

## Supplementary Online Content

Vasan A, Kenyon CC, Feudtner C, Fiks AG, Venkataramani AS. Association of WIC participation and electronic benefits transfer implementation. *JAMA Pediatr*. Published online March 29, 2021. doi:10.1001/jamapediatrics.2020.6973

**eFigure 1.** Regression Model

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**eTable.** Nationwide Difference-in-Differences Estimates for EBT and Non-EBT States: Sensitivity Analyses

This supplementary material has been provided by the authors to give readers additional information about their work.

**eFigure 1.** Regression Model

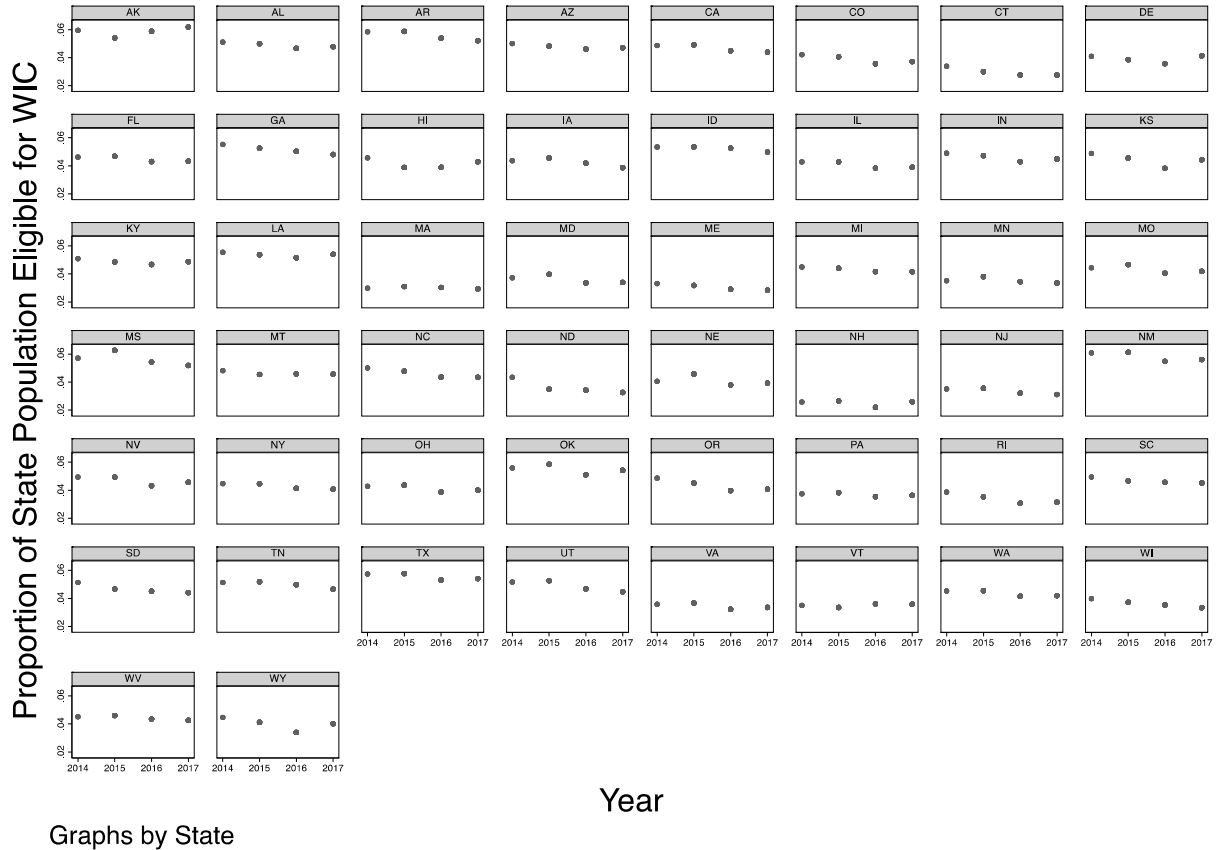
$$Y_{smy} = \beta_1 \text{State}_s + \beta_2 \text{Month}_m + \beta_3 \text{Year}_y + \sum_{m=-39}^{39} \beta_m (\text{Intervention}_{smy}) + \varepsilon_{smy}$$

The equation above represents the regression model used for our difference-in-differences analyses. In this model,  $Y$  is the count of WIC participants in each state during each month. We used a generalized linear model using a negative binomial distribution with a log link, with the population count specified as an exposure.

