. Thus, robust solutions to environmental problems must address the root of this conflict, which will require a global paradigm shift away from neoliberalism.

1.1 Background

I turned to public opinion on air quality in China because it is a tangible environmental issue with which working and middle class residents are already familiar. With its export oriented market, China has exhibited a strong preference toward natural resource extraction. Along the eastern coast from Beijing to Shanghai, where a majority of China's population resides, 10 percent of the area has been associated with 34 percent of China's PM2.5 emissions (Rohde and Muller 2015). In other words, China's air pollution is highly concentrated in the area where most of its people live. 6.1 percent of deaths in 2012 were due to trachea, bronchus, and lung cancers (World Health Organization). In 2014, air pollution contributed to the death of 1.6 million Chinese citizens, which makes up nearly 30 percent of worldwide air pollution-related deaths at the time (Rohde and Muller 2015). The World Health Organization reported that in 2016 China experienced 1,830 lost years of healthy life per 100,000 people attributable to ambient air pollution. Clearly, air pollution has had an objective impact on the Chinese population.

The neoliberal project has set the stage for a classic race to the bottom effect, in which competing jurisdictions deregulate to gain or maintain economic advantage. While China does not use the small government model traditionally associated with neoliberalism, the global

phenomenon of deregulation is clearly reflected in the fierce competition between local Chinese officials, who allow serious negative externalities in an attempt to achieve quick economic growth. While environmental protection has been included as a goal in last three Five Year Plans, scholars have found that these targets are not prioritized nearly as much as economic growth (Lo and Tang 2006; Wang 2013). In fact, Wu et al. (2013) found that local officials do not increase their chances of being promoted by spending local funds on environmental protection, while spending on transportation infrastructure increases a cadre's promotion odds, likely because of its direct contribution to GDP and land prices. This empirical evidence supports the idea that the Party is far more concerned with short term economic gain than it is with undertaking serious environmental protection measures. Director of the China Environmental Law Project for the Natural Resources Defense Council, Alex Wang (2006), noted, "where economic development and environment protection have bumped up against each other in the bare-knuckled, high-growth capitalist environment that is China today, economic development has invariably prevailed."

However, local cadres are not necessarily the most influential players in environmental policy implementation. Directors of local Environmental Protection Bureaus are the most important piece. They have to answer to both high level bureaucratic agencies as well as local governments. The local governments end up having more sway over EPBs because they appoint EPB officials and fund their operations (Jahiel 1998). Because local governments are motivated by short term economic growth for tax revenue and employment, this typically results in poor environmental policy implementation by EPBs (Turiel et al.). Additionally, those appointed to head EPBs are typically selected from outside the environmental field (Kostka 2013). Thus, even though the central government may appear to be prioritizing environmental protection in recent

years, weak implementation on the ground shows how insignificant these promises really are. It is easy to think that because environmental policy exists, it is the responsibility of local cadres to it out. Ran (2013) points out quite clearly that it is not the fault of local officials for poor environmental policy implementation, but rather that of the perverse incentive structure at the central level, which fails to provide proper political, financial, or moral motivation. In short, the Party is clearly meeting global neoliberal demands through deregulation and short term economic development, while environmental protection sits on the backburner.

Nevertheless, it is noteworthy to mention that environmental protection is given high importance under specific circumstances. That is, when there are large-scale social protests, the central government is considerably more concerned. In 2015 a documentary called *Under the Dome* went viral in China for exposing the country's severe environmental problems. While the film was originally supported by the central government, its viral reaction caused officials to remove the film from the internet and arrest those involved in its making. In an interview with Yale Environment 360, Daniel Gardner, author of *Environmental Pollution in China: What Everyone Needs to Know*, said, "While Beijing may tolerate the common street protests of 100, 2,000, even 10,000 people, largely because they are of a familiar NIMBY-style and take as their targets local industry and local government, the specter of 200 million people from all around the country tuning in to 'Under the Dome,' and perhaps realizing they have common cause for building a national movement, was too unsettling" (Standaert 2017). This relays the importance of Chinese public opinion. Even though Chinese people do not have a direct hand in environmental policy legislation, enough social unrest will sway upper level officials. However, public mobilization is still quite rare. Calvin Quek, the head of Sustainable Finance for Greenpeace East Asia, noted how government officials monitor popular social media websites

like Weibo, and said “They have become very smart about getting information and controlling the narrative. They’ve been able to say, ‘We want to be final arbitrators of the public discussion.’ And I think the public is fine with it” (Standaert 2017). I believe the latter part of Quek’s statement is important to this narrative. The government is actually very skilled at controlling public opinion before it gains enough momentum for a national movement. This is something to keep in mind as I present my results from Shanghai.

In general, protests that have this type of effect are still infrequent, and a majority of the population is unlikely to have participated in an environmental demonstration (Inglehart et. al 2014). Numerically speaking, many protests have occurred, but with few exceptions, they have been small in scale. Also, since the Tiananmen Square protests in 1989, protests that do occur typically remain cellular and are settled after financial compensation is provided to the protest constituencies (Steinhardt and Wu 2016). Tianjian Shi (2015) points out how the threshold for challenging public authority is higher in China than in a state with established institutions for reciprocal orientation. This can help explain why national mobilization is less likely to occur. While some scholars think an environmental movement could mobilize the national population and push the government to respond to pressure from the bottom, the reality is that large-scale mobilization is rare and government officials still possess a monopoly on environmental decision-making.

