

Raskin Welfare Reform
Agent Ratio Experiment Pre-Analysis Plan (DRAFT)
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Background

Raskin/Rastra is one of the largest social assistance programs in Indonesia, covering more than 15 million beneficiaries. Starting in 2017, Raskin/Rastra, an in-kind food subsidy, began transitioning to an electronic transfer known as *Bantuan Pangan Non-Tunai* (BPNT, or non-cash food social assistance), a process that will take place over several years until 2022.

Ensuring a smooth transition from Rastra to BPNT presents a significant challenge. A key policy parameter for BPNT implementation is the optimal density of bank agents per beneficiary necessary to ensure adequate availability of BPNT. To that end, the 2018 General Guideline specifies two criteria for banks in recruiting BPNT sales agents: 1) banks must recruit a minimum of 1 agent per 250 beneficiaries, and 2) there must be a minimum of 2 agents per village/*kelurahan*.

However, the criteria—in particular, requirement (2)—may be challenging for banks to implement. In order to test for the impact of agent concentration, we will experimentally investigate the effects of enforcing requirement (2) more strictly.

Experimental Setting

We assisted the government in dividing the 216 cities/districts where the BPNT reform was carried out in 2018 into two randomly chosen groups of equal size. In group A (108 districts/cities), the government will require banks to fulfill both BPNT requirements, which are: 1) 1:250 agent-to-beneficiary ratio and 2) minimum of 2 agents per village. In the remaining districts/cities (group B), the banks are required to fulfill the first criterion only.

By varying the requirements that banks must fulfill in different cities/districts, we will be able to shed light on the optimal agent-to-beneficiary ratio for the continued successful rollout of BPNT across the country.

To monitor the implementation in the field and to reinforce the agent recruitment criteria in both groups, we sent enforcement letters to 216 districts/cities in the agent experiment areas. We also administered a phone survey to local government and bank staff in districts from both the BPNT impact evaluation and from the bank agent ratio experiment (278 districts/cities in total). The phone survey was conducted throughout May-July 2019, and also reinforced the experimental messages.

Data

Three main data sources will be used in our analysis of this experiment. First, individual-level bank agent data, collected approximately every 6 months from official bank records, will allow us to examine the density of bank agents in each village.

Second, National Socioeconomic Survey (SUSENAS) data from 2018-2020 will allow us to examine the effect of eliminating requirement (2) on various outcomes related to the quality of Rastra/BPNT service provision.

Third, phone survey data, collected from at least one representative from three administrators of Rastra/BPNT in 278 experimental districts, will provide an additional check on the completeness of the BPNT transition process in our districts of interest.

We will use three additional datasets to provide covariates for LASSO selection:

1. The 2016, 2017, and 2018 March SUSENAS. We will average these baseline controls at the district by urban/rural level, the finest level of geographic precision we observe in the data.
2. The May 2018 PODES, a census of villages conducted three times in each decade. These will be used at the village level.
3. The UDB (Indonesia's Unified Database for Social Protection Programs), which includes socioeconomic variables for nearly 25 million of Indonesia's poorest households. The May 2018 UDB includes data from a survey of households ending in April 2018 (before the beginning of the experiment). These can be merged into the SUSENAS at the household level.

Regression Specifications

This section outlines the regression specifications that will be used in our experimental primary analysis.

1. Household-level regressions

- Regressions at the household level will be estimated using the following specification:

$$y_{huds} = \beta_0 + \beta_1 TREAT_{ds} + \beta_2 y_{baseline,uds} + \mathbf{X}'_{huds} + \alpha_s + \varepsilon_{huds} \quad (1)$$

where y_{huds} is the outcome of interest for household h with urban/rural status u in district d in stratum s , $TREAT_{ds}$ is a dummy variable indicating whether household h is located in a district that was randomized in to group B (i.e., a district where the 2 agents per village requirement was relaxed), $y_{baseline,uds}$ is the baseline (March 2018) mean of the dependent variable, averaged at the district-by-urban/rural level, α_s is a set of stratum fixed effects, and \mathbf{X}_{huds} is a vector of household-level baseline controls selected through double LASSO (Belloni et al. 2014). We subject the stratum fixed effects to penalization during lasso selection but include them in the “amelioration set” so that they are always included in our post-LASSO regression (Belloni et al. 2014). The pool of variables from which LASSO will select includes baseline SUSENAS variables from the March 2016-2018 surveys averaged at the district by urban-rural level, village-level variables from the May 2018 PODES survey of villages, and household-level covariates from the UDB. Standard errors will be clustered by district, the unit of randomization.