$\text{State}_s$  represents a set of state dummy variables, which were included as covariates to adjust for all time-invariant state-level characteristics.  $\text{Month}_m$  represents a set of month dummy variables, which were included as covariates to adjust for seasonality in WIC participation, and  $\text{Year}_y$  represents year a set of year dummy variables, which were included to adjust for secular trends in WIC participation from 2014-2019.

The “Intervention” term represents a series of binary indicators that were equal to 1 if WIC EBT was implemented in state  $s$  during or before the month associated with event time period  $m$  and equal 0 otherwise. This model estimates the difference in WIC participation in states that implemented WIC EBT relative to a reference month (month = -1) and relative to all states that did not implement WIC EBT during that time period. These relative differences are captured by the coefficients  $\beta_m$ .

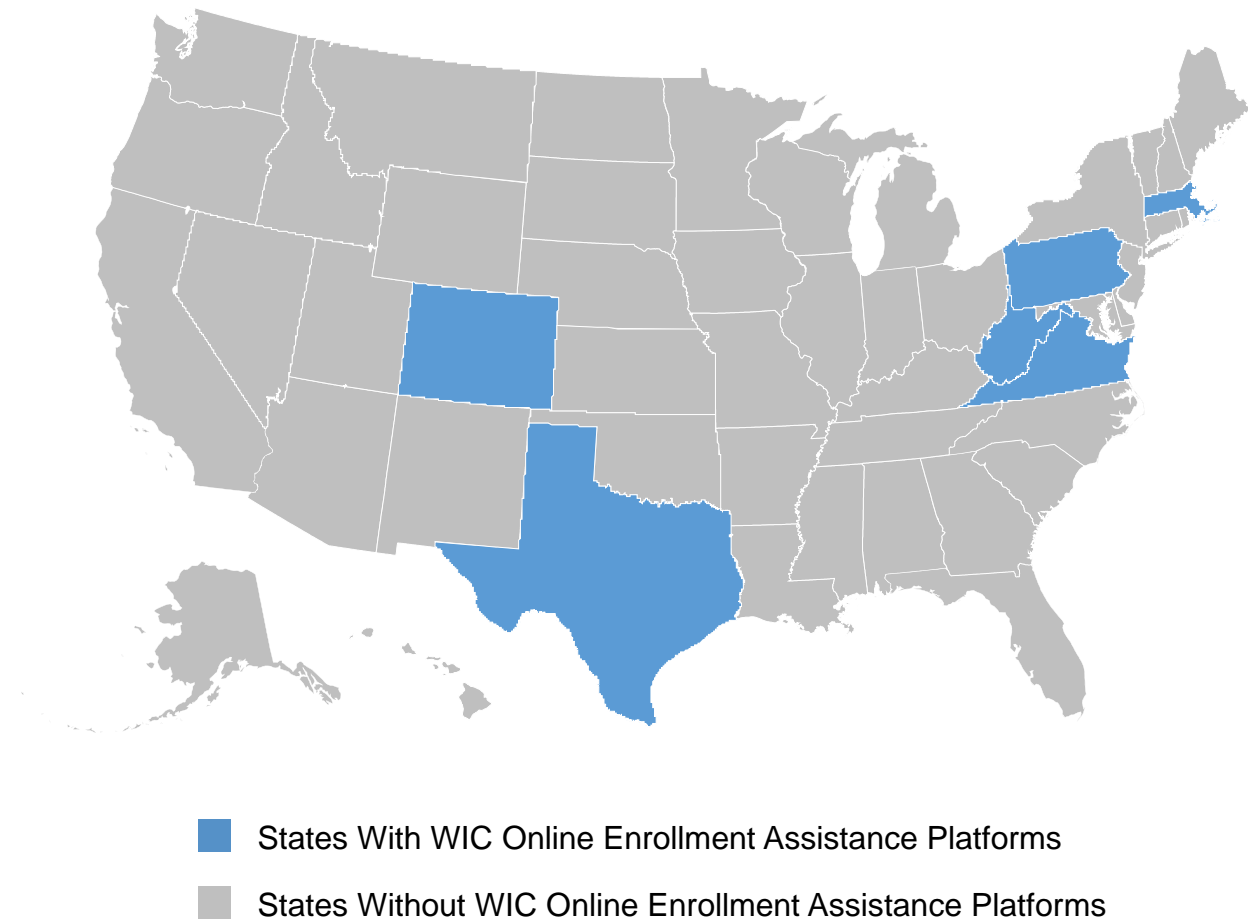
**eFigure 2. State-Level Trends in WIC Eligibility: 2014-2017**



