

ABSTRACT

Traditional oil mining in Wonocolo Village serves as the primary source of livelihood however, it faces challenges such as limited technology, capital constraints, and aging wells that affect productivity. This study analyzes the factors influencing production, the level of business efficiency, and the impact of miners' characteristics on inefficiency using the Cobb-Douglas Stochastic Frontier Analysis (SFA) with Frontier 4.1 software. Based on data from 153 respondents, collected through both primary and secondary sources, the findings indicate that labor, capital, the number of wells, and technology significantly affect production. The average technical efficiency is 92%, with age and work experience contributing to inefficiency, while education and partnerships have no significant impact. The allocative efficiency analysis reveals that labor and technology remain suboptimal, whereas capital and the number of wells are overutilized. An economic efficiency score of 5.5618 suggests that there is still room for efficiency improvement. Optimizing labor, better capital and well management, and enhanced technological training support are essential to improving the efficiency of traditional oil production.

Keywords: Cobb-Douglas, production efficiency, oil mining, Stochastic Frontier Analysis.