Different Behaviors in Natural Gas Production Between National and Private Oil Companies: Economics-Driven or Environment-Driven?

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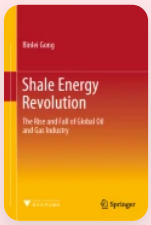

Shale Energy Revolution

Binlei Gong

Abstract

This chapter investigates firm-level efficiency in the petroleum industry during the period 2009–2015. A Jackknife model averaging method and two stochastic frontier models are utilized to estimate the input-output relation more accurately. The derived efficiency is then decomposed to predict the effect of various efficiency determinants with an emphasis on gas ratio and ownership. A significantly negative effect of natural gas ratio (in production portfolio) on efficiency is found for both National Oil Companies (NOCs) and privately-owned International Oil Companies (IOCs). This finding implies that the decline in natural

gas ratio for IOCs is economics-driven, and the incline in gas ratio for NOCs is environment-driven. Therefore, the environmental objective is the NOCs' third non-commercial objective, alongside subsidizing below-market energy prices and offering excessive employment, as found in the literature. Governments may consider the transfer of subsidies from low energy prices to clean energy promotion, which leads to energy saving and emissions reduction.

Notes

1. Popular criteria include, but not limited to, the Akaike information criterion (AIC), the Bayesian information criterion (BIC), and the Focused information criterion (FIC).

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