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Scope and Concerns

THE DISCIPLINARY WORK OF THE SOCIAL SCIENCES

Each of the sciences of the social is marked by its distinctive disciplinary modes—the thinking practices of Anthropology, Archaeology, Behavioral Sciences, Cognitive Science, Communications, Cultural Studies, Demography, Economics, Education, Geography, Humanities, Law, Management, Media, Politics, Policy Studies, Psychology, Social Welfare, Sociology, to name a some of the principal sciences of the social. The disciplinary variation is so broad that practitioners in some of these areas may not even consider their discipline a 'science', whilst in other disciplines there is a general consensus about the scientific character of their endeavor.

What is a discipline? Disciplines represent fields of deep and detailed content knowledge, communities of professional practice, forms of discourse (of fine and precise semantic distinction and technicality), areas of work (types of organization or divisions within organizations such as academic departments or research organizations), domains of publication and public communication, sites of common learning, shared experiences of apprenticeship into disciplinary community, methods of reading and analysing the world, ways of thinking or epistemic frames, even ways of acting and types of person. 'Discipline' delineates the boundaries of intellectual community, the distinctive practices and methodologies of particular areas of rigorous and concentrated intellectual effort, and the varying frames of reference used to interpret the world.

And what is a science? Some of the studies of the social habitually and comfortably call themselves 'sciences', but others do not. The English word 'science' derives from the Latin 'sciens', or knowing. Return to the expansiveness of this root, and studies of the human could lay equally legitimate claim to that word.

'Science' in this broadest of senses implies and intensity of focus and a concentration of intellectual energies greater than that of ordinary, everyday, commonsense or lay 'knowing'. It is more work and harder work. It relies on the ritualistic rigors and accumulated wisdoms of disciplinary practices.

These are some of the out-of-the-ordinary knowledge processes that might justify use of the word 'science', not only in the social sciences but also in the natural, physical, mathematical and applied sciences:

Science has an experiential basis. This experience may be based direct personal intuition of the already-known, on interests integral to the lifeworld, on the richness of life fully lived. Or it might be experience gained when we move into new and potentially strange terrains, deploying the empirical processes of methodical observation or systematic experimentation.

Science is conceptual. It has a categorical frame of reference based on higher levels of semantic precision and regularity than everyday discourse. On this foundation, it connects concept to concept into schemas. This is how science builds theories which model the world.

Science is analytical. It develops frames of reasoning and explanation: logic, inference, prediction, hypothesis, induction, deduction. And it sees the world through an always cautiously critical eye, interrogating the interests, motives and ethics that may motivate knowledge claims and subjecting epistemic assumptions to an ever-vigilant process of metacognitive reflection.

Science is application-oriented. It can be used to do things in the world. In these endeavors, it may be pragmatic, designing and implementing practical solutions within larger frames of reference and achieving technical and instrumental outcomes. Or it may be transformative—redesigning paradigms, social being and even the conditions of the natural world. What, after all, is the purpose of knowing other than to have an effect on the world, directly or indirectly?

Science can be any or all of these experiential, conceptual, analytical and applied things. Some disciplines may prioritize one or other of these knowledge processes, and this may be the

source of their strength as well as potential weakness. In any event, these are the kinds of things we do in order to know in the out-of-the-ordinary ways worthy of the name 'science'.

The Social Sciences conference, journals, book series and online media provide a space to discuss these varied disciplinary practices, and examine examples of these practices in action. In this respect, their concern is to define and exemplify disciplinarity. They foster conversations which range from the broad and speculative to the microcosmic and empirical.

THE INTERDISCIPLINARY WORK OF THE SOCIAL AND OTHER SCIENCES

Interdisciplinary, transdisciplinary or multidisciplinary work crosses disciplinary boundaries. This may be for pragmatic reasons, in order to see and do things that can't be seen or done adequately within the substantive and methodological confines of a discipline. Broader views may prove to be more powerful than narrower ones, and even the more finely grained within-discipline views may prove all-the-more powerful when contextualized broadly. The deeper perspectives of the discipline may need to be balanced with and measured against the broader perspectives of interdisciplinarity.

Interdisciplinary approaches may also be applied for reasons of principle, to disrupt the habitual narrowness or outlook of within-discipline knowledge work, to challenge the ingrained, discipline-bound ways of thinking that produce occlusion as well as insight. If the knowable universe is a unity, discipline is a loss as well as a gain, and interdisciplinarity may in part recover that loss.

