USDA Food and Nutrition Service
U.S. DEPARTMENT OF AGRICULTURE

Research Summary September 2023

Analysis of Robotic Process Automation in USDA's Supplemental Nutrition Assistance Program (SNAP): Three Case Studies (Summary)

Background

The U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS) administers 16 nutrition assistance programs with the mission to increase food security and reduce hunger—in partnership with cooperating organizations—by providing children and people with low-income access to food, a healthy diet, and nutrition education in a manner that supports American agriculture and inspires public confidence.

This study examines the use of robotic process automation (RPA) technologies by three State agencies—Georgia, New Mexico, and Connecticut—to administer the Supplemental Nutrition Assistance Program (SNAP). RPA is software that integrates with other programs to automatically complete repetitive processes that normally are performed by humans. To issue benefits to new and recertifying households, SNAP State agencies must verify certain household information to determine eligibility, which requires staff to complete various administrative tasks. Many tasks involve routine data entry subject to error, so some States use RPA technology to automate these repetitive tasks to improve customer service, increase productivity, and reduce errors. This study estimates RPA impacts on time needed to certify SNAP applications, costs of RPA, and State staff perception of RPA.

Key Findings

- As of January 2022, nine States were using RPA in SNAP administration.
- SNAP recertifications processed using RPA had lower payment error rate in Georgia.
- For Georgia's RPA, benefits exceeded costs within 1 year.
- Results suggest New Mexico's RPA, which helps process address changes, helps save time for participants.
- The study did not find a significant correlation between RPA use and reduced time to case approval or denial in Connecticut and Georgia.
- A lack of productivity data made it impossible to assess precise time savings for workers.

Methods

This study used a case study approach to assess RPA use in three States: Connecticut, Georgia, and New Mexico. These States reflect a variety of RPA types, FNS regions, caseload sizes, and implementation dates. Both qualitative and quantitative methods were used to collect and analyze data from each State to answer the following research questions: (1) Describe how RPA can be and is being used in SNAP administrative operations, service delivery, and measuring program outcomes; (2) Describe, across the study States, the key features, motivations for selecting, opportunities, challenges, costs, and benefits of their relevant RPA projects; (3) Quantify and assess the impacts, costs, and benefits of RPA projects on SNAP State administrative processes; and (4) Assess whether and how RPA projects could be designed to scale across SNAP caseload categories and made interoperable with other administrative processes within and between SNAP State agencies.

Qualitative methods included a literature review of previous research into the use of RPA in public administration, review of internal documents provided by State agencies, and semi-structured interviews with State agency frontline and information technology staff to understand the development, implementation, and operation of the RPA projects.

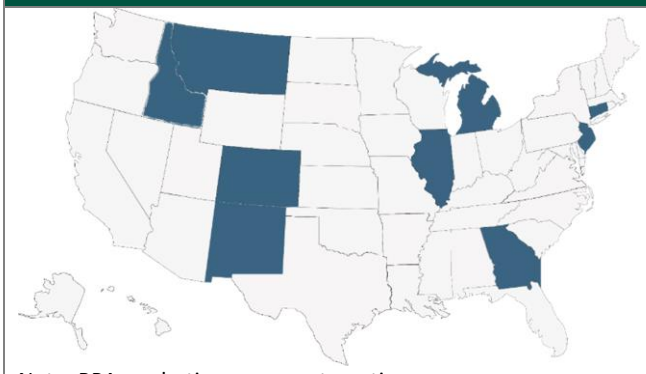
Quantitative methods included the collection of case-level administrative data and aggregated reports from the States that spanned 6 months before and 6 months after RPA implementation. Cost data were collected from each State. These data were used to produce descriptive statistics, conduct interrupted time series analyses, and perform cost-benefit analyses of the RPA projects.

Findings

As of January 2022, nine States were using RPA in SNAP administration: Colorado, Connecticut, Georgia, Idaho, Illinois, Michigan, Montana, New Jersey, and New Mexico (see Figure 1). SNAP State agencies use RPA to assist with recertifications and periodic reporting, updating

addresses, sending notices, and updating reporting related to SNAP Employment and Training, among other activities.

