

Exploring Policy Reinvention in the Chinese Context:

*A case study of the car ownership restriction policy
in Hangzhou City*

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Abstract

Most of the existing “experimentation under hierarchy” literature investigates what drives the diffusion of policy innovation in China at the local level, emphasizing the leading role that the central government has played. However, what happened after the diffusion of a policy innovation to a new locality in the Chinese context – especially, how a diffused policy innovation has been implemented by the local government – has been largely neglected by the existing research. To fill this gap, this study conceptualizes the implementation process of a diffused policy innovation as a process of policy reinvention, and aims to understand this process in the Chinese context at the local level, through a case study of Hangzhou’s car ownership restriction policy (*xianpailing* 限牌令). This study illustrates that the policy reinvention process in the case of Hangzhou is a political process which is mainly driven by an informal and non-institutionalized learning process dominated by local authorities and an adaptation process centred on how to make a diffused policy innovation politically acceptable and palatable to both the local public’s interests and the national policies and priorities. It also highlights that Chinese local governments do not simply replicate other localities’ policy innovation, but play the key role in altering and shaping a diffused policy to fit local political, institutional and social conditions, although there is no direct mandate from the centre. The significance of this study is that it uses the concept of policy reinvention as an alternative way of studying policy innovation and diffusion in China.

Key words: policy innovation and diffusion; policy reinvention; local politics in China; urban governance; transportation; environmental sustainability; car ownership restriction policy.

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List of abbreviations

COR	Car Ownership Restriction
EPB	Environmental Protection Bureau
ATARCO	Automobile Total Amount Regulation and Control Office
TB	Transportation Bureau

List of Chinese terms

<i>guanxi</i>	关系	interpersonal connections
<i>lianghui</i>	两会	China's National People's Congress and the Chinese People's Political Consultative Conference
<i>neibu wenjian</i>	内部文件	internal-circulated document
<i>dijishi</i>	地级市	prefectural-level city
<i>qu</i>	区	district
<i>xianjishi</i>	县级市	county level cities
<i>xian</i>	县	county
<i>hukou</i>	户口	permanent residency permits
<i>juzhuzheng</i>	居住证	temporary residency permits
<i>kechixu fazhan</i>	可持续发展	sustainable development
<i>shengtai wenming</i>	生态文明	ecological civilization
<i>lantian xingdong</i>	蓝天行动	blue sky action
<i>guangrong</i>	光荣	proud
<i>lingdao ganbu kaohe zhidu</i>	领导干部考核制度	the cadre performance evaluation system
<i>paitoubing</i>	排头兵	a vanguard
<i>xietiao</i>	协调	coordination
<i>qiantou</i>	牵头	taking the lead
<i>shizhang rexian</i>	市长热线	mayor's hotline
<i>shengjiban</i>	升级版	an upgraded version
<i>lingdao</i>	领导	lead
<i>fendan zeren</i>	分担责任	share the responsibility
<i>gongzuo lingdao xiaozu</i>	工作领导小组	small work leading group
<i>liukouzi</i>	留口子	to maintain leeway for future alternations

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1 Introduction

1.1 Research field: policy innovation and diffusion in China

Innovation is “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 1983, p. 11). From the perspective of policy diffusion research, “an innovation in one jurisdiction is often actually an adaptation (or wholesale copying) of a policy observed in another jurisdiction” (Foster, 2005, p. 1). In the policy innovation and diffusion literature, researchers have employed a plethora of terminologies to describe how a policy innovation is transferred across places and over time: for example, “lesson drawing” (Rose, 1991) and “policy learning” (May, 1992). Diffusion concepts has been mostly applied and developed in the context of Western countries: many of the most promising examples of policy innovation and diffusion have been occurring in the United States (e.g. Walker, 1969; Karch, 2007). In particular, “laboratories of democracy” has been a recurring depiction used by political scientists studying the diffusion of policy innovation within the American federal system. As Mintrom and Vergari (1997, p. 2) explained, “while states may act autonomously, they do not act in isolation from one another. Should they desire, it is relatively easy for state policymakers to observe the experiments of their counterparts and consider the advantages and disadvantages that such approaches might hold for their own states.”

Mainland China is a fascinating yet tricky case against the backdrop of the Western-centric literature on policy innovation and diffusion. On the one hand, China’s economic reforms in the past decades have witnessed the decentralization of authority within China’s party-state hierarchy (Hsu, 2004), which indicates the possibility of Chinese governments at subnational levels enjoying local autonomy for pursuing policy innovation and diffusion. Heilmann (2008a, p. 2) characterized patterns of policy innovation and diffusion in China as “experimentation under hierarchy” which means “a policy process that is initiated from individual ‘experimental points’ (*shidian* 试点) and driven by local initiative with the formal or informal backing of higher-level policymakers.” In a similar vein, a sizable body of literature exists that demonstrates how decentralized experimentation serves as an important catalyst for the resilience of the Chinese system (e.g. Wang, 2009; Florini *et al.*, 2012; Teets & Hurst, 2015). On the other hand, egregious examples exist where, for example, local authorities manipulated the policy innovation and diffusion process of a land quota policy for generating personal economic revenues, running against national regulations and local

residents' interests (Cai, 2015); and local authorities used policy innovation politically and symbolically to spur political support from the public (Zeng, 2015). Most significantly, in stark contrast to its counterparts in the West, critical voices claim that the nature of policy innovation and diffusion in China is inherently political rather than technocratic. For example, Teets and Hurst (2015, p. 1) point out that such political processes lead to a situation where “socially suboptimal policies might diffuse while more equitable or effective policies remain trapped at one level of government or in one locality or region.” Researchers also report that local officials who engaged in the policy innovation and diffusion process are often career oriented and frequently adopted “face innovation” or pursue “image-building” projects, which results in great waste of public resources in China (Fewsmith, 2013; Chien, 2007; Cai, 2004).

Although important advances have been made through previous research by China scholars, significant components of the policy innovation and diffusion process at the local level in China continue to be cast in shadow. In particular, our current knowledge about how policy innovations have been implemented and adapted into new local settings during the course of diffusion, a phenomenon commonly termed “policy reinvention” by diffusion theorists, is sparse. While the notion of policy reinvention has already been heavily researched and debated using examples derived from Western countries (e.g. Rogers, 1983; Hays, 1996a; Boehmke, 2004; and Boushey, 2010), most policy innovation and diffusion scholarship in the field of China studies assume away this aspect of the diffusion process, and systematic empirical inquiries of how and why policy reinvention happens at the local level in China are strikingly rare. To help fill this gap, this study aims to examine the main factors that drive local governments engaging in the process of policy reinvention in the Chinese context.

1.2 A case for studying policy reinvention

While engaging in a research project hosted by my institute – “Airborne: Pollution, Climate Change, and Visions of Sustainability in China” – as a research assistant, I assisted with collecting relevant news reports and academic articles (in both Chinese and English language) relating to the “car ownership restriction (*xianpailing* 限牌令)” (hereafter, COR) policy in Chinese cities. I found the COR policy an interesting case for studying the inner workings of policy reinvention by local governments in China. The COR policy originated in Singapore in 1990. It was imposed as a capping measure by the government to control the

amount of new cars permitted for registration and subsequently to slow down the rapid growth of car ownership and alleviate traffic congestion problems (Wang, 2010). Shanghai started to adopt this policy in 1994, and since then, it has spread to seven Chinese cities (Figure 1). Generally, in the context of China, the COR policy has been used as a measure for local governments to set a quota on the amount of license plates available for newly purchased cars and to allocate the plates through an auction, a lottery or a combination of the two (Hao *et al.*, 2011). Unlike its Singaporean predecessor, the Chinese intention is not only to deal with transportation challenges but also to reduce vehicular emissions' impact on air pollution. The spread of the COR policy in Chinese cities has been widely regarded as a representation of the most recent efforts made by Chinese local administrations to respond to air pollution problems and motorization challenges in the urban areas (Chen & Zhao, 2013; Mittal *et al.*, 2016; Lin *et al.*, 2016).

Figure 1: The diffusion of the COR policy among Chinese cities



Source: Wikimedia Commons. Modified by author.

Three attributes of the development of the COR policy in China (see also Appendix 4) make it an interesting case for studying policy reinvention in China. First, instead of a single policy spreading uniformly throughout China, the outcomes exhibit variations in each city's COR policy. For example, Shanghai auctions car license plates; Beijing runs a lottery; Hangzhou has not only hybridized Shanghai's auction and Beijing's lottery but also extended the policy

to its suburban areas. Interestingly, all these cities apparently picked up the same policy innovation but eventually implemented different versions of it, despite the lack of the central government's direct backing and public's support. Second, prior studies report that the social acceptability of the policy is low, with criticisms focusing on the policy's ineffectiveness, lack of transparency, its restricting individual people's car ownership rights, and its detrimental effect to social equity (Chen & Zhao, 2013; Wang, 2010). This set of literature indicates that the introduction of the COR policy faces reluctance from the affected public. Hence, it would be interesting to examine how local governments deal with the conflicts between the government's implementation of a COR policy and the affected local population's resistance during the policy reinvention process. Third, it is a case of policy reinvention without a clear mandate from the centre. Although there is no explicit support from the centre, nor national laws or regulations prescribing the status of these subnational COR policies, the policy has been diffused to seven Chinese cities so far. This is a bit unusual, because prior studies on the notion of "experimentation under hierarchy" have frequently noted the significance of the central government's support in enabling policy diffusion at the local level in China (e.g. Shin, 2013; Miao & Lang, 2015; and Tsai & Dean, 2014). It would be ideal to compare each city's COR policy reinvention experience so as to capture a general picture of policy reinvention at the local level in China. Yet, given the scope of this study, and the fact that my observations has to rely on data sources that I have access to (see later in the "Methodology and Data" section), this study focuses on examples from Hangzhou city.

1.3 Research purpose and research question

To sum up, this qualitative single-case study aims *to understand the main factors that have impacted on the local government's engagement in the policy reinvention process in the context of Hangzhou city government's COR policy diffusion process*. Given the exploratory nature of my research purpose, and in order to capture meanings of the central phenomenon (in this case, policy reinvention) as detailed as possible, this study follows the convention of qualitative research as keeping the process open, flexible and reflexive. Since qualitative research typically asks open-ended research questions (Agee, 2009), the research question of this study is: what are the main factors that have been driving the policy reinvention process in the case of Hangzhou's COR policy?

1.4 Organization of the thesis

This thesis is organized as follows. First, I briefly introduce issues relating to methodology and data. Then, I will review prior research on policy reinvention theories, discussing how main components identified and extracted from the existing literature can usefully inform the hypotheses and analysis of policy reinvention in the case of Hangzhou's COR policy. Most importantly, this section introduces a conceptual framework derived from the existing reinvention theory literature and with reference to the political context of China and my empirical data. On this theoretical basis, in the next step, this study examines the concept of policy reinvention in the empirical context. The empirical findings will be presented in two parts. The first part traces the development of the COR policy in Hangzhou and scopes out the main actors and institutions involved in the case. The second part discusses how the Hangzhou municipal government has been approaching learning, and what efforts have been made by local authorities to adapt the COR policy to what particular needs and circumstances. In the concluding section, I discuss how the case of Hangzhou's COR policy illustrates the meaning of policy reinvention in the Chinese context, what is the significance of this study, as well as provide a research agenda for future studies. Overall, the findings support this study's initial hypothesis, which is: *the policy reinvention process in the case of Hangzhou's COR policy is a political process which is driven by 1) an informal and non-institutionalized policy learning process dominated by local authorities and 2) an adaptation process centred on how to make a diffused policy innovation politically acceptable and palatable to both the local interests and the national policies and priorities.* Before we turn to these sections, several issues need to be commented on.

1.5 Delimitations and limitations

This study should be considered as a preliminary step in conceptualizing policy reinvention in China, thus some limitations are admitted. First, I admit that there are biases in terms of my case selection. This is mainly due to the fact that I am involved in the Airborne project. My participation in this project made it possible to a rather unusual degree for master thesis research to conduct in-depth interviews with local officials, but also made Hangzhou a "given" case for exploring my research interest, as this was the location where most of the project's interviews took place. But since my data collected from the fieldwork has been coded, interpreted and analysed independently, based on my understandings derived from policy reinvention theories and the general literature on policy innovation and diffusion in

China, I have tried to ensure that such biasing influences do not negate the validity of my findings. Second, the limited generalizability of this study's findings should be recognized. I admit, and could not agree more, that it would be more ideal and rewarding to examine the phenomenon of the COR policy reinvention using data gathered from multiple field research sites in order to capture a larger picture and thereby sharpen our theoretical understanding. In fact, this study underscores that although a single case study's limited generalizability is a truism which applies to any research field, the problem and challenge seems particularly acute when studying such a large and diverse country as China, and especially when applying a political theory to the Chinese context at the local level. Yet, it is my belief that a focused study of a single location still has value as a building block, and that what it reveals might give us suggestions regarding what to look for in similar studies of other locations.