Interdisciplinary approaches also thrive at the interface of disciplinary and lay understandings. Here, interdisciplinarity is needed for the practical application of disciplined understandings to the actually existing world. Robust applied knowledge demands an interdisciplinary holism. A broad epistemological engagement is required simply to be able to deal with the complex contingencies of a really-integrated universe.

The Social Sciences conference, journals, book series and online media are spaces in which to discuss these varied interdisciplinary practices, and to showcase these practices in action across and between the social, natural and applied sciences.

WAYS OF SEEING, WAYS OF THINKING, AND WAYS OF KNOWING

What are the distinctive modes of the social, natural and applied sciences? What are their similarities and differences?

In English (but not some other languages), 'science' suffers a peculiar semantic narrowing. It seems to apply more comfortably to the natural world, and only by analogy to some of the more systematic and empirically-based of the human sciences. It connotes a sometimes narrow kind of systematicity: the canons of empirical method; an often less-than reflective acceptance of received theoretical categories and paradigms; formal reasoning disengaged from human and natural consequences; technical control without adequate ethical reflection; an elision of means and ends; narrow functionalism, instrumentalism and techno-rationalism; a pragmatism to the neglect broader view of consequences; and conservative risk aversion. These are some of the occupational hazards of activities that name themselves sciences—social, natural or applied. In studying the social setting, however, it's not good enough just to have a rigorous empirical methodology without a critical eye to alternative interests and paradigmatic frames of reference, and without a view to the human-transformational potentials of knowledge work.

Humanistic methodologies sometimes address the social in a deliberate counterpoint to science, distancing themselves from the perceived narrownesses of scientific method. This move, however, may at times leave science stranded, separated from its social origins and ends. The natural and technological sciences are themselves more subject to contestation around axes of human interest than the narrow understanding of science seems to be able to comprehend. Whether it be bioethics, or climate change, or the debates around Darwinism and Intelligent Design, or the semantics of computer systems, questions of politics and ideology are bound closely to the ostensible evidence. Faux empiricism is less than adequate to the address the more important questions, even in the natural and technological sciences. Science can be found lacking when it is disengaged from the humanistic.

The humanistic, however, has its own occupational hazards: disengaged critique and supercilious inaction without design responsibility; political confrontation without systematic empirical foundation; ideological fractiousness without apparent need for compromise; the agnostic relativism of lived experience and identity-driven voice; voluntarism that leads to a naive lack of pragmatism and failure in application.

A reconstructive view of the social, natural and applied sciences would be holistic, attempting always to avoid the occlusions of narrow methodological approaches. It would also be ambitious, intellectually and practically.

In this context, the Social Sciences conference, group of journals, book Imprint, and online media pursue two aspirations, two openings. The first is an intellectual opening, founded on an agenda designed to strengthen the theories, the research methodologies, the epistemologies and the practices of teaching and learning about the social world and the relation of the social to the natural world.

The second opening is pragmatic and inventive. All intellectual work is an act of imagination. At its best, it is ambitious, risky and transformative. If the natural sciences can have human ambitions as big as those of the medical sciences—the fight against MS or cancer or Alzheimer's, for instance—then the social sciences can have ambitions as large as to settle the relation of humans to the natural environment, the material conditions of human equality and the character of the future person.

Table of Contents

The International Journal of Interdisciplinary Environmental Studies
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COMMON GROUND

The Impact of Diverting a Fuel Subsidy to the Agricultural Sector on Income Distribution and Poverty

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Abstract: Fuel subsidy is one of the various programs and measures undertaken by the government to alleviate poverty and at the same time to promote growth. As a result of a continuous increase in crude oil price at international levels, the burden of fuel subsidy on the government has become bigger. Thus, the government tries to reduce fuel subsidy gradually. The immediate impact of a reduction in fuel subsidy is an increase in the price of fuel at the retail level. Then, there is a chain effect of an increase in price of fuel to the price of other goods and services. The end result is a decrease in purchasing power of the general consumer. To overcome this problem, the government introduces a direct transfer of payment to poor households, but this compensation is too small to counter the increase in the general price level. At the same time, it is found that this program has a negative impact on macro-economic performance and an increase in poverty, income disparity, and the depth of poverty. As an alternative to the direct cash aid to poor households, the government may transfer fuel subsidy to the agricultural sector. The purpose of this study is to analyze the impact of the diversion of fuel subsidy to the non-food crops in the agricultural sector on income and the poverty in Indonesia. This study employs a Computable General Equilibrium (CGE) model. The Foster-Greer-Thorbecke (FGT) index is used to measure various poverty indicators, such as head count, poverty gap and poverty severity indices. The households are classified into four categories; urban non-poor, urban poor, rural non-poor, and rural poor. Our simulation results show that diverting fuel subsidy by a certain percentage to non-food crops is able to increase households' income, thus reducing poverty.