Figure 1: Robotic Process Automation (RPA) Use Among SNAP State Agencies

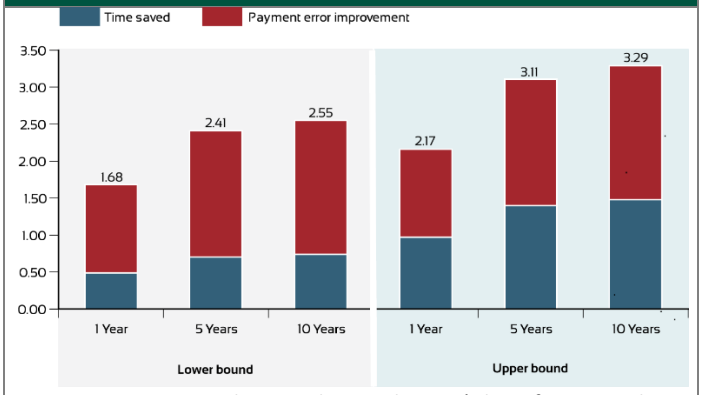


Note: RPA = robotic process automation

Recertifications processed using RPA had lower payment error rate in Georgia. One goal of the Georgia RPA project was increased accuracy. Staff noted the RPA cannot make data entry errors and flags for workers the most error-prone aspects of a case.

Georgia's RPA benefits exceeded the costs within 1 year. Georgia's RPA benefits exceeded the costs within 1 year of implementation due to eligibility worker time saved and an improvement in the payment error rate (see Figure 2).

Figure 2: Georgia s Monetized Benefits from Robotic Process Automation (RPA)



Note: A ratio greater than 1 indicates the RPA's benefit outweighs the cost. In the lower bound and upper bound estimates, the study team assumes an eligibility worker saves an average of 5 minutes per RPA case in the lower bound estimates and 10 minutes per RPA case in the upper bound estimate.

Time saved by eligibility workers nearly exceeds the costs when assuming an average savings of 10 minutes per case.

Quantitative findings from Connecticut and Georgia do not suggest RPAs reduced time approval or denial decision of a case. In Georgia, RPA implementation had no statistically significant association with days to decision, while the number of days to decision was higher for cases processed by RPA in Connecticut. However, this study could not precisely quantify time savings because of a lack of worker productivity data, and days to decision may not be sensitive enough to capture productivity changes.

To break even on costs versus benefits, Connecticut's RPA would need to process 10 times as many cases each year. The cost-benefit analysis includes the benefit to Medicaid and cash assistance cases in addition to SNAP. However, the analysis likely underestimates the potential benefits of the RPA because only eligibility worker time saved was monetizable and not reductions in errors.

New Mexico's RPA, which helps process address changes, helps save time for participants. With RPA, participants can submit an address change via webchat or a quick conversation with call center staff. In the past, a participant may have waited over 2 hours to speak with an eligibility worker, but administrative data indicate participants spend an average of 10 minutes in a live chat.

Potential benefits of an RPA in SNAP were limited by SNAP regulations. Unlike other benefit programs, such as Medicaid, SNAP regulations require merit workers to make the final decision on every case. Because a worker still needs to review any updates made to a SNAP case by an RPA, the number of tasks assigned to a worker does not diminish, though they may not need to spend as much time on each task.

A lack of worker productivity data made it impossible to assess precise time savings for workers. A key RPA goal for the States was saving eligibility worker time. However, metrics needed to quantify this were not being regularly collected by State agencies, limiting the ability to verify whether these goals were met for the agencies.

For More Information:

Wroblewska, Kathy; Kessler, Courtenay; Perez-Zetune, Victoria; Worden, Megan; Page, Nina (2023). Analysis of Robotic Process Automation in Supplemental Nutrition Assistance Program: Three Case Studies. Prepared by Insight Policy Research, Contract No. GS-10F-0136X/12319821F0058 Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support, Project Officer: Kameron Burt. Available online at: www.fns.usda.gov/research-and-analysis.