

Impacts of in-kind transfer to household's budget proportion: Evidence from early reformation in Indonesia

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ABSTRACT

The program distributing rice for reducing poverty for poor household (also known as Raskin) is one of social safety net programs in Indonesian's government with its subsidized rice to the poor. The purpose of this program is to lessen the financial burden of the targeted households and increase food sustainability at the household level. This paper's aim is to investigate how the effect of in-kind transfer towards the Raskin program over the household's budgets proportion. This study used Indonesia Family Life Survey (IFLS) data wave 3 (2000) and wave 4 (2007), with the households level as unit analysis. Estimation strategy is applying regression with data panel in fixed effect model (FEM) and instrumental variable (IV). The result shows that the in-kind transfer program is not work for lessening the household's burden, but in fact has increased the household expenditure, particularly for buying some food. It was found that during the program implementation, there was a significant increase in informal labor wages in Indonesia. Therefore, for typical household who experiencing higher wage income relatives to rice expenditure, will result in total budgets for rice will also increase significantly. In this case, we could conclude that rice is still being normal goods for Indonesia..

ABSTRAK

Program Raskin (Beras untuk Rumah Tangga Miskin) adalah salah satu program jaring pengaman sosial dari pemerintah Indonesia dalam bentuk subsidi pangan (beras) yang diberikan kepada masyarakat miskin. Program ini bertujuan untuk mengurangi beban pengeluaran rumah tangga sasaran, agar terjadi peningkatan ketahanan pangan pada rumah tangga tersebut. Paper ini bertujuan untuk mengetahui dampak dari in-kind transfer dalam bentuk program Raskin terhadap proporsi pengeluaran rumah tangga. Dengan menggunakan data dari Indonesia Family Life Survey (IFLS) gelombang 3 (2000) dan 4 (2007) pada unit analisis level rumah tangga, model estimasi yang digunakan adalah regresi data panel dengan fixed effect model (FEM) dan instrumental variable (IV). Hasil yang diperoleh menunjukkan bahwa masyarakat yang menerima program in-kind transfer dari pemerintah berupa keringanan dalam pembelian beras, menyebabkan proporsi pengeluaran rumah tangga bertambah, terutama untuk pangan. Selain itu, hasil penelitian juga menemukan bahwa selama pelaksanaan program, ada peningkatan upada tenaga kerja informal di Indonesia secara signifikan. Hal ini bermakna bahwa peningkatan pendapatan relatif terhadap pengeluaran beras yang menyebabkan rasio pengeluaran total pada makanan meningkat. Dengan demikian, dapat dikatakan bahwa komoditi beras masih merupakan barang normal untuk masyarakat di Indonesia.

1. INTRODUCTION

Social safety net program can be divided into two aspects, i.e. conditional and unconditional (Ruelle & Rockmore 2011). Conditional type is long-term programs which aim to help targeted households belonging to the above poverty line. Some social safety net programs in Indonesia are conditional. This in-

cludes Bantuan Operasional Sekolah (BOS) and Program Keluarga Harapan (PKH). Other social safety net programs that are unconditional such as, cash transfer (Bantuan Langsung Tunai/BLT) and rice grant for the poor program (Beras untuk Keluarga Miskin/Raskin).

Regarding the social safety net program, there

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are two arguments about type of transfers. Firstly, it is as alternative choices and secondly just as a complementary program to overcome some issues on the level of those receiving the benefits (Gentilini 2007). Considering a complementary argument, Economist used to analyze based on theory of Engel Curve analysis and the Neo Classic theory of Consumption. However, these theories mainly focus on analyzing the impact of cash transfer and in-kind transfer on household welfare. Engel Curve analysis focuses on the relationships between total households expenditure and food consumption. This analysis is fundamental and simple, and also well known as “Engel Law”. Engel law is focused on food consumption type relative to customer’s total expenditure. Empirically, some studies have reported that food consumptions on the poor households have a propensity to become the largest proportions in the consumers’ budgets (Chen & Ravallion 2010; Headey 2013; Wodon & Zaman 2010).

The Neoclassic theory of consumption analysis assumes that households have two choices based on the preferences over two goods. To maximize their preferences, consumers have to overcome the budget constraint. Generally, these two theories focus on analyzing the relationship between food expenditure and food stamps for the poor. According to the Neoclassical theory, in-kind transfer program will have the same outcomes as cash-transfer as long as the participant lives in marginal areas (Hoynes & Schanzenbach 2009; Senauer & Young 1986).

People in Asian countries consume rice as staple food, where approximately 90% of world’s rice is produce and consumed in Asia (Khush 2004; Rejesus, Mohanty & Balagtas 2012; Zeigler & Barclay 2008). Therefore, it could be said that rice is normal goods in Asia. Empirically, it has been reported that ratio of households’ expenditure in Asia region has been more than half of it being spent to buying basic foods (Von Braun & Tadesse 2012). However, other studies report that rice is not classified as normal goods anymore, but inferior goods (Matriz, Molina, Valera, Mohanty & Jamora 2010). Price elasticity of demand for rice is relative small. This finding was focuses during the period of Asian region experiencing higher wage income and better standard of living. Thus, predictions of some studies revealed to affirming that a shock over income will push people to lessen their consumption of rice.

