# Supporting Household Consumption in the Time of Economic Crisis:

# Evidence from Food Security Program in Indonesia

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***Abstract***

This study evaluates the impact of food security program – an almost universal program of Indonesian Social Safety Net Program in the time of economic crisis. Food security program aimed to protect poor households from the negative effects of economic crisis by means of highly subsidized rice. To assess the impact of the program, this study utilizes matching estimator approach combined with difference in difference method. The rich longitudinal dataset used in this study enables matching estimator and difference in difference approach to provide accurate estimate of the program's impact on its beneficiaries. Results indicate the positive impact of the food security program on the expenditures of richer nutrient food which include meat, fish and dairy products. The program has also substantial impact on health expenditure. Nevertheless, this study also found that the program only has a limited impact to the neediest group. Improving targeting seems to be one of government's tasks in order to increase program benefits, particularly to the poorest households.

**Keywords:** Impact evaluation, food security, Indonesia

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## 1. Introduction

Indonesia had experienced considerable variation in its economic performance and recorded as one of the new emerging economies in South-East Asia. As the Asian Financial Crisis spread in South-East Asian countries in 1997, Indonesian economy was also affected by the crisis. It is reported that the crisis has raised poverty rate to 40 per cent compared to around 12 per cent just before the crisis (Solomon 1998, Thoenes 1998). Indonesia recorded the highest inflation in recent history with the exchange rate of around 15 thousand Rupiahs to one US dollar. However, experts mentioned that the collapse of Indonesian economy was not merely due to the financial crisis but rooted in failed economic policy making under New Order Era (*Orde Baru* – ORBA) of Soeharto regime.

Before the crisis, anti-poverty government programs were focusing on social services spending such as education, health and family planning and development programs such as infrastructure. Consequently, anti-poverty programs to protect the chronic poor and the newly poor due to the crisis were almost absent before the crisis period. In order to protect Indonesian households from the economic crisis, Indonesian government launched social safety net (SSN) programs. SSN consisted from five major programs: food security (*Operasi Pasar Khusus* – OPK), employment creation (*Padat Karya*), education scholarship, health card, and community empowerment.

Food security program became the main sector in the SSN package. The purpose of this program was to ensure that the poor households were able to access basic food at an affordable price (Sumarto, 2006). The program provided a highly subsidized rice price. In macro context, several studies mentioned that food security program contributed to poverty reduction through reducing poverty gap (Tabor and Sawit, 2005). This study aims to measure the impact of food security program. Food security program was chosen since it was an almost universal program and had largest coverage compared to other SSN programs. Food

security program also absorbed sizeable share from government budget compared to the rest of SSN programs.

The impact evaluation conducted on this study assesses the impact of rice for the poor program at the micro level. So far, evaluations are conducted at the aggregate level and limited to the program implementation (Hastuti 2008, Tabor and Sawit 2005). Evaluating the impact of food security program only at the program implementation might mask the real impact of the program. Moreover, with government's limited resource, a credible impact evaluation is needed to ensure that the resource is not wasteful. As what have been present in various social programs, identifying the impact of food security program might not be straightforward. In particular, food security program participation does not follow a random process. Using propensity score matching and difference in difference method, the impact of food security program will be evaluated in several outcomes: food and non food expenditure.

## 2. An Overview of Indonesian Food Security Program during Economic Crisis

Indonesian government introduced food security program as part of SSN packages to prevent severe nutritional effect from the economic crisis (Block et al. 2004). Food security intervention became the main component in the SSN program. Officially, the food security program named *Operasi Pasar Khusus Beras* (OPK) – rice special market operation. The purpose of this program was to ensure that the poor households were able to access basic food at an affordable price (Sumarto 2006). The eligible households were selected based on *Badan Koordinasi Keluarga Berencana Nasional* (BKKBN) – National Family Planning Agency in Indonesia. Tabor and Sawit (2001) mentioned that the program authorities were aware of BKKBN welfare criteria which were not designed to identify food insecure households. BKKBN categorizes households based on these following indicators: whether all household members have at least two meals a day, whether household members have different set of

clothes for each type of activities (at home, working or going to school and going out), whether the house has a dirt floor, whether they bring the children to health center and receive medical treatment when they are sick, whether the households use family planning methods, and whether the household members are able to practice their religious duties[1]. BKKBN involved volunteers and family planning cadres and located them in village health post. The cadres collected and updated those household data along with family planning monitoring. BKKBN welfare criteria gained many criticisms regarding its accuracy. Nevertheless, BKKBN welfare criteria were the only available list at that time meanwhile government needed to immediately mitigate the financial crisis.

