

# Analyzing the Impact of Petroleum Fiscal Arrangements and Contract Terms on Petroleum E&P Economics and the Host Government Take

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## Abstract<sup>1</sup>

The effects of fiscal terms and system parameters on the performance profile of exploration and production (E&P) ventures and the corresponding government take under different fiscal arrangements are examined in this paper. The fiscal regimes and terms governing E&P activities and operations are incorporated into a discounted cash flow model to address questions regarding how the choices of the parameters of fiscal regime affect the economics of E&P ventures. More generally, we investigated how fiscal systems should be structured and designed to maximize government take from E&P ventures keeping in perspective the underlying economic objectives of the contractors/operators.

Using a hypothetical field as a case study, the paper concludes that government participation in E&P ventures through joint venture arrangements does not optimize economic gains for the E&P firms. Neither does government participation necessarily maximize the fair market value of petroleum resources received by the government. We also found strong evidence to suggest that the petroleum sharing contract (PSC) arrangement can be more favorable to E&P firms in terms of economic returns than the joint venture arrangement (JVA) under the general and analogous fiscal parameters and terms specified in this study. The empirical results further suggest an asymmetric response of E&P economic performance indicators to product prices, discount rate, installed capacity, and EOR. Meaning that the response of the selected indicators of economic performance in this study to positive changes in each of these inputs does not equal the response of performance indicators to negative changes in the input parameters.

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**Keywords:** operation, arrangement, host government, contract term, government, project valuation, government participation, government take, asset and portfolio management, petroleum fiscal arrangement

**Subjects:** Asset and Portfolio Management, Project economics/valuation

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