

## Environmental policy in China: what effectiveness?\*

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### Introduction

Over the last years, air pollution has become a major concern for China with wide-reaching negative effects on health, environment and also the economy. In January 2013, Beijing gained sad international notoriety, when air pollution spiked at unprecedented levels and conventional measures were found to be “beyond index”. . . . / . . . .

\* For a longer and more technical version of this paper see Laura Hering and Sandra Poncet, «Environmental policy and exports: Evidence from China», FERDI Working Paper 64, 2013.



This recent negative attention on its extremely bad urban air quality does not help China, which has been criticized since long by the international community for its chilly commitments to environmental protection.

But despite its image as a bad student, the People's Republic has adopted over the last decades a series of regulatory policies. The worry that the severity of China's environmental problems may soon hamper its economic growth has led the Chinese government to build up an ambitious array of environmental-protection laws to induce firms to reduce their emissions. There is however surprisingly little consensus on the impact of these environmental policies on economic activity, or even on environmental quality. A number of observers now question the effective implementation and enforcement of Chinese environmental laws and regulations which exist largely only on paper. There are also recurrent doubts over the accuracy and honesty of the official pollution data. It hence remains an open question whether Chinese environmental regulations are not just green-washing on an epic scale.

### ► The specific experience of the Two Control Zones (TCZ) policy

The Two Control Zones policy was implemented by the central government in 1998 with the aim to reduce sulfur dioxide (SO<sub>2</sub>) emissions, which are considered to be the most important source

of air pollution in China. The TCZ policy targeted locations with particularly severe air pollution. Cities exceeding certain standards were designated as either acid rain or SO<sub>2</sub> pollution control zones, according to their records in recent years. In total, 175 cities across 27 provinces were designated as TCZ. Together, these cities account for 11.4% of the Chinese territory, 40.6% of national population, 62.4% of China's GDP, and around 60% of total SO<sub>2</sub> emissions in 1995. The National 10th Five-Year (2001-2005) Plan for Environmental Protection required that annual sulfur emissions in the Two Control Zones be reduced by 20% by 2005, from their 2000 levels. As SO<sub>2</sub> emissions were previously unregulated in China, this is an ambitious target.

The three main policy measures embodied in the TCZ plan were the closing of the biggest polluters, reducing the sulfur-content of coal, and cleaner coal-burning.

### ► Assessing the effectiveness of the TCZ policy

A recent study by Hering and Poncet exploits export data to assess the effectiveness of the TCZ policy. The main advantage of export data is that compared to production data or emission data they are less likely to suffer from measurement or misreporting problems, which could bias the estimates severely. The authors' empirical estimations on 265 Chinese cities for 1997 to 2003, including 158 TCZ cities investigate the effectiveness of the policy in reallocating

activity away from polluting sectors. Their contribution is hence two-fold. They can first shed light on the claim that new environmental standards may be at odds with China's export-oriented growth strategy, and hence jeopardize its growth prospects. Second, they also address concerns about the inadequate enforcement and unsanctioned non-compliance of Chinese environmental regulations. One common issue is that it is hard for some governmental officials who have interests in companies that damage the environment to enforce environmental policies. Along the same lines, some firms may be in a better position to avoid compliance and escape the associated sanctions. The institutionally-grounded political pecking order of Chinese firms likely implies heterogeneous policy responses by firms according to their ownership. In China, state-owned firms are systematically favored by local authorities in terms of access to external funding, property-rights protection, taxation, and market opportunities. They hence will then probably be less affected by policy due to their greater bargaining power with the regulator and capacity to absorb the additional costs from the policy.

## ► Empirical findings

Despite the concerns about poorly-enforced Chinese environmental regulations, the results suggest that the TCZ policy was effective as it induced a relative decline of polluting sectors' exports in targeted cities. They are consistent with findings elsewhere on significant repercussions on foreign direct investment, health and mortality. The analysis cannot however determine whether the policy resulted in an absolute decline at the national level as it remains possible that the relative decline is more than compensated by an increase in non-targeted cities. The results also indicate that the export effect of environmental regulations depends on firm political status. In particular, the TCZ policy is less effective in state-owned firms. Environmental regulations are shown to produce an export growth bias against polluting sectors in TCZ cities only for non-state firms. State-ownership thus protects firms from more stringent environmental regulations, suggesting a conflict of interest for governmental officials. It would thus seem important to address the gap between state and non-state firms, even if more work is needed to understand what is behind this effect: corruption, greater bargaining power or a greater ability to absorb a given cost shock due to softer financial constraints.



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