The implementation of food security program was under *Badan Urusan Logistic* (BULOG) – the National Food Logistic Agency, a government agency responsible for food supply and food price stabilization. The program provided highly subsidized rice at a price of Rp 1,000 per kg compared to the average market rice price at Rp 3,000 per kg. The amount of which could be purchased by the target group was 20 kg per households per month but then reduced to between 10-20 kg in 2000 (Tabor and Sawit 2005, Hastuti 2008). During the first twelve month of food security program, around Rp 3.3 trillion was transferred to more than 9 million households as beneficiaries of the program. The program hence functioned as a sort of income transfer to the households.

## 3. Review of Existing Literature on Program Evaluation

Previous literature on the impact evaluation of anti-poverty programs, particularly programs that addressed household nutritional welfare indeed have shown encouraging results. Using

[1] BKKN classified households into four categories: keluarga pra-KS (pre prosperous households), KS 1 (prosperous 1), KS 2 (prosperous 2) and KS 3 (prosperous 3). Eligible household for food security program was pre prosperous and prosperous 1 families.

the case of school feeding in the Philippines, Jacoby (2002) found that the program has a positive and significant impact on child nutrition and it also created intra-household fly-paper effect. The fly-paper effect was also evident in the case of food supplementary program in Guatemala (Islam and Hodinott 2009). In other program, Hodinott and Skoufias (2004) showed that PROGRESA had no impact on food consumption at the earlier stage of implementation but later on had a significant impact on household calorie intake. Using Mexican program, Ruiz-Arranz et al. (2006) found that PROGRESA and PROCAMPO had increased food consumption and calorie intake through different channels. PROGRESA boosted food consumption through income effect while PROCAMPO increased food consumption through investment in home production. Rivera et al. (2004) found that households with PROGRESA have better growth in height among the poorest and younger infant.

The similar impacts were also evident in the Sub-Saharan Africa. Using the case of food aid and food for work program in Ethiopia, Quisumbing (2003) found that free distributed food and food for work had a positive and significant impact on child nutritional status yet varied based on gender of child. Free distributed food was associated with better girl's nutrition while food for work was transferred to boy's nutrition. Using the same program, Gilligan and Hodinott (2006) evaluated the program impact in broader outcomes. They examined whether the emergency food aid had a short-term impact on food and nutrition security or also work as insurance through asset accumulation. Interestingly, it is found that free food distribution has a positive impact on food consumption growth but negatively affects food security. However, they found that food for work program have positive impact on food consumption and food security. Free food distribution program had no impact on growth of livestock holdings and even food for work program had a negative effect on livestock growth. The findings confirm that food programs might have heterogeneous impact. More recently, Abebaw et al. (2010)

evaluate the impact of integrated food security program in Northwestern Ethiopia. They found that the program has a positive impact on calorie intake. The program beneficiaries had 30 per cent higher calorie intake but the impact was heterogeneous depending on household size, land holding and gender of household head.

In the case of Indonesia, Giles and Satriawan (2010) evaluate the effectiveness of supplementary feeding program on nutritional status of infants and young children affected by the economic crisis. Using Indonesian Family Life Survey, this study accounts for heterogeneity of program exposure to assess the program impact. The outcome measured in this study is height-for-age. The results show that community characteristics such as health and physical infrastructure and geographical aspect determined the program placement and duration. More remote communities had longer program duration. Further, the findings confirm that the supplementary feeding program improved the nutritional status of children aged 12 to 24 months.

As mentioned earlier, impact evaluation on food security program in Indonesia were mostly conducted at macro level. Therefore, this study contributes to a small but the growing literature on the evaluation of food program in developing countries. In addition, this study is among the few studies conducted at micro level in the perspective of Indonesian food programs. The impact of food security program will be evaluated based on the estimation of households' food and non-food expenditures. More specifically, outcomes of food expenditures are classified into rice, staple food, meat and fish, dairy products and adult goods expenditure.

## 4. Data and variables

This part outlines the sample derived in this study as well as variables used in the estimation. Details on explanatory variables involved in the propensity score matching and their summary statistics are also described. Outcome measures will also be explained in this section.

