

China's Coal Import Impact on Coal Prices

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Abstract

The energy distribution in China is characterized in its “rich in coal and lack of oil and gas”, which determines that the coal serves as the core foundation of China's energy structure. Since 2009, China has become a major coal importer, and the international coal prices are often affected by the impact of market supply and demand changes, therefore, the issue “will China's coal imports surge have an impact on the international coal prices?” is worth for in-depth study. This article selects time series data for 2008-2016, comprehensive use of Granger causality test to empirically study the effect of China's coal imports on international coal prices. The results show: There is a two-way Granger causality between coal imports and international coal prices in China.

Keywords

Coal imports; international coal prices; Granger causality test.

1. Introduction

China's coal is the largest primary energy source. In 2009, China's coal imports surged, which will inevitably have an impact on the international coal market price, and thus affect China's economic development. After the new normal of economic development after 2012, during the 13th Five-Year Plan period, China's economy was in a “three-phase superposition period”, the growth of energy demand slowed down, coal demand slowed down, and imports were compressed; China's coal imports have increased from a sharp rise to a slowdown, and the international coal market prices have shown fluctuations, which has brought uncertainties to China's coal imports. At present, China's economic growth is still highly dependent on energy. As the basic energy source of China, it is of great significance to study how coal imports affect international coal market prices.

2. China's Import of Coal Resources

The strong development of coal energy reserves and industrial economy has led to a rapid increase in coal demand in China. Affected by changes in the macroeconomic environment and national policies, there have been some significant changes in China's import coal trade volume in recent years, as shown in Table 1:

Since China's coal trade changed in 2009, the pattern of supply and demand in the international coal market has changed. Due to rapid economic development and the impact of the international financial crisis, China has imported a large amount of coal from abroad and reached a peak value in 2013 and set a new history. According to statistics released by the General Administration of Customs, the total amount of coal imported from abroad in 2013 was about 327 million tons, a 13.39% increase compared to 2012. After five years of “rocket-type” explosions in China's imported coal, the total import of coal fell for the first time in decades after continuous growth for several decades due to the increase in coal import tariffs and the total amount of the coal, compared to 2013. It fell by 10.95 percentage points during the period. In 2015, China's total coal imports continued to decline on the basis of the decline in 2014, which was the lowest point after rocketing growth in the past five years.

Table 1. Coal Imports in China, 2005-2016

years	Coal imports (10,000 tons)	Growth(%)
2005	2617	-
2006	3811	45.62
2007	5102	33.88
2008	4034	-20.93
2009	12584	211.95
2010	16310	29.61
2011	22220	36.24
2012	28841	29.80
2013	32702	13.39
2014	29120	-10.95
2015	20406	-29.92

Source: China Statistical Yearbook

3. Data Selection and Description Statistics

In terms of data selection, as Australia is a major supplier to the international coal market and is little affected by China's macroeconomic policies, the spot price of NEWC thermal coal in Newcastle is taken as the international coal price, and imports of coal and lignite are the wind indicators for coal imports in China.. In order to reflect the reasonableness of the data, China's coal imports and Newcastle's NEWC thermal coal spot prices all use monthly data. The time span of the identified sample data is from 2008 to 2016, and the sample data are all from the WIND database.

4. Granger Causality Test

Table.2.Granger Causality Test Results

Null hypothesis	Lag length	Fvalue	P value	in conclusion
DLNNE Cannot Cause DLNIM by Granger	2	0.10250	0.9027	accept
DLNIM Cannot Cause DLNNE by Granger	2	1.41665	0.2479	accept
DLNNE Cannot Cause DLNIM by Granger	3	1.09064	0.3575	accept
DLNIM Cannot Cause DLNNE by Granger	3	0.58000	0.6297	accept
DLNNE Cannot Cause DLNIM by Granger	4	1.82955	0.1309	accept
DLNIM Cannot Cause DLNNE by Granger	4	1.24596	0.2980	accept
DLNNE Cannot Cause DLNIM by Granger	5	1.50233	0.1984	accept
DLNIM Cannot Cause DLNNE by Granger	5	1.31021	0.2681	accept
DLNNE Cannot Cause DLNIM by Granger	6	2.46780	0.0309	Refuse
DLNIM Cannot Cause DLNNE by Granger	6	1.41931	0.2181	accept
DLNNE Cannot Cause DLNIM by Granger	7	2.01283	0.0646	Refuse
DLNIM Cannot Cause DLNNE by Granger	7	1.91254	0.0797	Refuse

According to the results of the causality test in Table 11, it can be seen that, given the 5% significance level, the international coal price $\ln NE$ is due to the fact that coal and lignite imports $\ln IM$ is the fruit; given the 10% significance level, coal and lignite imports $\ln IM$ and The international coal price $\ln NE$ is mutual cause and effect, and interdependent. In general, there is a two-way causal relationship between international coal price $\ln NE$ and imported coal and lignite $\ln IM$, ie, they are interdependent and have mutual influence.

5. Conclusion

By observing the Granger causality test results, when the length of the lag period is 6, the international coal price is the cause, and the coal import volume is the result. The international coal price will cause the coal import volume of China to change; when the lag period length is 7 There is a two-way effect between the international coal price and the coal import volume. Comprehensive analysis of the above results can be roughly considered that China's coal imports and international coal prices have a two-way causal relationship, that is, mutual cause and effect, mutual influence.

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