Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.
**eAppendix. Explanation of Recertification Procedures**

A client can apply for SNAP benefit recertification by applying online, submitting an application by mail or fax, dropping off an application, or meeting with a case manager in person.

Once an application is filed, a subsequent interview with the applicant is scheduled to ask him/her to provide any outstanding verification(s) that is needed to make an eligibility determination. Income, assets, and expenditures must all be verified before eligibility can be approved. Eligibility determinations are made within 30 days of the date the application is filed.

At recertification, when a case is closed, and the client returns to DTA within 30 days of the action, staff must determine if there was a delay in processing and whether the fault is attributed to the Department or to the client.

If the Department caused the delay, and the client is otherwise eligible, SNAP benefits must be approved retroactively to the date of application or to the day after the closing date.

If the client caused the delay, and is otherwise eligible, SNAP benefits must be prorated based on the remaining days of the month.
eFigure. Flow Chart of Observations Included in Primary Analyses

964,837 recertifications by 551,276 households in MA

138,066 recertifications by 82,896 households with children under 6 years old

126,107 recertifications by 75,503 households with complete information

115,351 recertifications by 70,799 households from January 2014 – November 2019
9,752 recertifications by 9,735 households from May 2019 – November 2019

Sample restriction
- 826,771 recertifications by 504,029 households with no children under 6 years old.

Household exclusions
- 6,114 households (9,792 recertifications) missing race/ethnicity on all submitted forms
- 665 households (1,118 recertifications) reporting mixed or other race/ethnicity
- 410 households (640 recertifications) missing age, gender, or marital status.
- 398 households (409 recertifications) missing town of residence

Recertification exclusions
- 2,874 recertifications for monthly benefits equal to $0.
- 102 certifications by misclassified households
- 940 recertifications duplicated due to clerical error
- 66 recertifications with inconsistent dates
- 1,096 recertifications occurring in December 2019.
- 5,678 recertifications occurring in a policy implementation month

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**eTable 1.** Characteristics of Recertification Forms Submitted by SNAP Households With Young Children Overall and by Outcome, Using 120 Day Definition Of Churn, May-August 2019 (N=5838 Households)

| Overall | Successful re-certification | Churn <30 days | No return |
|---------|-----------------------------|---------------|-----------|
| Overall | 5,838                       | 1,726 (29.6%) | 2,903 (49.7%) | 1,209 (20.7%) |
| Household Size, mean (SD) | 4.21 (1.29) | 4.34 (1.32) | 4.23 (1.28) | 3.99 (1.24) |
| Earned income, mean (SD) | 853.64 (1023.78) | 783.20 (1007.36) | 774.89 (951.81) | 1143.27 (1154.59) |
| Unearned income, mean (SD) | 221.93 (440.95) | 253.06 (469.04) | 209.49 (422.36) | 207.34 (441.39) |
| Monthly SNAP benefit, mean (SD) | 399.70 (192.88) | 418.23 (195.09) | 419.29 (186.29) | 326.22 (187.68) |
| Length of churn spell, mean (SD) | 3.05 (5.33) | 3.05 (5.33) | 3.05 (5.33) | 3.05 (5.33) |

**Race/Ethnicity**

|                | Overall | Successful re-certification | Churn <30 days | No return |
|----------------|---------|-----------------------------|---------------|-----------|
| White, NH      | 2,123 (36.4%) | 636 (36.8%) | 1,014 (34.9%) | 473 (39.1%) |
| Black, NH      | 1,328 (22.7%) | 380 (22.0%) | 660 (22.7%) | 288 (23.8%) |
| Hispanic       | 2,257 (38.7%) | 682 (39.5%) | 1,167 (40.2%) | 408 (33.7%) |
| Asian, NH      | 130 (2.2%) | 28 (1.6%) | 62 (2.1%) | 40 (3.3%) |

**Age group**

|                | Overall | Successful re-certification | Churn <30 days | No return |
|----------------|---------|-----------------------------|---------------|-----------|
| 17-29          | 2,703 (46.3%) | 781 (45.2%) | 1,376 (47.4%) | 546 (45.2%) |
| 30-39          | 2,473 (42.4%) | 771 (44.7%) | 1,192 (41.1%) | 510 (42.2%) |
| 40+            | 662 (11.3%) | 174 (10.1%) | 335 (11.5%) | 153 (12.7%) |

**Number of children <6 in household**

|                | Overall | Successful re-certification | Churn <30 days | No return |
|----------------|---------|-----------------------------|---------------|-----------|
| 1              | 4,374 (74.9%) | 1,277 (74.0%) | 2,119 (73.0%) | 978 (80.9%) |
| 2+             | 1,464 (25.1%) | 449 (26.0%) | 784 (27.0%) | 231 (19.1%) |

**Gender**

|                | Overall | Successful re-certification | Churn <30 days | No return |
|----------------|---------|-----------------------------|---------------|-----------|
| Female         | 5,479 (93.9%) | 1,649 (95.5%) | 2,738 (94.3%) | 1,092 (90.3%) |
| Male           | 359 (6.1%) | 77 (4.5%) | 165 (5.7%) | 117 (9.7%) |
**eTable 2.** Association of Race/Ethnicity and Demographic Factors With the Probability of Experiencing a Churn Spell at Annual Recertifications Within 120 Days of Certification Among Households With Young Children in Massachusetts, May-August 2019 (N=5838 Households)