### 4.1 Data

The data used in this study are from 1997 and 2000 waves of the Indonesia Family Life Survey (IFLS) which capture periods before and after economic crisis and the implementation of food security program[2]. IFLS covers 13 out of 27 provinces in Indonesia in that period. The first wave of IFLS interviewed 7,224 households and around 22,000 individuals from those households. The follow up rate of IFLS was considerably high (95 per cent).

In line with the purpose of this study, IFLS collects longitudinal data on household characteristics, the communities in which they live, and the health and education facilities they use. Furthermore, information on community characteristics and food security program are available. IFLS round 2000 provided a particular section of SSN program in community questionnaire. The rich information on food security program from community questionnaire enables this study to observe the program heterogeneity. The sample is restricted to panel households and excluded split off households since they might have different characteristics compared to their status in the original households. Moreover, the split off households normally reside in the non-IFLS original EA whereby the food security program information is limited. The total sample used in this study is 7178 panel households.

[2] IFLS 2 was fielded before the crisis hit the Indonesian economy. IFLS 2+ conducted in 1998 was aimed to capture the immediate effect of the economic crisis. IFLS 2+ only sampled around 20 per cent of total IFLS sample.

### 4.2 Dependent Variables

To assess the impact of food security program, certain outcomes are measured. The outcomes intended to examine are household food and non food expenditures. Specifically, households' food expenditures are broken down into staple food, rice, meat and fish, dairy products, and adult goods expenditures. Non-food expenditures focus on two vital expenditures: medical and education. By analyzing the outcomes on specific expenditures, the impact of food security program on consumption smoothing can be assessed. Information on food and non-food expenditures are derived from expenditure module and all expenditures adjusted to 2000 prices so that the real expenditure values between two waves are comparable[3].

### 4.3. Explanatory Variables

The explanatory variables are used to calculate the probability of receiving food security program in the matching estimator. Therefore, conditions that influence program eligibility will be used to calculate propensity score matching. As mentioned earlier, program eligibility criteria are based on BKKBN welfare criteria including household's welfare conditions as indicated by housing characteristics and income. Hence, covariates involved in propensity score estimator are household head and housing characteristics since these variables are observed and influence program eligibility. In more detail, housing characteristics are observed from the type of walls and floors in the house, whether the house has piped water or house owners. Table 1 reports selected covariates based on the pre-exposure year. It is evident that the household characteristics vary between recipient and control groups where the control households seem more affluent with higher per capita expenditure and asset compared to their counterpart. The control groups are characterized by more educated and younger household head. The recipient households lived in lower quality houses. More than 20 per cent of

[3] The detail calculation of deflators is available at Strauss et al. (2004).

recipient households dwell in dirty floor and bamboo wall house and only 15 per cent have access to piped water. Interestingly, there are more households in the control group who owned health card. In fact, the health card was intended for poor households and the eligibility conditions also followed BKKBN welfare criteria.

In addition, village characteristics and provincial dummy variables are also included to control for regional heterogeneity. Village characteristic involved in the model include proxies of remoteness such as distance to nearest bus stop or terminal and distance to district capital. Table 1 reports that only 20 per cent of recipient households reside in a village with bus station. This means food security program recipients were located in the area with limited access to four wheel vehicles. This finding is closely related to the fact that most of the recipient households live in rural areas (70 per cent) and less than two per cent recipient households reside in the district capital. To control for economic conditions in the community, major commodity prices such as rice and chicken price as well as average village per capita expenditure are entered in the matching estimator.

## 5. Estimation Strategy: Propensity Score Matching and Difference in Difference Methods

This study employs the matching method. The rich information contained in the IFLS supports this study to mimic experimental setting through propensity score matching (PSM) estimators. With sufficient data, PSM provides useful econometric tool (Smith and Todd 2005). The underlying assumption of PSM is that the outcomes are independent of program participation conditional on a set of observed covariates. PSM is not a silver bullet for evaluation problem but with sound data and ample knowledge on the program, PSM may produce reasonable results. Moreover, employing panel data allows this study to combine PSM and difference in difference method (DID). Hence, PSM and DID are used to examine

the average exposure effect on the recipient unit (Johar 2009). Following Johar (2009), the exposure in this study is whether a household is a recipient of food security program or not.

## 6. Estimation Results

This section presents the results associated with the impact of the food security program in Indonesia in the time of economic crisis. The first part reports results from PSM. The food security program impact is discussed in the second part.

