

RESPONSES OF FUEL SUBSIDY REMOVAL AS SUSTAINABLE TRANSPORT POLICY (CASE STUDY: WORKERS IN JAKARTA)

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Abstract

Motorization in urban areas contributes several problems such as congestion, accidents, gas emissions, noises, and infrastructure breakage. Meanwhile, most of the developing countries cannot overcome such growth activities, as well as in Jakarta. By December 2013, Vice Governor of Jakarta propose fuel subsidy removal policy as one of sustainable transport policy. This study is intended to understand and investigate how fuel subsidy removal policy scenarios (25%, 50%, and 100%) in Jakarta affects travellers' behaviour and analyse such policy to support sustainable transport by using qualitative research methodology. Interviews and questionnaires survey are conducted to workers in Jakarta, which includes ranking scale question for traveller response options. The result shows that half of respondents are not affected and will only response to fuel price increasing at IDR 31.400 for gasoline price and IDR 26.300 for ADO (Auto Diesel Oil). Moreover, there is a tendency of respondent's to response by changing their travel mode choices into more fuel efficient private vehicle.

Keywords: *sustainable transport, transport policy, fuel subsidy, removal, fuel policy*

INTRODUCTION

Travel activities and urbanization has evolved in line with the economic growth which is followed by the increasing number of motorization in many countries. In which, the motorization in urban areas causes many problems and its impacts become the second contributor to environmental issues both locally and globally as climate change. It is expected as the amount of private vehicle ownership in developing countries raises continuously as people tends to travel with their ownership of private vehicle and unenthusiastic to use public transport in major cities (Susilo et al., 2007). The same problem also occurs in Jakarta, the Indonesian capital, which has not been able to decipher the congestion problem due to the imbalance between the ratio of the number of vehicles and the number of roads.

During the new leadership, Jakarta government are going to reform several policies to address the transportation issues in Jakarta. As stated by the vice governor of Jakarta with his revealed plans to carry out the elimination of subsidized fuel in Jakarta area in order to reduce the number of private vehicle users in Jakarta (Antara, 2013), which is not in line with support sustainable transportation scheme. Among the 33 provinces in Indonesia, Jakarta becomes a province with the highest intake of subsidized fuel within 38 percent of total fuel energy consumption (BPH Migas, 2012). In 2014, the Indonesian state budget spends of Rp 131.2 trillion (U.S. \$ 11.528 billion) for fuel (Ministry of Finance, 2014). Globally, energy subsidies reached about \$ 544 billion in 2012 (IEA, 2013). The cost of

subsidies for fuel places a heavy load on the limited public resources. Fuel subsidy policy affects the sustainable development policy as spending such amount on fossil-fuel subsidies give lost opportunity for development, in terms of social spending for any other sectors of society (Merrill, 2014), including sustainable transport. Therefore, in order to improve such strategy efforts, it is necessary to identify related how effective these policies will influence travellers' behaviour to choose the mode of transport.

THEORETICAL FRAMEWORK

Recent years, many articles, reports, and publications were contributing a great consideration in sustainable issues. The notion of sustainability is embedded to develop responsiveness as most of human activities causing significant impacts to environmental. In such case, sustainability need to manage integrated analysis and planning from any sectors, authorities and clusters to forestall and manages problems before the crises getting worse (Litman and Burwell 2006). Sustainable development is the hurdle of delivering efficiency and quality management where the service innovation is required (Sebhatu 2011). The potential sustainable travel results by allowing the coordination of transport actions in the context of land development. The combination of land use and transportation lies at the heart of the strategy. The transport network presents the key to urban formation. It is also based on achieving a high level of sustainable approachability by providing high quality walking and cycling path (Curtis 2008).

Policy makers have implemented most effort as barriers at reducing the need of travel to achieve sustainable transport towards technological, economic, and planning interventions (Banister 2003). As private vehicle consumes more in non-renewable resources than any other transport forms, therefore, most public policy concern on to give an action on private vehicle reduction directly. Goldman and Gorham (2006) investigate the sustainable urban transport can be strongly achieved if sustainable transport policy considers of broader systems in transportation. As well, Nidumolu et al. (2009), in their research, stress that sustainability is a matter about innovations in a dynamic context.