Some delimitations also need to be commented on. First, considering that Hangzhou's COR policy reinvention process is an ongoing, contemporary event, this study will be confined within the time frame from March 2014 (the time that the COR policy was adopted in Hangzhou) up to August 2016. But this does not mean that what happened before March 2014 is not included in this research. In fact, all processes, events, factors and specifics, which are related to Hangzhou's COR policy reinvention process but happened before March 2014, have also been considered whenever regarded as relevant to my inquiries. Second, my explanation of how the COR policy has been reinvented by the Hangzhou municipal government during the diffusion process is based on my own interpretation informed by policy reinvention theories with reference to the empirical data that has been available to me. While realizing this limitation, the intention of this study is not to provide a theory for policy reinvention. Instead, this study generates hypotheses for future studies' reference, and should be regarded as a pilot study, for within my knowledge no empirical studies by China scholars have directly and systematically examined this concept before. Third, this study proposes two components – namely, learning and adaptation – for conceptualizing local government's policy reinvention in China without making a claim on which one is more important, since doing so requires additional research and perhaps even employing a different research design, which is beyond the scope of this study.

2 Methodology and data

2.1 A qualitative single-case study

The main selection criteria for the methodology in this study is its appropriateness for my research purpose. McMillan and Schumacher (1993, p. 479) defined qualitative research as, “primarily an inductive process of organizing data into categories and identifying patterns (relationships) among categories.” According to Cassell and Symon (1994, p.7), qualitative research has the following attributes:

interpretation rather than qualification; an emphasis on subjectivity rather than objectivity; flexibility in the process of conducting research; an orientation towards process rather than outcomes; a concern with context – regarding behaviour and situation as inextricably linked in forming experience; and finally, an explicit recognition of the impact of the research process on the research situation.

With reference to this thesis’ research purpose, the current study aims to present a detailed description and theory-informed interpretation of the Hangzhou municipal government’s COR policy reinvention. Therefore, it is necessary to establish an open and flexible framework that takes into account the often ambiguous components of the impact of various political factors and conditions on the COR policy reinvention process in Hangzhou. In this sense, the interpretive, descriptive, flexible, pattern-identifying features of qualitative research match the purpose of this research.

Particularly, case study as a “basic form of qualitative research” (Gall *et al.*, 2007, p. 447) is not only “one of the most common ways to do qualitative inquiry” (Stake, 2000, p. 435) but also an ideally-suited research approach for this thesis. As a research approach, the case study is “an intensive study of a single unit for the purpose of understanding a larger class of (similar) units” where the unit is “a spatially bounded phenomenon” (Gering, 2004, p. 342). This definition implies that: this study is an intensive study of Hangzhou’s COR policy process (the research unit) for the purpose of understanding the meaning of policy reinvention in the context of contemporary China.

The case study approach is applied to this thesis mainly because: it is 1) heuristic, which provides the opportunity to discover unknown or new knowledge; 2) strategic, which avoids an exhaustive data collection process and random sampling analysis; and 3) contributes to theory building, which fits well with this study's purpose as an examination of the concept of policy reinvention in the Chinese context, motivated to provide useful hypotheses for future studies (George & Bennett, 2004, p. 75).

Moreover, to address my research question, I decided to conduct an exploratory case study. According to Yin (2003, p. 1), an exploratory case study is "a research approach used to explore a contemporary phenomenon which is inseparable from the context in which it exists." This kind of methodology is suitable for addressing "what", "how", and "why" type questions. An exploratory case study is suited for this thesis because it asks a "what" question and it is based on the key assumption that the phenomenon (policy reinvention) is inseparable from the context in which it exists.

Furthermore, this case study focuses on one single case, which provided a sufficient amount of in-depth information within the time constraints of the thesis. At the same time, as discussed above, while it would have been preferable to include other Chinese cities' COR policy reinvention cases, a single case study was conducted due to Hangzhou being the only place that I obtained sufficient access to. This fits well with my research preference to examine the concept of policy reinvention using data collected at the local level, because "subnational or substate units offer data of higher quality, are more comparable, and permit a more reliable coding of key variables" (Gilardi, 2016, p. 15). More than this, in many cases, prior China scholars have emphasized the significance of Chinese subnational-level governments. Subnational governments have been widely conceived as the nexus between state and society (Perry, 1994). Further, the local political and social environment has been changing rapidly, becoming increasingly pluralized and complicated (O'Brien & Li, 2006). Most importantly, "local governments have enjoyed increasing leeway in adapting central policies to local conditions and steering local policy implementation" (Ahlers *et al.*, 2016, p. 57). Lastly, to carry out this research ideally requires access to conduct face-to-face interviews with local leading officials. Many policy reinvention researchers suggest that policy reinvention studies require collecting data from the implementation process (Rogers 1983; Ansari *et al.* 2010; Hays, 1996). And local officials have been widely regarded as playing an important role in terms of shaping the outcomes of policy implementation. In

addition, interviewing Chinese scholars is another method “to uncover popular reactions and sticking points in the implementation of difficult programs” (Solinger, 2006, p.165). Hence, obtaining access to local leading officials and Chinese scholars should provide important insights for essential issues relating to the inner workings of policy reinvention in the case of Hangzhou. These issues include: for example, how COR policy has been changed during the implementation process; what is the role of local officials in policy reinvention; what is the rationale of policy reinvention.

2.2 Field research

Field research is “an inherently iterative process, in which scholars continually update key elements of their projects – including the question concepts, research design, and theories – based on an ongoing analysis of information acquired in the field” (Kapiszewski *et al.*, 2015, p. 373). For this study, the purpose of using the field research method is twofold. First, the most important reason for conducting field research is to discover “unforeseen ideas (and even new topics of enquiry)” (O’Brien, 2006, p. 27) in order to refine my research question, conceptual framework and hypotheses. The second reason is to gather needed information to complement government documents, add additional contextual data, uncover hidden and subtle elements that desk research may be unable to capture, and most importantly, understand local officials’ perception and subjective interpretations of Hangzhou’s COR policy (Read, 2010; Liang & Lu, 2006).

To fulfil the first field research purpose requires researchers to keep open, flexible and reflective during the field trip. However, the biggest challenge for me was to obtain the opportunity to conduct interview with leading local officials. In terms of obtaining interview opportunities, the “one-case multi-field-site approach” would be an ideal approach for coping with this challenge. Not only because this approach is useful in terms of allowing the researcher to obtain a more holistic picture about policy reinvention in China through identifying similarities across findings derived from different research sites (Hurst, 2010), but also because increasing research sites means increasing the opportunity to conduct interviews and “reduce dependence on the cooperation of local officials in any particular site” (Heimer, 2006, p. 61). However, the disadvantage of this approach is that multi-site research requires a large amount of time, economy and work, not to mention contacts (Kapiszewski *et al.*, 2015). Another way to increase interview opportunities is to conduct collaborative field research, in

particular “seek the partnership of an official local collaborator such as a university or a government think tank” (Göbel, 2014, p. 88).

In my experience, as a master student, getting access to interview local officials is particularly difficult in China. I was lucky to be part of a research teams with senior scholars and a research project that cooperates with a Chinese university. The field trip was made during March 2016. A research team was formed, including my thesis supervisor and a local contact person (who also participates in the “Airborne” research project as a researcher). Together with the research team, I visited Hangzhou, Nanjing, Wuhan and Changzhou. In Changchun, I carried out field research totally independently. However, a multi-site field research for the COR policy reinvention in China was in the end not workable for this project. This was due to limited interview opportunities and bad data quality, although all efforts were made during the field trip to produce comparable data.

As a matter of the fact, this study’s interest in policy reinvention was largely developed and refined during the field trip. Before I entered the field, I had only derived a rough understanding about the phenomenon of the COR policy diffusion among Chinese cities from prior research as well as available government documents and media reports on the Internet, but could not accurately surmise what incentives were lurking behind this phenomenon, what activities were involved in this process, and under which conditions the COR policy diffusion had occurred. This deficiency required me to collect data in the field.

During the field trip, it was only in Hangzhou city that I was able to obtain relevant interview opportunities. These were with a leading official at Hangzhou city’s Environmental Protection Bureau (EPB) who was indirectly involved in the policy’s revision process (interview conducted together with the whole research team), a leading official at Automobile Total Amount Regulation and Control Office (ATARCO) attached to Hangzhou city’s Transportation Bureau (TB) who was directly involved in the policy’s implementation process (interview conducted together with our local contact person), and a transportation policy scholar who directly participated in the COR policy revision and propagating processes (interview conducted together with the whole research team).

Unfortunately, although other Chinese cities were also visited, the results from the interviews turned out to be of little use to my thesis. This is mainly because the focus of the Airborne

project and the focus of my master's thesis are not exactly the same and that some of the interviews proved less than satisfactory both in terms of the policy relevance of the interviewees and their sincerity in responding to my questions. In Nanjing, our research team was not able to meet any local leading officials except from three air pollution scientists at Nanjing University. In Wuhan, the Environment Monitor Centre was visited and several officials at the centre were interviewed. However, they had not been directly involved in COR policy related decision making or the implementation process; hence the usefulness of the information gathered at the centre was limited for my thesis project. In Changzhou, a leading official at the city's EPB agreed to be interviewed by us. However, we encountered the experience of being fed propaganda: the official did not directly answer any questions throughout the interview, but more or less only referred to national leaders' speeches.

Nevertheless, towards the end of my fieldtrip, in Changchun, I was able to interview several leading local officials who answered my interview questions quite sincerely and openly. However, my findings derived from the fieldtrip has been re-evaluated with the existing literature. As a result, based on the data that is available to me, I decided on studying the phenomenon of the COR policy reinvention. This made the interviews conducted in Changchun less relevant, as Changchun did not adopt a comparable policy. In the end, Hangzhou turned out to be the only research site that provided meaningful data that could be used in this study. Hence, it was chosen as the only field research site for this study. However, this does not mean that interviews conducted in other Chinese cities were not useful. In fact, these findings have been used in a supplementary manner throughout this study (see also Appendix 2).

In reflection, the main reason for field research in Hangzhou being productive is due to the fact that the "Airborne" project's local partner institution, Zhejiang University, is located in Hangzhou. At the same time, the local contact person in the research team graduated from and previously worked at Zhejiang University. His local connections, together with our university's official partnership with Zhejiang University, turned out to be a huge advantage in terms of obtaining trust from interviewees and consequently facilitated their willingness to be interviewed. Similarly, in Changchun, my parents' interpersonal connections (*guanxi* 关系) with local officials also turned out to be an advantage in terms of obtaining interview opportunities at relevant local administrations as well as helped to gain trust from my

interviewees. Furthermore, three factors may explain the frustrations that our research team encountered in other cities: first, our research project did not have an official local collaborator in these cities; second, we were visiting the field during a politically sensitive time, as China's National People's Congress and the Chinese People's Political Consultative Conference were holding annual meetings in Beijing, the so-called "two sessions (*lianghui* 两会)"; third, almost the whole of the Southern China was in tense preparation for the upcoming G20 summit in Hangzhou in September 2016.

Lastly, several issues relating to interviews during the field trip need to be clarified. First, before the fieldtrip an interview guideline (Appendix 1) was made based on results derived from preliminary theoretical and empirical observations during the initial research stage. The interview questions in the guideline were semi-structured, focused on encouraging the interviewees to talk about their involvement in the policy as well as to explain how they understood the adoption and implementation of the COR policy in Chinese cities, the rationale behind the development of the COR policy, and challenges related to the policy being implemented in Hangzhou. Some interview questions were open-ended in order to allow flexibility in the interviewee's responses and to maximize the amount of information from each interviewee; some interview questions were close-ended and very specific in order to test some of my preliminary assumptions and cross-check the validity of the findings informed by prior research based on secondary sources and government documents (Leech, 2002).

Second, most of the interviews with scholars were conducted informally at coffee bars or in restaurants. All of the interviews with local officials took place at their offices. While the interviews done at a coffee bar created a less formal setting with a friendlier and more trusting atmosphere, which allowed the interviewee to speak more freely, the meetings at officials' work offices gave me an insight into their day-to-day working environment and the atmosphere of their work unit. In addition, for those interviews conducted as a research team, and not by me alone, I paid tribute to the hierarchy of the interviewers, with me being the academically "lowest ranked" as a master student. For instance, during the interview at Hangzhou city's EPB, I added supplementary questions after the two other team members had asked theirs.