This still does not explain how people in China actively cope with ongoing environmental problems. Going into these interviews, I hypothesized that interviewees would use various mechanisms to justify the status quo at the expense of their material interest, which in this case would be clean air. System justification theory was first purposed by Jost et al. (2004) to describe the “process by which existing social arrangements are legitimized, even at

the expense of personal and group interest.” This theory challenges classical collective action paradigms that assume individuals are rational actors capable of recognizing what is within their best, typically economic, interest. The authors hold that previous theories fail to account for the degree to which psychological responses to the social and political status quo entail active system justification, especially among members of disadvantaged groups who will use mechanisms such as out-group favoritism to maintain mental wellbeing. In this sense, system justification is intimately related to cognitive dissonance. Historically speaking, instances of system justification far outnumber rare moments of mobilized resistance or revolution, and researchers have increasingly found empirical evidence to contradict identity-based or interest-based theories in favor of accommodation and rationalization of the systems in place. This is also influenced by the Marxist theory of false consciousness proposed by Friedrich Engels, which suggests that ruling class ideology is accepted and perpetuated by the proletariat despite it being materially against their best interest. These theories have been a topic of heated debate for some time, as they could be interpreted to mean ordinary people, and even victims, are at fault for some of the world's worst atrocities. For instance, there was an intense and polarized response to Goldhagen's book *Hitler's Willing Executioners: Ordinary Germans and the Holocaust* (Goldhagen et al. 1996). As one may guess from the title, Goldhagen was being intentionally provocative with this work. However, system justification, false consciousness, and the role of ordinary people is vital to explore, if not to discover *why* unfavorable situations occur, but rather *how* they occur. These theories are not to say that people have malicious intentions, but rather to elucidate the self-perpetuating nature of the status quo. The works of Foucault (1975) and Lukes (1974) offer keen insight on this through the lens of power. It is not simply government

propaganda or forceful repression from a consolidated police force that cause negative outcomes. In reality, ordinary people play a key role in accepting and thus perpetuating the system in place.

Returning to the topic of air pollution in China, the stakes, especially for educated middle class urbanites, are much less high than say people living during the Holocaust. I hypothesize that this makes justifying the system not only easier, but also desirable, as political action is both laborious and potentially costly. Additionally, because so many people in China have only been lifted out of poverty recently, I expected interviewees to highly value economic growth and therefore rationalize the resulting air pollution. These results would also make sense alongside the Chinese government's strategy of "performance legitimacy," which is when the government makes a set of promises and then follows through with them to gain popular support (Zhao 2009; Zhu 2011). Economic growth has been the key indicator of success in China, so a condemnation of economic growth, even indirectly, also entails a certain loss of faith in the state.

1.2 Methodology

To explore why people in China are passive in response to air pollution, I conducted sixteen intensive interviews with residents in Shanghai. Participants had to be 18 years of age or older. The specific location of the interviews varied depending on the availability of the participant. Because no sensitive information was being shared, interviews were conducted in both public and private settings, for which I received prior approval by the Institutional Review Board. The interviews took anywhere from ten to thirty minutes based on the participants' responses and the number of follow up questions required. All interviews took place between June 13th and August 12th, 2018. No subject identifiers were collected during the interviews or

the consent process, which was done orally. The interviews were recorded to avoid misinterpretation and then transcribed by hand. After being transcribed, the recordings were erased to avoid voice recognition and protect participants' privacy. Interviews were conducted in either English or Chinese, depending on which language the participant was most comfortable speaking.

I recruited the participants through snowball sampling, and there is an unavoidable demographic bias in this approach. All of the participants had some level of higher education and exposure to people who live outside of China, which potentially increases their access to information and is not reflective of the general population. Additionally, a majority of respondents made between 5,000-15,000 RMB a month, placing them as middle income earners. However, there are also benefits to snowball sampling, in that it allows for exploration of a specific social network. By the end of 2017, 57.96% of China's population resided in urban areas, and the rate of urban population growth is predicted to continue increasing under China's New Urbanization Policy 2014–2020 (World Bank 2017; Wang et al. 2015). In other words, not all demographics are equally important to national mobilization, and buy-in from the urban population is of higher importance. Therefore, taking a closer look at educated middleclass urbanites is useful when assessing the phenomenon of inaction, so long as the results are not generalized to reflect all of China's population. On that note, the other major setback is the relatively small sample size, which was due to limited funding and resources. That being said, when collecting qualitative data about a phenomenon, a researcher typically only interviews enough people until they are receiving no new information. In this case, the interviews provided many recurring answers that offer insight into the phenomenon of inaction towards air pollution.

The decision to conduct face-to-face semi-structured interviews, as opposed to uniformly structured questionnaires, was made to capture more of the participants' psychological reasoning and minimize extrapolation. Uniformly structured questionnaires can cater more easily towards a large sample size because of the ability to distribute through an electronic form or recruit multiple researchers to gather data without much variability. This is better for the purposes statistical analysis and reflecting a national public opinion. However, this enormous task has already been done a number of times by scholars in the field (Harris 2006; Yu 2014; Liu and Mu 2016). Rather than trying to look wider, this study aims to look deeper. Given the resources at hand, an in depth look at a target demographic is the best way to provide new insight on environmental policy.

Thus, a set of non-leading questions were designed to work as a framework, while follow-up questions were used to clarify any ambiguity. The primary goal was to answer the question of why there is inaction in response to salient environmental problems, in this case using air pollution as a case study. Thus, the questions were framed to discover: 1) if the subject finds air pollution to be a problem in the first place; 2) if so, how they think this problem should be addressed; and 3) why or why not they think it has been adequately addressed. I hypothesized that system justification could occur at any of these three stages. First, subjects may find air quality to be acceptable, despite objective data stating otherwise. Second, they may not find it their responsibility to address, or do not know how to address it at all. Or third, they may find it is being adequately addressed already, or that the reason for this problem occurring is strong enough to justify its existence. This could include prioritizing economic growth, political stability, and so on. The responses could also point to a null hypothesis if the subjects found air pollution to be a problem and were actively taking action against it, in which case, this study

could potentially challenge the existing literature upon which it was built and reveal the unique behavior of this demographic group.

For the responses to truly reflect the subject's opinion, it was important to make the questions both non-leading and presented in a certain order. However, before being asked these questions, the subjects at the very least knew the goal of the interview was to assess their opinions on air pollution because it was included in the consent process. This could present a small level of bias, but the questions were designed to avoid this as much as possible. The interview guide was designed as follows:

1. In the past 12 months, have you experienced respiratory problems such as coughing, congestion, asthma, lung cancer, etc.? How many days in the past 12 months did you experience this problem?

在过去的12个月里你是否有过呼吸道问题？如咳嗽、充血、哮喘、肺癌等。在过去12个月中，有多少天你的呼吸道存在问题？

Before presenting any questions related to air pollution, this question was included to make a general assessment of whether or not air pollution has had an objective impact on the subject. However, because it would be difficult to draw causality between respiratory problems and air pollution, the question was actually more useful in showing how a subject explained the cause of their health problems. While this was not included in the question, many subjects included various reasoning in their answers because they already knew the interview was about air quality.

