

Financial Spillover Effects from Electronic Government Transfers: Evidence from an At-Scale Experiment in Indonesia

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SUMARTO*

Worldwide, governments are digitizing payments to transfer program beneficiaries. They aim to not only increase the efficiency of such programs in distributing benefits, but to also increase access to formal financial institutions.

Indonesia is no exception. Starting in 2017, Indonesia began a national reform to replace its largest anti-poverty program—“Rastra” (or Rice for Welfare), an in-kind food program that delivered 10kg of free rice per month to 15 million targeted households nationwide—with an electronic voucher-based program, named “BPNT” (Bantuan Pangan Non-Tunai, or Non-Cash Food Assistance), that aimed to provide the same targeted households with a debit card that allowed them to purchase a similar value of rice and eggs from eligible stores.

Given budgetary and logistical concerns, the transition from the old to new program

occurred in waves, and as part of this, Indonesia randomized 105 districts to be converted to the new program in either 2018 or 2019. The scale of this experiment—about one-fifth of Indonesia’s population—allows us to study how in-kind transfers compare to electronic voucher programs in a real-world setting at a large enough scale to incorporate general equilibrium effects (Muralidharan and Niehaus 2017).

The reform improved the ability of the program to deliver assistance to those in need: The shift to electronic vouchers increased the value of transfers received by the program’s intended beneficiaries by 46 percent relative to the in-kind areas, and in doing so, reduced poverty among beneficiaries, all at lower administrative cost (see Banerjee et al. 2023 for details).

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Beyond the main impacts of improving the targeting and distribution of the program, the government expected the conversion to have three additional effects (Ministry of Social Affairs Republic of Indonesia 2018). First, they expected the conversion to increase access to finance. The new electronic vouchers could only be redeemed at shops that were equipped as point-of-service remote banking agents capable of processing BPNT transactions, so the government mandated the participating banks to increase agents in treatment areas. Because agents are theoretically equipped to handle other basic banking transactions, as well as BPNT, having more agents could reduce bank transaction costs for both beneficiaries and non-beneficiaries.¹ Second, mandating digital payments in one social program may give people more trust in the financial system and lead them to take up digital transfers in other programs, improving the distribution efficiency in these programs too.

Third, the government expected that the conversion could affect local economic growth and activities, especially for small and medium enterprises. Beneficiaries would now be going to the private sector to buy the subsidized food, which could increase revenue for small

neighborhood shops. Moreover, if the transactions costs of banking went down, it could lead to increased credit and increased business activity.

We examine these additional goals of the conversion from in-kind transfers to digital vouchers, testing whether the conversion had effects on financial access, spillovers to other government programs, and small business development.

I. EXPERIMENTAL DESIGN

Rastra aimed to provide subsidized food assistance to 15 million beneficiary households per month. Eligibility was determined through proxy-means testing carried out by the central government (see Alatas et al. 2012; and Banerjee et al. 2018). Households with a proxy-means score below approximately the 30th percentile nationally were entitled to receive 10kg of free rice per month, with a value of about Rp. 100,000 (US\$8)/month.

In 2017, the government phased out Rastra and replaced it with a targeted, electronic voucher program called BPNT. The program eligibility for BPNT was the same as Rastra (we refer to households at or below the 30th percentile as beneficiaries), but eligible

¹ In fact, our qualitative work suggested that the program could have affected the financial inclusion of non-beneficiaries by reducing bank transactions costs. For example, a bank agent in Central Jakarta,

reported that construction workers who worked nearby saved regularly through the agent every week. Another agent in East Jakarta also shared that her neighbors came and started saving using the facilities she had as a bank agent.

households would now receive a monthly voucher of Rp. 110,000 to purchase rice or eggs from a network of eligible small shops (see Appendix Figure 1).

The conversion was rolled out by district over about four years. For the 2018-2019 conversion, 105 districts were randomized (stratified by geography) such that 42 received BPNT in 2018, while the remaining 63 districts received it in 2019 (see timeline in Appendix Figure 2).

We use four main datasets to evaluate the program's impact. First, we use administrative data from the state-owned banks that ran the agent network to compute the total number of bank agents.

Second, we use data from the March 2019 National Socio-Economic Survey (SUSENAS) to examine the impacts of the conversion on financial inclusion outcomes and receipt of other government programs.²

Third, we use administrative data from the government's Unified Targeting Data Base (UDB) to determine likely eligibility for BPNT. Finally, we examine outcomes on small business activity from the 2019 village census (PODES).