Third, a certain degree of transparency had to be sacrificed to protect my interviewees and to ensure that my research team's access to sources is not affected for the remainder of the Airborne project (which is still in an early stage). Hence, our research team has agreed that no personal information will be provided, and no direct quotation from interviews will be used at this stage.

2.3 Data

Data for my empirical analysis were collected from multiple sources to increase the validity of this case study (George & Bennett, 2004, p. 175; Yin, 2003, p. 10). Qualitative data in this study consists of: government policy documents gathered from local government's official websites; internal-circulated document (*neibu wenjian* 内部文件) gathered during the fieldtrip; second-hand interview transcripts gathered from local media websites; news reports gathered both from local newspapers' websites and national newspapers' websites; and semi-structured in-depth interviews conducted during the field trip. The quantitative data collected in this study largely comprises descriptive statistics about the social-economic, environmental and traffic situation of Hangzhou collected from not only the local statistics bureau but also international indexes.

While quantitative data can be used to describe entities, settings or phenomena (Glass & Hopkins, 1984) (at a macro-level), qualitative data can provide detailed information (at a micro-level) to help understand the concept of policy reinvention by using content analysis – “an approach of systematic, rule guided, qualitative text analysis” (Mayring, 2000) – in the case analysis process. After the field trip, I developed a database which included interview transcripts, documents collected from the field trip and data collected before the fieldtrip. Then, based on a conceptual framework as well as a preliminary hypothesis (see details in the next section) derived from the existing literature, I coded these data (Appendix 3): first, in a descriptive manner; next, in a procedural manner; afterwards, I categorized descriptive codes and procedural codes based on recurrent patterns. My intention was to interpret these recurrent patterns theoretically.

3 Literature review, the conceptual framework, and hypotheses

3.1 The theoretical background

Much of the classic policy innovation and diffusion literature starts from the presumption that, during the diffusion process, “acceptors” (who adopt an innovation) only have two options: either accept or reject (Rogers, 1983, p. 176). With regard to explanations for the choice made by “acceptors”, there are basically two main bodies of literature: the rational literature and the social literature. Whereas the former emphasizes a technical or functional rationale for reducing the cost of experimentations and the associated learning mechanism, the latter tends to focus on the social pressure to “appear in conformance with norms” (Ansari *et al.*, 2010, p. 70). It is understandable that, with a common focus on what led a local government to adopt a policy innovation, these works usually do not need to systematically examine how exactly policy diffusion decisions have been implemented into a new setting. However, this limitation is serious because it “leads diffusion researchers to ignore the study of ignorance about innovations, to underemphasize the rejection or discontinuance of innovations, to overlook re-invention, and to fail to study antidiffusion programs designed to prevent the diffusion of ‘bad’ innovations (like marijuana or drugs or cigarettes, for example)” (Rogers 1983, p. 92).

The “reinvention” literature complements prior policy innovation and diffusion research. In response to the abovementioned shortcomings, the concept of reinvention has gradually been taken up by researchers since the 1970s (e.g. Rogers, 1983; Allen & Clark, 1981; and Glick & Hays, 1991). The so-called “policy reinvention” studies are interested in not only why diffusion occurs but also how a diffused policy innovation has been implemented. It assumes that “during diffusion, policies vary in scope, stringency of controls, and level of governmental control” (Glick & Hays, 1991, p. 837). Reinvention researchers suggest that innovation users are not “passive acceptors” who only have the dichotomous choice between rejection or acceptance; instead, they are “active modifiers and adapters of new ideas” (Rogers, 1983, p. 176). Advantages of studying policy innovation and diffusion from the reinvention perspective have been recognized by many diffusion researchers: for example, it balances the bias of assuming that policy diffusion is always a good thing, revealing that

policy innovation may also evolve for the worse (Rogers, 1983); it encourages researchers to collect data from not only the initial adoption process but also the subsequent implementation process (Hays, 1996); and above all, it allows diffusion researchers to ask not just why policy diffusion occurs but what exactly has been diffused and how and why individuals, organizations or governments change the policy innovation in the course of the diffusion process (Sun, 2012). Further, as the “reinvention” literature has been excessively preoccupied with Western countries (especially cases in American states), implications drawn from case studies in China can broaden our understanding of the concept of reinvention in a non-western context (Berry & Berry, 2007; Graham, 2013). Lastly, by incorporating the concept of reinvention, this study proposes an alternative yet complementary approach for the studying of policy innovation and diffusion in China.

3.2 Reinvention as an elusive concept

Reinvention is a complex concept. The “reinvention” literature is crowded with different terminologies and definitions. For example, Rice and Rogers (1980) directly used the term “*reinvention*” and defined it as “the degree to which an innovation is changed by the adopter in the process of adoption and implementation after its original development” (p. 500-501). Hays (1996b, p. 631) used the same term as Rice and Rogers, stating that it “refers to purposeful changes made to innovations as they diffuse.” Poole and DeSanctis (1990, p. 184) used the term “*appropriation*” and defined it as “the mode or fashion in which a group uses and adapts, and reproduces a structure.” Lewis and Seibold (1993, p. 349) used the term “*modification*”, suggesting that “feedback from modifications of the innovations, in turn, affects organizational structure and users’ perceptions and over time produces continued variation in the form of the innovation.” Ansari *et al.* (2010, p. 71) used the term “adaptation” which refers to “the process by which an adopter strives to create a better fit between an external practice and the adopter’s particular needs to increase its ‘zone of acceptance’.” This conceptual proliferation, on the one hand, indicates that one may study the concept of reinvention from various theoretical perspectives: for example, Scandinavian institutionalism, organizational approach, social learning theories and structural theories (Bui, 2013). On the other hand, this heterogeneousness makes just what exactly constitutes reinvention elusive.

Walsham (1995, p. 76) suggested that “the use of theory in the earlier stages of interpretive case studies is to create an initial theoretical framework which takes account of previous

knowledge, and which creates a sensible theoretical basis to inform the topics and approach of the early empirical work.” Therefore, in order to cope with this large and heterogeneous literature on policy reinvention, and to formulate my hypothesis as precisely as possible, I followed Walsham’s suggestions. In particular, I did not to pick up one author’s theoretical hypothesis and then test it in my case study, because this may lead to an overly narrow perspective. I also did not exhaustively search and review of all the literature on policy reinvention. Instead, I used the “conceptual syntheses” approach for identifying recurrent themes, ideas, components and models related to reinvention concepts: I started from key studies on policy reinvention by political scientists, and then conducted literature searches by using reference lists, tracing key authors, and searching citations to identify further relevant studies and the relation between these and prior studies (Nutley *et al.*, 2002, p. 3).

3.3 Hypotheses and the conceptual framework

The results of the systematic review of the policy reinvention literature is presented here in the form of the conceptual framework, which comprises two components: *learning and adaptation*. These two components are identified and extracted from the “reinvention” literature because they seem relevant for my empirical data and look reasonable with reference to a number of China scholars’ works. For instance, a number of China scholars hold that the Chinese government's learning and adaptive capacity is an important determinant for China in terms of generating regime resilience (Nathan, 2003), reconciling state-society relations (Cai, 2010), helping cushion political risks and uncertainties (Teets & Hurst, 2015) and fostering innovative and customized responses to local problems (Heilmann & Perry, 2009). After extracting these two main driving factors from the Western-centric literature on policy reinvention, I explored and tried to identify the specific meaning of these two factors with reference to studies by China scholars. By doing so, I formulated this study’s hypothesis: *the policy reinvention process in the case of Hangzhou’s COR policy is a political process which is driven by 1) an informal and non-institutionalized learning process dominated by local authorities and 2) an adaptation process centred on how to make a diffused policy innovation politically acceptable and palatable to both the local interests and the national policies and priorities*. To note, this study offers two factors that may contribute to the policy reinvention process in the case of Hangzhou based on my interpretations drawn from the existing research on policy reinvention with reference to eminent China scholars’ studies and my empirical data at hand. Further, I do not conclude on which of these two

factors is more important, not only because my data does not allow me to do so, but also because such a conclusion would require additional studies using different methodologies. Regardless of which of these elements comes closer to the mark, the central message is that reinvention is inherently a political process in the Chinese context.

Learning

Dolowitz and March (1996, p. 343) defines policy learning as “a process in which knowledge about policies, administrative arrangements, institutions etc. in one time and/or place is used in the development of policies, administrative arrangements and institutions in another time and/or place.” Rogers (1983, p. 180) suggests that due to “the adapter's lack of detailed knowledge about the innovation, such as when there is relatively little direct contact between the adapter and change agents or previous adopters,” the diffusion of innovation requires learning in the stage of implementation. In a technocratic or instrumental sense, the government who adopted a policy innovation may learn from the other governments’ lessons of or experience with using the policy innovation so as to avoid failure and to increase efficiency (May, 1992, p. 331). In a social sense, the reinvention may involve a social learning or communicating process of exchanging knowledge, ideas and experiences of the innovation among diffusion agents, such as officials, policy professionals and citizens; and typical forms of social learning are convening a meeting or going on investigation trips (Rogers, 1983, p. 282). Regarding the impact of learning activities on policy reinvention, prior studies suggest that the comprehensiveness of the original policy innovation may be static, increased or decreased and the policy scope may be expanded (Hays, 1996b).¹ However, the learning process may be invisible during the reinvention process, especially when it happens at a personal level or in an informal context (May, 1992, p. 351). For example, Wolman and Page (2002) argues that “learning from other local authorities tends to be ‘random and unfocused’ (p. 484)” with “no means of assessing the validity of the information” (p. 497) and mainly “based on people or sources they trusted” (p. 493).

Turning to the Chinese context, policy learning has been widely regarded by scholars as a concept that is of particular importance for understanding the rationale lurking behind China’s gradualist reform (Wang, 2009; Heilmann & Perry, 2009). Also, in various policy

¹ In Hays’ work, “comprehensiveness” refers to “the breadth and coverage of the language of the law in its effort to remedy the social problem (Hays 1996b, p. 632).”

areas – such as economic policies (Chien, 2007), social policies (Shi, 2012), and wind energy policies (Mah & Hills, 2014) – researchers frequently use the term of “learning-by-doing” or “trial and error approach” to describe how Chinese authorities approach policy learning. Further, according to many China scholars, the policy learning process in the Chinese context is often political, informal and non-institutionalized. For example, Tsai and Dean (2014) report that, for local governments in China, the rationale of learning from other localities’ policy experimentation experience is to use other local governments’ practices and experimentation to increase the legitimacy of their policy decision so as to reduce the political risk of being blamed by the central government. Additionally, in their studies on China’s health care system reform, Teets and Hurst (2015) show that senior local officials can influence the policy learning process decisively and inter-personally. Besides, prior studies also reveal that policy learning in China often lacks adequate participation of non-state actors. For example, Farid’s (2015) examination of the involvement of grassroots nongovernmental organizations (NGOs) in local governments’ policy learning process reports that although grassroots NGOs were found “to exercise influence through the provision of expert advice, involvement in intermediary entities, in public spheres and the media” (p. 119), the major part of their involvement is to facilitate the implementation of a diffused policy innovation rather than to provide their specialised knowledge during the policy formulation stage. In addition, as the public’s participation has been regarded as essential for generating knowledge about a policy innovation, increasing the quality of the decision, including the public interests into policy formulation and implementation process (Kostka & Mol, 2013, p. 9), a shortage of participation in the policy learning process means that the goal of policy learning in China is not technocracy oriented and can cause failures in meeting the real needs on the ground (Almén, 2016). Consequently, *I hypothesize, first, that the policy reinvention process in the case of Hangzhou’s COR policy is driven by an informal and non-institutionalized learning process dominated by local authorities.*

Adaptation

Another central theme derived from the literature is that policy reinvention involves a process of adaptation. This set of arguments has been greatly developed by Scott P. Hays who contested Rogers’ social learning explanation. Hays (1996b) argues that during the reinvention process, not only learning activities but also purposeful political activities may be involved. Hays (1996b) suggests that “adopters reinvent innovations to adapt them to their particular needs and circumstances.” These are: “the political balance of power supportive of

the policy, characteristics of the state's political institutions, as well as the state's level of need for the policy's anticipated remedy" (p. 632-633). Unfortunately, Hays only implicitly addressed issues of adaptation without directly clarifying what the term "adaptation" means in the context of policy reinvention. More recently, Ansari *et al.* (2010, p. 71) defined policy reinvention as "adaptation" which refers to "the process by which an adopter strives to create a better fit between an external practice and the adopter's particular needs to increase its 'zone of acceptance'." Furthermore, the existing research also reveals that, during the diffusion process, adaptation activities typically include, for example, changes in the organizational settings to fit a new policy (Bui, 2013); and readjustments of relations between bureaucratic institutions (Fiss & Zajac, 2006; Kennedy & Fiss, 2009).