2. In regards to China's air quality, would you describe it as very good, somewhat good, bad, or very bad? 你认为中国的空气质量是非常好，比较好，坏，还是非常糟糕？

The term “air quality” was deliberately used in this question, as opposed to “air pollution,” so that respondents had the ability to deny air pollution in its entirety. The question was also designed with a sliding scale to assess the strength of the subject’s opinion and to avoid a neutral answer. If the subject responded with an answer outside the options given, I repeated the question and asked for them to only choose from the available choices. However, I found the initial responses to be equally, if not more, important when analyzing the results.

3. Why do you feel this way? 你为什么这样认为?

This question was included to discover how subjects are assessing air quality. Whether they are looking at official PM 2.5 data from the World Bank, state-sponsored media, looking at the sky when they walk outside, or reiterating the opinions of their peers is an important distinction, especially if people have misconceptions about the air quality.

4. If air quality needed to improve, how do you think this would be done?
如果空气质量需要提高，你认为该如何提高?

At this point, the subject has had the opportunity to express whether or not they think air pollution exists, so I could now include questions that subtly assume air pollution is a problem. This question was left purposely vague, so that the subject’s response revealed both how they thought problem should be solved, and who or what institutional body carries the responsibility. If a subject responded with the claim that China should do something, I would follow-up with a request to elaborate on what they mean by China—the government (政府), individuals (各个人), or both. If both, I would then follow-up again with the question of whether one held more responsibility than the other. This provides more distinction between things that are helpful versus necessary. There may also be things that not everyone has to do, but just enough people, or rather behaviors that can be continued, but just done in moderation, both of which could imply

less responsibility on the part of the individual. Retrospectively, it may have been useful to include companies (公司) by themselves as well, but for the most part, this was included under the umbrella of the government's responsibility to regulate.

5. Do you think enough has been done to improve air quality? 你是否认为已经采取cǎi qǔ了足够的措施来改善空气质量?

This question now began moving into the third stage of interview process, where the subject can express whether the solutions in question 4 are genuinely being pursued, and if not why.

6. Have you done anything to improve air quality in China? If so, what? 你是否做过有助于改善空气质量的事情? 如果有, 请详述。

Now that the subject has been given the chance to place responsibility elsewhere, it is appropriate to ask a question that explores individual action. While the WVS focuses specifically on demonstrations or participation in environmental organizations, I was interested in broadening the field to include daily life decisions, especially as these are more likely to come into conflict with economic decisions and highlight where system justification could be actively deployed. If someone listed daily activities that help protect the environment, I would also ask if they made these decisions specifically to protect the environment or if they were the most convenient and just so happened to have a smaller environmental impact. This helps differentiate between active and passive environmental protection.

7. Why have or haven't you done anything? 你为什么做(没做)这些事情?

This question can reveal whether the subject finds individual action important if they have not already, as well as target precisely why individuals may take some measures against air pollution, but not others.

8. What obstacles prevent China from improving its air quality? 是什么阻碍zǔ ài了中国来改善空gǎi shàn气质量?

At this point, there is a clear assumption that the air quality actively needs improving, but the subject has been given multiple opportunities to express whether they think air pollution is a problem and if it is being addressed. In this question, “China” is used, so that the subject can take their response in the direction of obstacles to Chinese institutions or individuals. The question could also reveal the subject’s perception of the scale of the issue. Obstacles could range from global economic barriers to individual people’s attitudes.

9. If you had to choose economic development of environmental protection, which would you choose? 如果你需有选择经济发展还是环境保护，你会选择什么？

I did not originally intend to ask the subject whether they would prioritize the environment or the economy, as the WVS has a far more generalizable sample that can be cross listed for income, education, and region to reflect the demographic I interviewed. However, during the interviews, I chose to ask some of the subjects this question to test whether my subjects corroborated those results.

10. How old are you? 你的年龄？

11. What is the highest level of education you have completed?

你的最高学历？（高中、大专、本科、硕士、博士）

I also took note of whether the subject was in the process of completing a degree.

12. What is your occupation? 你的工作是什么？

13. Which of these describes your monthly income? 你的平均月薪？

a. Below 1,000 RMB

b. 1,000-5,000 RMB

c.5,000-15,000 RMB

d.15,000-25,000 RMB

For students who did not yet receive a monthly income, I asked for their parents' monthly income, as that would be more reflective of their socioeconomic class.

To identify patterns in the results, I coded the interviews for three mechanisms of system justification and the possibility of a null hypothesis (see Appendix A). If an interview supported my hypothesis of system justification, it was because the subject either denied that the problem exists, justified its reason for existing, or justified their lack of responsibility to address it, which I referred to as denial, rationalization, and deflection (see Figure 1). For each of these mechanisms, I assigned a value from 1 to 5, 1 being no sign of the given mechanism's deployment, 5 being heavy deployment. I coded the null hypothesis as 1 for evidence of a null hypothesis and 0 otherwise. In order to assess the reliability of my codebook, I recruited six classmates to serve as research assistants. After the first three individuals coded the interviews, I noticed significant inconsistency in the rationalization variable, so I adjusted my codebook, which resolved the inconsistency for the next three individuals. To make a final assessment, I averaged my results with those of the latter three individuals.