This figure shows state-level trends in the proportion of all state residents who were eligible for WIC between 2014 and 2017. Publicly available data from the most recent WIC Eligibility and Coverage Data Set, which includes data from 2014-2017, were used to determine the annual number of WIC eligible residents of each state, and data from the 2014-2017 American Communities Survey were used to determine each state's annual population. This graph shows stable trends, indicating that the proportion of state residents that were eligible for WIC remained roughly constant during this time period. We would therefore expect this factor to be absorbed by the state-level fixed effects included in our regression model.

**eFigure 3.** States Implementing WIC Online Enrollment Assistance and State Medicaid Expansion Status, 2014-2019

A. Online Enrollment Assistance

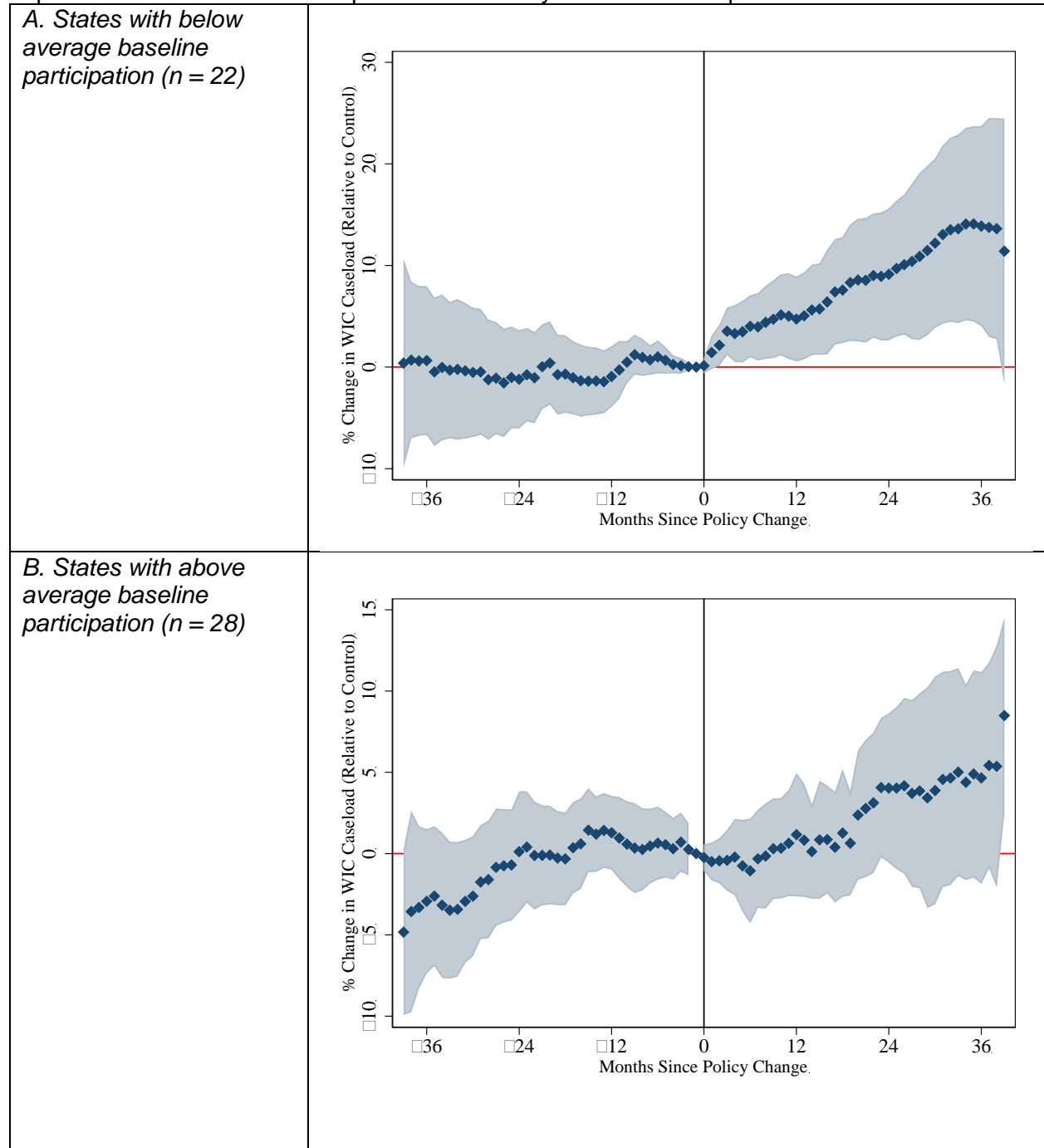


Since 2015, six states have implemented web-based platforms that streamline the WIC enrollment process by allowing potential beneficiaries complete a set of pre-screening eligibility questions online and then receive a phone call from their local WIC office to schedule their intake appointment. This figure shows the six states with these WIC online enrollment assistance platforms.

To determine when each state implemented WIC online enrollment assistance, state WIC offices were contacted by phone and email to ask for their website launch date. If this information could not be obtained by phone or email, the initial publication date for states' enrollment assistance website as indexed on Google (Alphabet) was used to approximate the website launch date. All six states were included in our sensitivity analysis examining the concurrent effects of WIC EBT and WIC Online Enrollment Assistance.



