

Estimating the Effects of COVID-19 on WIC Participant Food Purchases

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Objectives: Emergency changes to food assistance programs such as WIC can prevent widening nutritional disparities during societal shocks such as pandemics. However, to understand the potential impact of emergency policy changes, it is first essential to understand whether COVID altered the nutritional quality of WIC participant food purchases. We describe the relationship between the societal shock induced by COVID and WIC participant food purchases.

Methods: We used a longitudinal dataset from October 2019 to December 2020 of loyalty-card linked food purchasing data from a large grocery store chain in North Carolina with 496 stores in 86 counties. This dataset includes all items purchased and tender type(s) used in transactions. WIC participants are identified by using WIC tender types. Our sample includes about one million loyalty card shoppers in a typical month, about 10% of whom are WIC participants. Food items have been grouped into nutritionally relevant food groups. To control for seasonality, we compared mean calories purchased per shopper

per day for all food groups in the same 3-month period pre-COVID (Oct-Dec 2019) and during COVID (Oct 2020-Dec 2020) among WIC shoppers and non-WIC shoppers using t-tests and unadjusted difference-in-difference (DID) models.

Results: Mean calories purchased from all food groups increased in both WIC and non-WIC shoppers during COVID (all $p < 0.01$). WIC shoppers purchased more calories from all food groups than non-WIC shoppers both pre-COVID and during COVID (all $p < 0.01$). Comparing pre-COVID to during COVID purchases, WIC shoppers' total purchases increased by 294 calories per day, compared to non-WIC shoppers which increased by 197 calories per day. Increases in purchases of all food groups during COVID were similar except for the junk food and sugar sweetened beverage groups which increased more among WIC shoppers (59 and 26 calories per day, respectively) than non-WIC shoppers (36 and 13 calories per day, respectively). Future analyses will adjust for potential confounders and incorporate propensity score weighting.

Conclusions: Understanding how food purchasing patterns shift in response to societal shocks is vital for ensuring future emergency food response efforts improve existing diet-related disparities.

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