Transport policies also create other mode choices by enhancing quality and attractiveness. For example, public transit supply is generally less cost, reliable, convenience and good quality in Western Europe; and also there are safe walking and cycling path provided for pedestrians and cyclists (Buehler 2010). Transport policy measures can be employed to achieve a reduction of the negative effects of private vehicles usages, through the changes of travel behavior. Such transport policy measure commonly implemented in four types, i.e. legal policies, economic policies, measures changing the physical context, and informational/educational measures (Errikson 2008). Besides, acceptability of transport policy measures has to be predicted well, as public's might response the transport policy measures negatively or positively. Steg et al. (2005, 2006 in Errikson 2008) found that pull measures tend to be more acceptable than push measures.

Fuel Policy

Fuel policy, which was originally designed for economic purposes, also gave a positive impact on the environment. Such policy is important for the environment, because more than 50 % of the total carbon emissions comes from vehicle fuel (Sterner 2007). There have been several researchers during 1990s fuel price, yet, mostly focused on elasticity which is determined to be inelastic for short term. For instance, Goodwin et al. (2004) revised several empirical studies in the meantime from 1990 around the world and stated

findings that an increasing fuel price around 10 % will reduce 1% in vehicle miles travelled and 2.5% in fuel consumption. In addition, the same study also stated that the same percentage of increasing fuel price will produce 1.5% increase in fuel efficiency of vehicles and reduce less than 1% in net vehicle ownership. He assumed that the results of the increasing in fuel price will trigger private vehicles' users for more efficient use of fuel through technical improvements to their vehicles and change their driving behaviour. This evidence explains the reason of why when fuel prices increased, the decreasing number on fuel consumption tends to be larger than the decrease in traffic volume.

Fuel Subsidy

Fossil fuel subsidies are one of the vital policies to policy-makers and public opinion, so it is important to define the policy carefully, where its application contributes directly to climate change. In 2012, the consumption of fossil fuel subsidies around the world alone reached about \$ 544 billion. Granting fuel subsidies also encourage the consumption of fossil fuels and excessive, resulting in billions of tons of carbon emissions per year. The OECD predicted that by removing fuel subsidies by 2020, there will be the reduction in GHG emissions around 10 % by 2050, which could significantly contribute to limit global warming issue (Burniaux & Chateau 2011). Fuel subsidy policy affects the sustainable development policy as spending such amount on fossil-fuel subsidies give lost opportunity for development, in terms of social spending for any other sectors of society (Merrill 2014).

There are several countries successfully implement the reform of fuel subsidy policy, e.g. Brazil, Philippine, and Turkey. Brazil government adopted a gradual approach to eliminating fuel subsidies. Philippines start the liberalization of energy prices as part of a broader deregulation of the energy sector in 1996 with a strong political will, planning, and building an effective consensus. Turkey initiated energy sector deregulation and price liberalization program in the early 1990s (IMF 2013 in Anand et. al 2013).

Fuel Policy in United Kingdom, United States of America, and Australia

In United Kingdom (UK), Goodwin et. al (2004) investigated the price and income elasticity to transport activity. The price effect is estimated to provide a dynamic effect. They predicted that if the real price of fuel rose by 10 % and remained at that level, the traffic volume and the volume of fuel consumption will show the decline both for long-term and short-term. Graham and Glaister (2004) analyze price elasticities and established the result that germination in fuel prices influences more on fuel consumption than on the number of kilometers driven. They argued that people tends to make fewer trips, but travel much shorter distances. In general, the results are suggestions that influencing car use by policy measures is easier than influencing car ownership. Car use react more vigorously and more instantly to prices and is less resistance to change (Dargay 2007).