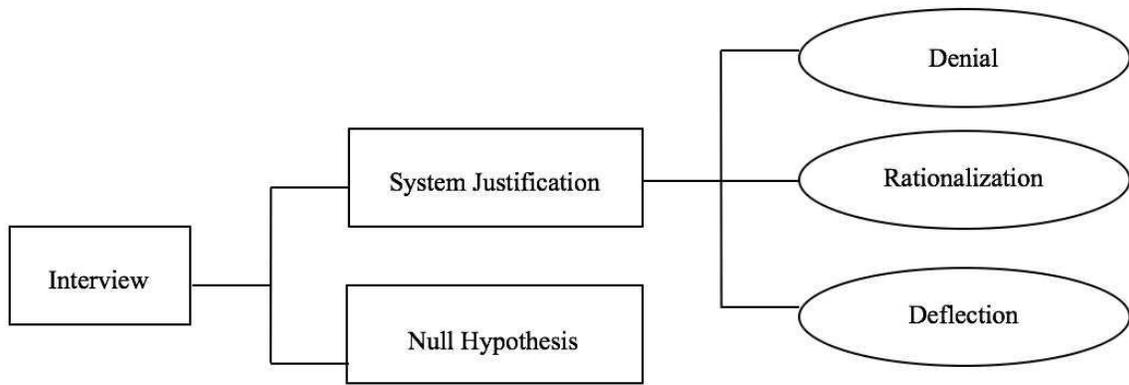


Figure 1 Variables

2.0 Research Results

11 out of 16 interviews were coded for denial, with an average value of 1.68; 13 out of 16 interviews were coded for rationalization, with an average value of 2.38; and 16 out of 16 interviews were coded for deflection, with an average value of 3.22. One interview showed evidence of a null hypothesis (see Table 1).

Table 1 Research Results

	Number of Interviews (out of 16)	Average Value
Denial	11	1.68
Rationalization	13	2.38
Deflection	16	3.22
Null Hypothesis	1	-

To reiterate, denial means complete dismissal of the problem at hand; rationalization means validating the existence of the problem; and deflection means removing responsibility from the individual (see Appendix A). Complete denial of the problem was extremely rare. Occasionally, subjects seemed to find the issue somewhat unimportant, but no one said air pollution does not exist. Others appeared to have a level of faith in the government, such as one subject who said, “Right now the government values protecting the environment more than developing the economy.” I coded this as denial because scholars largely agree that when environmental protection comes into conflict with the economy, government officials still prioritize the economy (Wang 2006; Wu et al. 2013). In this case, the subject has accepted

government propaganda about environmental policy, which is not overt denial so much as it is a lack of awareness and genuine misinformation. Thus, the values given to the 11 interviews that showed signs of denial were low across the board.

Next, the statements coded for rationalization reference economic development as a reason for air pollution (see Table 2). These responses echo the “pollute now, control later” mindset of Chinese economic development. By reinforcing the popular notion that environmental degradation is a necessary step towards development, people justify salient environmental problems. Again, there is an argument to be made that the responses coded for rationalization can be interpreted as unmotivated awareness. Noting that air pollution is the result of economic growth does not necessarily mean the subject finds this situation acceptable or inherent. This alternative explanation is why the average value for rationalization was still quite low, but higher than denial. If I were to conduct this interview process again, I would include a follow up question asking people to elaborate on how they feel about the tradeoff to avoid extrapolation.

Table 2 Statements Referencing Economic Growth

Companies like the petrochemical companies have a huge income and employ a lot of people. They also pay a lot of taxes. So if you want to shut them down it's impossible.
The environment is not valued as highly because everyone is developing the economy.
After more economic reform, we will reduce our dependence on the manufacturing industry and focus more on the service industry, which may reduce some of the impact on the environment.
Our industrial technology is relatively backward compared to some developed countries like the United States and the United Kingdom.
Upgrading China's industrial structure has been the hardest thing to do.
In many localities, they are reluctant to follow the central government's policies to limit air pollution because they do not want to limit economic growth. They won't change until the central government changes the indicators for the performance evaluation.
Polluting industries are closely affiliated with the government at the local level, and they are interested in protecting their traditional ways, so it's hard for them to change fundamentally.

<p>The government cares a lot about job security, and as soon as they abandon the traditional factories, the jobs are gone.</p>
<p>I think if you interview middle class people, we agree environmental protection is more important, but I think for the poor guys or the countryside or Midwest China, they will prefer economic growth because they need to survive, they need to live.</p>
<p>China's long-established energy structure is burning coal. Because of the relatively fast economic development in our country, it is said that the amount of car vehicles has also risen very much. The cars' exhaust emits carbon dioxide. People's awareness of environmental protection is improving but it is not very common that it's being integrated into daily life.</p>
<p>The biggest obstacle is economic development. If we want to fundamentally solve the problem of air pollution, we will inevitably have to close many factories, which has a great impact on the GDP of many places, that is, the government has encouraged many places to change the energy structure and develop green energy, but this will be a relatively long-term process. It will not be two or three years, not five or six years. It will take many years. The biggest problem is economic development.</p>
<p>The government focuses its work on economic development, so in this respect, they are hindered from increasing funds to reduce air pollution.</p>
<p>I think China's economy is still in a transitional stage. We haven't completely separated from the primary industry and the secondary industry, so if China's tertiary industry develops, it will reduce the dependence on manufacturing and agriculture, and our environmental problems will be improved to a certain extent.</p>
<p>There are a lot of factories in China that emit a lot of air pollution and wastewater. But they can't reduce factories because China needs these factories to develop, so I think this problem is still serious and needs regional change in China.</p>
<p>Because the country is working hard to protect the environment, the number of factories is decreasing, or some policies have been put forward to close these factories. But some places do not attach importance to environmental protections. They just pursue better economic development.</p>
<p>The first thing I think about is economic development. To make economic gains a factory will damage the environment and resist through loopholes in the law or through some illegal means to maintain its production. This plight is quite big.</p>
<p>Economic development occurs at the temporary cost of the environment.</p>
<p>I don't think enough has been done to improve air quality. The government has taken some action, but this is not an easy problem to work out. It takes some time. We need to do a lot of things that might not help with our economic development. The government might not have the motivation to do it. I think the people feel the same way.</p>
<p>It's not unusual for countries to pursue economic development at all costs, and historically many countries went through a crisis, like Japan in the 70s with fish and the United States after Silent Spring in the 60s and 70s.</p>
<p>The biggest problem in China is implementation at the local level. A local official will get promoted if they perform well economically.</p>

The continued urge to develop the economy is the biggest obstacle to environmental protection.