### 6.1. Matching Results

Covariates involved in program participation are based on BKKBN eligibility criteria and geographical characteristics. The program selection is estimated using Probit model. Based on the sample, about 38 per cent of households are recipients of food security program. The results from PSM are presented in Table 3. There are big differences between program recipient and non recipient. It is revealed that urban and household farm dummy has negative and significant impact on program participation. This finding confirms the descriptive statistics where the higher proportions of beneficiaries are rural households. Household income category also has a significant effect on program participation. The higher the income the less likely the household participates in the program. Low housing quality as indicated by dirt-flooring type has a positive and significant effect on food security program participation. This result shows that on average, the program has reached the targeted group. The regional factors as shown by provincial dummy has significant effect on program participation and provinces in Java are more likely to receive the program. Households in Lampung and West Nusa Tenggara were more likely to become program recipients. Community characteristics as measured by remoteness (distance to nearest bust stop and district capital), average per capita expenditure and rice price indicate a significant impact. Program tends to be placed in a

relatively remote area and poorer community. The community with higher rice price also tends to receive food security program.

### 6.2 Impact on Food and Non Food Expenditures

In general, the evaluation conducted in this study investigates the impacts of food security program. The outcomes of food security program are food and non food expenditure. The food expenditure is broken down into rice, staple, dairy products, meat and fish and adult goods expenditure. Non food expenditure is focused on education and health expenditure. Ideally, food security program should enable households to have extra resource which allows them to allocate this extra resource into 'human capital investment' such as better nutrient food, education and health expenditure. PSM combined with DID are applied to examine the program effects. In conducting the average treatment effect, this study employs Kernel method since bootstrapping of standard errors procedures may not be appropriate for other matching method such as nearest neighbor matching due to non-smoothness of the method (Abadie and Imbens 2006). The standard errors of the average treatment effects are given by bootstrapping with 150 replications.

The results are presented in Table 4. It is revealed that food security program has no impact on 'total' food and non food expenditures, but it helps the program recipients in smoothing within food expenditures, particularly for them to afford meat, fish and dairy products. This indicates that food security program does support the recipients and contribute to the main part of the income of the recipients which enables them to shift their expenditures to more expensive nutrient sources. Furthermore, the program also has a positive influence on medical expenditure.

However, the average impact of food security program may mask significant impacts of the program on certain types of households. As what have been found in other SSN programs[4], food security program also has some loopholes particularly in terms of targeting (Sumarto et al. 2002). Figure 1 shows that food security program is still subject to leakage. Disaggregating by income tertile, it is shown that higher income households also get the program. The program also found to be geographical biased. More than 70 per cent of Java households in the lowest tertile received the program, while from outside Java, only around 32 per cent enjoyed the program. The program leakage is also more evident in Java where 20 per cent of the richer household (third tertile) enjoyed the program and only nine per cent of the richer households from outside Java benefited from the program. Improving targeting indispensable for the Indonesian government since better-targeted program might give greater benefit for the poor.

To investigate the heterogeneity effect of the program, the impact of food security program is evaluated at each income tertile. Program impact based on income tertile does show considerable variations (Table 5). The program heterogeneity was not only captured in the magnitude difference of the impact across households, but also diversity patterns of the impact. It is found that impact of food security program on medical expenditures for all income level is less conclusive unlike what has been found at the average level. For households with lowest income, food security program has no impact on all expenditures except on dairy products expenditure. It is also shown that the program has been able to increase dairy product expenditure by more than 80 per cent. Nevertheless, this finding shows that food security program only has a limited impact for the neediest group.

[4] A study from Cameron (2010) on education scholarship program found a sizeable scholarship recipients (5.1 per cent) are from upper income quintile.

For the second tertile households, it is reported that food security program has significant impact on total food expenditure even though the magnitude is small (around three per cent). The positive impact of food security program on food expenditure of the more affluent households is somewhat surprising. It can be suspected that the extra resource received from the program was translated to better food quality. More specifically, the results show that food security program has a significant and large impact on meat and fish expenditures. In fact, paradoxically, the program is found to be more beneficial to the more affluent households than the poor households.