In the Chinese context, the existing literature informs us of three main characteristics of local governments. First, while all local governments are embedded in a hierarchical administrative system from the top of the national government down to provincial, municipal, county and township governments, Lieberthal and Oksenberg (1998) proposes the concept of "fragmented authoritarianism" to characterize a "protracted, disjointed and incremental institutional" condition at the local level. Second, fiscal decentralization and power devolution have provided local governments with both incentives and autonomy to pursue locally customized development policy as a means for increasing local financial revenues (Hsu, 2004; Thun, 2004). Third, prospects for career advancement, stagnation or demotion for government officials are largely decided by their superiors at the administrative level above (Chien, 2007, p.274). Additionally, researchers use various terms to describe and characterize local governments' agency: for instance, "irresponsible state" (Cai, 2004), "policy entrepreneurs" (Mertha, 2009), and "strategic group" (Heberer & Schubert, 2012). Meanwhile, the existing literature shows that these characteristics have important implications on policy innovation adaptation at the local level. First, Heilmann (2008b, p. 21) argues that a political system both centralized and decentralized "reduced the frictions and delays characteristic of top-level consensus-building and interagency accommodation, and helped to avoid protracted policy deadlock." Second, Kostka and Mol (2013, p.13) claims that policy implementation outcomes on the grounds often "directly or indirectly relate to the different proprieties shaping national and local level incentives." Third, the logic of policy adaptation at the local level is commonly either "to prompt a broad range of activities in line with loosely-specified national direction" (Husain, 2015, p. 8) or to show their loyalty to the centre (Shirk, 1993) but rarely to meet local interests (Cai, 2004). In addition, similar to

Ansari *et al.* who propose the notion of a “zone of acceptance,” implying that increasing the public support for a diffused policy constitutes the essential part of the adaptation process during the course of policy diffusion, Schubert (2008) uses the notion of “zones of legitimacy”, suggesting that, in recent years, Chinese authorities’ legitimacy-building practices have increasingly become visible, especially during the policy implementation stage at the local level. Against this theoretical background, *I hypothesize that the policy reinvention process in the case of Hangzhou’s COR policy is also driven by a policy adaptation process which is centred on how to make a diffused policy innovation politically acceptable and palatable to both the local public’s interests and the national government’s policies or priorities.*

4 Case Study

On this theoretical basis, this section aims to put empirical flesh on the bare conceptual bones of the aforementioned conceptual framework so as to provide a precise description and a deeper understanding of the potential meaning of policy reinvention in the Chinese setting. The empirical findings will be presented in two parts. The first part traces the development of the COR policy in Hangzhou and identifies the story's main actors and institutions. The second part discusses how Hangzhou municipal government has been learning, and what efforts have been made by local authorities to adapt the COR policy to what particular needs and circumstances. As an entry into the investigation, I provide a brief introduction to Hangzhou city.

4.1 Hangzhou city as a microcosm

Hangzhou is a prefectural-level city (*dijishi* 地级市), the capital of Zhejiang province and the second largest city in the region of the Yangtze River Delta city cluster, located on the southeastern coastline of China (Figure 2). Its administrative jurisdiction is divided into 8 districts (*qu* 区), 3 county level cities (*xianjishi* 县级市) and 2 counties (*xian* 县). According to recent official statistics, the registered population of Hangzhou amounts to just above 9 million which includes about 7 million residents holding Hangzhou permanent residence permits (*hukou* 户口) and about 2 million residents holding Hangzhou temporary residence permits (*juzhuzheng* 居住证) (Hangzhou Gov.cn, 2016).

Figure 2: Geographic location of Zhejiang province and the administrative jurisdiction of Hangzhou city



Source: Wikimedia Commons.

Hangzhou is currently ranked as the 10th top city in China in terms of GDP growth (*Xinhuanet*, 2016). In 2015, the total GDP of Hangzhou reached 153.6 billion RMB, a 10.2% increase from the year before (Hangzhou Gov.cn, 2016). Hangzhou also scores high in many international economy or business indexes: for instance, the city has been designated as the “Best Investment Environment City of China” by World Bank Group (2008) and one of the “Top Cities for Doing Business on the Chinese Mainland” by Forbes China (2013). Besides, it is also evident that Hangzhou has a distinctive local identity. The Hangzhou government brands and identifies the city as one of the most innovative, low-carbon and scenic cities in China (Hangzhou Gov.cn, 2015). Hangzhou also has an international identification, most recently receiving attention as the host of the G20 Summit in September 2016. By the time of my field trip in Hangzhou in March 2016, “proud” (*guangrong* 光荣) was a word frequently mentioned by local residents that I talked to when introducing the city to me (Interview HZ/01/G/160310/1).

However, in the context of the diffusion of the COR policy, Hangzhou can be classified as a typical Chinese city that is experiencing dramatic economic development, population growth, and car ownership growth while facing resulting challenges such as urban air pollution and traffic congestion. At the same time, Hangzhou has been clearly following the national trend of promoting development concepts such as “sustainable development” (*kechixu fazhan* 可持续发展), “ecological civilization” (*shengtai wenming* 生态文明), and “blue sky action” (*lantian xingdong* 蓝天行动) which in fact is in a similar situation seen in other Chinese cities visited during my fieldtrip. As the COR policy can be regarded as representative of the trend of local governments in China responding to urban transportation and sustainability challenges (Chen & Zhao, 2013), it seems safe to say that the adoption of the COR policy Hangzhou can serve as a microcosm of this national trend.

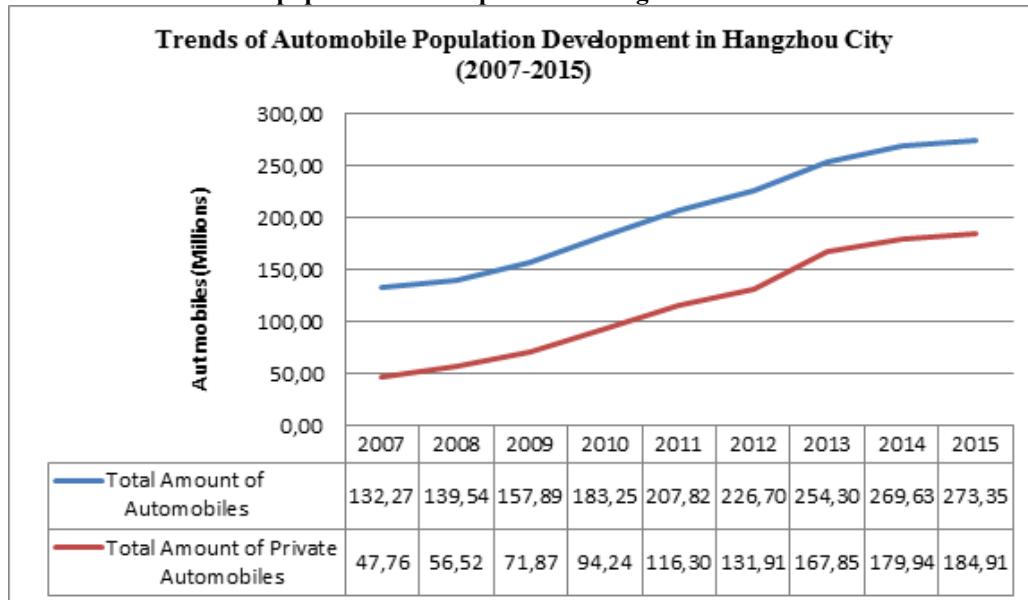
In order to grasp the precise meaning of policy reinvention in the case of Hangzhou, the first step of the empirical analysis is to understand the city’s local traffic and environmental conditions, to trace the chronological development of Hangzhou’s COR policy and to identify the main actors and institutions involved in this process, as well as the relations between them. This step is necessary to precisely and holistically gauge the meaning of policy reinvention in the case of Hangzhou, primarily because of the fact that the phenomenon of

policy reinvention is a very complicated process in real life, involving a variety of actors or institutions with conflicting interests and needs, as the existing literature suggests.

4.2 Hangzhou’s transportation and air pollution situation

Hangzhou’s automobile population has been surging in recent years (Figure 3), reaching 273 million by 2015 (Hangzhou Gov.cn, 2016). In 2014, Hangzhou’s automobile population ranked the seventh highest among all Chinese cities (Hangzhou Web, 2014). This has led Hangzhou to become one of the most traffic congested cities in China as well as in the world (The Wall Street Journal, 2014).

Figure 3: Trends of automobile population development in Hangzhou



Source: Adapted from Hangzhou City Statistics Bureau (2007-2015).

Air pollution challenged are endemic in Chinese cities, and Hangzhou is no exception. Local environmental authorities regard the rapid growth of the automobile population as a major air pollutant source in Hangzhou (Interview HZ/01/G/160310/1). Estimates suggest that 39% of PM 2.5 pollutants in Hangzhou are contributed by automobiles (Hangzhou Web, 2014).

Recent studies also reveal that the emission from automobile vehicles is a major source of particulate matters (PM) and sulfur dioxide (SO₂) pollutants in the air of Hangzhou (e.g. Wu *et al.*, 2016). However, it is worth mentioning that while the air quality in Hangzhou is bad, it is far from the worst of Chinese cities. As Greenpeace’s (2014) report titled “Annual average PM_{2.5} concentrations of 74 Chinese cities” shows, Hangzhou’s air pollution level is quite ordinary, ranked as the 43rd most air polluted city in China (see also Appendix 5).

4.3 The COR policy in Hangzhou

Table 1: Chronological overview of the COR policy development in Hangzhou city

Time	Major Events
March 16, 2011	The Special Office for Alleviating “Two Difficult Traffic Problems (Congestion and Parking)” (<i>huanjie “liangnan” bangongshi</i> 缓解“两难”办公室) at the Hangzhou municipal government states that Hangzhou authorities are considering adopting road restriction and car license plate restriction policies.
January 16, 2012	Change in Zhejiang provincial leadership. Previous Tianjin municipality Governor Xia Baolong (夏宝龙) becomes the Communist Party Secretary of Zhejiang province.
July 11, 2012	The Automobile Management Office at the Traffic Police Unit of Hangzhou’s Public Security Bureau (<i>Hangzhoushi gongan jiaojing zhidui cheliang guanlisuo</i> 杭州市公安局交警支队车辆管理所) and Legal Affairs Office at Hangzhou Municipal Government (<i>Hangzhoushi fazhiban</i> 杭州市法制办) deny rumours concerning a forthcoming implementation of the COR policy in Hangzhou.
November 24, 2012	Xia initiates a “Provincial Urban Traffic Congestion Control and Prevention Project” (<i>quansheng zhili jiaotong yongdu gongcheng</i> 全省治理交通拥堵工程).
February, 2013	1) The Urban Traffic Congestion Prevention and Management Leading Group (<i>zhili chengshi jiaotong yongdu gongzuo lingdao xiaozu</i> 治理城市交通拥堵工作领导小组) is established by the Zhejiang provincial government. 2) “Traffic congestion control performance” becomes one of the cadre performance evaluation criteria (<i>kaohé zhibiao</i> 考核指标) in Zhejiang province.
March, 2013	The Hangzhou municipal government establishes the Traffic Congestion Management Office (<i>zhiduban</i> 治堵办) and announces to elevate the traffic congestion problem as one of the government’s ten most prioritized problems to solve in the coming years.
November 22, 2013	1) The Standing Committee of Zhejiang Province People's Congress endorses the implementation of <i>Zhejiang Province’s Vehicular Emission Prevention and Containment Regulation</i> . 2) Xie Jijian (谢济建), the Vice General Secretary of Zhejiang province, delivers a work report on issues relating to traffic congestion problems at the sixth session of the 12th Zhejiang Province People's Congress and, for the first time, mentions that Zhejiang province may adopt traffic restriction measures, such as the COR policy.
December 27, 2013	The Special Office for Alleviating “Two Difficult Traffic Problems (Congestion and Parking)” at the Hangzhou municipal government states that they have been paying close attention to Tianjin’s COR policy.
December 31, 2013	Zhejiang provincial government releases a <i>Zhejiang Province’s Five-Year Clean Air Action Plan (2013-2017)</i> which states that cities in Zhejiang province with serious traffic congestion problems may control the growth of car ownership.
February 11, 2014	The Traffic Congestion Management Office at Hangzhou municipal government clarifies that they have not received any orders from above to conduct the COR policy related evaluation.