In Australia, considering Win-Win Transportation Solutions is one of policy strategy, where market changes and increase overall transport system efficiency (Litman 2007), e.g. a carbon tax, mileage-based fare charge, transit and rideshare Improvements, land use development, or walking and cycling improvement. Specifically, carbon tax within increasing fuel tax gradually and predictably is the most efficient energy conservation and emission reduction strategy (Litman 2011). Governments need to conduct a national communications program to make people aware of the effects related to the oil consumption and its impact on reducing the vulnerability of oil (Robinson et. al 2005) Fuel Policy in United States of America (US)

Boomberg (2007) conduct a study in Austin, Texas (United States of America) and investigate about how travelers respond to gas prices spike in September 2005 within a survey of over 500 residents. He examined the responds during and after the spike and found that respondents tend to react by managing their travel as a result of high prices. Boomberg (2007) found that travelers are most likely to respond by reducing their overall driving caused 75% reduction in short-term gasoline demand for the reduction of vehicle miles traveled. Such reduction may be achieved by changing modes, trip chaining, and driving style.

DATA COLLECTION

The primary data of this thesis is obtained from interview survey with questionnaires in order to gather their response toward fuel subsidy removal policy in Jakarta. First, the interview is conducted to worker respondents who owns automobile and motorcycle. This study use e-mail interviews, which are commonly used by researcher as a digital era is spread used today and also employ online interview using social media on Facebook. Using purposive sampling as dominant strategy in qualitative research and to gather in depth information-rich (Patton, 1990), hence, the interview is conducted to 19 persons, with 7 as car users and 12 motorcycle users. Qualitative interviewing utilizes open-ended questions that allow for individual variations, with a list of questions or general topics is made for interview guide or "schedule". The interview is ended with those 19 persons as the emergence of similarities and regularities in data gathered already.

Meanwhile, questionnaire surveys were conducted by online survey in April to May 2014 for workers in Jakarta, altogether, 179 respondents; which are 135 private vehicle users and 44 non-private vehicle users. Data collection was conducted for workers in Jakarta who lives in Jakarta or surrounded city, i.e. Bogor, Tangerang, Bekasi and Depok. Survey with questionnaires is conducted after interviewed done, and the questions will be adaptable based on interview result. The questionnaire survey consists of 26 questions aiming to capture how traveler will response the fuel subsidy removal policy in Jakarta. In addition, there will be three scenarios of how fuel subsidy will be implemented (25%, 50%, or 100% removal) which proposes six stated preference options about how traveler will give a response, and the respondents are asked to rank from 1 to six based on their primary consideration.

EMPIRICAL STUDY

The Overview of Existing Transportation in Jakarta

Transportation problems in Jakarta are getting worse, which is predicted become total gridlock in 2014, if there is no significant action to solve such problem (Susantono et. al 2011). Jakarta has a policy about macro transport master-plan in order to handle transport system and traffic congestion, which is established in the Regional Regulation of Jakarta Province No. 103/2007. This policy is designated to improve the efficiency and effectiveness of mobility, thus, it will simultaneously give a positive impacts, i.e. reducing pollution, operational cost, and improving transportation system. To date, the new Government has renewed the policy and targeted to generate an efficient, integrated, and comprehensive road network and system; thus, 60% (sixty percent) of residents targeted will travel by public transport and increase the average speed of 35 km/hour at minimum. Development of Public Transport in Jakarta becomes one of the purposes of the city government in Jakarta Transportation Master Plan to reduce congestion. Public transport

development in Jakarta Masterplan is divided into several kinds of modes, i.e. BRT TransJakarta, Commuter Line, and MRT/Subway.

Fuel Policy in Indonesia

Fuel subsidy system in Indonesia considered no longer sustainable as such system tends to encourage overconsumption and inefficient use of fuel and contort the efficient allocation of resources that indicate totally different things with sustainable notion (Widodo et. al 2012). State budget for increased spending on energy subsidies in the 2008-2013 timeframe of Rp223 trillion in 2008 and became Rp299, 8 trillion in the revised budget, in 2013. Meanwhile, subsidized fuel volume consumption in recent years tended to increase. Initially in 2008, the realization of subsidized fuel consumption reached 38.2 million kilolitres; in 2012 reached 43.3 million kilolitres, and in 2013 reached 48.0 million kilolitres. Particularly in Jakarta, the use of subsidized fuel up to 3 million kilolitres/year and spend around 12 trillion rupiahs to finance the fuel subsidy. In Indonesia, the state budget for mass transit is still much smaller than the fuel subsidy. Therefore, the fuel subsidy policy encourage people to drive more with their private vehicle, which cause terrible effect in traffic conditions in Jakarta.