The most commonly used mechanism of justification was deflection, which manifested in two ways. First, subjects commonly pointed to companies' or the government's responsibility as opposed to the individual (see Table 3). That is not to say that placing responsibility on the government rather than ordinary people is an unreasonable concept. However, it is easier for people to cope with air pollution on an individual level if they do not think it is their responsibility to address. In this sense, justifying an institutional structure allows one to view their own inaction as valid. This is important to consider when proposing solutions to environmental problems. The second type of deflection involved what I have dubbed false attribution (see Table 4). Essentially, subjects frequently brought up a practice or behavior that one can reasonably expect they would be doing regardless of the existence of air pollution. This could include taking public transportation, which is faster and safer, owning an electric car due to financial incentives, a personal hobby, such as gardening, or participating in activities required by law, their school, or place of employment. One subject even mentioned their household plants and patch of grass. This type of behavior deflects responsibility away from the individual by justifying that they have done their part, even if that contribution meant they do nothing differently than before.

Table 3 Statements Referencing Government or Industry Responsibility

We should develop more high-tech technologies and environmentally friendly materials and move some large-scale industries to smaller places rather than big cities.

The Chinese government should have taken some measures, such as moving some high-pollution companies to remote places. Shanghai has mainly developed some companies that are not so big and evil. Beijing is also doing this work.

The primary solution is to upgrade China's industrial structure to support more clean energy supported industries or high technology.

The government should do more to regulate the behavior of polluting factories even at the cost of economic growth.
The everyday activities of ordinary people do not contribute much to air pollution.
The government can give people who use public transportation benefits.
In the North, there could be a vehicle emission limit. Some coal-fired power generation can be shut down a little. There are also factories that should pay attention to waste disposal.
Individual people have a responsibility, but the government has a greater responsibility.
The government has taken some measures, but I think we need to better implement these measures. In some places, there is no strict implementation, so we need to further strengthen really good implementation of these measures.
I think most of the pollution comes from companies, like iron and steel companies. I think these enterprises should be limited to a few remote places. This can reduce the pollution to people's living environment.
I think the problem should fundamentally be solved from an institutional point of view, that is, the state should formulate some laws and policies. People should pay attention to their living habits, enterprises and factories should limit their emissions, and so on. There should be clear provisions to restrict people rather than simply depending on everyone. Environmental consciousness is hard to grasp.
I think the biggest obstacle is that the government is lacking incentives. Even if people have an idea of how bad it can be, we don't have the knowledge of how to solve it, or maybe think that it is the government's job to solve, not our job to solve.
Not enough has been done. Some factories have begun to restrict emissions, but it's only a small part of them. Many factories we see are starting to emit extraordinarily large emissions. Besides, our traffic still has a lot of cars using gasoline instead of batteries and so on. The government needs to do something about this.
New policies are needed. There's been a rapid rise in the number of automobiles. Even 3 to 5 years ago there were half as many cars. It's harder to implement policies retroactively than from the start.

Table 4 Statements Exhibiting False Attribution

I switched to an electric car. If you buy an electric car in Shanghai you can register your car for free, but if you get a normal car you have to pay 80000 RMB to register the license plate.
The government says to reduce energy use and emissions as much as possible. As an ordinary person, I may not have the power to control what others do, but I can avoid using plastic bags, reduce waste as much as possible, ride public transportation, and reduce my number of taxi rides to protect the environment and air quality.
I ride public transportation.

The school will organize some greening activities in the North every year, that is, to organize students to plant trees in all kinds of desolate places to clean the air. I don't do anything in Shanghai because the air quality is relatively better.
Everyday I ride public transportation, and I think I try to limit my electricity use.
I generally don't ever drive. I take the subway. If I can, I'll buy an electric car.
I have some flowers and grass, but they are all small ones. Usually, I go on public transportation.
I go out and take public transportation, and then on Arbor Day, there are many kinds of activities that involve planting trees. Well, it seems that there is nothing else.
I recycle because I think it's very important. I also use public transportation and bike or walk.
I try my best to use public transportation and not rely on taxi or private car.

In terms of choosing between the environment and the economy, my data supports that of the World Values Survey and offers more insight into why it looks the way it does. The WVS suggests that more people support environmental protection even at the expense of economic development. If the data is cross listed for region, 97% of those interviewed in Shanghai gave no answer. Those with a university-level degree were more likely to choose the environment, which was maintained across every scale of income. Because the WVS uses a uniformly structured questionnaire that requires investigators to record data through a strict checklist, it does not provide much insight into why people are answering the way they do and at worse threatens to falsely depict a sense that Chinese people are prepared to halt economic growth in order to rebuild the environment. When speaking more at length with my interviewees, they felt China should have both. To quote one of my respondents, she immediately cringed and said:

“很难选择！我可以两个都选吗？所以我觉得这是一个现在很多中国人面里的一个问题。你很难说我只选择一个。大部分的人当然希望就是又发展经济又保护环境。所以觉得需有找到一个平衡。”

"That's hard to choose! Can I choose both? I think this is a problem that many Chinese people are facing now. It's hard to say that I only choose one. Most people of course hope that there will be both economic development and environmental protection. So I feel like we need to find a balance."

This is a perfect summary of the typical reaction I received, and provides a clearer explanation for why people would choose to abstain from giving an answer. Her response is more useful than what one would receive from survey data pushing people into categories. When forced to choose, every subject opted for the environment, but not before noting their disagreement with the question itself.

Finally, only one interview supported a null hypothesis because the subject participated in an environmental organization that hosts hiking trips, during which participants pick up litter along the route. While this may not have to do with air pollution specifically, it constitutes as freely choosing to participate in an environmental organization. This subject also claimed that people in China need to be made aware about air pollution because many people have a hard time grasping the concept of environmental protection. That said, this interview was also coded as a 3.5 for deflection because the subject insisted it was the government's job to raise awareness. Therefore, even an individual who has gone out of their way to improve environmental problems still falls back on the attitude that it is by and large not their problem.