II. FINDINGS

Financial access. In Table 1, Column 1, we examine the impact of the electronic voucher conversion on agent concentration in the village by estimating:

$$(1) y_{vds} = \beta_0 + \beta_1 Voucher_{ds} + \beta_2 y_{vds}^{lag} + X'_{vds} \gamma + \alpha_s + \epsilon_{vds}$$

where y_{vds} is the total number of bank agents in the village, and $Voucher_{ds}$ is the randomization into the voucher conversion in 2018. We control for strata, the lagged variable of the outcome, and include control variables selected using a double LASSO (Belloni, Chernozhukov, and Hansen 2014). We estimate the intent to treat using the original randomization (only 3 of our control districts were treated during the study period). Standard errors are clustered by district; we report randomization inference p-values (Young 2019). For the main tables, we constrain to the villages with no agent at baseline, i.e. areas with low financial access prior to the program (results for all villages are similar; see Appendix Table 1).

[Insert Table 1 Here]

The introduction of the electronic voucher system increased the total number of bank

² We also construct district * rural/urban averages of the same variables in the March 2018 SUSENAS, which we merge in at that level as potential baseline control variables.

agents in a village by 68 percent relative to the control group (Column 1). In fact, we observe an almost 70 percent increase in having at least one agent in the village (Column 2).

However, turning to Columns 3 and 4, despite this large increase in agents, we do not observe an effect on use of financial services.³ We find no effects on owning a savings account or receiving credit from any source for all households. In fact, at the 90% confidence level, we can rule out effect sizes of more than 3.2 percentage points for savings and 2.7 percentage points for credit, relative to the control group.

These main effects may be missing important forms of heterogeneity. First, it is possible that the effect was larger for beneficiaries, who engaged more with agents as part of the program; however, Appendix Table 2 shows that is not the case. Second, it is possible that the program differentially affected women, since BPNT preferentially issued cards to the female head of household. Importantly, the SUSENAS asks whether each individual within the household owns a savings account, so we can test this directly. As Appendix Table 3 shows, we do not observe an increase in savings accounts for women, and in fact, we

can rule out effect sizes of more than 1.9 percentage points.

In short, despite a very large push from the government—e.g. giving electronic vouchers to beneficiaries and dramatically increasing the presence of local banking agents—we find little effect overall on the level of financial inclusion, either for beneficiaries or non-beneficiaries. This is true even in the areas we studied that had no bank agents at baseline. The lack of effect we find here stands in contrast to Kochar (2018), who finds that in India, increased ‘branchless banking’ agents led to an increase in financial inclusion.

Receipt of other programs. The increased access could have also changed how beneficiaries receive other government programs. To examine this, Figure 1 examines whether being in an electronic voucher district relative to an in-kind distribution district affects the choice of method to receive the conditional cash transfer program (PKH) using the household-level SUSENAS data. We focus on households at or below the 30th percentile as they are more likely to be eligible for PKH (although Appendix Table 4 shows that the results look similar for all households). We first show that the conversion did not affect the

³ We estimate Equation 1. Since the SUSENAS is not a panel, we compute and merge district/rural-urban means for all control variables from previous SUSENAS.

probability of receiving PKH. Therefore, we can look at the choice of payment receipt for the sample of those who received the program. Even in control areas, about 24 percent of PKH recipients received their transfer through a bank agent; in the treatment areas, we observed a 6.9 percentage point increase (29 percent increase; $p\text{-value}=0.10$ in the use of bank agents for PKH).

[Insert Figure 1 Here]

Small business outcomes. The government also aimed for the new voucher system to help local economic activities. The digital vouchers could do so in two ways. First, by moving from a government distribution of in-kind transfers to allowing beneficiaries to buy products at any local shop that has a registered EDC machine (the card reader used by bank agents), beneficiaries could shop more at the types of small local businesses that sell rice and eggs, leading to an increase in business activity in this sector. Second, by deepening the agent network in the village, it could increase access to financial services more broadly, which could in turn lead to more business activity.

In Table 2, we examine the total number of small businesses by type in the village census data (PODES). The conversion led to more small neighborhood shops, i.e. the kind of shops where the transfer program beneficiaries

typically mention receiving their transfers (Column 1). On average, there are about 16.99 shops of this type in a village. In voucher areas, we find an increase of 2.97 shops, or about a 17 percent increase ($p\text{-value}$ of 0.021). Examining other small businesses that are less common for beneficiaries to shop at for food staples, we do not observe any effect. This suggests that the effects may be driven by an increase in the types of businesses that beneficiaries typically receive their benefits from, rather than an increase in agents driving new businesses more broadly.

[Insert Table 2 Here]

III. CONCLUSION

This paper contributes to the literature on the impacts of “G2P” (Government to People) payments in developing countries (see, for example, Aker et al. 2016; Bachas et al. 2021; Higgins 2022).