Keywords: Fuel Subsidy, Direct Cash Aid, Poverty, Agricultural Sector

Introduction

An increase in the price of fuel has an impact on its consumption, as well as on the consumption of other goods and services, either directly or indirectly. There is a chain effect of an increase in the price of fuel to the price of other goods and services. As a result, real income of the general population and poverty are affected. To protect the welfare of the poor and those who are slightly above the poverty line, the government needs to intervene against an increase in the price of fuel by providing various types of subsidy. The drastic and continuous increase in the world oil price since 2008 (FAO, 2008; Reyes, et al., 2009) and the shift of Indonesia's position from net exporter to net importer of oil and fuel continue the growing need to finance the subsidies. Table 1 shows the amount of the energy subsidy in the national budget. In 2005, the total energy subsidy was Rp104.5 trillion, where out of that, 95.5 percent (Rp95.6 trillion) was fuel subsidy. These figures increased to Rp223.0 trillion for total energy subsidy, while the portion of fuel subsidy was Rp139.1 trillion in 2008. Through these figures, it is clearly shown that the energy subsidy contributed to the government's budget deficit. At the same time, some people believe that the fuel subsidy fails to hit the intended beneficiary, i.e. the poor. The rich gets the benefit of fuel subsidy more than the poor. To ease the burden on the budget, the government has taken various fiscal policy measures such as reducing the fuel subsidy gradually, as per the Presidential Decree No. 55/2005. Consequently, there will no longer be fuel subsidy, though the time is yet to be decided (World Bank, 2005). It is expected that without fuel subsidy, the price will increase, which will also trigger an increase in the price

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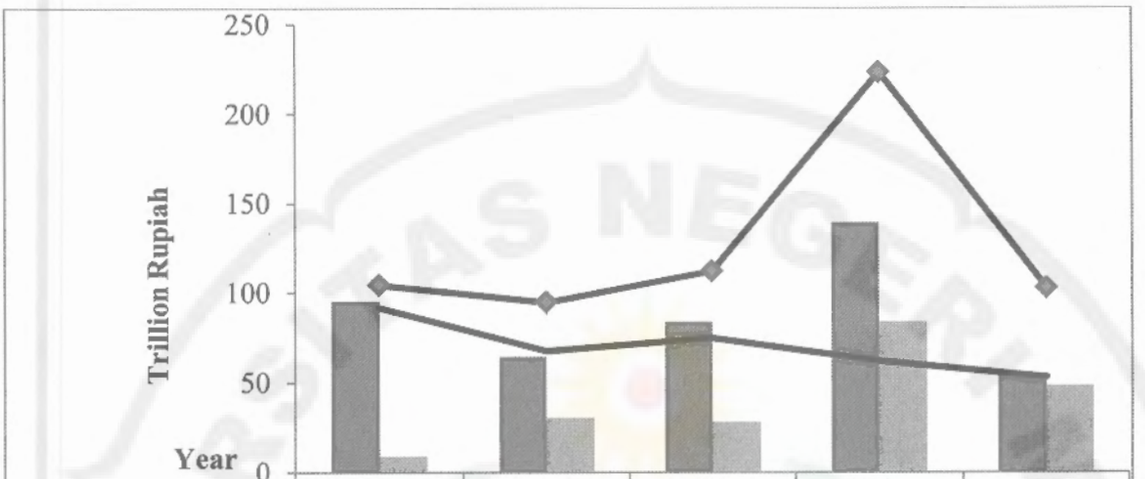
of other goods and service, thus increase the inflation. The general public's purchasing power will be eroded, resulting in an increase in poverty.



	2005	2006	2007	2008	2009
Fuel	95.5985	64.2121	83.7923	139.1067	54.3001
Electricity	8.8506	30.3933	28.0735	83.9065	48.1616
Energy (Total)	104.4491	94.6054	111.8658	223.0132	102.4617
% Fuel	91.53	67.87	74.90	62.38	53.00

Figure 1: Burden of Energy Subsidy (Fuel and Electricity) in National Budget
Source: DEPKEU-RI, 2010

Poverty is still a crucial issue and a very complex phenomenon for any country (Hung & Makdissi, 2004; Marianti & Munawar, 2006). Poverty alleviation has become a major goal of public policy in almost all industrial societies (Moller et al, 2003) so the government in each country seeks to reduce the problem through fiscal instruments.