February 17, 2014	The Traffic Police Unit of Hangzhou's Public Security Bureau states that they have not received any notifications about the COR policy.
March 17, 2014	One anonymous employee of the Traffic Congestion Management Office at the Hangzhou municipal government states that he or she has not heard anything about Hangzhou being on the way to adopt the COR policy.
March 25, 2014	1) At 7 pm, the Hangzhou municipal government rolls out the <i>Provisional Regulations for Automobile Total Amount Regulation and Control in Hangzhou City (A draft to solicit public opinions)</i> at a press conference. 2) ATARCO is established and attached to Hangzhou city's TB.
March 25 - April 9, 2014	The COR policy draft revision and public opinion collection is held by ATARCO under the lead of the municipal government.
April 29, 2014	<i>The Provisional Regulations for Automobile Total Amount Regulation and Control in Hangzhou City</i> are approved and promulgated by the Hangzhou municipal government. It is going to be effective for one year from May 1, 2015, as a temporary policy.
October, 2014	Hangzhou city's TB starts to revise <i>Provisional Regulations for Automobile Total Amount Regulation and Control in Hangzhou City</i> and establishes four working groups for policy evaluation and public opinions solicitation.
April 10, 2015	Hangzhou city's TB proposes <i>Regulations for Automobile Total Amount Regulate and Control in Hangzhou City (A draft to solicit opinions)</i> .
April 10 - 17, 2015	The COR policy revision: ATARCO organizes several public opinion solicitation meetings for Hangzhou's COR policy and leading officials at the city's TB undertake investigation trips to counties under the administration of the Hangzhou municipal government.
April 29, 2015	<i>Regulations for Automobile Total Amount Regulation and Control in Hangzhou City</i> is approved and promulgated by the Hangzhou municipal government.
October 1, 2015	<i>Hangzhou City's Management Measures for Automobile Quota Allocation in Counties (Cities)</i> are released. Hangzhou city's COR policy is extended to county-level cities (Lin'an, Jiande, Tonglu and Chun'an) under its administration.

Source: Compiled by author based on interview (HZ/03/S/160312/2), media reports (Zhejiang News, 2011; Phoenix Web, 2014; China News Web, 2012) and government documents (The People's Government of Zhejiang Province, 2013a, 2013b; Hangzhou City Transportation Bureau, 2014a, 2014b, 2015a, 2015b, 2015c).

Table 1 chronologically traces the emergence and development of the COR policy in Hangzhou. It is evident that the diffusion of the COR policy received attention by the Hangzhou municipal government as early as in 2011, and that traffic congestion has remained an unsolved issue that Hangzhou authorities have been struggling with for years. Following the appointment of the new Communist Party Secretary of Zhejiang province, the traffic congestion problem was elevated from a localized problem to a provincial-level problem in 2012. For example, a "Provincial Urban Traffic Congestion Control and Prevention Project" was implemented province-wide and a specific responsible office for

solving traffic congestion related problems was established under the direct lead of the Zhejiang provincial government. There were also visible policy changes during 2012-2013, as transportation emissions issues started to be linked with air pollution issues at the provincial level most notably through the introduction of Zhejiang Province's *Vehicular Emission Prevention and Containment Regulation* and *Zhejiang Province's Five-Year Clean Air Action Plan (2013-2017)*.

The adoption of the COR policy in Guangzhou in June 2012 triggered public guesses over whether Hangzhou would follow in these steps. A brief examination of the public debates on local media's websites (e.g. Sina, 2012; Sina, 2013; and People.cn, 2014) reveals three major public attitudes to the question of whether Hangzhou should implement a COR policy: the first attitude was that COR policy does not fit with Hangzhou's local conditions. While Guangzhou's administrative jurisdiction is composed purely of urban districts, Hangzhou's jurisdiction includes not only urban districts but also counties and county-level cities. Concerned observers noted that even if the COR policy was implemented within Hangzhou's metropolitan area, local citizens could have their plates registered in counties under Hangzhou's jurisdiction and then drive their cars on roads in Hangzhou's urban areas. Second, the experience from Shanghai, Beijing and Guangzhou seemed to be that the COR policies are not effective in terms of easing congestion. Instead of using restrictive measures, the general public held that the Hangzhou government should offer better transportation services in the urban area, such as providing more parking places and making the public transportation system more comfortable and convenient. Third, the possibility of the introduction of the COR policy in Hangzhou touched the nerve of local residents that did not yet own a car and disturbed the local private car market. As a manager working in a car shop in Hangzhou said in an interview with local media, the shop's car sales increased by 15%-20% all of a sudden after news about Guangzhou's COR policy was released (Daily Economy Web, 2012). Meanwhile, Hangzhou officials had been addressing, but not unambiguously and consistently clarifying, circulating rumours about the city's possible adoption of the COR policy. Overall, the spread of rumours among local citizens and individual officials' cautiousness when responding to the rumours suggest that the introduction of the COR policy in Hangzhou has been perceived both by local officials and ordinary local residents as a highly sensitive issue.

Against this backdrop, it came as a shock when at 7 p.m. on March 25, 2014, during a press conference held by the municipal government, Hangzhou officials – including the directors of Hangzhou city’s EPB and TB as well as senior leaders at Hangzhou municipal government – announced that the city was going to implement the COR policy with effect from the next day, March 26, 2014. At the same time, a new institution – ATARCO – was established, attached to Hangzhou city’s TB.

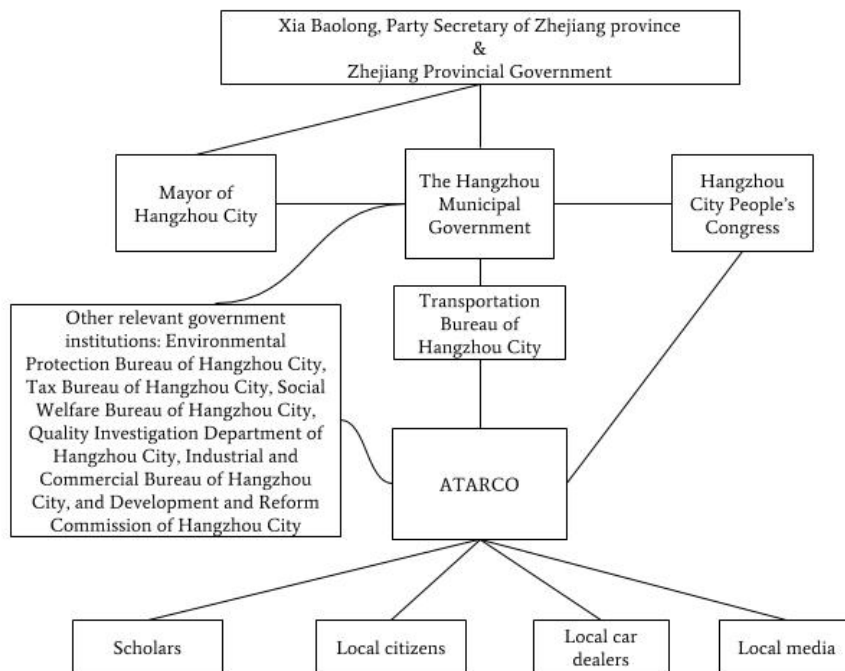
As can be seen from the policy documents, the basic design of Hangzhou’s COR policy is a combination of Shanghai’s auction and Beijing’s lottery, similar to the system used in Tianjin and Guangzhou. The policy goals echo those of other cities’, which are to control traffic congestion and reduce air pollution from vehicular emissions. At the same time, however, the local authorities also altered some specific COR policy measures over the course of the revision period: 1) Hangzhou’s COR policy applies to both its urban and rural area; 2) Hangzhou requires local residents to obtain a driving licence before applying for car license plates; 3) families that have already obtained two cars can not apply for more car licence plates, but are offered one renewal quota, so as to ensure that each household could maximally use two cars; 4) applicants that do not have a Hangzhou permanent residence permit need to fulfil the requirement of having lived and paid social insurance fees in Hangzhou for more than two years before applying for car licence plates; 5) no restrictions apply for newly purchased new energy cars’ licence plate registration (Hangzhou City Transportation Bureau, 2014b, 2015b, 2015c).

4.4 Main actors and institutions

I will now analyse the main actors and institutions involved in Hangzhou’s COR policy reinvention story and the relations between them (Figure 4). To start with, according to local interviewees in Hangzhou, the introduction of the COR policy in Hangzhou was sponsored by high-ranking officials at the Zhejiang provincial government (Interview HZ/03/S/160312/2; Interview HZ/02/G/160314/4). According to these interviewees, Xia Baolong, the current Communist Party Secretary of Zhejiang province, played a particularly important role as the main sponsor who pushed for the introduction of the COR policy to Hangzhou. Since Xia had previously worked as the Governor of Tianjin municipality (before transferring to Zhejiang province), Tianjin’s COR policy experience has been the main

reference of Hangzhou.² In fact, my impression about Tianjin’s influence on Hangzhou derived from the interviews is also supported by evidence gathered from the local government’s website and secondary sources. For example, a COR policy explanation document published by the local government claims that Hangzhou’s COR policy was inspired by Tianjin (Zhejiang News, 2014). In a media report, an anonymous official at the municipal government explains that “Hangzhou is following the model of Tianjin” (Sina, 2014).

Figure 4: Main actors and institutions in the case of Hangzhou



Source: Made by the author based on data collected from the field trip in Hangzhou.

Next, the role of the Hangzhou municipal government is multifaceted. First, vertically, the Hangzhou city government is subordinate to the Zhejiang provincial government. As shown above, controlling traffic congestion has been championed as a project by the Zhejiang provincial government. Furthermore, the performance of traffic congestion control by local authorities in Zhejiang province was included as one of the evaluation criteria in the cadre

² Xia was born in Tianjin in 1952 and graduated with a PhD from Peking University. He has been a member of the Chinese Communist Party since 1973. Before being appointed as the vice mayor of the Tianjin municipal government in 1997, Xia had been one of the leading officials at the district-level leadership of the Hexi District in Tianjin since the 1970s. In 2012, he was appointed as the Communist Party Secretary of Zhejiang province (China News Web, 2012).

performance evaluation system (*lingdao gangbu kaohe zhidu* 领导干部考核制度) in February 2013. This implies that officials at the Hangzhou city government was under political pressure and had personal incentives to improve the city's transportation conditions, because the results of Hangzhou's traffic congestion control may have a positive or negative impact on their career prospects. Besides, as the capital city of Zhejiang province, Hangzhou would also have been expected to take the lead. The role of the Hangzhou government is described by Zheng Liming (郑黎明), a senior official from the Urban Traffic Congestion Prevention and Management Leading Group at the Zhejiang provincial government, as "a vanguard" (*paitoubing* 排头兵), a model to follow for other cities in Zhejiang province (Zhejiang Communications, 2015)

Moreover, it seems that the relationship and interaction between the municipal government and the provincial government during the COR policy implementation process in Hangzhou should be characterized as informal. Evidence suggesting the provincial government's direct intervention into the implementation process of the COR policy in Hangzhou cannot be found in any government documents or media reports. Rather, as a leading official at ATARCO explained, the provincial government was involved primarily through interpersonal interactions with high-ranking bureaucrats at the municipal government (Interview HZ/02/G/160314/4). Asking if Xia was informally involved, the official did not answer in words, but confirmed my assumption with a nod of his head. My impression about the informal involvement of leading officials at the provincial government was also supported by the interview with a scholar at Zhejiang University of Technology. He said that he had heard that the mayor of Hangzhou city originally asked Xia about his opinions about introducing a COR policy to Hangzhou (Interview HZ/03/S/160312/2). He further added that, sometimes, before a transportation policy was introduced, the mayor would privately ask about his opinions; however, the adoption of the COR policy in Hangzhou had been processed in a highly confidential manner: only a small number of high-ranking officials at Hangzhou city government and Zhejiang provincial government knew the details.

Furthermore, looking horizontally, the Hangzhou municipal leadership plays the role as the "organizer" of the COR policy related activities. During the implementation process, the municipal government is the institution that makes things happen. "Coordination (*xietiao* 协调)" and "taking the lead (*qiantou* 牵头)" are two phrases that were constantly used by my

interviewees at ATARCO when asked about their perceptions of the role played by leading officials at the municipal government (Interview HZ/02/G/160314/4). My interpretation is that ATARCO is politically and bureaucratically too weak to require other government institutions at a similar administrative level to support their work; as a result, it was the municipal government that brought together relevant governmental institutions to provide necessary support for the daily running of the COR policy implementation.