2. Village-level regressions

- Regressions at the village level will be estimated using the following specification:

$$y_{vds} = \beta_0 + \beta_1 TREAT_{ds} + \mathbf{X}'_{vds} + \alpha_d + \varepsilon_{vds} \quad (2)$$

where y_{vds} is the outcome of interest for village v in district d in stratum s , $TREAT_{ds}$ is a dummy variable indicating whether district d was randomized into Group B (i.e., a district where the requirement of 2 agents per village has been relaxed), \mathbf{X}'_{vds} is a vector of village-level PODES controls selected by double LASSO, and α_d is a set of district fixed effects. We may also include additional controls for LASSO selection, including the log number of beneficiaries in the village, the baseline (March 2018) value of the outcome variable, and fixed effects for the BPNT-facilitating bank in the district. Standard errors will be clustered at the district level, the unit of randomization.

3. District-level regressions

- District-level regressions will be estimated using the following specification:

$$y_{ids} = \beta_0 + \beta_1 TREAT_{ds} + \mathbf{X}'_{ds} + \alpha_s + \varepsilon_{ds} \quad (3)$$

where y_{ids} is the outcome of interest for respondent i in district d in stratum s , $TREAT_{ds}$ is a dummy variable indicating whether district d was randomized into Group B (i.e., a district where the requirement of 2 agents per village has been relaxed), \mathbf{X}'_{ds} is a vector of controls selected by double LASSO, and α_s is a set of stratum fixed effects. We may include the following variables for LASSO selection: baseline SUSENAS variables from the March 2016-2018 surveys averaged at the district level, variables from the May 2018 PODES survey averaged at the district level, and variables from the UDB averaged at the district level.

We may also explore quasi-experimental strategies to analyze the impact of agent concentration.

Analysis

Our analysis will consist of four parts: an agent achievement analysis, a baseline balance check, an evaluation of 2018-2020 outcomes, and an analysis of phone survey results.

1. Baseline balance check

- a. Aim:
 - To check for baseline balance in agent counts and other relevant outcomes between group A and B districts
- b. Data:
 - Bank administrative data on number of agents by bank in March 2018, prior to the start of the bank agent experiment.
 - March 2018 SUSENAS data
- c. Variables of interest
 - i. Number of agents per village
 - ii. Number of agents per beneficiary in the village
 - iii. Dummy for village having fulfilled BOTH the 1/250 and the minimum of 2 agents per village rules
 - iv. Dummy for village having fulfilled the 1/250 rule
 - v. Dummy for village having fulfilled the minimum of 2 agents per village rule
 - vi. All outcome variables from the Raskin/BPNT transition impact evaluation
- d. Regressions:
 - Regressions of (i) through (v) above will be run at the village level, following equation (2). Regressions of (vi) will be run at the household level, following equation (1).
 - We will estimate this regression in 3 samples:
 1. All villages

2. All villages that have not fulfilled the minimum 2 agent rule at baseline
3. All villages that have not fulfilled the minimum 2 agent rule at baseline AND that have fewer than 500 beneficiaries (this is our primary specification)

2. Effect of treatment on agent concentration

- a. Aims:
 - To compare the existing number of agents in group A/B districts against these requirements and monitor whether the banks follow their assigned rule in recruiting agents
- b. Data:
 1. Periodic bank agent data: we plan to use individual-level bank agent data from August 2018, March 2019, August 2019, and March 2020, to approximately match the time periods in which the SUSENAS is administered.
 2. Numbers of beneficiaries per village: we plan to use the 2017 beneficiaries data that GoI used for 2018 BPNT logistical planning
- c. Primary outcomes of interest, at village level
 - i. Total number of agents per village
 - ii. Dummy for village having fulfilled the min 2 agents per village rule
- d. Secondary outcomes
 - i. Total number of agents per beneficiary in the village
 - ii. Dummy for village having fulfilled BOTH the 1/250 and the min 2 agents per village
 - iii. Dummy for village having fulfilled the 1/250 rule
- e. Regressions
 - Regressions for the outcome variables listed above will be run at the village level, following equation (2). We will estimate these regressions in 3 samples.
 - i. All villages
 - ii. All villages that have not fulfilled the minimum 2 agent rule at baseline
 - iii. All villages that have not fulfilled the minimum 2 agent rule at baseline AND that have fewer than 500 beneficiaries