Reducing fuel subsidy gradually until it reaches zero percent is expected to give a big detrimental impact on a society, where the poor becomes poorer, even when it is good to reduce the budget deficit. However, what happens if fuel subsidy is reduced gradually and the "saving" is used to subsidize the agricultural sector? Thus, the aim of this study is to determine the impact of the transfer of fuel subsidy to the plantation crops sub-sector and to analyze its impact on the level of income and poverty in Indonesia. In 2009, a total of 41.6 million (39.7 percent) of the 104.9 million workers were in the agricultural sector.

The reasons underlying the selection of the agricultural sector are (1) most poor populations are found in rural areas and rely on the agricultural sector, (2) Indonesia's experience during the monetary crisis in 1998 showed that the agricultural sector is one of the few sectors that remained resilient during the crisis, (3) the agricultural sector provides food and raw material for industrial and service sectors, (4) labor absorption in the agricultural sector is relatively flexible, so that agriculture can be seen as a safety net (survival sector) during an emergency (Bautista, 2000; Maipita, 2011; Maipita, et al, 2010; Stringer, 2001). Suselo and Tarsidin (2008) found that the agricultural sectors have relatively high poverty rates and also relatively high elasticity of poverty with respect to economic growth. The new paradigm of agricultural development in Indonesia is agricultural demand-led industrialization: an industrialization strategy that focused on the development programs in the sectors since it is considered an appropriate policy for a developing country (Susilowati, 2008).

A subsidy aims to increase national output and demand for goods and services. It is expected that a subsidy enhances productivity and maintains economic stability, especially the price stability. A subsidy is a payment by the government to a household or firm to achieve a specific goal. Through the subsidy, basic goods and services for a society are expected to be available in sufficient quantity and at a stable and affordable price (Handoko & Patriadi, 2005; Kasiyati, 2010; Norton, 2004). For a firm, a subsidy enables it to produce either in a larger quantity or at a cheaper price than it could without a subsidy. For a household, a subsidy makes them able to consume a bigger quantity at a lower price than without a subsidy. Thus, the objective of a subsidy is to either reduce the price or to increase the quantity of production and consumption. A subsidy can be in the form of a transfer of payment, such as food stamps and housing subsidies, or in the form of an input and price subsidy such as in the agricultural sector (Eriksson, et al, 1998). A subsidy also can be in the form of goods and services provided by the government for a certain quantity for free or at a price lower than the prevailing market price (Handoko & Patriadi, 2005).

In a developing country, a subsidy is a significant fiscal instrument to boost productivity and improve people's welfare (Norton, 2004). A subsidy is an efficient form of government transfer, used as a mean to redistribute wealth among the citizens, as well as between producers and consumers. This is the fundamental importance of a subsidy, where we can see that even developed countries use a subsidy instrument to support the private sector. From the institutional side, lower taxes and an increase in a subsidy increase income and the purchasing power of households. An increase in income could support greater household's consumption (Simorangkir & Adamanti, 2010). A negative effect of a subsidy can be an inefficient allocation of goods and services if consumers pay a lower price than the market price, as there is a tendency for the consumers not to be thrifty in consuming subsidized goods. In addition, since the subsidized price is lower than the opportunity cost, the use of resources to produce the goods can be wasted. A subsidy that is not transparent and not well-targeted may cause price distortions, inefficiency and not to be enjoyed by the intended recipients (Basri, 2002).

The organization of the rest of this paper is as follows: Section II offers the methodology and data. Section III discusses the results of the simulations of various policies. This is followed by the concluding remarks in Section IV.

Methodology and Data

To achieve the aim of this study, we constructed a Computable General Equilibrium (CGE) model called AGEFIS+. This model is an extension of the AGEFIS CGE model constructed by the Fiscal Policy Office, Ministry of Finance of the Republic of Indonesia in cooperation with the Center for Economics and Development Studies, University of Padjadjaran, Indonesia (BKFDK-RI, 2008a; 2008b). In general, the structure of this model follows the AGEFIS model developed by Yusuf, et al (2008).