**eFigure 4.** Difference-in-Differences Estimates of the Association Between WIC EBT Implementation and WIC Participation Stratified by Baseline Participation Rate



Stratified difference-in-difference estimates (adjusted difference in WIC participation proportion between exposed and unexposed states) are plotted above. Panel A shows difference-in-difference estimates for the 22 states with a baseline participation rates below the national average of 50.2%. Panel B shows difference-in-difference estimates for the 28 states with baseline participation rates above the national average. The x-axis represents the number of months relative to statewide WIC EBT implementation, with event months 39 or more months before or after EBT implementation combined into a single time point. Shaded areas represent 95% confidence intervals.

**eTable.** Nationwide Difference-in-Differences Estimates for EBT and Non-EBT States: Sensitivity Analyses

<b>Regression Model</b>	<b>% Change in WIC Enrollment 3 years after EBT Implementation in EBT States Relative to Non-EBT States</b>	<b>95% CI</b>	<b>P-value</b>
<i>Model S1: Adjusted for poverty rate and unemployment rate (n = 50 states)</i>			
WIC EBT	+7.57%	3.29%, 12.01%	<0.001
Poverty rate	+0.25%	-0.04%, 0.54%	0.101
Unemployment rate	+1.05%	-0.81%, 2.96%	0.271
<i>Model S2: Adjusted for concurrent interventions (n = 50 states)</i>			
WIC EBT	+7.94%	3.69%, 12.37%	<0.001
Medicaid expansion	+1.82%	0.33%, 3.34%	0.017
Online enrollment assistance	+1.67%	-1.02%, 4.43%	0.225
<i>Model S3: Linear regression model (n = 50 states)</i>			
WIC EBT	+8.89%	3.31%, 14.77%	0.002

Difference-in-difference estimates above are presented as percentage point changes. The 95% confidence intervals shown are corrected for clustering at the state level. Model 1 is adjusted for state-level monthly poverty rate and unemployment rate. Model 2 is adjusted for two concurrent interventions, Medicaid expansion and online enrollment assistance platforms. Model 3 uses a linear regression model with the primary outcome as the natural log transformed proportion of all state residents participating in WIC each month. All estimates include state, month, and year dummy variables as covariates.