RESULTS AND DISCUSSION

Removing Subsidized Fuel matters in Indonesia

From interviews, it was found that they tend to use their private vehicle as a primary mode choice for various reasons, i.e. time efficiency, high mobility, comfortable, cost efficiency, flexibility, good accessibility, and their bad experience using public transport. Similarly with the interview results, the questionnaire survey also shows significant number of respondents that feel their preference choice is because of its time efficiency. Other reasons of their choices in travel modes are also showing a resemblance between interview results, i.e. cost efficiency, comfortable, and safety. And that the average travel time 32.1 minutes and 18,5 % of respondents' travel time is around 11 to 20 minutes. Meanwhile a higher proportion of the respondents in travel cost is between Rp 201.000 – Rp 400.000 each month. Particularly, the reason of bad experience using public transport emerged in interviews, as Public Transport service in their opinion is unreliable, uncomfortable both in bus and shelter, unsafe, unsecure, and costly. According to the respondents, they are not usually using public transport in travel to work. Only 22,2 % of respondents are using Public Transport as their primary choice, while the other only use that for once a month (36,3 %), every 6 months (25,2 %), and never use (16,3 %).

Many issues need to be considered when enhancing links between sustainable public transport policy and fuel policy, especially fuel subsidy removal policy. Fuel policies can obliquely reduce the number of trips of private vehicle users, as the result of making efficiency of fuel expense (Goodwin et. al 2004). The subsidy for those fuel price is progressively grown even bigger by the time and more convoluted state budget, yet, fuel subsidy scheme also discords with sustainable notion (Widodo et. al 2012). Particularly in Jakarta, the use of subsidized fuel up to 3 million kilolitres/year, which is proven from questionnaire survey, it found that 48 % of respondents are using subsidized fuel for the whole consumption. The same evidence is also convinced by interview result, which is 13 persons of 19 interviewee always use subsidized fuel for their private vehicle. There are four reasons explained by respondents of their preference using subsidized fuel. Most

frequent answer of those reasons, about 43%, is cost efficiency offered by such fuel price. Other reasons occurs in the interviews are vehicle specification, no prohibition rule, and the distrust of the government’s policy related to subsidy.

Accordingly, rather than wasting a big portion of National Budget only become wastage at traffic jam in Jakarta, produce more pollution and giving no beneficial through fuel subsidy; Government should reform the budget into other valuable sector, such as public transport improvement. Overall, there are various reasons and suggestions from interview result for implementing fuel subsidy removal, i.e. less restriction of private vehicle ownership tax, decentralized development which can reduce urbanization, and government need to coordinate policies with other regions and institutions.

Being asked about the opinion related to the effectiveness of Fuel Subsidy Removal policy, around 27 percent of respondents are neutral. Even though the equal proportion, around 21,79 %, are choosing “agree” and “disagree”, yet, there is 41,34 % respondents choose ‘agree’ or ‘strongly agree’ with the effectiveness of implementing such policy in Jakarta. Beside the effectiveness opinion, respondents also questioned about expectation of Fuel Subsidy Reform to Public Transport in Jakarta, and it is found about 84,92 % respondents answer with ‘agree’ or ‘strongly agree’ (see Figure 1).