The data used in this study is extracted from the Social Accounting Matrix (SAM) of Indonesia for 2005 and the data of poverty indicators in 2005. The Indonesian SAM data are aggregated to 47 x 47 sectors as described below. The aggregated production factors consist of capital, labor and intermediate inputs. There are three institutions – households, firms, and governments – as per Indonesian SAM 2005. For the purpose of the analysis, the households in SAM table are aggregated into four groups, consisting of (1) urban non-poor, (2) urban poor, (3) rural non-poor, and (4) rural poor households. The production sector consists of 27 sub-sectors aggregated from the production sector in SAM table. The grouping of the production sector is based on the Indonesian Standard Industrial Classification (KLU). The agricultural sector is divided into two sub-sectors, i.e. the food crops and other crops. The main food crops are rice, corn, cassava and soybean and most of these crops are planted on subsistence basis and for domestic consumption. Other crops sub-sector consists of plantation crops, such as oil palm and

rubber, which are mostly for exports. Also, classified under other crops are sugarcane, tobacco, fiber crops for textile, medicinal and pharmaceutical crops, coconut, and beverage and spices crops.

Policy simulations are conducted based on the transfer of fuel subsidy to other crops (plantation crops) sub-sector. Since the government reduces the fuel subsidy in stages, each simulation is done to reflect the percentage of reduction in fuel subsidy by the government. Simulation 1 is a 12.5 percent reduction in fuel subsidy and the same amount saved by the government is transferred to the plantation crops sub-sector. Simulation 2 consists of a 43.2 percent reduction in fuel subsidy that is transferred to the plantation crops sub-sector. And, simulation 3 is the abolition of fuel subsidy and the same amount of saving is transferred to the plantation crops. This subsidy can be either in the forms of input subsidy or price subsidy. It is assumed that the transaction costs and the efficiency of the government bureaucracy in implementing the fuel subsidy and agricultural subsidy remain the same.

The structures of the production function, such as Leontief, Cobb-Douglas, and constant elasticity of substitution (CES), are used to determine the relationship between inputs, outputs and their elasticities. The coefficients of the elasticity can be estimated or they can be gathered from previous studies that are comparable to this current study. The types and values of the elasticity of the parameters used in this study follow the AGEFIS database. The elasticities of the parameter are (1) the Armington elasticity that has a value of two and it is equal across sectors, (2) the factor of production elasticity that has a value of 0.5 and it is equal across sectors, and (3) the expenditure elasticity that has a value of five and it is equal across sectors.

The magnitude of the impact of the policy simulations on the level of household income is estimated using the CGE model. To analyze the impact of the policy simulations on poverty, this study employs the Foster-Greer-Thorbecke (FGT) Index as suggested by Kakwani, Khandker, and Son (2004). If the average income of the household is increased by ψ, then the income of each household in a group should also increase by ψ. Following this rule, the distribution of income is shifted horizontally in proportion to an increase in income. This rule allows us to compare poverty rate before and after the policy simulation. The FGT equation is presented in equation (1) below:

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left[\frac{g_i}{z}\right]^\alpha ; \alpha \geq 0 ; \; g_i = \frac{Z - y_i}{Z} \qquad (1)$$

where y_i is the average income or the average expenditure of the poor, n is the number of individuals or households in the population, q is the number of individuals or households who live below poverty line, g_i is the poverty gap of i^{th} household, z is the poverty line, P_α is the FGT poverty index α that is an arbitrary number. When α equals zero, then P_0 is the head count index that shows the proportion of population below the poverty line. Head count index is defined as the percentage of poor population to total population. When α equals one, then we get P_1 index. This index is called the poverty gap index and it is used to measure the depth of poverty or the poverty gap or the degree of inequality of poverty. This index describes the average size of inequality in expenditure of the poor compared to the poverty line or a total gap of all households in the group compared to the poverty line. When α is equal to two, then the P_2 index is obtained and this index is used to measure the level of the poverty severity index. The value of g_i is equals to zero if $y_i > z$.

The equations in the model are grouped into seven categories, namely: (1) domestic-import sourcing, i.e. the equations related to the composition of demand according to the origin of the goods; either domestically produced or imported goods based on the Armington specification, (2) purchaser's price, i.e. the equations that link between producer's price or international price to the buyer's price, (3) demand for a commodity, i.e. the equations that relate the demand for goods by various users, (4) the production sector that shows the equations related to the

production of both goods and services, (5) market clearing that shows the equations related to the market clearing in which the supply of and the demand for goods and services are equal, as well as those of factors of production, (6) institution contains the equations related to earnings or income and expenditure of the institution such as households, governments, firms, and flows of income (expenditure) from (to) foreign countries, and (7) Closure (BKFDK-RI, 2008a). Conventionally, in a CGE model, the number of equations has to be equaled to the number of exogenous variables. If they are not equal, then a closure is used to cover this deficiency. A closure is either a short run or a long run closure.

