

Impact of China's ban on Australian coal policy on China's thermal coal prices*

Renjing Liu

10 2021

Abstract

With the dominant and special position of Coal in China, the fluctuations in thermal coal's price will affect many aspects in the society of the country. Many government's behaviors will directly and indirectly affect the price, and it is necessary for them to identify the magnitude of impacts and then present some adjustments. In this study, I am going to quantify the impacts of China's ban on Australian coal on the thermal coal price in China's coal market. The crude oil is going to be set as my control group in my difference-in-difference framework.

*Code and Data are available at: https://github.com/MaxLiu728/Final_Paper.git

1 Introduction

1.1 Overview of the coal market in China

Coal is remarkably significant and special for China, in which the energy resource structure is “rich coal, less gas, lack of oil”(Jin Li 2017). In 2019, coal consumption accounted for 57.7% of the country’s total energy usage (Xiaofei Wang 2020). As a result, coal has a dominant position in China’s energy supply and consumption, performing incredible impacts on many aspects of China’s economy, especially for the manufacturing industry. And the position is not likely to present a dramatic change in the coming decades (Jin Li 2017).

Within many classifications of coal, thermal coal (namely steam coal) is generally one type that uses calorific value by burning. It is widely used to generate electricity, heat, and steel making in China (Robeco 2016b). Currently, thermal coal is the primary type of coal in China’s market, with the price index of it being classified as its calorific value (Normally 5500kcal/kg or 5000kcal/kg) by different trading centres or ports (Xiaofei Wang 2020). Given the importance of thermal coal in China’s energy market, the fluctuations in thermal coal’s spot price may pose threats to the economic growth, energy security, and industrial raw material supply (Xiaofei Wang 2020). Therefore, it is meaningful and important for the government or the market to clarify the factors behind the fluctuating price, sustaining stable economic development.

Though China is sufficient in coal resources, it still plays the role of coal buyer in the global coal market. One of the reasons is the southeast region of China, contributing to the large electricity consumption of the country, is the closest region to two major global coal exporting nations, Indonesia and Australia. Importing international coal is more economical for coal buyers in that region, compared with buying domestic coal (Richard K. Morse 2021). According to (Robeco 2016a), China imported 304 million tonnes of coal in 2020, up 4 million tonnes from a year earlier.

1.2 China’s ban on Australian coal

In my previous work, serving for China’s national coal trading centre, at the Beijing Institute of Big Data Research. My team noticed an unnormal fluctuation in the price index (CCI5500 kcal/kg) of thermal coal, as denoted before and after the red line in 1, with the figure rising from 600 yuan/ton at the end of October 2020 to nearly 900 yuan/ton in January 2021. Officers in the trading centre assumed synchronous China’s ban on Australian coal policy might be the major indicator to cause this uncommon volatility.

According to several reports, the details of this event can be present as follows: On 13 October 2020, Chinese state-owned power plants and steel mills received verbal notice from authorities to stop buying Australian thermal and coking coal (Eryk Bagshaw 2020). 13.73 million tons of coal was imported by China in October 2020, down 46.56 percent from a year ago and down 26.5 percent month-on-month (Sheng 2020). On 25 November 2020, over 50 vessels anchored off Chinese ports waiting to offload coal from Australia (Yin Yeping 2020). On 12 January 2021, Chinese traders were importing more coal from neighboring countries such as Russia and Mongolia (reporters 2021).

On the basis of all the points above, I personally want to identify whether there is a relationship between China’s ban on the Australian coal event and the fluctuations of thermal coal price and hence the magnitude of the impacts. Specifically, this study proposes the following hypotheses.

Hypothesis 1: China’s ban on Australian coal mainly lead to the upward trend in coal prices since 12 October 2020. This impact might be rapid, but the lasting period is very short.

Hypothesis 2: China’s ban on Australian coal mainly lead to the upward trend in coal prices since 12 October 2020. This impact might have a certain lag, and the lasting period is very short.

The remainder of this paper is organized as follows. Section 2 presents the data description. Section 3 introduces the experimental design. Section 4 reports the empirical results. Section 5 will discuss the impacts and propose rational recommendations for the stable development of China’s future coal prices.