2.1 Analysis

First, these results make a great deal of intuitive sense. When it comes to system justification, denial is the most extreme method of coping with air pollution. However, it is also the most difficult to psychologically justify, as air pollution is visible and has tangible effects, even in Shanghai where it can become difficult to see the road on some days during the winter. Rationalization is a bit less extreme, but it is still a stretch to claim that air pollution is in any way desirable, even with high economic growth. Deflection on the other hand is a simple mental process because it allows the individual to acknowledge the severity of air pollution, and even the need to mitigate it, but provides the mental comfort to say, "this is not my problem." The most fascinating result of this study was the subjects' tendency to frame everyday behavior as a contribution to solving the problem. While it may be the bare minimum, it is enough for individuals to feel as though they are doing their part. I find this phenomenon somewhat analogous to the popular buzzword "slacktivism," which is when individuals perform an "initial token display of support," like posting on social media, and feel as though they are engaging in more traditional forms of political action (Kristofferson et al. 2014). However, individuals participating in slacktivism at least make it clear that they support a given movement or the actions of others. But in the context of my study, it is highly unlikely that the subjects claim these behaviors to be explicitly against air pollution without prompting, making this phenomenon of false attribution arguably more harmful for environmental movements. This type of deflection is probably best combated through educational campaigns and social coercion from fellow peers participating in political action.

The fact that people said the government had a greater responsibility to address air pollution than individuals in China is unsurprising. However, as some of the subjects noted, the

government lacks incentive to protect the environment at the cost economic growth. Incorporating local people who are directly affected by environmental problems into the decision making process could help counteract this problem. On this note, my research results challenge a persistent claim in political discourse around environmental problems. Many scholars and policymakers still attribute environmental degradation to free-riding and a tragedy of the commons. These concepts were popularized by Mancur Olson (1965) and Garrett Hardin (1968) in their works *The Logic of Collective Action* and “*The Tragedy of the Commons*” respectively. The idea is that the amount of effort it takes to partake in a collective action is greater than the individual benefit received, but failing to contribute does not prevent one from receiving the benefit of others’ work. Therefore, it makes more sense to not participate in a collective action and instead “free-ride.” However, everyone has the same incentive to free-ride, so the theoretical conclusion always ends in the spoiling or overuse of a public good. These theories paint a grim picture for the environment, as they suggest degradation is inherent without privatization or centralized state control.

This was largely disproven by Elinor Ostrom (1999), who documented instances around the world where public goods were effectively managed without taking such measures. When it comes to a complex global process, such as climate change, she emphasized the importance of institutional diversity that governs public goods from the bottom up. Ensuring local needs are reflected in the rules pertaining to a public good helps incentivize those rules to be followed. It is equally important that those rules can be changed by the local people affected by them. It makes sense that justifying the status quo is much easier when one is alienated from the decision making process, and China’s centralized control allows for little political participation.

Yet, democratization in China does not engage the entirety of the problem nor does it address why environmental problems continue to occur in democratic regimes. The greatest problem is the tradeoff between economic growth and environmental protection. During the interviews, the solutions people proposed were the same as the obstacles. In 1978, the State Council listed environmental protection as one of the Four Modernizations in the Chinese constitution (State Council Leading Group on Environmental Protection). People's notion of a developed country does not entail economic growth alone, but also a level of environmental protection as the country moves towards a service-oriented economy. Based on my interviews, people have an intuitive understanding that these two things are currently in conflict, but there seems to be a level of cognitive dissonance preventing people from acknowledging the necessity of choosing environmental protection over the economy. Thus, even if people want the air quality to improve, they end up in a state of cognitive dissonance, which ultimately results in inaction and a perpetuation of the status quo. To address this side of the problem, a much larger discussion that goes beyond air pollution in China is necessary.

3.0 Discussion

Having established how some educated middle class urbanites in Shanghai grapple with air pollution, it is useful to ponder why this is such a contentious issue in the first place. Naturally, if environmental degradation were a simple problem, individuals would not need to go to such lengths to justify its ongoing prevalence. This is where my research fits into a larger global narrative. What is being observed in my research is the reaction one target population is having to a much larger and complicated global process.

To tie this in to a greater global discussion on environmental degradation, it is first necessary to elaborate on why the conflict between economic development and environmental protection exists in the first place. I believe the root of this conflict begins in the very way we conceptualize the environment as resources. There has long been a notion that humans exist separately from the rest of nature. The concept of nature is in and of itself a socially constructed concept made to reflect the attitude that humans are distinct and separable from the space we occupy. The bible states: “And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth” (Genesis 1:26). John Locke later adapted this verse into his “Second Treatise of Government” and added that nature becomes man’s private property when he mixes it with his labor (1690).

Consequently, this assumption allows one to frame the environment as something that can and should be used to meet our needs without having a stake in its degradation. In her book *This Changes Everything: Capitalism vs. the Climate*, Naomi Klein (2014) quotes the father of the scientific method, Francis Bacon, as writing, “For you have but to follow and as it were

hound nature in her wanderings, and you will be able, when you like, to lead and driver her afterwards to the same place again....Neither ought a man to make scruple of entering and penetrating into these holes and corners, when the inquisition of truth is his sole object” as well as Mao Zedong for declaring, “man must conquer nature.” It is worth noting that Bacon's language reflects a persistent duality between masculinity and femininity in which men represent civilized society, rationality, and control, while women are associated with emotionality, a connection to nature, and being controlled. This also aligns itself with the popular Chinese idiom, 人定胜天 (ren ding sheng tian), which translates roughly to “man must triumph over nature.” Moving forward with this logic dominated by masculine ideals, humans can designate the environment not as an integral part of survival, but rather as a wellspring of resources to be exploited.

Although this line of thinking existed prior to the rise of Liberalism and the socialist revolutions in the Soviet Union and China, the global political and economic arena is currently dominated by neoliberal ideals that completely solidify this designation of the environment as resources. Neoliberal ideals include, but are not limited to, selective deregulation, free trade, limiting the organization of workers, privatization, and small government. Neoliberalism prioritizes resource extraction and consumption as a means of endless capital accumulation, resulting in environmental degradation as a negative externality. Under liberal conceptions of property, aspects of the environment that humans need to survive often fall into the realm of public goods. This designation is applied to something that cannot be limited to a certain group, such as clean air. One cannot withhold clean air from others or guarantee it only to their allies. Within the context of neoliberalism, there is no incentive behind the protection of public goods. Rather, the environment is only discussed in the context of private property and capital

accumulation. Studies that approach environmental degradation at the state level can be quite misleading, as they show when economic development increases, environmental degradation increases at first, but then decreases in what scholars refer to as the environmental Kuznets curve (Dinda 2004). However, it is of the utmost importance to study environmental degradation from a global perspective. Countries in Western Europe that have pursued national green policies still import materials from the global South, making them complicit in a larger problem. The “pollute now, control later” approach is only a short-term solution. Off-shoring manufacturing and fossil fuel extraction condemns certain countries to be sacrifice zones, essentially asserting that economic development is a privilege, not a right (Klein 2014). There is a growing body of literature echoing this sentiment (Robinson 2004; Luke 2005; Cruz-Torres and McElwee 2012).