Economic actors seek to optimize the composition of imported and domestically produced goods and services by minimizing the costs subject to constraint as shown by the CES aggregation function in equation (2) below:

$$Minimize: \sum_{s} PQ(c,s).XD(c,s) \text{ subject to the constraint of}$$

$$XD\_S(c) = CES(XD(c,s)|\sigma(c)) = \left(\alpha(c,s) \sum_{s} \delta(c,s)^{-\rho(c)} \right)^{-\frac{1}{\rho(c)}} \quad (2)$$

where $PQ(c,s)$ is the consumer price for commodity c by source s, $XD(c,s)$ is the demand for commodity c, from source s, $XD\_S(c)$ is the demand for a composite commodity, $\alpha(c,s)$ is the economics of scale, and $\delta(c,s)$ is the elasticity of substitution of commodity c, from course s.

The price that is received by the consumer is the net price after taxes and subsidies. Therefore, the price received by the consumer can be written as equation (3). Equation (3) is in the level form.

$$PQ(c,"dom") = (1 + TX(c) - SC(c)).PTOT(c) \quad (3)$$

where $PQ(c,"dom")$ is domestic price of each commodity, c, received by the consumer, $TX(c)$ is taxes levied on each commodity c, $SC(c)$ is subsidy received for each commodity c, and $PTOT(c)$ is the price of each commodity, c, received by the consumer. Since domestic price is associated to the international price, tariffs and exchange rates, the equation for the domestic price for each imported commodity is shown in equation (4).

$$PQ(c,"imp") = EXR.(1 + tm(c)).PFIMP(c) \quad (4)$$

where $PQ(c,"imp")$ is the domestic price for each imported commodity c, EXR is the exchange rate, $tm(c)$ is the import tariffs for each commodity c, and $PFIMP(c)$ is the import price for each commodity c.

The demand for each commodity is obtained by the minimization of cost with a constrained Leontief production function as below

$$\min: PPRIM(i).XPRIM(i) + \sum_{c} PQ\_S(c).XINT\_S(c,i) \text{ subject to}$$

$$XTOT(i) = \frac{1}{ATOT(i)}.MIN\left[all, c, com: \frac{XINT\_S(c,i)}{AINT(c,i)}, \frac{XPRIM(i)}{APRIM(i)} \right] \quad (5)$$

Whereas equation for its intermediate goods becomes

$$\frac{XINT\_S(c,i)}{ATOT(i)} = XTOT(i) \quad (6)$$

where $PPRIM(i)$ is the price of composite primary factor by industry, $XPRIM(i)$ is the demand of composite primary factor by industry, $XINT\_S(c,i)$ is the demand for commodity by industry, $XTOT(i)$ is the output or supply of commodity, $ATOT(i)$ is the technical change of all factors, and $APRIM(i)$ is the Armington elasticity.

The total demand for composite goods is written in equation (7).

$$XD\_S(c) = sum(i, XINT\_S(c,i) + XHOU\_S(c) + XG\_S(c) + XINV\_S(c) \quad (7)$$

where $XD\_S(c)$ is the total demand for good c, $XINT\_S(c)$ is the total industrial demand for good c, $XHOU\_S(c)$ is the total household demand for goods c, $XG\_S(c)$ is the total government demand for goods c, and $XINV\_S(c)$ is the total demand of goods c for investment.

The demand equation for the factor of production is derived by cost minimization subject to the constraint of the CES production function.

$$\min : \sum_f WDIST(f,i).PFAC(f).XFAC(f,i) \qquad \text{subject to}$$

$$XPRIM(i) = \left[\sum_f \delta_f \left(\frac{XFAC(f,i)}{AFAC(f,i)} \right)^{-\rho} \right]^{-\frac{1}{\rho}} \quad (8)$$

where $XFAC(f,i)$ is the demand for factor f by industry i, $PFAC(f)$ is the price of factor of production f, $WDIST(f,i)$ is the distortion premium for factor f in industry i, and $XPRIM(i)$ is the total value added.

In a market clearing situation, the total output or supply of a commodity and the total demand for goods are equal. The demand for goods consists of the demand for the domestically produced goods and the demand for the export goods. At this level, the supply of a commodity can be written as equation (9).

$$XTOT(c) = XD(c,"dom") + XEXP(c) \quad (9)$$

where *XTOT(c)* is the total output of commodity c, *XD(c,"dom")* is the total domestic demand for commodity c, and *XEXP(c)* is the exports demand for commodity c.

