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## Building State Capacity: Evidence from Biometric Smartcards in India

By KARTHIK MURALIDHARAN, PAUL NIEHAUS, AND SANDIP SUKHTANKAR

Anticorruption programs in developing countries are often difficult to implement, in particular, many governments lack the capacity to deliver payments securely to targeted beneficiaries. We evaluate the impact of beneficiary-validated payments in the structure of "Smartcards" on beneficiary satisfaction (employment in NREGS) and pension (SSP) programs in the Indian state of Andhra Pradesh, using a large-scale experiment that randomized the rollout of Smartcards over 137 subdistricts and 19 million people. We find that, while incompletely implemented, the new system delivered a faster, more predictable, and less corrupt NREGS payments process without adversely affecting program access. For each of these outcomes, treatment group distributions first-order stochastically dominated those of the control group. The investment was cost-effective, as time savings to NREGS beneficiaries alone were equal to the cost of the intervention, and there was also a significant reduction in the "leakage" of funds between the government and beneficiaries in both NREGS and SSP programs. Beneficiaries overwhelmingly preferred the new system to the old one, and, overall, the program was cost-effective, suggesting that secure payments infrastructure can significantly enhance a state's capacity to implement welfare programs in developing countries. (JEL H53, H55, I22, P38, J65)

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Figure 4

# Building State Capacity: Evidence from Biometric Smartcards in India

Antipoverty programs in developing countries are often difficult to implement; in particular, many governments lack the capacity to deliver payments securely to targeted beneficiaries. We evaluate the impact of biometrically authenticated payments infrastructure (“Smartcards”) on beneficiaries of employment (NREGS) and pension (SSP) programs in the Indian state of Andhra Pradesh, using a large-scale experiment that randomized the rollout of Smartcards over 157 subdistricts and 19 million people. We find that, while incompletely implemented, the new system delivered a faster, more



predictable, and less corrupt NREGS payments process without adversely affecting program access. For each of these outcomes, treatment group distributions first-order stochastically dominated those of the control group. The investment was cost-effective, as time savings to NREGS beneficiaries alone were equal to the cost of the intervention, and there was also a significant reduction in the “leakage” of funds between the government and beneficiaries in both NREGS and SSP programs. Beneficiaries overwhelmingly preferred the new system for both programs. Overall, our results suggest that investing in secure payments infrastructure can significantly enhance “state capacity” to implement welfare programs in developing countries.

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