3. Outcome analysis, 2018-2020

- a. Aim:
 - To compare household-level outcomes related to BPNT provision, drawn from SUSENAS data between 2018-2020, between group A and B districts
- b. Data:
 1. Our data will come from the following SUSENAS rounds over the 2018-2020 period: September 2018, March 2019, September 2019, and March 2020.
- c. Sample:

For the outcome analysis, our primary specification will be the combination of survey round and sample in which we find the strongest first stage relationship (effect of treatment on agent concentration). We choose from the following survey rounds: August/September 2018, March 2019, August/September 2019, and March 2020. We choose from the following samples:

 1. All villages
 2. All villages that have not fulfilled the minimum 2 agent rule at baseline
 3. All villages that have not fulfilled the minimum 2 agent rule at baseline AND that have fewer than 500 beneficiaries
- d. Primary Outcomes:

1. Unit price of rice and eggs for items purchased using BPNT
 - We will calculate the price as follows: for each household that reports purchasing rice or eggs with BPNT, we will divide the amount spent in Rupiah on rice/eggs (question 1605C(i) in March 2018 and 2110C(i) in March 2019) by the quantity purchased (question 1605C(ii) in March 2018 and 2110C(ii) in 2019). Note: this question is not available in September 2018 and so this variable cannot be calculated.
2. Value of goods purchased with BPNT (using island urban/rural price)
 - We will compute island by urban/rural-level average market prices, where island indicates the 7 major island/province groupings. This will be calculated as follows: for each household we will divided the total amount spent on rice/eggs in Rupiah in the last week (line 2, column 6 in Block IV.1 of the consumption module) by the total quantity of rice/eggs purchased in the last week (line 2, column 5), *excluding* households that reported receiving Raskin or BPNT. We will then collapse this to the island by urban/rural level using household weights.
 - Finally, we will multiply the quantity of eggs and rice purchased by each household (question **1605C(ii)** in March 2018, question **2004C** in September 2018, and question **2110C(ii)** in 2019) by the island urban/rural egg and rice price
3. Distance from beneficiaries' house to purchase point
 - Question **1605E** in 2018, question **2110F** in 2019
4. Self-reported quality of BPNT rice for the most recent rice purchase
 - Question **1605F** in 2018, question **2110G** in 2019
- e. Secondary Outcomes:
 1. Total quantity of rice/eggs/other food purchased using BPNT
 - Question **1605C(ii)** in March 2018, question **2004C** in September 2018, and question **2110C(ii)** in 2019 report the quantities of rice and eggs purchased with BPNT. Quantities will be reported in kg or units.
 - Question 1605C(i) in March 2018 and question 2110C(i) in March 2019 report the amount of BPNT (in rupiah) spent on goods other than rice and eggs. This question is not available in the September 2018 survey.
 2. Unit price of rice and eggs
 - The price of rice and eggs will be calculated at the household level. For each household, we will divide the total amount spent on rice/eggs in the last week (**line 2, column 6** in Block IV.1 of the consumption module) by the total quantity of rice/eggs purchased in the last week (**line 2, column 5**).
 3. Value of goods purchased with BPNT (using district urban/rural price)
 - We will multiply the quantity of eggs and rice purchased by each household by the district urban/rural egg and rice price. The district urban/rural egg price will be calculated analogously to the island urban/rural price (detailed in section (d)2 above), except that prices will be aggregated to the district by urban/rural level.
 4. Financial inclusion
 - **Question 717** in the 2018 SUSENAS and **question 808** in the 2019 SUSENAS records whether each household member possesses a savings account. We will code a dummy equal to 1 if at least one household member reports owning a savings account and 0 otherwise.
 5. Mechanism: Agent composition (types of BPNT agents/purchase points)
 - Question **1605D** in 2018, question **2110E** in 2019 ask the type of agent from which the respondent most recently purchased BPNT
 - We will construct a dummy variable for each category of agent
- f. Regressions:

1. Regressions of the primary and secondary outcome variables above will be estimated at the household level, following equation (1).
2. Regressions of outcome variables that are defined unconditionally of BPNT receipt (d2, e1, e2, e3, and e4) will be estimated in 3 samples:
 - i. All households
 - ii. Households that have a PMT (proxy means test) score from the UDB of 30 or below
 - iii. Households that do not have a PMT score from the UDB or have a PMT score above 30

We estimate regressions in samples (ii) and (iii) in order to examine heterogeneity in the treatment effect between expected program recipients and non-recipients. BPNT is targeted at the poorest 30% of households, and we believe that this corresponds to households with a PMT score of 30 or below.