Results and Discussions

The summary statistics of the four groups of household are presented in Table 1. The variation in the maximum income of the household groups ranges from Rp117,259 per month for the rural poor, to Rp38,213,000 per month for urban non-poor households. The variation in the minimum income ranges from Rp23,456 per month for the urban poor to Rp151,345 per month for the urban non-poor. The lowest average monthly income for the rural poor is Rp94,673. It is found that 54.62 percent of the total income is received by the urban non-poor, but this group of household consists only 32.73 percent of the total population. The rural non-poor received 42.84 percent of the total income, but represent 50.80 percent of the total population. The rural poor gains 1.68 percent of the total income, but they consist of 11.77 percent of the population. The urban poor consisted of 4.71 percent of the total population and received only 0.86 percent of the total income.

Table 1: The Income Distribution by Household Groups

Household	Income (Rp/Month)					Population	
	Mean	Max	Min	Total (000)	%	N	%
Urban non-poor	1,108,536	38,213,000	151,345	93,562,688	54.62	84,402	32.73
Urban poor	121,908	150,797	23,456	1,479,600	0.86	12,137	4.71
Rural non-poor	560,245	16,605,113	117,267	73,395,415	42.84	131,006	50.80
Rural poor	94,673	117,259	27,262	2,872,952	1.68	30,346	11.77
Total				171,310,655	100.00	257,891	100.00

Source: Central Bureau of Statistics

The Impact of Policy Scenarios of the Transfer of Fuel Subsidy to the Plantation Crops Sub-sector

As mentioned earlier, other crops sub-sectors consist of plantation crops such as oil palm and rubber. These are major exports crops for Indonesia. Indonesia is the world's largest oil palm producer and the second largest rubber producer. Plantation crops provide a large amount of employment, either directly or indirectly. It is a well known fact that the production activity of the plantation crops sub-sector is taking place mostly in rural areas while some other upstream and downstream activities of this sub-sector are in urban areas. Cutting the fuel subsidy by a certain percentage and channeling the savings to this sub-sector shows interesting results on the levels of income of the four groups of households, as presented in Table 2. It is found that all groups realize an increase in their income. These findings may be attributed to the fact that most households in each group rely on these plantation crops, either as a worker, land owner, supplier of inputs, buyer of outputs, and other downstream and upstream activities related to these crops. The results show that rural households realize a larger increase in income compared to those of the households in the urban area. It is also found that the greater the transfer of fuel subsidy to the plantation crops sub-sector, the greater the increase in income levels experienced by each households group.

Table 2: Simulation Results: The Transfer of Fuel Subsidy to the Plantation Crops Sub-sector on Household Income Levels

Household	Percentage Change		
	Simulation 1	Simulation 2	Simulation 3
Urban non-poor	0.4674	1.2544	16.7885
Urban poor	0.3224	0.5230	11.7780
Rural non-poor	0.5709	1.8104	20.5742
Rural poor	0.4589	1.3746	17.4994

Notes: Simulation 1: transfer of fuel subsidy by 12.35%;
Simulation 2: transfer of fuel subsidy by 43.2%;
Simulation 3: transfer of fuel subsidy by 100%.

Table 3 reveals the results of the simulations of transferring 12.35 percent of fuel subsidy to the plantation crops sub-sector on poverty. It is found that this policy is able to increase the level of income for all household groups and at the same time this policy is able to alleviate poverty, especially for the poor who are placed slightly below the poverty line.

Table 3: The Impact of Policy Simulation: Transfer of Fuel Subsidy to the Plantation Crops Sub-sector by 12.35 Percent On Poverty

FGT Index	Baseline			Simulation 1			Percentage Change		
	α =0	α =1	α =2	α =0	α =1	α =2	α =0	α =1	α =2
Urban non-poor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Urban poor	1.0000	0.1916	0.0577	0.9839	0.1890	0.0568	-1.6100	-1.3569	-1.5598
Rural non-poor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Rural poor	1.0000	0.1926	0.0620	0.9782	0.1890	0.0608	-2.1800	-1.8692	-1.9355

The transfer of fuel subsidy by 12.35 percent was able to reduce the number of rural poor by 2.18 percent and those in urban area by 1.61 percent. The transfer of fuel subsidy by 43.2 percent was able to reduce poverty of the urban and rural poor by 2.35 percent and 6.45 percent respectively, as shown in Table 4. The higher the percentage of the transfer of fuel subsidy to other crops sub-sector, the greater the percentage of poverty reduction. It is interesting to note that if the government abolishes, i.e. reduced the fuel subsidy by 100 percent, and uses the savings to subsidize other crop sub-sectors, the number of urban poor is reduced by 35.57 percent. At the same time the rural poor households are reduced by 48.40 percent, as shown in Table 5.

