

THE IMPACT OF INTERNATIONAL OIL PRICE ON ASIAN NATURAL GAS PREMIUM BASED ON DYNAMIC AUTOREGRESSIVE MODEL

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Overview

Compared with North America and Europe, the premium on natural import gas price has been higher in Asia-Pacific region for a long period. Natural gas Inter-Regional price spread has been mainly under the influence of oil price. The oil price has effect on Natural gas Inter-Regional price spread via influence on natural gas pricing (mainly LNG pricing method, linked to oil price) and energy substitutes. Since the second half of 2014, the sustained decline in the price of oil has a significant impact on Natural gas Inter-Regional price spread. The study of Asian natural gas premium (regional spread) is conducive to China's national interests in energy trade.

The paper is organised as follows: After the introduction the second section gives a brief overview about the model and method. The third section tests degree of endogeneity of natural gas Inter-Regional price spread. In final section results and conclusions are derived.

Methods

This paper uses the dynamic autoregressive model (VAR) to analyze oil price and natural gas -- Asia Europe region price spread (AERS), Asia-North American natural gas region price spread (ANARS) Interaction relationship by using monthly data from 2007 to 2015. Then, using interval time VAR model to test the asymmetry of oil price to Natural gas Inter-Regional price spread in different periods, and to test the endogeneity of natural gas Inter-Regional price spread.

Results

First, the contribution of oil price fluctuation to AERS and ANARS fluctuation is 11.85% and 32.15%. The contribution of AERS to ANARS is 29.43%, while ANARS to AERS is 7.76%.

Second, the influence of oil price fluctuation on ANARS is negative from stage 1 to stage 1.3, while in the period from stage 1.3 to stage 7, the response to oil price has a stable growth. After stage 7, the effect is flat. However, different from ANARS, the effect of oil price on AERS only lasted 10 stages, and the effect increases on parabola at first, then going down, reaching the maximum in the stage 4.

Third, ANARS fluctuations mainly from BRENT and AERS, from their contribution less than the sum contribution of BRENT and AERS. compared with the variance of AERS, ANARS can be found to be more susceptible to oil price and other regional prices than AERS.

Forth, natural gas Inter-Regional price spread has a certain degree of endogeneity. The impact of oil price on Natural gas Inter-Regional price spread appears to converge.

Conclusions

- (1) in the oil price at a higher price or a stable recovery period, consider strengthening trade with North American natural gas.
- (2) strengthen development and utilization of domestic and foreign resources and enhance resource guarantee capacity.
- (3) establish a Gas Trading Center to improve bargaining power.

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