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The Effect of Energy Subsidy Removal on Energy Demand and Potential Energy Savings in Malaysia

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Abstract

The aim of this paper is to measure the the effects of energy subsidy removal on total energy demand and potential energy savings in Malaysia. The Computable General Equilibrium Model are employed. Simulations based on different groups of scenarios have been developed. These are: (1) Simulating the implementation of energy subsidy reform by removing fuel subsidies. (2) Simulating the implementation of energy subsidy reform by removing fuel tax subsidies. (3) Simulating the implementation of energy subsidy reform by removing both fuel subsidies and fuel tax subsidies. The results showed that, the removing of both fuel and tax subsidy (Scenario 3) policy have a stronger effect on final energy demand and potential energy savings. The estimated results showing that the potential energy savings (7,036 ktoe) from the total energy demand that could be grabbed under total subsidy removal is above to the target of National Energy Efficiency Master Plan (2010), that is 4,000 ktoe across sectors, while the final energy demand itself contributed about 1,558 ktoe or 39% from the national target. Importantly, the energy subsidy reform policy has found to be an efficient policy mechanism that could support the National Energy Efficiency Master Plan, 2010, as well as support towards utilization of "fifth fuel" policy under the Malaysian Fuel Diversification Policy.

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1. Introduction

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Malaysia, a middle-income country, but highly dependence to the international trade. Due to this, the government has also taken steps to liberalize some services sub-sectors especially to boost domestic demand and reduce the economy's dependence on exports. Also, a series of projects and policy measures intended to accelerate the country's economic growth. Since Malaysia is higly reliance on international trade, particularly of electronics, oil and gas, palm oil and rubber - remain a significant driver of the economy, the external price shocks (i.e. oil price shocks) would triggered its domestic economic performance. On the other hand, as an oil and gas exporter, Malaysia has profited from higher world energy prices (Bekhet and M.Yusoff, 2013). Nevertheless, the rising cost of domestic gasoline and diesel fuel, combined with sustained deficits, has put Malaysia under budgetary pressures. It's fuel subsidies have been growing progressively from RM8.154 billion in 2005 to RM24.73 billion and RM23.46 billion for 2012 and 2013, respectively. This has been contributed by the large amount of fuel subsidies, or by averaging the growth was at 31 percent of the (1990-2013) periods.

In terms of energy usage, Malaysia is 34 percent more energy-intensive compared to other countries (ETP, 2013). The average growth rate for the Malaysia final energy demand from (1990 to 2013) period is estimated at 5.2% per year. In fact, the continued weakening in the government account and its adverse impact on domestic energy demand and environment enforced the Government to pursue a stronger expansionary fiscal stimulus (Bekhet and M.Yusoff, 2009). This was done through initial reductions or gradual removal in energy and sugar subsidies and the announcement of the 2015 implementation of a 6% goods and services tax. Besides, the government is also trying to lessen its dependence on state oil producer, which is PETRONAS. The oil and gas sector supplies about 32% of government revenue in 2013.

Thus, it cannot be denied that subsidies play an important role in social policy of many governments (Cheok, 2009). Indeed, there are several ways in which the removal of fuel subsidies could potentially impact the domestic economy as a whole and the energy market. Firstly, the local prices of fuel which will increase dramatically with the removal of the subsidies. Second, fuels are an important intermediate input in fuel intensive industries which high oil prices lead to increase in costs of production, cause these industries to innovate and become more fuel efficient and consequent to a shift away from fuel use towards other factors of production (substitution effect). Third, the removal of the subsidies would free up a substantial amount of government revenue (AlShehabi, 2011). Thus, reform of these types of subsidies has the potential to provide substantial gains in economic efficiency as well as reductions in carbon dioxide emissions (Riedy and Diesendorf, 2003).

Due to the energy security, economic efficiency and environmental concern, recently the New Energy Policy (2011-2015) had been initiated by the government. Collectively, the previous energy policies (i.e. The National Depletion Policy (1980), Four-Fuel Diversification Policy (1981), Electricity Supply Act (1990), Gas Supply Acts (1993), Electricity Regulations (1994), Gas Supply Regulation, (1997)) focuses on adequate resources, secure and cost-effective energy supply. Also, these policies encourage the developing and utilising of alternative sources of energy (both non-renewable and renewable energy) that can reduce the dependency on fossil energy resources, which could bring harmful to the environment. Correspondingly, under the National Energy Efficiency Master Plan (2010) a roadmap to drive efficiency measures had been set up which target to achieve cumulative energy savings of 4,000 kilo tonnes of oil equivalent (ktoe) across sectors by the year 2015. While under the 10th Malaysia Plan, the renewable energy was targeted at 5 percent of the country's total capacity mix in 2015. This represents 985 megawatts of the country's renewable generating capacity and is an increase of less than one percent of renewable energy in the country's energy mix today.

Thus, the aim of this paper is to analyze the potential impacts of energy subsidy reforms policy on the energy demand and energy savings. Computable General Equilibrium Model (CGE) and Social Accounting Matrix (SAM) for 2005 in the Malaysian economy are employed. The rest of the paper is structured as follows. Section 2 presents the literature review. Section 3 Data Sources and Methodology. Section 4 Results and Discussion. Finally, policy implication has reported in section 5.

2. Literature Reviews

In Malaysia, there are few studies have been conducted by researcher in analyzing the energy policy impact analysis on the economy, trade and environmental effects that applied the CGE model. However, there is a lack of