

**A PhD Dissertation Proposal**  
**Presented to**  
**Department of Economics**  
**Faculty of Economics and Management**  
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**By :**  
**Babak Valizadeh**

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## **Project Title:**

Market Power and Cost Efficiency, The Case of Malaysia Palm Oil Industry.

## **Importance and Statement of Topic:**

The market power versus efficiency debate in industrial organization is well known. Proponents of the market power argument attribute the positive correlation between market concentration and profitability to collusion. The advocates of the efficiency argument contend that the correlation indicates the superior efficiency of large firms. Thus, the causal direction is not from market power to higher profits, but from efficiency to higher profits and higher concentration (Demsetz, 1973).

One of the present antitrust policy principles is that an industry's structural characteristics, i.e. concentration, can at best be regarded as necessary conditions for the existence of market power. In the early years of research, researchers took market concentration as an important factor of market power. They justified that market power exists in an industry if the concentration ratio is high (Yang, 2004). Still, measures of industry concentration, while useful, are imperfect signals of market power. As pointed out by Kwoka (1981), from an econometric point of view a high correlation between two variables does not mean that they will have similar correlations with a third variable.

At the core of the new empirical industrial organization (NEIO) framework is the application of conjectural oligopoly models to assess market performance. According to NEIO, the supply relation contains an index of market power that increases with the difference between price and marginal cost, and therefore, market power can be measured with the estimated parameter within the equation (Bresnahan, 1982). Despite the essence of measuring market performance, NEIO models are not as useful in identifying the cause of market power when market structure rather than conduct is the policy target. Thus, to make NEIO findings more policy-relevant, studies should incorporate observable structural measures of interest to policy makers, such as industrial concentration.

Industry characteristics that are often identified with market power include high levels of concentration, economies of scale, and significant degrees of product differentiation

(McCorrison & Sheldon, 1989). It must be recognized, however, that these characteristics do not automatically imply market inefficiency. Over the past few years, many industries have experienced significant industrialization and consolidation, but these changes and trends could have spawned more efficient firms even as markets became more concentrated (OECD, 2001). In this respect, the case of palm oil industry in Malaysia seems to be worth studying.

Malaysia is the world's largest producer and exporter of palm oil, where in 1980 production started with 2.5 million tons, or 53.6% of total palm oil produced, and increased to 13.35 million tons (47.8%) in 2003. The export volume of palm oil by Malaysia then was 2.27 million tons and increased to 12.26 million tons in 2003, accounting for 91.8% of the total palm oil produced by the country. In the oils and fats sector, Malaysia is very well known as the world leader of palm oil in terms of production and export. This is due to the tremendous increase in production and export volumes and thus, the world's biggest producer and exporter of the commodity until presently. As the leader in the palm oil industry, it is worthwhile monitoring the production market.

### **Review of Literature and Relevant Topics:**

Several authors have recognized the importance of firms' cost structures as they have attempted to develop separate measures of the effects of concentration on market power and cost efficiency (Azzam, 1997; Cornejo & Spielman, 2002; Dickson, 1994; Hatirli, 2000; Rosenbaum, 1994).

Using estimates from a Bresnahan (1982) type conjectural oligopoly model, Rosenbaum (1994) inferred efficiency and collusion in the cement industry from changes over the sample period in marginal costs and price-cost margins, respectively. Azzam (1997) used a framework similar to Appelbaum's (1982) to separate the market-power effect of increased concentration in the beef-packing industry from its cost efficiency effect. Unlike Rosenbaum, Azzam formally linked the collusion and efficiency components to industry concentration. However, neither study considered the link from efficiency to concentration.

Martin (1988) tests the oligopoly and efficiency explanations of market power. His results indicate that the efficiency and market power hypotheses should be regarded as complementary rather than alternative. However, these studies assumed that market share

effects can be attributed to efficiency, and no attempt was made to test whether market share is determined by industry characteristics associated with monopoly power. This is important when an endogeneity problem exists in the estimation of the relevant profitability equation. Thus it is necessary to specify a model consisting of profitability, market share, and advertising equations and then to test the existence of simultaneity bias by using a formal specification test (Hausmann–Wu). This could allow us to show whether the market share is determined by other firm or industry characteristics that are determined by or dependent on market power characteristics.

Alvarez, Fidalgo, Sexton, and Zhang (2000) studied oligopsony power with uniform spatial pricing in the milk-processing sector of Spain and they concluded that firms may set the prices above the monopsony power level to reduce competition. In another study by Salhofer and Tribl (2005), market power of milk processors in Germany was investigated in a spatial market model with uniform delivered prices.

### **Aims and Hypotheses:**

This research will focus on measuring market power and cost efficiency of the palm oil industry in Malaysia and also will develop and present a model that will provide separate estimates of market power and cost efficiency in the industry. In this research the link from concentration to collusion and efficiency, and the link from efficiency to concentration will be formulated. In addition, price and income elasticity for palm oil demand at the industry level can be yielded.

### **Methodology:**

This study will apply Azzam's (1997) homogeneous oligopoly framework to empirically estimate the extent of price change due to separated market-power effects and cost-efficiency effects. The examination will focus on Malaysia palm oil industry. This industry sells homogeneous producer goods and costs are directly related to production technology. In this research, a simultaneous model will be specified to formulize the interconnection between concentration and efficiency. The framework will be formed with combination of Azzam's procedure for separating the market power effect from the cost-

efficiency effect of industrial concentration. Clarke and Davies' (1982) work on the joint determination of structure and performance, and Rosenbaum's (1994) approach on treating conjectural coefficient as a function of market concentration will be utilized.

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