Indonesia monetary crisis occurred in 1998 has caused social problems. One of the problems is food scarcity. To tackle this problem, Indonesia’s government released policy known as special market operation program (Program Operasi Pasar Khusus

or OPK). The objective of this program is reducing the financial burden of target households (Poor Households/RTM) in fulfilling their needs on staple foods, especially rice. In 2002, this program was renamed to program “Rice for Poor Families” or also known as Raskin, because the purpose of the program is no longer just as a social safety net but extended to social protection programs. Thus, Household Target Beneficiaries (*Rumah Tangga Sasaran-Penerima Manfaat/RTS-PM*) of the program have been changed from underprivileged households and households prosperous 1 becomes very poor, poor, and almost poor. In 2011, RTS-PM Raskin has amounted to 17.5 million households, then declined to 15.5 million households in 2014 (Hastuti, Sulaksono & Mawardi 2012; Laksono 2014).

Other study conducted in a number of developing countries indicate that poor households have a tendency to consume more food when they receive in-kind transfers compared to cash transfer (Ahmed 2005; Del Ninno & Dorosh 2003). For the case of Indonesia, using IFLS data, it was found that the provision of in-kind transfers (Raskin), the expenditure of targeted household has increased for food consumption as compared to non-targeted households (Pangaribowo 2012; Rasyid 2012). However, an increase in the consumption food is not necessarily followed by an increase in the proportion of expenditure on food consumption.

French, Wall et al. (2010) revealed that there is a relationship between income and the proportion of expenditure for consumption, where people with lower incomes give a proportion of the expenditure for fruits and vegetables fewer than the proportion for intake of foods containing carbohydrate. The opposite issue occurs on the households with a higher income. Raskin program aimed at people with low incomes or those who are in the poor category. Thus, this study aimed to assess whether the Raskin program supports an increasing proportion of the households expenditures especially for the food consumption. Results from this study can be used as one indicator of whether the rice in Indonesia will be placed as inferior goods or not.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

The relationship between food subsidy programs, also known as Food Stamp Program (FSP) with the consumption of food, was first proposed by Southworth in 1945. Food Stamp Program (in-kind or cash transfers) will increase the consumption of foodstuffs for the lower-income households (Southworth 1945). The different findings reported by Cunha, De

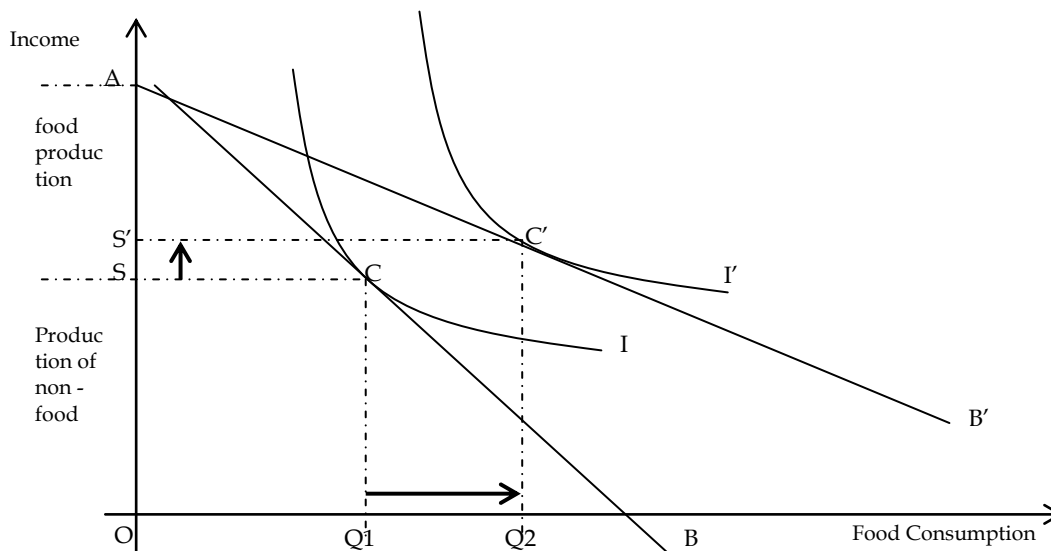


Figure 1
The Effect of Subsidy to the Expenditure and Total Food

Source: Southworth 1945.

Giorgi et al. (2015), there was a negative impact of in-kind transfers but there was also a positive impact on the cash transfer program for manufacturers who produce subsidized foodstuffs in the program areas. The impact of these two programs also depends on the preferences of consumers; giving in-kind transfer towards cash transfers is likely to have smaller impact or no impact on the consumption of subsidized goods.

Raskin is a government program to subsidize the price of rice to targeted households. The effects of this price subsidy on rice consumption can be illustrated in Figure 1. In this Figure, the line AB represents the allocation of income to the consumption of food and non-food items, while the curve I shows indifference curves. With the food price subsidies from the government, then it will shift the budget line from AB to AB' and become indifference curve from I to I'. This will impact on the size of the food expenditure (from S to S'), which is then allocated to non-food consumption, assuming the price of food has not changed. If the demand for food is elastic, then at the same price it will lead to an increase in the amount of food consumed (from Q1 to Q2).

In general, various literatures show that the relationship between the subsidized food (in-kind and cash transfers) with expenditures for food. This can be explained by an econometric model as follows (Hoynes & Schanzenbach 2009).

$$y_i = \alpha + \beta \ln Kind_i + \gamma Cash_i + \delta_k X_i + e_i \quad (1)$$

In equation (1), y_i is household expenditure to food, ($\ln Kind_i$ and $Cash_i$) is the amount of aid received by household of program food aid in the

form of in-kind transfers and cash transfers, respectively. While X_i is the control variable (household characteristics and residence). The value of β and γ is the marginal propensity to consume (MPC) for food due to in-kind transfers and cash transfers, respectively.