- g. Outliers: for continuous outcome variables (including d1, d2, d3, e1, e2, and e3 above) we will drop values with z-scores greater than 12. In an appendix, we will report results for these variables in which we drop values below the 0.5th percentile and above the 99.5th percentile.

4. Phone survey analysis of BPNT implementation

a. Data:

- Our phone survey data are collected from 278 experimental districts (the 216 districts randomized as part of the bank agent experiment, plus 62 of the 63 control districts from the BPNT impact evaluation experiment). The phone survey was conducted by contacting at least one representative from three institutions in charge of Rastra/BPNT: Social Affairs Agency (Dinsos), Himbara banks (BNI/BRI/Mandiri/BTN), and Regional Secretary Office (Sekda), which occurred from May to July 2019. We have *at least* one survey respondent for 276 out of 278 districts in our phone survey sample.

b. Outcomes of interest for experimental analysis (group A vs. group B in bank agent ratio experiment)

- Total number of purchase locations in the district
 - i. We will calculate the total number of purchase locations in each district, summing the amount of each type reported in question **F3** (Bank agent, E-Warong Kube PKH, RPK, and Others)
- Received enforcement letter
 - i. We will code a dummy equal to 1 if the respondent received the enforcement letter (Question **I1**)
- Received enforcement letter with list of villages
 - i. We will code a dummy equal to 1 if the respondent received a letter with a list of villages (Question **I6**).
- Respondent actively recruited more agents after receiving the enforcement letter
 - i. We will code a dummy equal to 1 if the respondent listed option F (“recruit more agents”) for question **I5**, and equal to 0 if the respondent said “no” to question **I3** or did not list option F for question **I5**.
- Respondent actively recruited more agents after receiving the letter and list of villages

- i. We will code a dummy equal to 1 if the respondent listed option D (“Recruit more agents in the villages mentioned in the list”) for question **I9**, and equal to 0 if the respondent listed an option other than D for question **I9**.
 - Respondent’s institution responded to the enforcement letter
 - i. We will code a dummy equal to 1 if the respondent’s institution actually responded to the enforcement letter, and equal to 0 if the respondent’s institution did not respond to the letter.
 - Respondent knowledge of criteria for number of bank agents
 - i. We will code 3 separate dummy variables for three different sets of responses question **H2** (What is the E-Warong recruitment criteria in your area?). The first will be equal to 1 if the respondent reports criterion **A** (The ratio of E-Warong to beneficiaries is 1:250), and 0 otherwise.
 - ii. The second will be equal to 1 if the respondent reports criteria **B** (Minimum 2 E-Warong per village) or **C** (Minimum 2 E-Warong per kelurahan), and 0 otherwise.
 - iii. The third will be equal to 1 if the respondent reports criteria **D** (Minimum 1 E-Warong per village) or **E** (Minimum 1 E-Warong per kelurahan)
- c. Regressions:
5. Regressions of the outcome variables above will be estimated at the district level, following equation (3). For some districts, we observe multiple respondents per district. Consequently, we will estimate the above specification in 3 different samples:
 - i. We will include observations from all 3 respondent types (Dinsos, Bank, and Sekda). Standard errors will be clustered at the district level.
 - ii. We will include observations from both government respondents (Dinsos and Sekda). Bank respondents will be dropped. Standard errors will be clustered at the district level.
 - iii. We will include only bank respondents.
- d. Descriptive statistics—we will tabulate the following phone survey variables (at the district level) by experimental treatment group to monitor compliance with the experiment.
 - Status of Rastra-BPNT transition
 - i. Questions **D1-D5** (administration of Rastra and/or BPNT within district). We intend to identify the following types of districts:
 - Districts that have/have not transitioned to BPNT
 - Districts that administer Rastra and BPNT simultaneously
 - Districts that revert from BPNT to Rastra distribution, if any
 - Amount of BPNT assistance
 - i. Question **F1**: tabulate what percentage of respondents gave the correct BPNT assistance amount by group A vs. group B.
 - Beneficiaries’ flexibility in purchase decisions
 - i. Questions **G1** and **G3**: tabulate what percentage of respondents responded "yes" to G1 and G3 by group A vs. group B.
 - Understanding of agent ratio criteria for respective treatment group
 - i. Question **H2**: tabulate what percentage of respondents gave the correct criteria for their treatment group (group A vs. group B).
 - Follow-up on BPNT evaluation letter
 - i. Question **I1**: tabulate the percentage of respondents that received a BPNT evaluation letter.
 - ii. Question **I6**: tabulate the percentage of respondents that received a list of villages.

- iii. Question **17**: tabulate the percentage of respondents that found the list of villages accurate.