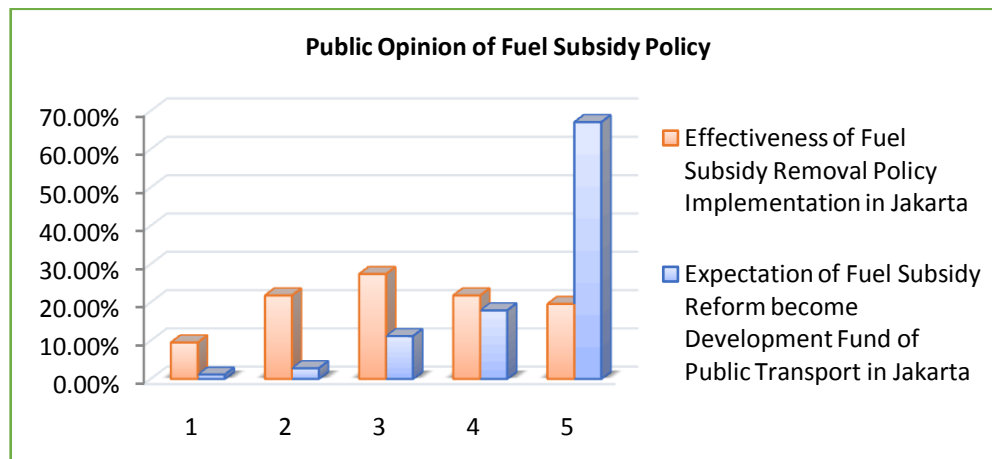


Figure 1 Public Opinion of Fuel Subsidy Policy

Fuel Subsidy Removal policy proposal

The respondents were asked about how often they purchase subsidized fuel for their private vehicle, and found that 48 % of respondents are using subsidized fuel for the whole consumption. Further, the questionnaires are proposing 3 scenarios of Fuel Subsidy Removal policy that are 25 %, 50 % and 100 % removal scenario. The result also found that 50% of the respondents say that they are not affected with such policy in every scenario. Only 5% and 9 % reported responding to scenario of 25 % 50 % removal, while the rest 36 % are treated with scenario of 100 % removal. Meanwhile, the commuter from outside Jakarta area (Bogor, Depok, Tangerang, and Bekasi) are also showing the same pattern; with 43 % of respondents not affected with any scenarios and another 43% are only affected with the full removal of subsidy scenario. Further questions are asked whether to know at what price the respondents will give any response to fuel policy. It found that they are concerned mostly to shift their travel behaviour, only if the price of fuel price are above Rp 10.000/litre. The average rate for fuel price that might be considered to change it is around Rp 31.400 for premium price and Rp 26 300 for IDO each liter.

Another question also asked as the prediction of behavioural response questions addressed transportation related fuel subsidy removal. The behavioural questions were scored on ranking scales from 1 to 6 depends on their consideration of 6 stated preference response options. Regarding to such responses from questionnaire toward Fuel Subsidy Removal, high rank score from respondents is choosing to remain at the current residence, but followed by the changes of their travel mode choices to more efficient private vehicle. Sustainable issue are also mattered, as it comes out from the second highest score is their preferences to shift into sustainable transport, such as using public transport, walking, and cycling (see Figure 2). Similarly, the responses of the commuter from Bogor, Depok, Tangerang, and Bekasi are also showing that they tend to response the fuel policy within change their private vehicles to more fuel efficient fleet.

As some researchers shown strong evidence that gasoline consumption is very affected by the price and income, thus, a cross tab analysis was employed in this thesis by using these two variables. From the analysis using crosstab formula within household's income variable and fuel price preference shows that those with households' income from 2,5 million rupiah, mostly only affected by the price over Rp 10.000/litre. In addition, some respondents with 5 million to 10 million rupiah households' income are mostly affected within third scenario, and some other only response for fuel price around Rp 20.000 to Rp 30.000 per litre. It illustrates that perhaps income might influence their response to fuel policy. Relating to income effects, Godwin et al. (2004) argued that the increasing of income may lead car owners into the car market. In addition the rising income can also affect inefficiency of the use of fuel. Such choices can also raise the numbers of multiple cars per driver (e.g. 'sports' vehicles) in wealthy countries while, in poorer countries/households, it may be more correlated with the first acquisition of cars by non-workers who typically use them less.