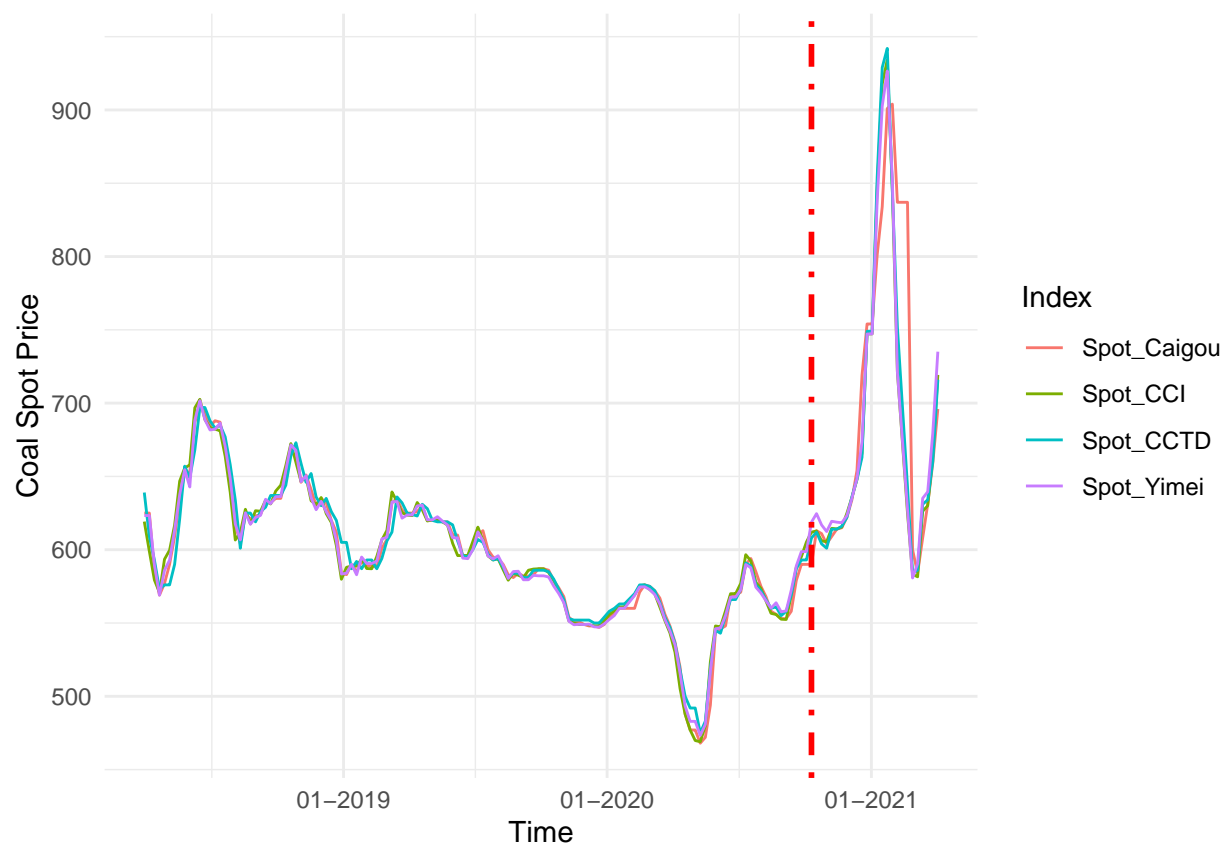


Figure 1: Trends in several coal price index

2 Data

3 Experimental Design (Draft)

3.1 Plan 1

According to (Xiaofei Wang 2020), I will use Difference-in-Difference model in this study. The oil price will be set as my control group, as the trend of its price fluctuation is nearly the same as that of coal. And most of the current thermal coal consumption in China is used for coal-fired boilers. So no complementary relationship is observed between thermal coal and oil. The most important thing is to check there is a parallel trend between crude oil price and coal price.

3.2 Plan 2

Use regression discontinuity in Time (RDiT) framework, as my data set is the time-series. Therefore, I will set time as the running variable. There will be impossible for a difference-in-difference framework, as no available cross-sectional variation in policy implementation. I only compare the price before and after the cut point of policy implementation. However, there might be many potential time-varying confounders I have to control in the set of covariates, such as temperature, power usage. Moreover, I need to consider the time-series nature: Autoregressive, as the recent price can be affected by the its historical price. Finally, the density test needs to be checked.

4 Results

Discussion

Eryk Bagshaw, Mike Foley. 2020. “Chinese Companies Given ‘Verbal Notice’ to Stop Importing Australian Coal.” <https://www.smh.com.au/world/asia/chinese-companies-given-verbal-notice-to-stop-importing-australian-coal-20201012-p564bw.html>.

Jin Li, Shanying Hu. 2017. “History and Future of the Coal and Coal Chemical Industry in China.” *Resources, Conservation and Recycling*.

reporters, GT staff. 2021. “Chinese Traders Increasing Coal Imports from Russia, Mongolia.” <https://www.globaltimes.cn/page/202101/1212532.shtml>.

Richard K. Morse, Gang He. 2021. “The World’s Greatest Coal Arbitrage China’s Coal Import Behavior.” *The Global Coal Market*.

Robeco. 2016a. “China Coal: Why Is It so Important to the Economy?” <https://www.robeco.com/en/key-strengths/sustainable-investing/glossary/thermal-coal-exposure.html>.

———. 2016b. “Thermal Coal Exposure.” <https://www.robeco.com/en/key-strengths/sustainable-investing/glossary/thermal-coal-exposure.html>.

Sheng, Wang. 2020. “China’s Coal Imports Remain Weak, Draining up from Australia in October.” <https://www.globaltimes.cn/page/202011/1206484.shtml>.

Xiaofei Wang, Shaojie Chen, Chuangeng Liu. 2020. “Impact of Coal Sector’s de-Capacity Policy on Coal Price.” *Applied Energy*.

Yin Yeping, Tao Mingyang, Chu Daye. 2020. “Demand for Australian Coal Set to Fall in China in 2021.” <https://www.globaltimes.cn/page/202012/1208566.shtml>.