Results of previous studies show that the MPC to in-kind transfers is greater than the cash transfer (Breunig & Dasgupta 2005). Hoynes and Schanzenbach (2009) argued that the provision of food subsidies in the form of vouchers would cause small deviations, compared to that in the form of cash.

The main problem in analyzing the impact of a social program is looking for a counterfactual and selection bias (Gertler, Martinez, Premand, Rawlings & Vermeersch 2011; Khandker, Koolwal & Samad 2010). Counterfactual is a condition that describes the outcome of the treatment group when the group does not receive the program. However, the selection bias is a bias that occurs because of differences in characteristics between the treatment group (receiving program) and the control group (who did not receive the program) prior to the program. Equation (1) will result in a biased estimate for target households (which receive the program) is affected by the placement of programs and individual participation in the program (self-selection bias). The results of several studies suggest that the group of participant and non-participants had the potential bias (Hoynes & Schanzenbach 2009; Wilde, Troy & Rogers 2009).

To address the potential problem in equation (1), the researchers used randomized experimental and non-experimental (Gertler et al. 2011). Randomized experiments would ensure that every sample

in the population have the same probability to be selected into the treatment group and the control group. However, social safety net programs conducted by the developing countries mostly not a randomized experiment. Thus, to analyze the impact of social safety net programs in developing countries, a model of non-experiment consisting of a propensity score matching (PSM), Difference in Difference (DiD), Instrument Variable (IV) and Fixed Effect (FE) are used.

3. RESEARCH METHOD

The Data

The data used in this research were taken from the Indonesian Family Life Survey (IFLS) in 2000 and 2007. IFLS often called the Survey of Household Aspects of Life Indonesia (SAKERTI), contains micro data of households that are longitudinal. Strauss, Witoelar et al. (2009) revealed that the first IFLS (IFLS-1) conducted in 1993 covering 7,244 households as respondents, who then conducted the survey again in 1997, known as IFLS-2 with the same sample. Then IFLS survey conducted again in 2000 with the same sample in the previous year (IFLS-3), and the last survey conducted in 2007 IFLS (IFLS-4) with a total amount of 12,977 households.

Data on IFLS-4 already contains data related to the government policy Raskin program contained in Book 1 Section KSR. The number of households buying rice from Raskin program in the last one year at the time of the survey is considered as RTS-PM of Raskin program as much as 5,662 households. While households that do not buy rice from Raskin Program is carried out in the last 1 year at the time of the survey were not considered RTS-PM of Raskin program as much as 6,296 households. In addition, households that do not know the Raskin program as much as 1,013 households were categorized as not RTS-PM. So, the number of households as samples to this studies in 2007 as many as 12,971 households. For samples IFLS-3 as many as 10,574 households where all households are categorized as not RTS-PM.

The Model

Raskin is given by the government to the poor in order to reduce the burden of the poor in meeting the needs of food, especially rice. The design of this program is not random, so this study will not directly comparable with Raskin beneficiaries (treatment group) and who do not receive Raskin (control group). This is because the treatment group and the control group had different characteristics. The use of difference-in-difference technique (DID) and in-

strument variable (IV) can be used to solve this problems. DID model is as follows:

$$fy_{it} = \alpha + \beta_1 Raskin_{it} + \beta_2 T_t + \beta_3 Raskin_{it} * T_t + \beta_k X_{it} + e_{it} \quad (2)$$

$$nfy_{it} = \lambda + \gamma_1 Raskin_{it} + \gamma_2 T_t + \gamma_3 Raskin_{it} * T_t + \gamma_k X_{it} + \vartheta_{it} \quad (3)$$

Where, fy_{it} is the proportion of household expenditure for food consumption (rice, the staple food, vegetables, meat and fish) in year t ; while nfy_{it} is the proportion of household expenditure for non-food consumption (health, education, housing) in year t . $Raskin_{it}$ is a dummy variable for Raskin (1 = households that received Raskin and 0=households that did not receive Raskin), T_t is a dummy variable for the year (1 = 2007 and 0 = 2000). Furthermore, X_{it} is the control variable (the number of households, marital status, education of household head, age and gender). The parameters of concern in equation (2) and (3) above is the interaction between Raskin and time symbolized by β_3 and γ_3 . Value β_3 and γ_3 show the impact of the Raskin program on the proportion of household expenditure for food and non-food in Indonesia. While e_{it} and ϑ_{it} is the error term.

Raskin started in 1998 as the government's response to the economic crisis and the El Nino storms that occurred at that time. At first, the Raskin program is a program of the Special Market Operation (OPK), and then in 2002 changed its name to Raskin (Rice for the Poor). The changes are accompanied by changes in aid delivery mechanisms, especially in terms of targeting recipients. Targeting households determined by agreement village officials (kelurahan). Based on these conditions, the evaluation of the Raskin program will use 2 (two) periods of IFLS namely IFLS 2000 and IFLS 2007, where IFLS 2000 is used as the base year (before the implementation of the program) and IFLS 2007 as the data after the implementation of the program. If using DID approach, there will be multicollinearity problem between Raskin and time variables. Thus, the value of the parameter β_3 and γ_3 will not be obtained (as a result of interaction of variables will produce variable omitted). Thus, the use of DID models cannot be used for predicting the impact of Raskin program to the proportion of household expenditure on food and non-food.