In our paper, despite the large increase of point-of-service agents and widespread use of debit cards for the BPNT transfer, we find that the conversion had limited effects on spurring greater financial access.

Our results also point to two other potential spillovers of the conversion. First, investing in G2P infrastructure could have effects on the form of other government programs, as in this case, households increased their use of

electronic payments for other programs. Second, we find that the conversion from in-kind to the voucher system increased the number of small neighborhood businesses that serve these kinds of customers. However, given that we find no large increases in credit, as well as no other effects on other types of businesses, this is perhaps driven by the move from government distribution of in-kind goods to vouchers for goods at private business, rather than an increase of financial access more broadly due to the increased banking agents.

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TABLE 1— IMPACT ON TOTAL BANK AGENTS, SAVINGS, AND CREDIT

	Total # of Bank Agents	>=1 Bank Agent in Village	Savings Account	Receiving Credit From Any Source
Voucher	0.393 (0.106) [0.000]	0.229 (0.048) [0.000]	0.014 (0.011) [0.259]	0.009 (0.011) [0.396]
Observations	14625	14625	35578	35578
DV Mean (Control)	0.579	0.337	0.541	0.219

Notes: Column 1 examines administrative data on the total agents in the village. Columns 2 and 3 examine household financial inclusion outcomes from the March 2019 SUSENAS for all households (beneficiary and non-beneficiary) in villages with no agents at baseline. Controls include the outcome at baseline and a lasso selection of household (consumption, expenditures, and assets) and village (infrastructures and proximity to financial institutions) baseline characteristics. We include fixed effects of the final strata. Regressions are clustered by district, and randomization inference p-values are in brackets.

TABLE 2— IMPACT ON SMALL BUSINESS

	Small Neighborhood Shops	Minimarkets, Food, Beverage Shops	Restaurants
Voucher	2.972 (1.065) [0.021]	0.221 (0.531) [0.579]	0.010 (0.048) [0.880]
Observations	14452	14452	14452
DV Mean (Control)	16.994	6.284	0.337

Notes: Data on small businesses come from the 2019 PODES for villages with no agents at baseline. Controls include the outcome at baseline and a lasso selection of household (consumption, expenditures, and assets) and village (infrastructures and proximity to financial institutions) baseline characteristics. We include fixed effects of the final strata. Regressions are clustered by district, and randomization inference p-values are in brackets.

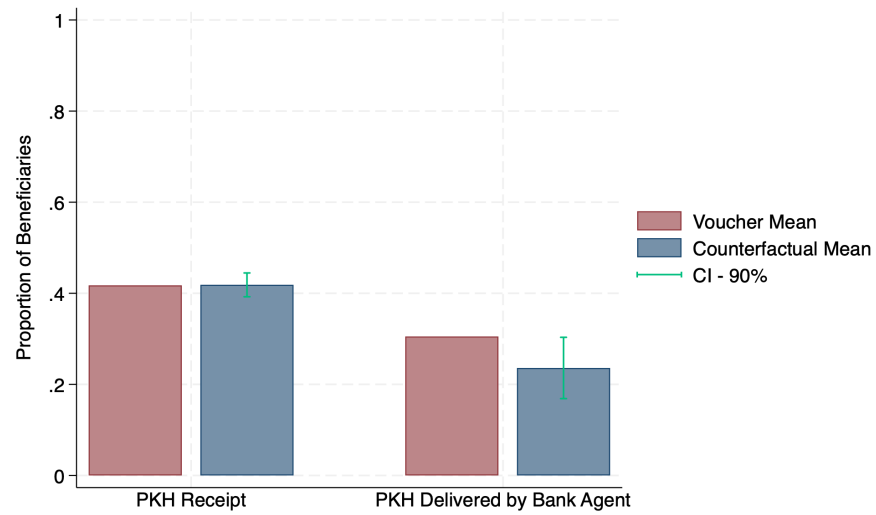


FIGURE 1. [IMPACT ON PKH TAKE-UP AND DISTRIBUTION

Note: We compare post-intervention means of the voucher districts to in-kind districts (specifically, we take the voucher group mean and subtract out the treatment effect to obtain the counterfactual). Both outcomes on PKH receipt and whether it is distributed by a bank agent (conditional on receiving PKH) come from the March 2019 SUSENAS for beneficiary households (proxy-means score ≤ 30) in villages with no agents at baseline. Controls include the outcome at baseline and a lasso selection of household (consumption, expenditures, and assets) and village (infrastructures and proximity to financial institutions) baseline characteristics. We include fixed effects of the final strata, and regressions are clustered by district.