Lastly, ATARCO, which is attached to Hangzhou city's TB, was the main institution tasked with the COR policy related administrative affairs. Informed by one of my interviews, a number of responsibilities of this office can be identified: 1) allocating car licence plate restriction quotas; 2) running monthly car license plates auctions and lotteries; 3) reporting the running of the COR policy to their leaders at upper tiers of the administrative hierarchy; 4) organizing policy revision activities, for instance, holding public opinion solicitation meetings which bring together citizen representatives, local media, experts and the COR policy related governmental institutions; 5) making modifications to the policy and submitting the results to the local People's Congress of Hangzhou City; 6) collecting public grievances and reconciling the affected population (Interview HZ/02/G/160314/4).³

Aside from these governmental actors and institutions, scholars, the local population, local car dealers and media are also involved. On the one hand, the city government has taken some steps to involve the public's opinions and make the COR policy information available to the public. Official explanations regarding the COR policy were published on the official website of the local government as well as in local newspapers. According to an internal document – *Basic Situation of the Regulation and Control Work* (n.d.), a public opinion solicitation process proceeded through official channels, for example, the so-called Mayor's Hotline (*shizhang rexian* 市长热线). Unfortunately, the document did not provide specifics about the content of the public complains or details regarding the process. Scholars, representatives of local residents, car dealers and journalists were included in policy revision

³ As a matter of fact, while I was conducting an interview at the office, a group of local taxi company managers came by and tried to resolve a grievance. The managers claimed that they had bought a large amount of cars before the COR policy was introduced. Not knowing about the soon to be implemented policy, they did not immediately apply for licence plates for the cars. With the policy being introduced without warning, the purchase would now entail more money and time being spent to acquire such licence plates. Consequently, they wanted some form of compensation. The officials at ATARCO invited these managers to sit down at the office and offered water. Meanwhile, they wrote down the complains and then showed and explained some government documents to the managers.

meetings held by the city's TB. On the other hand, despite these examples, the official announcement of the introduction of the COR policy came all of a sudden without prior soliciting of the public opinion; the workings of the car license plates auction and lottery process largely remains unopened to the public; precise information about, for instance, results of public consultation, information about the citizen representatives, and reports about the implementation outcomes of the policy were not open to the public. Above all, the public involvement has largely been restricted to the consultation stage without meaningful impact on decision making by the local government, and the local People's Congress did not act as an independent legislative institution for supervising and approving the COR policy.

4.5 Empirical evidence for learning

A major theme emerging from the empirical observation process is that, during the course of diffusion, *learning* in the sense of obtaining technocratic knowledge about the innovation plays at most a minimal role in the reinvention process in the case of Hangzhou. Instead, learning is informal, political, and manipulated by a small group of high-ranking local officials behind the scenes.

Before the field trip, an examination of local government's documents on official websites as well as secondary interview transcripts and reports published on local newspapers' websites had revealed a set of evidence that seemed to match with the theoretical premises concerning technocratic and social learning. First, the official policy explanation document clearly stated that the making of Hangzhou's COR had relied on the example of Tianjin and Guangzhou, which indicates learning from other localities' experience (Hangzhou Web, 2014). Second, a public opinion collection process was absent from the COR policy drafting process but was included in the revision process, which indicates that the government may have learned from its own experiences with the implementation of the COR policy, if not at the very earliest stage then at least during a revision period. Third, "an upgraded version (*shengjiban* 升级版)" is a description that has frequently been used when local officials refer to Hangzhou's COR policy, which implies a sense of the evolution of policy comprehensiveness as a result of knowledge accumulation over time.

My interview with a leading official at ATARCO confirmed the abovementioned learning activities. However, on the ground, the logic of learning by local authorities appeared quite

contrary to my preliminary assumptions. Asking about the difficulties or challenges for the COR policy implementation in Hangzhou, how to legalize the COR policy and how to persuade the public were reported as the two main problems that ATARCO had been struggling with (Interview HZ/02/G/160314/4). My interpretation is that this is mainly because there is no provincial policies or national policies directly prescribing the COR policy⁴; and when Guangzhou adopted a COR policy, the public debates (as shown in section 4.3) had showed that the idea of a COR policy was not popular with local residents in Hangzhou. Next, asking how learning was carried out, the local official explained that a small group of officials – including leading officials at the Hangzhou municipal government and the director of the city’s TB – went on a secret investigation trip to Tianjin under the lead of the mayor of Hangzhou city. Upon their return from the trip, the mayor apparently arranged several informal meetings with a small group of high-ranking local officials and came up with a policy draft which took up some of the particulars from the Tianjin COR policy design (combining Shanghai’s auction and Beijing’s lottery). Further, asking why they went to Tianjin to study the COR policy, the official answered that Xia’s order was the main reason. And regarding what was learned in Tianjin, the answers were that 1) the COR policy drafting activities should be kept within a small circle of leading officials and not disclosed to the public; and that 2) the announcement of the policy needed to be made in a sudden manner. According to officials at ATARCO, this was mainly because it was expected that if it was revealed to the public in good time that the policy was to be introduced, then this might cause a spree of private car purchases before the new policy was put into effect.

It must also be noted that, whereas before the policy had officially been implemented Hangzhou’s learning was restricted internally to senior local officials at the Hangzhou municipal government, after the policy was officially carried out, local authorities have taken some steps to learn from the public opinion and exchange knowledge and information within local government institutions (in a broader sense). ATARCO and Hangzhou’s TB took the main responsibilities for collecting public opinion during the revision process, but the two institutions’ learning activities were still under the “lead (*lingdao* 领导)” of the municipal government leadership. These activities include: convening eight rounds of opinion soliciting

⁴ To note, according to the “*Zhejiang Province’s Five-Year Clean Air Action Plan (2013-2017)*,” the Zhejiang provincial government did open up for the possibility of imposing car ownership growth control policies in response to vehicle emission and traffic congestion problems (The People’s Government of Zhejiang Province, 2013b). However, this was more of a soft endorsement than a strong promotion of such measures.

meetings with the general public (including representatives from Hangzhou city's People's Congress and People's Political Consultative Conference, citizen representatives, enterprises, scholars, local business associations and medias) and twelve rounds of opinion soliciting meetings with relevant responsible governmental institutions, and opening of seven-day hotline for the general public, etc. Useful details about what has been learned from these activities are provided in an internal-circulated government document – *Hangzhou City Regulations for Automobile Total Amount Regulation and Control*": *A Summary of the Opinion Solicitation Situation* (n.d.) – collected at ATARCO. The document listed the amount of collected opinions and categorized them into the following themes (without specifying the content): 1) whether Hangzhou's suburban areas should also be subjected to the COR policy; 2) whether families that have yet to obtain a car should be prioritized; 3) whether or not residents with temporary Hangzhou residence permits and residents without a driving license should be allowed to apply for car license plates; and 4) whether the lottery system should prioritize residents that failed to obtain license plates from previous rounds of the lottery. The outcomes of the COR policy reinvention, indeed, reflected the impact of learning from Hangzhou's own experiences as well as local residents' voices, as the policy has been extended to cover Hangzhou's suburban areas, required the applicant to hold a driving license and imposed preconditions for non-local residents. Most important of all, according to the leading official at ATARCO I spoke to, during the policy revision process, the learning rationale was to balance contradictions and differences among various governmental institutions as well as within the group of local residents.

4.6 Empirical evidence for adapting to particular needs and circumstances

In terms of particular needs and circumstances, one of the most pressing needs was to deal with the COR policy as an unpopular policy. As stated earlier, the COR policy appeared to be unpopular among local residents for several reasons: 1) the public questioned the effectiveness of the COR policy in terms of controlling vehicular emissions and alleviating traffic congestions; 2) the policy signifies an authoritarian way of using regulations to compel people to change transportation modes, which is likely to meet with social resistance; 3) the perceived flip-flopping of the Hangzhou authorities on the question of whether or not the COR policy would be introduced, only led both the acceptance of the policy and the government's trustworthiness to decline.

The municipal government did respond to these challenges in a number of ways. First, one of the reasons for the establishment of a new office, according to my interviewee at ATARCO, was to avoid blame from the public (HZ/02/G/160314/4). Instead of giving the task of administrating the COR policy to the most likely candidate for the job – the already existing Traffic Congestion Management Office attached to the Hangzhou municipal government – the Hangzhou authorities chose to establish a new office for the job, attached to Hangzhou city's TB. According to my interviewee, the reason was that they wanted to avoid criticism from the general public. Responding to simmering rumours, the Traffic Congestion Management Office had earlier (in February 2014) stated that they had not heard anything regarding Hangzhou being on the way to implementing the COR policy. When such a policy was announced only a month later, the Traffic Congestion Management Office's earlier clarification would in retrospect have looked unconvincing if they were the office tasked with the responsibility for administrating the policy. Hence, the government deemed it safer to establish an entirely new office for the task, one with no history of commenting on the rumours of a policy.

Second, the relationship between local authorities and scholars seems to have been close during the reinvention process. These scholars' professional knowledge about transportation and environmental issues provided a scientific alibi for the introduction of the COR policy in Hangzhou, thereby making the policy look more persuasive to the public. One example of such borrowing of scholarly credentials is a TV program hosted by local authorities, during which two vice directors of Hangzhou city's TB explained the COR policy to citizen representatives and answered their questions, with transportation experts supplementing and supporting their replies (Our Round Table Meeting, 2014). In one of my interviews, asking a transportation scholar about his involvement in the COR policy and his relation with the local government, he explained that due to his local fame and professional credentials, as well as his good personal relations with the mayor, he was appointed by the municipal government to explain the COR policy to the public on local official TV and Radio stations; but he was required by local authorities to make explanations based on the policy document, rather than making personal comments (Interview HZ/03/S/160312/2).

Third, pointing out the integration of the COR policy with national actions taken in relation to the goal of fighting air pollution helped the local government to increase public support. According to local statements (e.g. Zhejiang News, 2014), while air pollution has nominally

been one of the problems the COR policy seeks to address, almost all the scholars I interviewed during the fieldtrip expressed the opinion that in reality the environmental aspect has not been at the forefront. My interviews with several experts studying air pollution sources and formations in China suggest that most private cars in China are far less polluting and fuel-wasteful than old cars and trucks, and that if the government wanted to improve air quality, a better place to start would be with policies that target these polluting vehicles and promote cleaner fuels (Interview HZ/03/S/160312/2; Interview HZ/03/S/160313/3; Interview NJ/03/S/160315/5; Interview NJ/03/S/160315/6). This echoes the opinions stated in my interviews with leading officials at Wuhan city's Environment Monitor Centre and Changchun's EPB and TB. In their view, private cars are not a main source of air pollution. It seems safe to say that reframing the goals of the COR policy by including the environmental aspect has been more an intention to increase the policy's legitimacy than a manifestation of a serious attempt to cut emissions and reduce air pollution.

Moreover, to make the policy politically palatable, Hangzhou authorities have made use of potential resources in the political system. One good example is using the national government's policy - *Clean Air Action Plan* - as a resource. Due to the fact that unlike in other policy areas (such as new urbanization policies) where the national government commonly provides a policy guideline or framework for subnational governments to refer to, in the case of the COR policy in Hangzhou, there is no such grand policy guideline or institutional support from the centre to rely on. Besides, the provincial government also did not offer a clear and open support for the COR policy. Partly as a result of this lack of direct political support from upper-level governments, Hangzhou's COR policy has conformed itself with the national priority of combating air pollution – reframing the policy goal with reference to a national initiative, the *Clean Air Action Plan*.

Another interesting example is using other Chinese cities' COR policy as the backing when the central government's stance is not clear. Comparing Hangzhou's COR policy documents with those of other Chinese cities', Hangzhou's COR policy used the same vocabulary in the policy title. Although some specific policy measures (for instance, extending to suburban areas and requiring driving license) are different from other cities, the policy's stated goal is exactly the same: to deal with traffic congestion and air pollution problems. Besides, Hangzhou combined several cities' policy designs: Beijing's lottery, Shanghai's auction and a hybrid design (following Guangzhou and Tianjin). An examination of local officials'

responses in local media's interviews also supports that other Chinese cities' COR policy has been used as a reference point for Hangzhou's introduction of the COR policy (Our Round Table Meeting, 2014). The central message conveyed by their arguments is that Hangzhou's COR policy is not "special", but is following a national trend. The rationale behind this, according to one of my respondents, is to "share the responsibility (*fendan zeren* 分担责任)" (HZ/02/G/160314/4).