Under the threat of climate change, it is of the utmost urgency that global rhetoric moves away from the age old extract-consume-dispose approach. A more favorable solution would be to shift towards an embrace of circular economy. Circular economy, first proposed by Chinese scholars in 1998, involves the recycling and reuse of materials to create a closed loop (Yuan 2008). This theory moves the incentives away from abusing the environment as an exhaustible resource and towards a self contained sustainable system. Of course, others believe an even more radical reinterpretation of global production and consumption habits is necessary. Regardless, it is obvious that neoliberalism was never meant to account for global environmental problems, and breaking away from the neoliberal project is necessary to eliminate the conflict between preserving the planet and becoming a developed nation.

4.0 Conclusion

The study offers a small amount of insight into a monumental issue. Future research could build upon this study by expanding to different demographic targets. Ideally, future research would maintain and increase the level of depth while incorporating a larger random sample. Additionally, social scientists should make themselves aware of the newly emerging literature on circular economies, which has become popular among scholars in engineering. Rather than turning to science and technology alone, interdisciplinary collaboration on global production and consumption could yield robust solutions.

The case study of public opinion on air quality from middle class urban residents in Shanghai revealed that system justification is being deployed to cope with air pollution. The most common coping mechanisms were to rationalize air pollution by referencing the difficulties of economic development and to deflect responsibility away from the individual. In essence, system justification is simply acceptance of the system of place, even if it is yielding unfavorable results for the individual. I argue that the conflict between environmental protection and economic development forces people to choose between two desirable outcomes. Therefore, in order to create conditions that encourage individuals to advocate for both, we need to both incorporate the general population in the decision-making process and address why a conflict between the environment and the economy exists in the first place.

The idea that environmental degradation is an inevitable externality of economic development is so pervasive in global rhetoric that people practically reference it as fact. This is a myth that has been progressively fortified by global elites during the neoliberal era. It is built on the belief that humans are separate from nature, and that nature exists for people to extract

and consume as resources. If we want to fundamentally address complex environmental problems, we need to abandon the neoliberal project and turn towards economic models that allow countries to attain a higher standard of living without ravaging the planet.

Appendix A Codebook

Denial

The subject denies the existence of the problem, giving information that contradicts peer reviewed literature and/or data from an accredited international nongovernmental organization, such as the World Bank, WHO, UNFCCC etc. China's air quality is objectively poor, especially along the eastern coast from Beijing to Shanghai with areas near Beijing being the worst, and scholars have found empirical evidence that suggests economic growth is prioritized over environmental protection when the two come into conflict (Lo and Tag 2006; Wang 2013). Statements pointing out that southern regions have better air quality than northern regions should not be coded as denial and neither should statements suggesting air quality has improved in the last 15 years, as these statements are objectively true.

Assign a value from 1 to 5, 1 being no denial, 5 being heavy denial.

Rationalization

The subject justifies air pollution by pointing out a contributing factor valued highly enough to validate the problem at hand. This can include economic growth, lifting people out of poverty, creating jobs, or producing a product that greatly enhances people's standard of living. In other words, "A causes B, but A is important enough that I can accept B."

Assign a value from 1 to 5, 1 being no rationalization, 5 being heavy rationalization.

Deflection

The subject removes responsibility from the individual themselves or attributes it to other individuals, companies, or the government. Within the Chinese context, this includes broad references to policy creation or reform because the general population has minimal opportunity for institutionalized political participation. Statements referencing political action that does involve the general population, such as protests or village elections, would be exempt from this rule. Alternatively, the subject points out an individual practice or behavior that one can reasonably expect they would be doing regardless of the existence of air pollution. This could include taking public transportation, which is faster and safer, owning an electric car due to financial incentives, a personal hobby, such as gardening, or participating in activities required by law, their school, or place of employment.

Assign a value from 1 to 5, 1 being no deflection, 5 being heavy deflection.

Null Hypothesis

The subject engages in optional political action done explicitly to improve air quality, such as public demonstrations, boycotting an industry, disseminating information about air pollution, or becoming a member of an environmental protection organization. This would not include actions done because they are required by law, their school, or place of employment. Or the subject says that this is what needs to be done.

Code 0 for no evidence of a null hypothesis and 1 otherwise.

Bibliography

- Cruz-Torres, María Luz and McElwee, Pamela. 2012. *Gender and Sustainability: Lessons from Asia and Latin America*. University of Arizona Press.
- Dinda, Soumyananda. 2004. "Environmental Kuznets Curve Hypothesis: A Survey." *Ecological Economics* 49 (4): 431-455.
- Economy, Elizabeth C. 2014. "Environmental Governance in China: State Control to Crisis Management." *Daedalus* 143 (2): 184-97.
- Festinger, Leon. 1962. *A Theory of Cognitive Dissonance*. Stanford University Press.
- Foucault, Michel. 1975. *Discipline and Punish*. Paris: Gallimard.
- Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science*, 162 (3859): 1243-1248.
- Harris, Paul G. 2006. "Environmental Perspectives and Behavior in China Synopsis and Bibliography." *Environment and Behavior* 38 (1): 5–21.
- Inglehart, R., C. Haerper, A. Moreno, C. Welzel, K. Kizilova, J. Diez-Medrano, M. Lagos, P. Norris, E. Ponarin & B. Puranen et al. (eds.). (2014) *World Values Survey: Round Six – Country-Pooled Data file Version*: <http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp>. Madrid: JD Systems Institute.
- Jahiel, Abigail R. 1998. "The Organization of Environmental Protection in China." *China Quarterly* 156 (156): 757–87.
- Jost, John T. and Banaji, Mahzarin R. 1994. "The role of stereotyping in system-justification and the production of false consciousness." *British Journal of Social Psychology*, 33 (1): 1-27.
- Jost, John T., Mahzarin R. Banaji, and Brian A. Nosek. 2004. "A Decade of System Justification Theory: Accumulated Evidence of Conscious and Unconscious Bolstering of the Status Quo." *Political Psychology*, 25 (6): 881-919.
- Klein, Naomi. 2014. *This Changes Everything: Capitalism vs. the Climate*. New York: Simon & Schuster.
- Kostka, Genia. 2013. "Environmental Protection Bureau Leadership at the Provincial Level in China: Examining Diverging Career Backgrounds and Appointment Patterns." *Journal of Environmental Policy & Planning* 15: 41–63.