Table 4: The Impact of Policy Simulation: Transfer of Fuel Subsidy to the Plantation Crops Sub-sector by 43.2 Percent on Poverty

FGT Index	Baseline			Simulation 2			Percentage Change		
	α =0	α =1	α =2	α =0	α =1	α =2	α =0	α =1	α =2
Urban non-poor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Urban poor	1.0000	0.1916	0.0577	0.9765	0.1874	0.0563	-2.3500	-2.1921	-2.4263
Rural non-poor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Rural poor	1.0000	0.1926	0.0620	0.9355	0.1820	0.0586	-6.4500	-5.5036	-5.4839

Table 5: The Impact of Policy Simulation: Transfer of Fuel Subsidy to the Plantation Crops Sub-sector by 100 Percent on Poverty

FGT Index	Baseline			Simulation 3			Percentage Change		
	α =0	α =1	α =2	α =0	α =1	α =2	α =0	α =1	α =2
Urban non-poor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Urban poor	1.0000	0.1916	0.0577	0.6443	0.1191	0.0336	-35.570	-37.839	-41.768
Rural non-poor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Rural poor	1.0000	0.1926	0.0620	0.5160	0.1007	0.0308	-48.400	-47.716	-50.323

An increase in household income can be attributed to the ability of this sub-sector to generate much employment. Several studies show that employment is the key to poverty alleviation, and thus reducing income inequality (for example, see Bluestone and Harrison, 2000). If there is someone in a household who works for money, it is most unlikely that household is poor (Hills 2004; Lohmann 2009).

The results of the simulations reveal that diversion of fuel subsidy to the agricultural sector has a greater impact on poverty reduction among rural households compared to those of urban households. It is believed that the rural community has greater access to other crop sub-sectors, such as land ownership, supply of labor, and control of inputs, compared to those of urban people. Thus, the rural poor would have a relatively higher increase in income. Furthermore, the rural economic structure is simple, and it is relatively easy to find a job in the rural areas, so the impact of a reduction in fuel subsidy is less stressful to rural folks than those in urban communities.

It is also found that a reduction and/or the removal of the fuel subsidy and the transfer of the money saved to subsidize other crop sub-sectors would reduce poverty incidences for all household groups. Thus, if the goal of the government is to lighten the burden of a fuel subsidy payment and at the same time reduce poverty, then the subsidy to other crops is feasible. These findings support Abimanyu (2000), who found that the agricultural sector provides great benefits, in terms of job opportunities and income creations, to the society. The Lembaga Penelitian IPB (2002) found that a model for agricultural development called Agricultural Based Development is able to spur high economic growth. This is in support to an earlier work by Arndt, et al (1998) and Ravallion and Datt (1999) who found that the development of the agricultural sector is able to reduce poverty and income inequality. Although the growth in the manufacturing sector is important for the overall growth of a country, but the growth in the agricultural sector is very important for employment and poverty reduction. Bigsten and Levin (2000) suggested several strategic elements that are able to reduce poverty, among others are an outward-oriented strategy for export-led economic growth for labor intensive manufacturing, and agricultural and rural development programs. Bautista (2001), Jansen and Tarp (2004), and Susilowati (2008), argued that the concept of agricultural demand-led industrialization, in addition to improving macroeconomic performance, also plays a role in reducing income inequality and poverty among rural households. Suselo and Tarsidin (2008) concluded that the most appropriate measure to reduce poverty is to give more attention to agricultural sector, such as plantation, and fisheries sub-sectors.

Concluding Remarks

This study found that reducing fuel subsidy and at the same time channeling the amount saved into the plantation crops sub-sector would increase the amount of income for all groups of

households, but the rural poor has greater positive impact compared to those of the urban poor. The rural poor is the poorest households group in Indonesia. The larger the reduction in the fuel subsidy, with the same amount saved transferred to plantation crops sub-sector, the bigger the positive impact in reducing poverty. However, this study assumes that the transaction cost and the level of government bureaucracy remain the same in implementing fuel and agricultural subsidies. The policy to transfer fuel subsidy to the plantation crops may be implemented as an alternative measure to reduce poverty.

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