Aside from these purposeful activities in dealing with the reluctant local population and lack of direct intervention from upper-level governments, there are also practical and political concerns. First, the power relations among government institutions has been recentralized. For example, as shown above (in section 4.5), the COR policy learning activities had only involved a small group of senior officials during the policy making stage as a means of ensuring the confidentiality in order to avoid causing a disturbance of the stability of the local private car market. Moreover, according to *Hangzhou City Regulations for Automobile Total Amount Regulation and Control*: *Opinion Solicitation Situation Summary* (n.d.), four small leading work groups (*gongzuo lingdao xiaozu* 工作领导小组) were created by the local authorities to ensure coordination between bureaucratic institutions during the policy's implementation stage.

Second, "to maintain leeway for future alterations (*liukouzi* 留口子)" – a phrase that was used by the official at ATARCO when he was asked about how the policy has been modified – provides a good example of a practical concern of the government (HZ/02/G/160314/4). It primarily refers to a strategy used by local authorities, through which they phrase the policy in a way that keeps open the door for future modifications. The official used the example of new energy cars to illustrate this strategy: it is stated in the COR policy document that new energy cars are for the time being not to be subjected to the policy's restrictions, however it also states that this may change in the future, thereby keeping open the possibility that restrictive measures may be extended to new energy cars at an unspecified point of time in the future.⁵ The logic behind this is that, as explained by the official, the national government's stance on the COR policy and new energy cars is unclear. If there were

⁵ To note, a most recent development of the COR policy's restriction on new energy cars in Hangzhou is that the local authorities released a catalogue for new energy car models which are not to be subjected to the COR policy's restrictions, effective from March 14, 2016 (*Xinhuanet*, 2016).

national policy changes in terms of forbidding local governments to impose restrictions on new energy cars, then Hangzhou's COR policy would not be conflicting with the national policy as it does not apply to new energy cars. However, in the absence of such a command from the top, it is still better to keep the flexibility by keeping open the opportunity to impose the restrictions on new energy cars as well.

5 Conclusion

5.1 Main findings

Much of the earlier literature on *policy reinvention* was characterized by a relatively narrow focus on empirical cases derived from countries in the West. At the same time, the existing studies on policy innovation and diffusion in China has largely ignored policy reinvention – a phenomenon embedded in the course of policy diffusion – which this study aims to study, with a focus on the case of Hangzhou’s COR policy. The findings support my hypothesis about *learning* – as an inherently political process characterized as *informal, non-institutionalized and dominated by local authorities* – as one of the main driving factors lurking behind the local government’s policy reinvention process in the case of Hangzhou’s COR policy. In this case of policy reinvention, the subject of *learning* is more about searching for ways of making the COR policy implemented effectively and smoothly rather than evaluating technocratic aspects of the policy innovation. Further, in contrast to studied cases in western countries, in the case of Hangzhou, the impetus for learning came largely through vertical supervisory order rather than from the local population’s demands. And the government’s learning was mostly carried out in a confidential manner, at a more interpersonal level, with limited involvement of professionals, citizens, social groups, or the media. During the drafting stage, learning from Tianjin’s COR policy was initiated by Xia Baolong, the Communist Party Secretary of Zhejiang province, and subsequently carried out by his subordinates informally and confidentially. During the revision stage, learning was still centralized and supervised by local authorities. The role of scholars in the process seems to have been no more than assisting the local authorities to spur public support; the role of local media no more than publishing what the government wants; and the role of local residents no more than being informed and reconciled to follow the policy.

Additionally, a large part of Hangzhou government’s *adaptation* activities – policy content modifications, policy goals reframing, collaboration with scholars, the integration of transportation problems with air pollution problems, intuitional changes, and centralization of power relations – have little to do with the policy innovation itself, or responding to the public outcry. Instead, the COR policy reinvention in Hangzhou has been purposefully manipulated by local authorities, politically serving as a step for reshaping local residents’ perceptions of the COR policy as well as making the COR policy a reality in Hangzhou city.

This set of findings support that *adaptation – which is also inherently political and centres on making a diffused policy innovation both socially acceptable and politically palatable* – is another main driving factor lurking behind the local government’s policy reinvention process in the case of Hangzhou’s COR policy.

5.2 Discussion

Relating the findings of this study to the work of prior China scholars, it provides an alternative way of thinking about the role of local government in China’s decentralized policy experimentation process. On the one hand, the case of Hangzhou’s COR policy demonstrates that the implementation of a policy innovation in China at the local level does not always need a strong backing from the central government that is at least implied in some of the “experimentation under hierarchy” literature. On the other hand, the Hangzhou experience has shown that changes in national policies and priorities can be a potential resource for local government during the policy reinvention process. This implies that national policies and priorities have an effect on policy reinvention activities at the local level.

The findings also support two sets of argument proposed by prior China scholars’ studies on the role played by local officials in the process of policy innovation and diffusion in China. First, this study shows that although the involvement of Party Secretary Xia, in this case, was informal and behind the scenes, Xia’s influence on the COR policy being introduced to Hangzhou and the city government’s learning from Tianjin’s experience is evident and crucial. This supports Teets and Hurst’s (2015) finding that local officials’ support ensures the horizontal diffusion of a policy innovation among subnational governments.

Second, many China scholars have conceptualized local officials as “policy entrepreneurs” (e.g. Mertha, 2009; Teets, 2015; and Zhu & Xiao, 2015) who “invest their resources—time, energy, reputation, and sometimes money—in the hope of future return. That return might come to them in the form of policies of which they approve, satisfaction from participation, or even personal aggrandizement in the form of job security or career promotion” (Kingdon 1984, p.123). Hangzhou’s COR policy reinvention experience also sheds light on such a role of local officials. In particular, in my case, although there was no direct intervention from the centre and the social acceptance for the COR policy was low, policy entrepreneurs in the Hangzhou city government had been able to, or at least tried to, create a favourable context

for carrying out their policy innovation and diffusion decision into practice through, for example, 1) deploying scholars' scientific knowledge to sell and market the policy innovation to the local population, 2) reframing the policy goals, aligning them with the national government's priorities, and 3) making reference to other Chinese cities' COR policy experience to overcome existing institutional constraints.

All of these observations indicate that policy reinvention and its operations at the local level can take different forms in the context of China. It has been a common argument in the Western-centric policy reinvention literature that in *learning* from other localities' policy experience, local society's opinions and professional knowledge plays an important role, especially in the context of the United States. This argument, however, may only partly apply to China. A major departure, seen in the case study presented here, is that the public's opinion about the policy is the object that the local government's policy reinvention attempts to shape and alter rather than the object that local authorities attempt to learn from or respond to.

Nevertheless, the findings for another policy reinvention component – *adaptation* – are generally compatible with the Western literature. Hay's assumption that policy reinvention is not only a learning process but also a purposeful process seems to ring true in the analysis of the case of Hangzhou. Yet the type of adaptation has been very different. While the adaptation commonly has three dimensions in the western context – technical, social and political – as many policy reinvention studies suggest, oddly, in this Chinese case the political dimension has been by far the most prevalent one. To make a policy innovation – which lacks direct support from upper-level governments and has been conceived reluctantly by the local residents – both socially acceptable and politically palatable makes up the core of the adaptation of policy reinvention in the case of Hangzhou. This indicates, and again highlights, that policy reinvention in China is not a technocratic process.

5.3 Significance and areas for future studies

Overall this study represents a significant, yet initial, effort to examine policy reinvention at the local level in the setting of contemporary China. Where we see parallels with Western cases, we can verify the existence of a policy reinvention process in China at the local level. Local governments in China do not follow each other blindly during the policy diffusion

process. Especially, when the national government's attitude is ambiguous local governments are still able to create opportunities and search for recourses within the political system for carrying out their policy diffusion decisions into locally customized practices, while remaining constrained by the "experimentation under hierarchy" context. Where we find differences, this underscores that the "challenge of finding a suitably well-specific political theory of China politics is immense" (Gilley, 2011, p. 528).

In this light, the case of Hangzhou's COR policy reinvention serves as a window for us to explore larger issues about policy innovation and diffusion in China. While conventional studies on policy reinvention have focused mostly on Western democratic countries, this study contributes fresh empirical findings on policy reinvention drawing on data collected at the sub-national level in contemporary China. Furthermore, this study expands our knowledge regarding policy innovation and diffusion in China by bringing in a concept that has largely been neglected in previous studies, namely the concept of policy reinvention. Although the analysis is based on the case of Hangzhou's COR policy, this study highlights two important factors – learning and adaptation – that may have relevance in other cases too. The goal here has not been to build a theory of any sort, yet the findings may be useful for someone undertaking such an endeavour at some point in the future. Such an endeavour could be, for instance, to test the hypothesis of this thesis with different cases, or in other locations, in the Chinese context; to examine the institutional incentives and conditions that impact the local government's policy reinvention strategies; and to incorporate the concept of policy reinvention with the concept of "policy entrepreneurs" to try to characterize the role played by senior local officials during the policy reinvention process.

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Appendix 1: Interview guideline

Date 日期:	Organization 组织:
Name 姓名:	Position 职位:
Notes 注释:	

1. 请介绍一下贵部门/单位/机构。
Please briefly introduce your department/organization/institution.
2. 请介绍一下限牌令的制定和落实情况。
Please introduce the formulation and implementation of the COR policy.
3. 请介绍一下贵部门在治堵与大气污染方面的工作。
Please introduce your department's works relating to traffic congestion and air pollution problems.
4. 贵市引进限牌令的背景是怎样的? 为何要实行限牌令?
What is the background of the introduction of the COR policy in the city? Why introduce a COR policy?
5. 您对贵市限牌令怎么看?
What's your opinion about the COR policy in this city?
6. 您对其他城市的限牌令怎么看?
What's your opinion about the COR policy in other cities?
7. 限牌令与其他公共政策有何相似与不同?
What's the similarities and differences between the COR policy and other policies?
8. 落实限牌令有何困难? 并且是如何解决的? 可以举一个例子吗?
Have there been difficulties related to the implementation of a COR policy? And how have these difficulties been solved? Could you please give an example?
9. 贵市空气污染的污染源有哪些? 空气污染和交通发展如何关联?
What are the sources for air pollution in this city? What is the connection between air pollution and transportation development?
10. 限牌令落实的结果如何? 有哪些经验可以分享一下吗?
What are the results of the implementation of the COR policy? Are there any experiences you can share with me?
11. 上级部门对限牌令的态度/意见是怎样的, 是否有得到上级的支持? 能具体举例说明一下吗?
What is the attitude/opinion of upper-level governments about the COR policy? Is there any support received from the upper level? Could you please give an example?
12. 贵市在限牌方面的经验和成果, 希望成为全国的模范吗? 与其他城市有竞争吗? 为什么?
Does the city want to become a national model in terms of its experiences and achievements related to the COR policy? Is there any competition with other cities? Why?
13. 贵市的限牌令与其他城市有何异同?

What's the similarities and differences between this city's COR policy and other cities'?

14. 虽然纸面上都写着限牌目标是治堵与环境污染, 为什么会有这样的目标? 在落实过程中, 工作重点是治理环境污染, 还是治堵, 还是两者兼顾?

On the policy paper, the goal of the COR policy is to solve traffic congestion and air pollution problems. Why set these policy goals? During the implementation process, what has been the emphasis? Is it air pollution control or traffic congestion control? Or both?

15. 我看到贵市并没有直接出台一个正式的限牌令, 而是先出台一个暂时的政策, 再逐步修改? 为什么政府要这样做? 这是怎样的一个逻辑?

Based on my observations, the city did not propose a formalized COR policy initially. Instead, a temporary policy was rolled out first, and then revised. Why did the government do so? What is the rationale behind it?

16. 在贵市对限牌政策的修改过程中, 有哪些考虑? 是怎样的一个逻辑? 为什么要做这些调整? 怎么做的? 能介绍一下修改的过程吗?

During the city's COR policy revision process, what were the considerations? What was the rationale behind it? Why were these changes made, and how? Could you please introduce the revision process?

17. 我注意到有出台过限牌令的征求意见稿, 那么, 征求意见的情况是怎样的? 民众意见怎么样? 如何针对民意进行研究和调整政策的?

I noticed that there were policy drafts for public opinion solicitation. Then, how did the public opinion solicitation process proceed? What are the public's opinions about the COR policy? In what way has the public's opinions been taken into account in policy research and readjustments?

18. 有咨询科研单位或者学者和专家的意见吗? 如果有的话, 是如何进行的? 请举例说明。

Are there any research institutions involved? Has the opinion of scholars and experts been considered? If so, in what ways? Please explain and give an example.