The second model that can be used is the instrumental variable (IV). This model is used to overcome the endogeneity problem; i.e. un-observed variable that changes over time, that allegedly contained in the variable Raskin. Raskin in this study instrumented through housing status. We apply house ownership status as an IV because these variables

can represent ownership of household assets, and is one of the indicators used to determine whether households classified as poor or not (Cameron & Williams 2009; Rasyid 2012). In order to use house ownership as exogenous variable, house ownership in the earlier period will be used. However, besides the issues at the individual level that can be overcome by using an IV model, there is also an issue at the level of regions (enumerator area/EA) which can be addressed by the fixed effect (FE). Wooldridge (2013) suggest that applying fixed effect model (FEM) method and the first difference (FD) at T = 2 statistically are identical or similar. The models are as follows:

$$fy_{it} = \alpha + \beta_1 Raskin_{it} + \beta_k X_{it} + S_j + e_{ijt} \quad (4)$$

$$nfy_{it} = \lambda + \gamma_1 Raskin_{it} + \gamma_k X_{it} + K_j + \mathcal{G}_{it} \quad (5)$$

Where the notation of S_j and K_j shows the difference between the enumerator area and constant over time (time invariant). Then, IV model is used as follows:

$$Raskin_{it} = \delta_0 + \delta_1 rumah_{it-1} + \delta_2 X_{it} + u_{it} \quad (6)$$

So that, the model of equation (4) and (5), wherein the variable Raskin is instrumented with housing ownership would be :

$$fy_{it} = a + b_1 rumah_{it-1} + \beta_k X_{it} + e_{ijt} \quad (7)$$

$$nfy_{it} = c + f_1 rumah_{it-1} + \gamma_k X_{it} + \mathcal{G}_{it} \quad (8)$$

Thus, the parameters b_1 and f_1 can be represented by the impact of Raskin program to the proportion of household expenditure for food and non-food, respectively.

4. DATA ANALYSIS AND DISCUSSION Raskin Program

To overcome the impacts of economic crisis in 1998 was the beginning of a government program that targets poor people. Program to the community is called the Social Safety Net program / JPS (social safety net) with the aim that the poor do not fall deeper into poverty and reduce the impact of the economic crisis on the households that vulnerable to falling into poverty. Suryahadi, Yumna et al. (2010) revealed that there are four main strategies in the JPS program, namely: (1) ensuring the availability of affordable food; (2) increasing the purchasing power of people through job creation; (3) maintaining access to important social services, especially health and education; and (4) maintaining local economic activities through grants at the regional level and the expansion of small-scale business loans.

The first program is a program provided by the government namely Special Market Operation (OPK). The program is delivering aid staples, especially rice at low prices to the poor households. Each household received 10 kg of rice targeted at

Rp 1,000/kg. After recovering from the economic crisis and El Nino passed, the government expanded the purpose of the OPK program, so the program was renamed as Rice Program for the Poor (Raskin). The policy generally aims to tackle the problem of poverty-related macro-malnutrition at the poor households. The policy is embodied in Presidential Instruction (Inpres) No. 9 of 2002 on Rice Policy. In this mandated, especially point number five indicates that the government provide a guarantee for supplying and implementing the rice distribution for the poor and food-insecure, due to the financial and the economic crisis, and the decline in food production in Pre-prosperous family beneficiaries.

Households that were received were referred to as Household of Raskin Beneficiaries (RTS-PM Raskin). In 1998, the data of RTS-PM are obtained from the National Family Planning Coordinating Board (BKKBN) which categorizes households based on the fulfillment of basic needs (Pre-prosperous family, the Family Welfare I, II, III and Family Welfare Plus). In 2002, the quota for Raskin beneficiaries was determined for every district or city was based on the calculation of poor households by the Central Statistics Agency (BPS). In 2006, the RTS-PM determination was based on the Socio-Economic Data Collection (PSE) in 2005. Targeting the RTS-PM in 2010 was based on data collected from the Social Protection Data Collection Program (PPLS) in 2008, while PPLS 2011 is used as the data source for the Integrated Data Base (BDT) for the determination of the RTS-AM 2012 and 2013. The list of RTS-PM Raskin corresponds to the data was issued from the Integrated Data Base which was managed by the National Team Poverty Alleviation (TNP2K), which was approved by the Ministry for People's Welfare and Data Household results updates List of Beneficiaries (DPM) by village meetings/village/government level. RTS participation in the ownership of Raskin marked with the Social Protection Card (KPS) or Certificate of Poor Households (SKRTM). Where, SKRTM is a letter given to Household Substitutes results 'Mudes/Muskel' as a sign of membership in Raskin program.