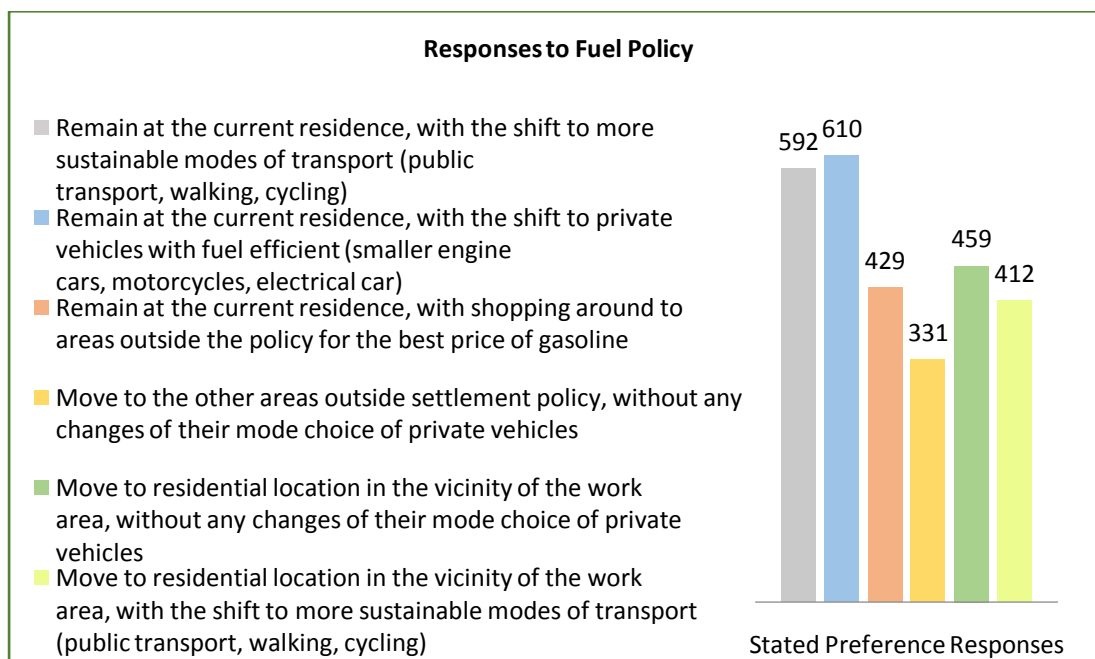


Figure 2 Responses to Fuel Policy

Litman (2011) also found that people's income determines travel behaviour. For example, within the increasing incomes, owning and operating a car becomes affordable. In this thesis, the result shows that fuel subsidy removal policy is not effectively affect those with high income households, thus, this policy will need to be supported by another policy since

most of the travellers still have high income to cover fuel price even without any subsidy on it. For instance, their company should arrange supporting police to force them not driving their private vehicle to the working place. However, as Sterner (2007) stated that this issue makes policy makers hesitate since it only gives politicians a small chance for re-election, thus, they should think carefully and eager to make a good integrated policy.

CONCLUSSION AND MANAGERIAL IMPLICATIONS

Policy makers have to implemented sustainable transport in broader system towards innovations and value configuration within pull measures policy both locally and nationally. by generating transportation planning within sustainable paradigm- Therefore, it should carefully manage and reorganize policy options from locally and nationally. The planning should involve infrastructure, transportation facilities, and coordination with land development. Transport facilities development have to provide a high supply of public transit that is offering safety, reliable, less time-consuming, and cheap; and also better facility in walking and cycling path. Meanwhile, other policies should be considered by the government to create inconvenient policies for car users, such as higher taxes, higher parking cost and limited supply, fewer urban roads, lower speed limits, and traffic calming of neighbourhoods. Higher taxes for fuel can be implemented as a continuation of fuel subsidy removal policy.

Referring to behavioural questions in questionnaire survey, it shows that respondents tend to change their travel mode choices into more efficient private vehicle. Therefore, the government should work hard to improve the welfare of the community, especially to fix most of the transport sector to generate economic value. One effort that can be taken is to allocate transportation subsidies for public transportation, since the fuel subsidy is increasingly burden the national budget. Further, it should also involve coordination with land development. Particularly, improvement for fuel policy can be added higher taxes for fuel to continue fuel subsidy removal policy.

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