The Impact of COVID-19 on Racial Inequality in Diet Quality

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Poor diet quality is associated with low quality of life, obesity, and diseases such as diabetes and nutrition-related cancers (Russel et al., 2016). In 2020, the rapid spread of COVID-19 and policies implemented in response (such as social distancing recommendations and school shutdowns) significantly changed consumers' diets, including in terms of food security (Tian et al., 2021; Goetz et al., 2022), access to healthy foods (Ziliak, 2021), and interruptions to nutrition services (Headey et al. 2020). During the pandemic, stay-at-home recommendations increased food at home consumption which is healthier than food away from (Oaklander, 2020), but also increased consumption of unhealthy food due to higher stress (Sadler et al., 2021). Not all racial/ethnic populations were equally affected by COVID regarding diet quality. Racial disparities in diet and nutrition were observed during COVID as minorities had difficulties accessing affordable and healthy food (Belanger et al., 2020).

Although a large and growing literature has investigated the diet and nutrition disparities (see Kozlova, 2016; Allcott et al., 2019 for earlier work), little research has analyzed the impact of COVID-19 on racial/ethnic disparities in diet quality. We complement the existing literature by providing causal estimates of how COVID-19 impacted the racial gaps in diet quality and by examining the causes of racial gaps. We employ Information Resources, Inc. (IRI) household scanner data which capture all retail food-at-home purchases by a representative set of U.S. households in the 48 contiguous states that recorded their shopping trips with a home-scanning device. For each household, we aggregate their purchases to the weekly level. Thus the unit of observation is a household-week. We assess diet quality using the Healthy Eating Index 2015 (HEI-2015), which ranges from 0 to 100. HEI-2015 is calculated through the USDA Purchase-to-Plate Crosswalk for uniform weight products; a higher HEI-2015 score indicates higher diet quality.

With the richness of information offered by IRI, we have three objectives: (1) Estimate the effect of COVID-19 on diet quality of minorities, measured by the Healthy Eating Index, and to compare impacts during the COVID-19 period to other periods; (2) Identify the heterogenous effects of COVID-19 by income and education level; (3) Test whether differential impacts by race are due to individual, household, or local characteristics.

To formally test whether COVID-19 impacted diet quality of racial and ethnic groups disproportionately, we use a fixed effects difference-in-differences regression model. Similar to Couch et al. (2020), our three treatment groups are Non-Hispanic Blacks (Blacks), Hispanics and Non-Hispanic Asians (Asians) and the control group is Whites. The before COVID-19 period is from January 1, 2019 to February 28, 2020. The post period is from April to June in 2020 (stay-at-home mandates period). March in 2020 is excluded because several state-level COVID-19

health emergencies were issued in the middle of March. Household characteristics are also included to control for confounding household features that affect diet quality. Week fixed effects are included to control for unobserved household invariant week-level factors. Zip code fixed effects are incorporated to capture unobserved time invariant zip code level characteristics. In the robustness tests, we extend and shorten our post and pre periods. For example, we also include July to December in 2020 to measure the impact of COVID-19 on diet disparities in the post stay-at-home mandates period. The period from January in 2008 to June in 2009 is included in another robustness test to compare the impacts of the Great Recession vs. COVID-19 on racial disparities in diet quality. To understand the contributors to the disparities in diet quality caused by COVID-19, we use Blinder-Oaxaca decomposition to attribute the racial gaps in diet quality to differences in observed household, individual, local characteristics, and unobserved factors between different racial groups.

We find that prior to the outbreak of COVID-19, Black households had 0.46 points or 1% lower in HEI than White households. Black households were 0.2 points lower in HEI in April 2020 but 0.72 points lower in HEI in June 2020. Thus Black households ate healthier in April but less healthier in June when stay-at-home mandates were relaxed, compared to White households. Before COVID-19, there was no significant difference in diet quality between White and Asian households. But COVID-19 increased Asian households' diet quality significantly from April to June, and the average HEIs of Asians were 0.51, 0.48 and 0.89 points higher than Whites in those three months. There was no significant difference in diet quality between Hispanic and White households and COVID-19 did not alter the fact. In the Great Recession, Black households had 0.93 points lower HEI compared to White households, which was larger than the gap caused by COVID-19.

When analyzing the heterogeneous impact of COVID-19 on diet quality, we find that COVID-19 increased Asian-White gap in HEI for only high-income and high education group. The estimates from the decomposition technique indicate income, age, and marital status contributed to disparities. Differential exposure to COVID case rates did not contribute to disparities significantly.

Our paper contributes to the current literature in several ways and thus promises to stimulate discussion at the AAEA annual meeting. First, we provide causal estimates of the impacts of COVID-19 on racial gaps by employing a difference-in-difference strategy and compare the impacts of COVID-19 relative to other periods with economic shocks (e.g., the Great Recession). Second, we analyze heterogenous effects by income and education to identify vulnerable groups and provide policy implications. Third, we provide evidence on the causes of disproportionate impacts of COVID on minorities and test whether disparities are due to individual, household, or local characteristics.

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