The indicator of success in Raskin program is measured using six right indicators (6T) which include: the right target, the right amount, the right price, the right time, the right administration and the right quality. World Bank (2012) shows that the effectiveness of the program is still relatively weak, and the need for reform in terms of: (1) dissemination and transparency to the objectives, outcomes, financing, and schedule the provision of assistance; (2) the target recipient, allocation, distribution at the

Table 1
Allocation Amount (kg/KK), Duration (Months), Budget Subsidy (Trillion Rupiah), and Quantum (Million Tons) of Raskin Program

Year	Allocation (Kg/Households)	Duration (Months)	Budget Subsidies (Trillion Rp.)	Number of Targeted (Person)	Quantum (Million Tons)
2005	20	12	4.9	8.300.000	1.99
2006	15	10	5.3	10.830.000	1.62
2007	10	11	6.2	15.781.884	1.74
2008	10-15	10	11.7	19.100.000	2.67
2009	15	12	12.9	18.497.302	3.33
2010	13-15	13	15.1	17.488.007	2.97
2011	15	13	16.5	17.488.007	3.41
2012	15	13	20.9	17.488.007	3.67
2013	15	15	21.5	15.530.897	2.79
2014	15	12	18.8	15.530.897	2.80

Source : Tim Sosialisasi Penyesuaian Subsidi Bahan Bakar Minyak (2013), Tim Nasional Percepatan Penanggulangan Kemiskinan (TNP2K) (2015).

local level, price, quantity, and frequency of rice; (3) the cost of program management; (4) the implementation of the monitoring; and (5) a complaints mechanism.

Hastuti, Mawardi et al. (2008), Isdijoso, Hastuti et al. (2011), Isdijoso et al. (2011); and Hastuti, Sulaksono et al. (2012) found that the distribution system is incompatible with the objectives of the program (the system average) and many RTS-PM who has not received the program for some reason is not able to purchase. The results of various research shows that, Raskin program performance are better than OPK, where the level of error exclusion is greater and more than 50 percent of the population in non RTS-PM benefitting from Raskin (Satriawan et al. 2015). In terms of the precise aspects of number, amount of Raskin received by RTS-PM is smaller than it was. This is caused by the inclusion error, because the error data and the phenomenon of "the average", where the village head considers poor people more than the allocation given and prevent horizontal conflicts in society (Satriawan, Perdana & Prima 2015).

The aspects of prices showed that the RTS-PM Raskin pay higher provisions due to additional transportation costs from the distribution point and the distribution fee charged to RTS-PM (Hastuti et al. 2008). However, to aspects of timeliness in the distribution indicates that the reception frequency Raskin by RTS-PM range between 1-10 times per year. Raskin's quality is relatively low in some distribution areas. Lastly, associated with administration system indicates that the surveillance system only monitored until the point of distribution and not to the point of division of RTS-PM (Tim Nasional Percepatan Penanggulangan Kemiskinan (TNP2K) 2015). This condition illustrates the main issue of the effectiveness of Raskin program is located at the

distribution points to target beneficiary households (RTS-PM). While, from the point of delivery to the distribution points is relatively better. In addition, for some areas, Raskin program led to conflict and jealousy (Tabor & Sawit 2005).

Raskin will provide greater benefits to the RTS-PM if the program was carried out comprehensively, otherwise the program will only function as a stabilization of prices. Currently, the Raskin program more effectively to cover the shortage of rice supply in the market, so the prices of rice in the market will be relatively stable (Word Bank 2012).

Effect of Proportion of Household Expenditure on Food

Food is the main staple for majority people in developing countries, especially in Asia. Access to basic food and its sustainability is part of human rights. Food is essential for humans. It is empirically reported food insecurity can cause economic and political instability. Lack of food intake at individual level will influence their health and productivity, which is observable in the short term, while in the long run this condition will affect the quality of human resources (Giles & Satriawan 2015). Every country is trying to make the best food security system. Food security of a country is reflected in the condition of the fulfillment of food for households, which is reflected by: (1) the availability of food in adequate; both in quantity and in quality; (2) secure; (3) evenly distributed; and (4) affordable. If one of these indicators cannot be fulfilled, the country is still experiencing food insecurity.

Figure 2 presents the value of typical expenditure and share on total household expenditure between the periods 2000-2014. Overall, the figure shows there has been a change in the consumption pattern of households Indonesia that started in 2007,

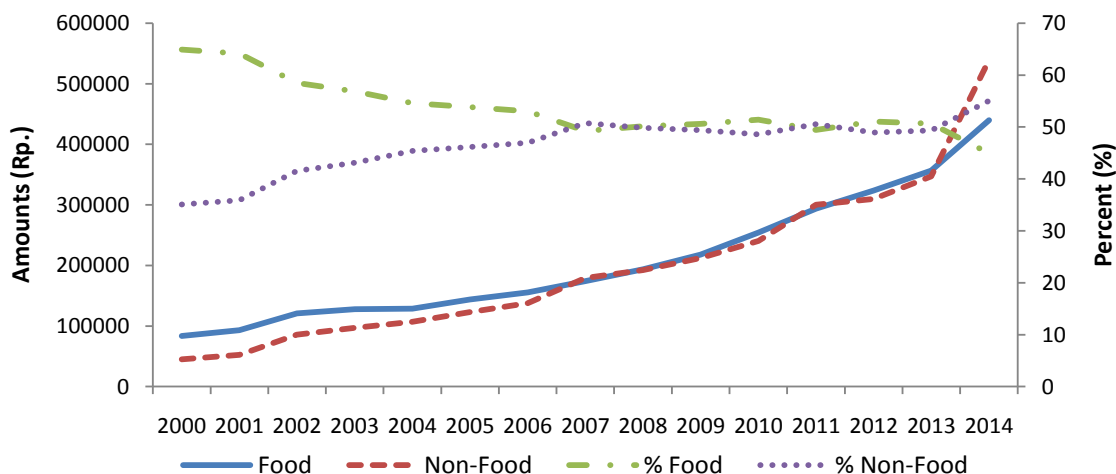


Figure 2
Average Number and Proportion of Per Capita Expenditure per Month, 2000-2014

where the percentage of food and non-food items to be balanced and the proportion of non-food tend to be higher than the food. This phenomenon might reflect the urbanization process; the condition, which is indicated by the population in urban areas, is higher than rural areas. Referring to the data of Ariani (2007), which reported household income is proxied by average differences in spending level between cities and villages.