19. 媒体对各地限牌令进行了大量的报道, 对我市政策调整有影响吗? 请举例具体说明。

There are a large amount of media reports about the COR policy. Have these reports had any influence on the city's policy readjustments? Please give an example.

20. 其他城市的限牌令对贵市有研究吗? 或者是经验交流的活动?

Has there been conducted any policy research concerning other cities' COR? Or, has there been any experience sharing activities with other cities?

21. 有哪些城市的经验值得借鉴? 为什么是这些城市?

Are there any cities' COR policy experiences to learn from? Why these cities?

22. 有哪些城市来学习贵市的经验吗?

Are there any cities that have come to learn from your city's experiences?

23. 如何将其他城市的经验与贵市当地实际情况相结合的?

How to adapt other cities' experiences to your city's local conditions?

24. 与其他国内城市相比, 在限牌令的推出与落实过程中, 贵市有什么特殊情况?

In comparison with other Chinese cities, in the course of the COR policy's adoption and implementation, what are your city's special local conditions?

25. 如何对限牌政策进行调研的? 去了哪些城市? 去了哪些机构或部门? 为什么去这些城市和部门? 逻辑是什么?

How have policy investigation trips been conducted? Which cities were visited during the trips? Which institutions or departments did you visit? Why these places? What's the logic?

26. 贵市/贵部门在治水/房屋限购(或者其他政策)方面有过经验, 能否借鉴到限牌令上来? 如何借鉴的?

Do you think that your city's/ department's experiences in water management policy, housing purchase restriction policy, or other policy areas can be used in the COR policy? If so, how have these experiences been used?

27. 限牌政策执行中有发现哪些问题? 是如何对这些问题进行研究的? 有提出针对这些问题的解决方案或者调整吗?

Have any problems arisen during the implementation of the COR policy? How have these problems been studied? Were any solutions or re-adjustments made?

28. 限牌令政策执行过程中有哪些部门, 机构或者个人参与了? 他们之间的关系是怎样的? 他们的作用是怎样的?

During the implementation of the COR policy, what departments, institutions and individuals were involved? What is the relation between them? What have been their functions?

Note: The questions above were prepared before the field trip. All interviews were conducted in Chinese, the English translation below each question is provided here for the benefit of the reader.

Appendix 2: Interview list

Code	Location	Level/type of the Institution	Institutions	Position	Date (yy-mm-dd)
HZ/01/G/160310/1	Hangzhou, Zhejiang Province	Province	Emergency Office of Regulation Enforcement and Supervision Unit at Zhejiang Provincial Environment Protection Bureau	Leading official	2016-03-10
HZ/03/S/160312/2	Hangzhou, Zhejiang Province	Research Institution	Politics and Public Administration Department at Zhejiang University of Technology	Scholar	2016-03-12
HZ/03/S/160313/3	Hangzhou, Zhejiang Province	1) Non-Governmental Organization	1) Climate & Energy Section at Greenpeace East Asia	1) Leading official	2016-03-13
		2) Research Institution	2) Chemistry Department at Zhejiang University	2) Scholar	
HZ/02/G/160314/4	Hangzhou, Zhejiang Province	City	Automobile Total Amount Regulate and Control Office at Hangzhou City Transportation Bureau	Leading official	2016-03-14
NJ/03/S/160315/5	Nanjing, Jiangsu Province	Research Institution	Environment Department at Nanjing University	Scholar	2016-03-15
NJ/03/S/160315/6	Nanjing, Jiangsu Province	Research Institution	Environment Department at Nanjing University	Scholar	2016-03-16
WH/02/G/160318/7	Wuhan, Hubei Province	City	Hubei Province Environment Monitor Centre	Leading official	2016-03-18
WH/03/S/160318/8	Wuhan, Hubei Province	Research Institution	The Research Institute of Environmental Law at Wuhan University	Scholar	2016-03-18
CC/02/G/160321/9	Changchun, Jilin Province	City	Pollution Protection and Prevention Department at Changchun City Environment Protection Bureau	Leading official	2016-03-21

CC/02/G/160321/10	Changchun, Jilin Province	City	Pollution Inspection Unit of Changchun City Environmental Protection Bureau	Leading official	2016-03-21
CC/01/G/160322/11	Changchun, Jilin Province	Province	Traffic Police Unit at Jilin Province Traffic Command Centre	Leading official	2016-03-22
CZ/02/G/160329/12	Changzhou, Jiangsu Province	City	Environment Monitor Centre Station	Leading official	2016-03-29

Note: To ensure interviewee's confidentiality and anonymity, no identifying characteristics (such as, name and detailed position information) are revealed. In the interview coding, the first two letters indicate the location of the interview taking place, HZ for Hangzhou, NJ for Nanjing, WH for Wuhan, CC for Changchun and CZ for Changzhou. The two digits indicate the level or type of the institution 01 for provincial level, 02 for city level, 03 for research institution. The single letter indicates the interviewees' professional background: G means government staff and S means scholars or researchers.

Appendix 3: The coding system

Thematic codes	Descriptive codes
Political factors (provincial support, high-ranking local officials, etc.)	provincial governor 省长, Xia Baolong 夏宝龙, provincial government's decision 省里定下来, follow the provincial government's decision 省里为准, mayor approved 市长批示, support/backing 后台, upper-level 上级
Policy learning (learning by communication, learning from experiences, problem-solving, etc.)	learning 学习, referring to 借鉴, failure 失败, problem 问题, experience 经验, guiding 指导, cost 成本, efficiency 效率, opinions collection 征求意见, small circle meeting 小范围会议, confidential investigation trip 保密调研, upgrade 升级/提高
Change (organizational change, power relation change, manipulated policy content change, bundling with national policies, limited change, etc.)	establish responsible department 成立专门办事机构, a department that taking the lead 牵头部门, organizational coordination 部门协调, coalition with professionals 专家支持, policy details modification 细节调整, to maintain leeway for future alternations 留口子, national policy documents 国家政策
Adaptation (balancing power and interests, legitimacy concerns, local context, etc.)	share responsibilities 分担责任, city partialities 城市个性, convincing 说服力, living standard 生活水准, public's trust in the government 老百姓对政府的信任, making the decision first and communicating afterwards 先决定再沟通, informing 告诉, explaining 解释, asking experts to explain the policy 请专家解释, round table debate 圆桌会, city-level congress' support 市人大支持, coordination 协调, professional knowledge 专业知识, in the name of city government 以市政府名义, public reactions 社会反响

Appendix 4: The COR policy in perspective with national policy development

Year	Car ownership restriction policy at the local level	Major national policies relating to automobiles and vehicle emissions
1978	---	Deng Xiaoping made the automobile industry one of the pillar industry for China's modernization.
1983	---	China's first vehicle exhaust regulations was rolled out.
1994	Shanghai municipal government implemented the first COR policy in China, using a vehicle license plate auction system. Shanghai's policy goal is to control the size of the automobile population and to alleviate the traffic congestion problem.	---
1996	---	---
2004	---	China's Road Traffic Safety Law was rolled out.
2010	Beijing issued a COR policy using a vehicle license plate lottery system, targeting both traffic congestion and air pollution problems.	---
2011	Guiyang issued a COR policy using a vehicle license plate lottery system. The goal is to alleviate both traffic congestion and air pollution problems. However, in Guiyang, only cars that want to drive within the first (innermost) ring roads in the city centre need to apply for a special type of licence plate through the lottery system.	---
2012	Guangzhou issued a COR policy using a hybrid of Shanghai's auction system and Beijing's lottery system. The goal is to alleviate both traffic congestion and air pollution problem.	The 12th Five-Year Plan was released by the national government, and the primary focus is on air pollution control.
2013	Tianjin issued a COR policy using a hybrid of Shanghai's auction system and Beijing's lottery system. The goal is to alleviate both traffic congestion and air pollution problems.	China's Clean Air Action Plan (2013-2017) was adopted.
2014	Shenzhen issued a COR policy using a hybrid of Shanghai's auction system and Beijing's lottery system. The goal is to alleviate both traffic congestion and air pollution problems. Hangzhou issued a COR policy using a hybrid of Shanghai's auction system and Beijing's lottery system. The goal is to alleviate both traffic congestion and air pollution problems. But Hangzhou requires applicants to obtain a driving license first and then apply for a licence plate, and extends the COR policy to its suburban area.	Premier Li Keqiang declared China's war on air pollution. The national government promulgated New-type Urbanization Plan, calling for human-centred and sustainable development modes.

Source: Made by author based on fieldtrip notes with reference to China Automobile Technology Research Centre and China Automobile Industry Association (2014) and Clean Air Asia (2015).

Appendix 5: Annual average PM2.5 concentrations of 74 Chinese cities

<i>Ranking</i>	<i>City</i>	<i>Province</i>	<i>Annual average PM2.5 level (micrograms per cubic meter)</i>	<i>Average of the maximum daily PM2.5 level (micrograms per cubic meter)</i>
1	Xingtai	Hebei	155.2	688
2	Shijiazhuang	Hebei	148.5	676
3	Baoding	Hebei	127.9	675
4	Handan	Hebei	127.8	662
5	Hengshui	Hebei	120.6	712
6	Tangshan	Hebei	114.2	497
7	Jinan	Shandong	114.0	490
8	Langfang	Hebei	113.8	772
9	Xi'an	Shaanxi	104.2	598
10	Zhengzhou	Henan	102.4	422
11	Tianjin	Tianjin	95.6	394
12	Cangzhou	Hebei	93.6	380
13	Beijing	Beijing	90.1	646
14	Wuhan	Hubei	88.7	339
15	Chengdu	Sichuan	86.3	374
16	Urumqi	Xinjiang	85.2	387
17	Hefei	Anhui	84.9	383
18	Taizhou	Jiangsu	80.9	474
19	Huai'an	Jiangsu	80.8	513
20	Changsha	Hunan	79.1	325
21	Wuxi	Jiangsu	75.8	391
22	Harbin	Heilongjiang	75.7	756
23	Changzhou	Jiangsu	75.6	322
24	Nanjing	Jiangsu	75.3	312

25	Xuzhou	Jiangsu	74.9	304
26	Taiyuan	Shanxi	74.2	416
27	Huzhou	Zhejiang	73.5	414
28	Shenyang	Liaoning	72.7	464
29	Zhenjiang	Jiangsu	71.6	263
30	Yangzhou	Jiangsu	71.1	312
31	Suqian	Jiangsu	70.7	502
32	Nantong	Jiangsu	70.2	248
33	Changchun	Jilin	69.2	425
34	Nanchang	Jiangxi	69.1	255
35	Jinhua	Zhejiang	69.0	473
36	Lianyungang	Jiangsu	68.0	407
37	Lanzhou	Gansu	67.1	259
38	Suzhou	Jiangsu	67.1	384
39	Yancheng	Jiangsu	67.0	455
40	Jiaxing	Zhejiang	66.9	417
41	Quzhou	Zhejiang	66.5	406
42	Shaoxing	Zhejiang	66.4	426
43	Hangzhou	Zhejiang	66.1	361
44	Qinhuangdao	Hebei	65.2	335
45	Chongqing	Chongqing	63.9	187
46	Xining	Qinghai	63.2	319
47	Qingdao	Shandong	61.7	280
48	Shanghai	Shanghai	60.7	421
49	Hohhot	Inner Mongolia	59.1	216
50	Wenzhou	Zhejiang	56.5	248
51	Zhaoqing	Guangdong	54.7	174
52	Nanning	Guangxi	54.7	199
53	Taizhou	Zhejiang	53.0	284
54	Foshan	Guangdong	52.3	160

55	Guangzhou	Guangdong	52.2	159
56	Chengde	Hebei	51.5	407
57	Dalian	Liaoning	50.7	224
58	Ningbo	Zhejiang	50.4	416
59	Guiyang	Guizhou	49.4	229
60	Jiangmen	Guangdong	48.4	158
61	Lishui	Zhejiang	47.9	196
62	Zhongshan	Guangdong	47.6	146
63	Dongguan	Guangdong	46.0	165
64	Yinchuan	Ningxia	43.7	164
65	Zhangjiakou	Hebei	43.1	471
66	Shenzhen	Guangdong	39.7	131
67	Zhuhai	Guangdong	37.9	157
68	Huizhou	Guangdong	37.2	121
69	Kunming	Yunnan	35.5	123
70	Fuzhou	Fujian	33.2	112
71	Zhoushan	Zhejiang	32.1	353
72	Xiamen	Fujian	31.3	89
73	Lhasa	Tibet	26.0	101
74	Haikou	Hainan	25.6	130

Source: Greenpeace (2014)