Disaggregating impact based on income groups has revealed that the poorest households only receive limited benefit while the better off households enjoy larger gain from the program. This implies that the impact estimate based on the full sample overestimate the true impact of the food security program for the neediest households. This finding is challenging in the perspective of aid program. As previously mentioned, food security program seems to have many loopholes. By design, food security program provided generous support to the households who were suffering the most from the crisis. The food security program was also expanded from pre-prosperous households to prosperous 1 households. Although it is found that the program has reached the targeted households, the phenomenon of mistargeting is clear. Accordingly, those phenomena lead to the presence of unintended program effect.

## 7. Conclusion

The Indonesian economic crisis has hit the poor households and forced them to smooth the consumption. Food security program has provided access for poor households to purchase rice with highly subsidized price. The matching estimators show that the program had reached its target. Households characterized by low quality housing, who are less educated, residing in rural and Java areas, are most likely to participate in food security program. Notwithstanding,

the program was still subjected to many loopholes, particularly related with targeting since some households in a relatively higher income level also received the benefits of the program. Geographical bias is also evident in the program implementation.

Using propensity score matching combined with difference in difference method, this study reveals that food security program has positive impact on selected food and non food expenditures. In particular, it is found that food security program has enabled the program beneficiaries to increase expenditures on better nutrient food such as meat, fish and dairy products. The program also has positive impact on health expenditures.

The heterogeneous impacts of the program reveal challenging issues. It is found that food security program has a limited impact on the bottom income households. Food security program had only enabled the poorest households to increase their dairy products expenditures though the treatment effect is very large. Food security program has also led to an unintended impact where non targeted households have gained more from the program.

To sum up, food security program has supported the program participants to smooth their consumption in the period of economic crisis. It helped them invest in nutritious food items. In order to make this program better in the future, improving targeting is necessary to increase program benefits, particularly to the poorest households. A certain condition like specifically target poor households participating in nutrition extension might also be applied to the program so that the poor not only receives income transfer but also knowledge.

**Table 1.** Summary Statistics of Household Characteristics in Pre Exposure Year

| | **Recipient** | | **Control** | |
|---|---|---|---|---|
| | Mean | Std. Deviation | Mean | Std. Deviation |
| Household Head's Characteristics | | | | |
| Age | 49.281 | 14.310 | 47.333 | 13.948 |
| Education (years of schooling) | 4.068 | 3.703 | 6.693 | 4.808 |
| Work | 0.792 | 0.406 | 0.774 | 0.419 |
| Male household head | 0.800 | 0.400 | 0.848 | 0.359 |
| Household characteristics | | | | |
| Under 6 years | 0.511 | 0.711 | 0.518 | 0.725 |
| 6 - 14 years | 0.951 | 1.002 | 0.920 | 1.043 |
| 15 - 59 years (male) | 1.188 | 0.918 | 1.306 | 0.979 |
| 15 - 59 years (female) | 1.309 | 0.799 | 1.447 | 0.945 |
| 60 years and over (male) | 0.204 | 0.405 | 0.166 | 0.376 |
| 60 years and over (female) | 0.241 | 0.437 | 0.192 | 0.411 |
| HH size | 4.404 | 1.975 | 4.549 | 2.100 |
| Ln PCE | 11.165 | 0.712 | 11.550 | 0.848 |
| Ln Asset | 15.200 | 1.659 | 15.825 | 2.060 |
| Fridge | 0.027 | 0.162 | 0.167 | 0.373 |
| Health Card | 0.082 | 0.275 | 0.123 | 0.328 |
| Urban | 0.348 | 0.477 | 0.512 | 0.500 |
| Java | 0.754 | 0.430 | 0.497 | 0.500 |
| Housing characteristics | | | | |
| Owner | 0.865 | 0.342 | 0.766 | 0.423 |
| Ceramic floor | 0.038 | 0.191 | 0.132 | 0.338 |
| Tiles floor | 0.217 | 0.412 | 0.234 | 0.423 |
| Dirt Floor | 0.304 | 0.460 | 0.085 | 0.278 |
| Bamboo wall | 0.236 | 0.425 | 0.079 | 0.270 |
| Brick wall | 0.518 | 0.500 | 0.625 | 0.484 |
| Piped water | 0.156 | 0.363 | 0.300 | 0.458 |
| Community Remoteness | | | | |
| Nearest bus stop in the village | 0.195 | 0.396 | 0.228 | 0.420 |
| District capital in the village | 0.012 | 0.108 | 0.027 | 0.161 |
| Village Prices | | | | |
| Rice price (per kg) | 1156.974 | 143.198 | 1214.136 | 195.330 |
| Chicken price (per kg) | 4424.294 | 844.967 | 4657.458 | 1106.642 |
| N | 2729 | | 4449 | |