If the average expenditure in urban areas are significantly larger than average expenditure in rural areas, then the phenomenon of the proportion of expenditure on non-food items will be higher than on food. In general, between 2000-2007 shares of expenditure on food much higher compare to consumption on non-food; but the trend shows a convergence and it is not much difference since 2008. Crude conclusion can be drawn that on average Indonesia families are getting richer. Consumption pattern represents the level of prosperity of a family. Compare to more prosperous family, typical low income household spend the proportion of food expenditure greater than on non-food.

Tsai and Tan (2006) found that the largest proportion of household expenditure in Asia is used to buy fresh fruit, fresh vegetables, rice, and seafood and lower proportion of it in dairy products and oils. In Indonesia, BPS data showed that the largest household expenditure has changed from the fresh food (cereals, tubers, fish, vegetables) to fast food and drinks during the period 2000 to 2014 (BPS 2015). The expenditure per capita per month for non-food production in last two years; 2013-2014, was more than that for buying food. The same thing happened to the proportion of expenditure per capita per month. This phenomenon reflects the phenomenon occurring in developing countries; where the majority of households in developing countries

working in the primary sector, and activities in this sector require more physical activity. Thus, expenditure on food consumption, especially of foods containing high carbohydrates (example: rice) is greater than the other expenditures.

Disruption in revenue source due to idiosyncratic shock or common stock will cause a change in the proportion of household expenditures on consumption of food and non-food, especially for staples food. Shocks to the income can be addressed in two ways: the use of existing resources within the family and use the resources offered by the government in the form of social safety net program. Improvement to earnings will have an impact on the proportion of expenditure for staples food in three ways. Firstly, the proportion of expenditure on food staples will return to its original state (before the shock). Secondly, the proportion of expenditures for staple foods increase along with the increase in revenue, and thirdly the proportion of expenditure for staple foods will decrease. The first case may occur if the increase in income is only temporary. The increase in income is permanent and is expected to take place in the long term will increase the proportion of expenditure for food staples increased, as in the second case. While the third case can occur if an increase in income does not have a significant impact on changes in household welfare level.

The economic crisis experienced by the countries in Southeast Asia and East Asia in mid-1997 has an impact on food security crisis. In mid-1998, more than 1.5 million households in Indonesia experienced acute food shortages and malnutrition (McBeth 1998). This situation causes government to reveal the rice policy that aims to make the Indonesian people having a level of stability in the consumption of the food. Raskin is a policy considered for in-kind transfer, which aims to help communities

Table 2
Raskin Impact on the Proportion of Household Expenditure on Food Consumption and Food Staple

Variables	Food ¹		Staple Food ²	
	IV	FEM	IV	FEM
Receive Raskin (yes=1)	-4.4807*** (0.5605)	-4.4298*** (0.5463)	-0.5816* (0.3490)	-0.2439 (0.3446)
HH size	-0.2348*** (0.0441)	-0.2318*** (0.0459)	0.2096*** (0.0278)	0.1862*** (0.0289)
Marital Status (yes=1)	0.5189** (0.2593)	0.2646 (0.2637)	0.0943 (0.1624)	-0.0764 (0.1664)
Education of HH	-2.8101*** (0.0879)	-2.3292*** (0.0944)	-1.5732*** (0.0555)	-1.3047*** (0.0596)
Age of HH	-0.0094** (0.0044)	-0.0020 (0.0046)	0.0034 (0.0028)	0.0056* (0.0029)
Sex of HH (Male=1)	-1.2334*** (0.1592)	-0.9535*** (0.1641)	-0.3254*** (0.0999)	-0.2045** (0.1035)
Constant	69.0447*** (0.5669)	67.9640*** (0.5491)	15.5791*** (0.3636)	15.7493*** (0.3464)

Notes: * significant at 10%, ** significant at 5%, *** significant at 1%.

¹Food in IFLS i.e.: staple food, vegetables, meat/fish, dairy products/eggs, spices, drink and other types of food.

²Staple foods in IFLS i.e.: rice, corn, sago/tapioca, cassava, 'gaplek', and others (potato, taro).

affected by the economic crisis in order not to experience food shortages.

Households in Indonesia have a level of food expenditure moderately vast, especially those in rural region that is equal to 62 per cent (Bacon, Bhattacharya & Kojima 2010). This is in line with research conducted by Ariani (2007) using data Susenas 1999, 2002, 2003, 2004 and 2005 which show that the consumption of energy and protein experiencing positive growth, 0.14 and 0.46 in respectively. Observing by region, average expenditure in urban areas has decreased, while that in rural areas keep increasing. Thus, if the income shocks in rural households will receive a larger impact than the urban households related to food consumption. Being the bases of indicators, a large part Raskin program is in rural areas. The impact of Raskin on the proportion of household expenditure for food consumption can be seen in Table 2.