|                          | Estimate (95% CI)$^b$ | P-value |
|--------------------------|-----------------------|---------|
| **Age group**            |                       |         |
| 18-29 (Reference group)  | 49.7 (47.6, 51.7)     | <.001   |
| 30-39                    | -0.7 (-3.2, 1.7)      | 0.55    |
| 40+                      | 3.3 (-0.9, 7.5)       | 0.12    |
| **Race/Ethnicity**       |                       |         |
| White, NH (Reference group) | 48.0 (46.0, 50.0) | <.001   |
| Black, NH                | 1.7 (-1.0, 4.4)       | 0.23    |
| Hispanic                 | 3.4 (0.7, 6.1)        | 0.02    |
| Asian, NH                | 1.3 (-7.3, 10.0)      | 0.76    |
| **Number of children <6 years old** |               |         |
| 1 (Reference group)      | 48.3 (46.7, 49.9)     | <.001   |
| 2+                       | 5.6 (2.7, 8.6)        | <.001   |
| **Gender**               |                       |         |
| Female (Reference group) | 49.9 (48.6, 51.2)     | <.001   |
| Male                     | -2.5 (-8.7, 3.7)      | 0.44    |
| **Total household income** |                    |         |
| Per $1000 change (Mean $1100) | -4.2 (-5.3, -3.0) | <.001   |
**eTable 3.** Changes by Sociodemographic Group in the Level and Trend of the Probability of Churning Associated With Administrative Policy Changes

| Age group          | Baseline Jan 2014 - Oct 2014 | Policy 1 – Case banking Nov 2014 - Nov 2015 | Policy 2 - Simplified reporting Dec 2015 - Apr 2019 | Policy 3 - Virtual certification May 2019 - Dec 2019 |
|--------------------|-------------------------------|-------------------------------------------|-------------------------------------------------|--------------------------------------------------|
|                    | Level                         | Trend                                      | Level change                                    | Trend change                                     |
|                    |                               |                                           | Level change                                    | Trend change                                     |
|                    |                               |                                           | Level change                                    | Trend change                                     |
|                    |                               |                                           | Level change                                    | Trend change                                     |
| 18-29 (Reference group) | 42.40 (40.54, 44.25)          | 0.22 (-0.15, 0.59)                        | 2.83 (-1.59, 7.25)                             | 0.27 (-0.31, 0.85)                              |
| 30-39              | 2.76 (-0.58, 6.11)            | 0.38 (-0.34, 1.11)                       | 2.44 (-1.34, 0.11)                             | 0.12 (-0.22, 0.45)                              |
| 40+                | 2.88 (-2.94, 8.70)            | 0.67 (-0.42, 1.76)                       | -0.85 (-1.85, 0.49)                            | -0.07 (-0.70, 0.55)                             |
|                     |                               |                                           | Level change                                    | Trend change                                     |
|                     |                               |                                           | Level change                                    | Trend change                                     |
| Race/Ethnicity      |                               |                                           | Level change                                    | Trend change                                     |
| White, NH (Reference group) | 43.21 (41.57, 44.86)          | 0.18 (-0.20, 0.56)                       | 2.73 (-0.94, 6.41)                             | -0.22 (-0.73, 0.30)                             |
| Black, NH           | 4.03 (-0.93, 8.99)            | -0.55 (-1.30, 0.20)                      | 2.61 (-3.53, 8.75)                             | 0.50 (-0.32, 1.33)                              |
| Hispanic            | 5.47 (2.55, 8.38)             | -0.20 (-0.79, 0.38)                      | 1.37 (-2.83, 5.58)                             | 0.18 (-0.39, 0.74)                              |
| Asian, NH           | 5.26 (-3.31, 13.83)           | -0.15 (-1.47, 1.17)                      | -2.89 (-10.70, 4.91)                           | 0.31 (-1.52, 2.14)                              |
| Number of kids <6   |                               |                                           | Level change                                    | Trend change                                     |
| 1 (Reference group) | 42.65 (40.85, 44.44)          | 0.20 (-0.16, 0.56)                       | 2.65 (-0.56, 5.85)                             | -0.09 (-0.48, 0.29)                             |
| 2+                 | 2.95 (-0.44, 6.34)            | -0.40 (-1.05, 0.25)                      | 4.47 (-0.39, 9.34)                             | 0.21 (-0.57, 0.98)                              |
|                     |                               |                                           | Level change                                    | Trend change                                     |
|                     |                               |                                           | Level change                                    | Trend change                                     |
| Gender              |                               |                                           | Level change                                    | Trend change                                     |
| Female (Reference group) | 42.71 (40.95, 44.48)          | 0.19 (-0.17, 0.56)                       | 3.49 (0.66, 6.32)                              | -0.01 (-0.38, 0.36)                             |
| Male                | -4.42 (-10.22, 1.37)          | 0.19 (-0.78, 1.17)                       | 3.46 (-3.01, 9.93)                             | -0.38 (-0.49, 0.80)                             |

**Source:** Authors' analysis of data from Massachusetts Department of Transitional Assistance and US Bureau of Labor Statistics.

**Note:** Sample includes SNAP participant head of households with at least one child less than 6 years old. Robust standard errors were clustered on participant's town of residence. Models include indicators for calendar month and monthly unemployment rates for town of residence. Bold indicates statistically significant difference from zero for the reference groups or a statistically significant difference from the reference group for each sub-group at p<.05.

"Casebanking" allowed SNAP participants to conduct their recertification application and interview with the first available caseworker instead of caseworkers being assigned at the beginning of the certification period.

"Simplified reporting" reduced the requirements for reporting changes in income or household composition to be once a year rather than having to report them as they occurred.

"Virtual certification" permitted SNAP participants to submit recertification requirements to an online portal rather than in-person.

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