Prices are in Indonesian rupiahs

**Table 2.** Food and Non Food Expenditures (in log term) Based on Matched Sample

| | Pre-exposure | | | Post-exposure | | |
|---|---|---|---|---|---|---|
| | Recipient | Control | Diff | Recipient | Control | Diff |
| Food Expenditure | 12.987 | 13.224 | -0.237*** | 13.039 | 13.309 | -0.271*** |
| Rice | 10.558 | 9.586 | 0.972*** | 10.359 | 9.399 | 0.959*** |
| Staple | 11.159 | 10.723 | 0.436*** | 11.058 | 10.850 | 0.208*** |
| Dairy Product | 7.275 | 8.381 | -1.106*** | 7.679 | 8.671 | -0.992*** |
| Meat | 9.859 | 9.355 | 0.504*** | 9.859 | 9.422 | 0.437*** |
| Fish | 8.156 | 9.011 | -0.854*** | 8.434 | 9.197 | -0.763*** |
| Adult Goods | 7.213 | 6.819 | 0.394*** | 7.863 | 7.263 | 0.600*** |
| | | | | | | |
| Non Food Expenditure | 12.628 | 13.021 | -0.393*** | 12.496 | 12.999 | -0.504*** |
| Medical | 6.628 | 6.694 | -0.067 | 7.353 | 7.559 | -0.206*** |
| Education | 7.299 | 7.939 | -0.639*** | 7.419 | 8.242 | -0.823*** |
| N | 1950 | 3057 | | 1948 | 3057 | |

Note: *** Denotes statistically significance at 1% level.

**Table 3.** Results for the Matching Estimator

| | Coefficient | Std. Error |
|---|---|---|
| **Household Head's Characteristics** | | |
| Age (in years) | -0.0055** | 0.0027 |
| Education (in years of schooling) | -0.0369** | 0.0054 |
| Work (dummy, work==1) | -0.0263 | 0.0681 |
| Gender (dummy, male=1) | -0.0632 | 0.0774 |
| **Household characteristics** | | |
| Under 6 years | 0.0132 | 0.0367 |
| 6 - 14 years | 0.0384 | 0.0246 |
| 15 - 59 years (male) | 0.0543*** | 0.0217 |
| 15 - 59 years (female) | 0.0275 | 0.0225 |
| 60 years and over (male) | 0.0657 | 0.0820 |
| 60 years and over (female) | 0.1162* | 0.0587 |
| Income category | -0.2355*** | 0.0378 |
| Health Card | 0.3466*** | 0.0605 |
| Urban (dummy) | -0.1199* | 0.0651 |
| Java | 0.3848*** | 0.1240 |
| **Housing characteristics** | | |
| Ceramic floor | -0.3584*** | 0.0724 |
| Dirt Floor | 0.2610*** | 0.0808 |
| Bamboo wall | 0.0657 | 0.0878 |
| **Community Remoteness and Village Economy** | | |
| Nearest bus stop in the village | -0.1259** | 0.0538 |
| District capital in the village | -0.1966 | 0.1835 |
| Rice price (per kg) | 0.0006*** | 0.0001 |
| Chicken price (per kg) | 0.0000 | 0.0000 |
| Community Average Per Capita | -0.3718*** | 0.0837 |
| **Provincial Dummy** | | |
| North Sumatra | -0.9669*** | 0.1576 |
| West Sumatra | -0.7845*** | 0.1538 |
| Lampung | 1.1732*** | 0.1218 |
| West Java | 0.3862*** | 0.1076 |
| Central Java | 1.0718*** | 0.1136 |
| Yogyakarta | 0.7227*** | 0.1208 |
| East Java | 0.6555*** | 0.1128 |
| Bali | -0.3853*** | 0.1464 |
| West Nusa Tenggara | 0.7404*** | 0.1120 |
| N | 7178 | |
| Pseudo R-squared | 0.2594 | |

Note: Standard errors are in parentheses.
* Denotes statistically significance at 10% level.
** Denotes statistically significance at 5% level.
*** Denotes statistically significance at 1% level.