The results in Table 2 show that Raskin had a negative impact on the proportion of households' expenditure for food consumption. Household recipient, instrumented by the house ownership status, will reduce the proportion of household expenditure for food consumption by 4.48 percent. This estimation result indicates that the presence of Raskin program in the RTS-PM community significantly helped in meeting the food needs, so that, they can set aside their income on non-food expenditures (education, health, housing, and other non-food needs). This is in line with research by Olken (2006), he found that 9 to 11 percent of total household monthly expenditure of RTS-PM may be subsidized from the OPK program. Quantitatively, in the period of 2000-2007,

the budget spent by the households increased by 100.42 percent or 12.55 percent per year. This increase is in line with the increase in household income by 107.43 percent or 13.43 percent per year.

Applying some control variables included in the model showed that the variables of family size, marital status, education, age and gender of household head have the negative coefficient. IV model showed that all the control variables were statistically significant, but using the FEM methods, variables marital status and age were not significant. The larger the family size will require the amount of the greater expenditures for food, but the results showed the opposite condition. This is due to the average age of family members in the study that is not currently on the age of the children, which that age requires greater food intake compared to adulthood. The proportion of expenditure for food consumption also decreased due to the education level of household heads is higher. Until now, the level of education in Indonesia represents the income level and the knowledge of good nutrition. Thus, the better the educational level of household head, the smaller the proportion of expenditure that is used for food.

The average proportion of household spending on consumption of staple foods in 2000 was 14.33 per cent, while in 2007 decreased to 14.10 percent. With the Raskin program, it can be concluded that the impact of Raskin program to the proportion of household expenditure for food staples is negative, but not significant by using FEM. Control variables that significantly affect the proportion of household spending on consumption of staple foods is the number of household members (0.1863), education

Table 3
The Impact of Raskin on the Household Expenditure for the Consumption of Rice, Vegetables, Meat and Fish

Variables	Rice		Vegetables		Meat and Fish	
	IV	FEM	IV	FEM	IV	FEM
Receive Raskin (yes=1)	0.3541 (0.3354)	0.6771** (0.3315)	-3.2332*** (0.1657)	-3.1130*** (0.1634)	-3.6176*** (0.2433)	-3.3465*** (0.2431)
HH size	0.1908*** (0.0266)	0.1722*** (0.0278)	-0.0143 (0.0130)	-0.0197 (0.0137)	0.1165*** (0.0195)	0.0860*** (0.0204)
Marital Status (yes=1)	0.0402 (0.1558)	-0.1183 (0.1601)	0.2900*** (0.0766)	0.2120*** (0.0789)	0.3981*** (0.1139)	0.2841*** (0.1174)
Education of HH	-1.3695*** (0.0531)	-1.1310*** (0.0573)	-0.3079*** (0.0260)	-0.2216*** (0.0282)	-0.2028*** (0.0393)	-0.1082*** (0.0420)
Age of HH	0.0022 (0.0027)	0.0044 (0.0028)	0.0019 (0.0014)	0.0027** (0.0014)	0.0065*** (0.0020)	0.0057*** (0.0021)
Sex of HH (Male=1)	-0.3332*** (0.0958)	-0.2351*** (0.0996)	0.1637*** (0.0470)	0.2051*** (0.0491)	0.0263 (0.0702)	0.0730 (0.0730)
Constant	13.4280** (0.3461)	13.5215** (0.3332)	6.9989** (0.1673)	6.9220** (0.1643)	9.1338** (0.2631)	9.5512** (0.2443)

Notes: * significant at 10%, ** significant at 5%, *** significant at 1%.

of household head (-1.3047), age (-0.0056), and gender (-0.2045).

Economic theory states that consumer spending will be allocated to the consumption of food and non-food items to them as a response from the in-kind transfer (Hoynes & Schanzenbach 2009). Results of research conducted by Pangaribowo (2012) and Rashid (2012) found that by the presence of Raskin, the amount of money spent by households to buy rice even greater. On the average, the data IFLS2000 and 2007 showed that the proportion of household spending on consumption of rice increased by 1.24 percent. If it is associated with a Raskin program, then it can be said statistically that the Raskin program increased the proportion of household expenditure for the purchase of rice (positive and significant at the 5% level, using the model FEM). These results concur with those of Sumanto, Suryahadi & Widyanti (2005) that the recipient OPK program has increased per capita household consumption is four times larger than the group of households that did not receive.

Variable number of household's members showed positive values and significant (0.1722), meaning that, if a household member increases by 1 person, it will increase the proportion of household expenditure on the rice consumption as much as 0.17 percent. As for the education variable head of the family and gender of household head indicate negative values and significant. This shows that the higher the level of education of household head (education), the lower the proportion of household expenditure on rice. Moreira and Padrão (2004) argued that

education is a key indicator of a person to consume better with more milk, vegetables, fruit and fish for consumption.

Effects of the Proportion of Household Expenditure for Non-Food

Raskin is a program that does not directly affect the increasing household income through a reduction in the proportion of expenditure for consumption of staple food (rice). This differs from the program of *Bantuan Langsung Tunai* (BLT) that will directly increase household incomes. In theory, the increase in revenues generated from Raskin program will increase the consumption of non-food items if the utility of households will be food has not changed. Thus, an additional allocation of income indirectly from Raskin program will be allocated to non-food consumption.

As discussed in the previous section that the impact of Raskin on the proportion of expenditure for food is negative and significant. Thus, the adjustment expenses due to in-kind transfers are allocated to the consumption of non-food such as education, health, and housing. In-kind transfers to education, health and housing consist of the effect of short-term and long-term (Currie & Gahvari 2008). Short-term effects can be seen from the increase in the proportion of spending on education, health, and housing. While, long-term effects of in-kind transfers are an increase in labor productivity and labor supply outcomes. This study will only capture the short-term effects because Raskin program has been running for 5 (five) years at IFLS 2007.