- Kristofferson, Kirk, Katherine White, and John Peloza. "The Nature of Slacktivism: How the Social Observability of an Initial Act of Token Support Affects Subsequent Prosocial Action." *Journal of Consumer Research* 40 (6): 1149–1166.
- Liu, Xinsheng, and Ren Mu. 2016. "Public Environmental Concern in China: Determinants and Variations." *Global Environmental Change* 37: 116–27.
- Lo, Carlos W.H. and Tang, Shui-Yan. 2006. "Institutional Reform, Economic Changes, and Local Environmental Management in China: The Case of Guangdong Province." *Environmental Politics* 15 (2): 190–210.
- Luke, Timothy W. 2005. "Neither Sustainable nor Development: Reconsidering Sustainability in Development." *Sustainable Development* 13 (4): 228–238.
- Lukes, Steven. 1974. *Power: A Radical View*. New York: Macmillan.
- Ostrom et. al. 1999. "Revisiting the Commons: Local Lessons, Global Challenges." *Science's Compass*.
- Olson, Mancur. 1965. *The Logic of Collective Action*. Harvard University Press: Cambridge.
- Ran, Ran. 2013. "Perverse Incentive Structure and Policy Implementation Gap in China's Local Environmental Politics." *Journal of Environmental Policy & Planning* 15: 17–39.
- Robinson, John. 2004. "Squaring the circle? Some thoughts on the idea of sustainable development." *Ecological Economics* 48 (4): 369–384.
- Rohde, Robert and Muller, Richard. 2015. "Air Pollution in China: Mapping of Concentrations and Sources." *PLOS ONE* 10 (8).
- Shi, Tianjian. 2015. *The Cultural Logic of Politics in Mainland China and Taiwan*. Cambridge University Press.
- Standaert, Michael. 2017. "As It Looks to Go Green, China Keeps a Tight Lid on Dissent." *Yale Environment 360*. Yale School of Forestry and Environmental Studies.
- Steinhardt, Christoph, and Fengshi Wu. 2016. "In the Name of the Public: Environmental Protest and the Changing Landscape of Popular Contention in China." *China Journal* 75 (1): 61–82.
- State Council Leading Group on Environmental Protection. 1978. *Huanjing baohugongzuo huibao yaodian* 环境保护工作汇报要点 [Key Points on Environmental Protection Work]. Accessed February 12, 2019. <http://www.reformdata.org/content/20131203/23673.html>
- Stern, Rachel. 2014. *Environmental Litigation in China: A Study in Political Ambivalence*. New York: Cambridge University Press.

- Tsai, Kellee. 2007. *Capitalism Without Democracy: The Private Sector in Contemporary China*. Ithaca, New York: Cornell University Press.
- UNFCCC. 2018. "China Meets 2020 Carbon Target Three Years Ahead of Schedule." UN Climate Change News. Accessed December 23, 2019. <https://unfccc.int/news/china-meets-2020-carbon-target-three-years-ahead-of-schedule>
- UNFCCC. 2019. Greenhouse Gas Inventory Data. Accessed February 12, 2019. <https://unfccc.int/process-and-meetings/transparency-and-reporting/greenhouse-gas-data/ghg-data-unfccc/ghg-data-from-unfccc>
- Van der Kamp, Denise. 2017. "Clean Air At What Cost? The Rise of Blunt Force Pollution Regulation in China." Ph.D. diss., UC Berkeley.
- Wang, Alex. 2006. "The role of law in environmental protection in China: recent developments." *Vermont Journal of Environmental Law* 8: 196–223.
- Wang, Alex. 2013. "The Search for Sustainable Legitimacy: Environmental Law and Bureaucracy in China." *Harvard Environmental Law Review* 37 (2): 365–440.
- Wang, Xin-Rui, Eddie Chi-Man Hui, Charles Choguill, and Sheng-Hua Jia. "The new urbanization policy in China: Which way forward?" *Habitat International*. 47: 279-284.
- World Bank. 2018. "China Overview." Accessed December 23, 2018. <https://www.worldbank.org/en/country/china/overview>
- World Health Organization. 2015. "China: WHO Statistical Profile." *Global Health Observatory*. Accessed February 12, 2019. <https://www.who.int/countries/chn/en/>
- World Health Organization. 2016. "Mortality and burden of disease from ambient air pollution." *Global Health Observatory*. Accessed February 12, 2019. https://www.who.int/gho/phe/outdoor_air_pollution/burden/en/
- Wu, Jing, Yongheng Deng, Jun Huang, Randall Morck, and Bernard Yeung. 2013. "Incentives and Outcomes: China's Environmental Policy." National Bureau of Economic Research (NBER) Working Paper. Washington, DC.
- Yu, Xueying. 2014. "Is Environment 'A City Thing' in China? Rural–Urban Differences in Environmental Attitudes." *Journal of Environmental Psychology* 38: 39–48.
- Yuan, Zengwei et al. 2008. "The Circular Economy: A New Development Strategy in China." *Journal of Industrial Ecology*. 10(1-2): 4-8.
- Zhao, Dingxin. 2009. "The Mandate of Heaven and Performance Legitimation in Historical and Contemporary China." *American Behavioral Scientist* 53 (3): 416-33.

Zhou, Xueguang, Hong Lian, Leonard Ortolano, and Yinyu Ye. 2013. "A Behavioral Model of 'Muddling through' in the Chinese Bureaucracy: The Case of Environmental Protection." *China Journal* 70: 120-147.

Zhu, Yuchao. 2011. "'Performance Legitimacy' and China's Political Adaptation Strategy." *Journal of Chinese Political Science* 16 (2): 123-40.