**Table 4.** Average Treatment Effect on Food and Non Food Consumption

| | **ATT** |
|---|---|
| **Food Expenditure** | 0.037 |
| | (0.026) |
| Rice | 0.036 |
| | (0.168) |
| Staple | -0.037 |
| | (0.112) |
| Dairy Product | 0.383** |
| | (0.195) |
| Meat | 0.244* |
| | (0.142) |
| Fish | 0.344* |
| | (0.188) |
| Adult Goods | 0.262 |
| | (0.193) |
| **Non Food Expenditure** | 0.027 |
| | (0.037) |
| Medical | 0.387** |
| | (0.187) |
| Education | 0.008 |
| | (0.188) |

Note: Standard errors are in parentheses.

* Denotes statistically significance at 10% level.

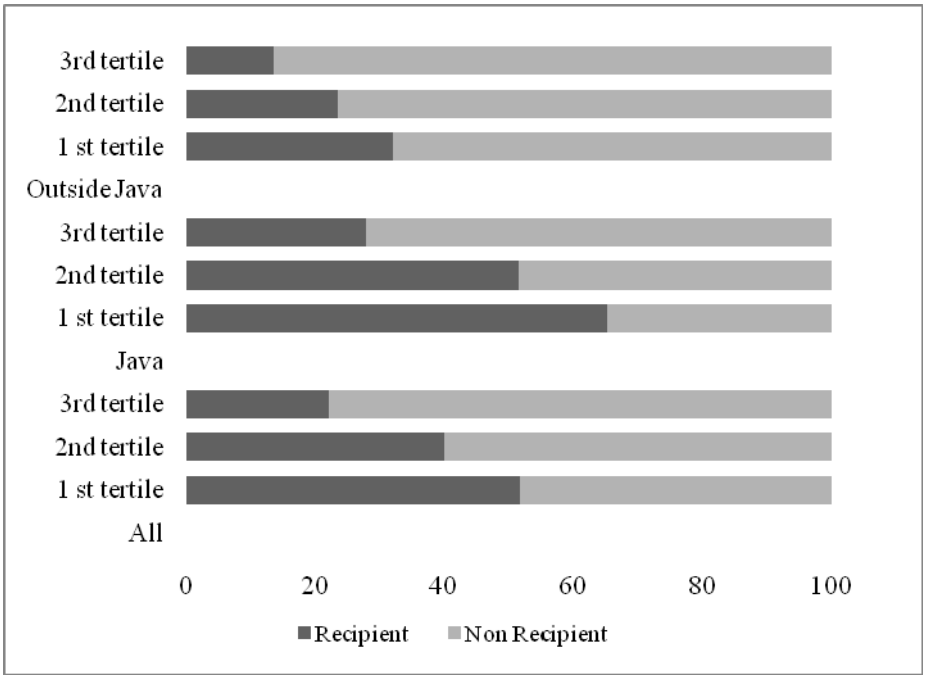
** Denotes statistically significance at 5% level.

**Table 5.** Heterogeneous Impact of Food Security Program

| | **Tertile 1** | **Tertile 2** | **Tertile 3** |
|---|---|---|---|
| Food Expenditure | 0.029 | 0.077* | 0.016 |
| | (0.047) | (0.045) | (0.059) |
| Rice | 0.055 | 0.112 | -0.150 |
| | (0.300) | (0.253) | (0.369) |
| Staple | -0.198 | 0.072 | 0.084 |
| | (0.254) | (0.177) | (0.222) |
| Dairy Product | 0.889*** | 0.042 | 0.055 |
| | (0.388) | (0.042) | (0.332) |
| Meat | 0.278 | 0.385*** | 0.004 |
| | (0.220) | (0.191) | (0.184) |
| Fish | 0.228 | 0.628*** | 0.029 |
| | (0.320) | (0.298) | (0.299) |
| Adult Goods | 0.204 | 0.555 | -0.009 |
| | (0.375) | (0.364) | (0.398) |
| Non Food Expenditure | 0.049 | 0.047 | 0.016 |
| | (0.055) | (0.048) | (0.064) |
| Medical | 0.532 | 0.434 | 0.124 |
| | (0.362) | (0.299) | (0.303) |
| Education | -0.025 | 0.233 | -0.290 |
| | (0.353) | (0.309) | (0.312) |

Note: Standard errors are in parentheses.
* Denotes statistically significance at 10% level.
** Denotes statistically significance at 5% level.
*** Denotes statistically significance at 1% level.

**Figure 1** Food Security Targeting Performance across Income and Region



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