Table 4
Raskin Impact on the Proportion of Household Expenditure on Education, Health and Housing

Variables	Education		Health		Housing	
	IV	FEM	IV	FEM	IV	FEM
Receive Raskin (yes=1)	1.2864*** (0.4324)	1.3822*** (0.4162)	-0.0272 (0.1846)	0.0320 (0.1811)	-2.5415*** (0.3772)	-2.6225*** (0.3694)
HH size	0.3468*** (0.0320)	0.3410*** (0.0350)	0.0024 (0.0142)	-0.0017 (0.0152)	-0.2392*** (0.0296)	-0.2432*** (0.3103)
Marital Status (yes=1)	-0.8828*** (0.1941)	-0.7009*** (0.2010)	0.2280*** (0.0843)	0.1914*** (0.8743)	0.6083*** (0.1742)	0.6874*** (0.1783)
Education of HH	1.0973*** (0.0621)	1.0336*** (0.0719)	0.1071*** (0.0279)	0.1048*** (0.0313)	-0.0867 (0.0589)	-0.3203*** (0.0638)
Age of HH	-0.0037 (0.0033)	-0.0061* (0.0036)	0.0054*** (0.0015)	0.0048*** (0.0015)	0.0188*** (0.0030)	0.0156*** (0.0032)
Sex of HH (Male=1)	-0.0375 (0.1171)	-0.2133* (0.1250)	0.1209*** (0.0515)	0.1217*** (0.0544)	1.1037*** (0.1069)	0.9946*** (0.1110)
Constant	1.8972*** (0.3867)	2.3573*** (0.4184)	1.1216*** (0.1765)	1.1721*** (0.1820)	10.7536*** (0.3783)	11.4369*** (0.3713)

Notes: * significant at 10%, ** significant at 5%, *** significant at 1%.

The estimation result summarized in Table 4 shows that the proportion of household expenditure on education as a result of Raskin is positive and significant. That is, with Raskin, the households that received the program will have a higher level of spending for education compared to the households that did not receive. This is consistent with studies in several countries which show that the in-kind transfer correlates to an increase in the school participation rate of children, because the cost to the school can be obtained from the difference in price subsidies (Ahmed 2005; Cheung & Berlin 2014).

The function of a person's health is determined by a congenital medical condition that is inherited from a parent (initial health endowment), the input of health, labor supply, demographic variables, health infrastructure, and environmental conditions (Maccini & Yang 2009; John Strauss & Thomas 1998). Better foods intake due to Raskin program is one of the health input that would affect the level of health of a person. The estimation coefficient showed under the Raskin program, the level of health of the household beneficiaries of this program is increasing. It can be seen from the level of expenditure of the households receiving the program, which is lower after receiving the Raskin program, but this argument was not statistically significant.

Different results showed by the analysis of the proportion of household expenditure on housing, have negative and significant results. Households that received Raskin program have the proportion of expenditure on housing lower than households that did not receive program. This result is in line with the IFLS data showing that the percentage of households owning their own homes had increased from 78.24 percent in 2000 to 81.77 percent in 2007. Thus,

household spending will be less if the households own their own home compared to those renting a home.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

Raskin program is provided by the government to help families affected from the economic crisis happened in 1998, which was originally known as Special Market Operation Program (OPK). This program takes effect in 2005, resulting in IFLS 2000; Raskin has not been included as a policy. The purpose of this program is not only as a social safety net (SSN) but also as such social protection program. Therefore, RTS-PM is not only limited to poor families affected by the crisis but also be given to the Pre-prosperous family.

The analysis showed that the impact of Raskin on the proportion of household expenditure for food consumption is negative and significant, while the proportion of household spending on non-food consumption was positive and significant. This indicates that the RTS-PM will allocate the difference between the budgets as a result of in-kind transfers derived from the government for non-food needs in this regard funding for their children's education. This study also suggests that the issues raised by previous researchers that in Asia, including Indonesia, commodity rice leads to inferior goods were not accurate. This can be seen on the value of the proportion of the households spending on consumption of rice is positive and significant. Thus, the presence of in-kind transfers, the proportion of household expenditure on rice consumption can be said to be increase in advanced. In other words, for the case in Indonesia, rice is still the normal stuff.

The policy implication of this study is the Raskin program is not only effective on the supply side but also on the demand side, where there is increasing the proportion of expenditure on the consumption of rice, assuming a fixed price. Thus, intake of energy in the form of carbohydrates for the poor has increased. Increased energy will impact on the productivity increase of the poor households (Thomas et al., 2006) as well as the improvement of children's health (Giles & Satriawan, 2015). Therefore, Raskin program needs to be continued because it provides great benefits for the poor in the present and future (through the outcomes of children of poor households).

Raskin program is not designed to a randomized experiment, so that comparing the treatment and control groups to determine the impact of the program would be biased. This bias can be overcome by the method of non-experiment, namely: Propensity Score Matching (PSM), Difference in Difference (DiD), Instrument Variable (IV) and Fixed Effect (FE). IV and FE methods used in this study have not been able to seize the bias induced by RTS's participation in the program, or so-called self-selection bias. Therefore, it takes other estimation techniques to overcome this bias.

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