Dietary and health effects of digital food retail in India

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The rise of digital retail

- 3x increase in food sales through digital channels globally
- Digital retail to reach 2.8 billion users by 2029
- A risk of consuming more unhealthy foods

Dominated by
- unhealthy food offerings,
- increases exposure to personalized food marketing
- associated with weight gain

India's online food delivery apps

Zomato Swiggy EatSure Domino's KFC

Burger king Eatclub Barbeque Nation HungryJi La Pino'z Pizza

- In India, popular food delivery apps include Swiggy, Zomato, EatSure, etc.

- Goals: To provide fast and convenient food to Indian consumers.

- Scaled in India since 2017

- Zomato and Swiggy, together served over 50 million monthly active users as of 2023

India is skipping the food retail revolution and going online!

- >85% smartphone penetration

- Cheap data

- Seamless digital payment systems

- Abundance of low-wage delivery workers

The digital food environment is a dangerous place full of temptations!

Objectives

1. Describe patterns of online food purchases across Indian geographies, residence types, and wealth strata

2. Examine household factors associated with ordering food online

3. Rigorously assess whether ordering food online predicts diet quality or overweight/obesity

Data

1. Consumption data - 79th and 80th rounds of India's **Household Consumption Expenditure Survey** (HCES) - July 2022 and June 2024

2. Indian **National Family Health Surveys** (equivalent to Demographic Health Surveys in other countries) in 2015-2016 (NFHS-4) and 2019-2021 (NFHS-5)

3. 2011 Indian **Census**

Coverage currently concentrated in metro cities with a steep wealth gradient
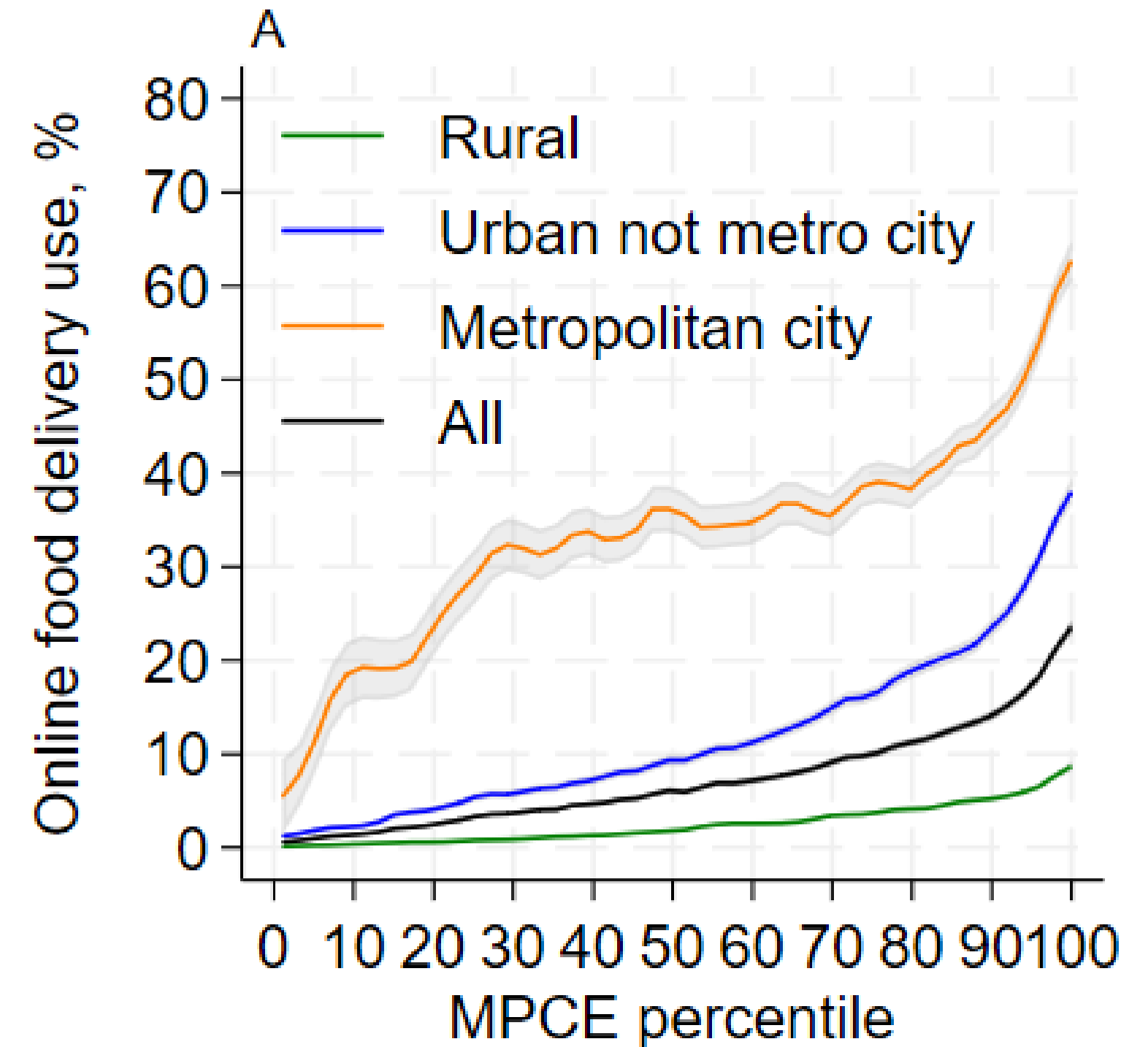
Online food delivery is quickly expanding to peri-urban and rural areas
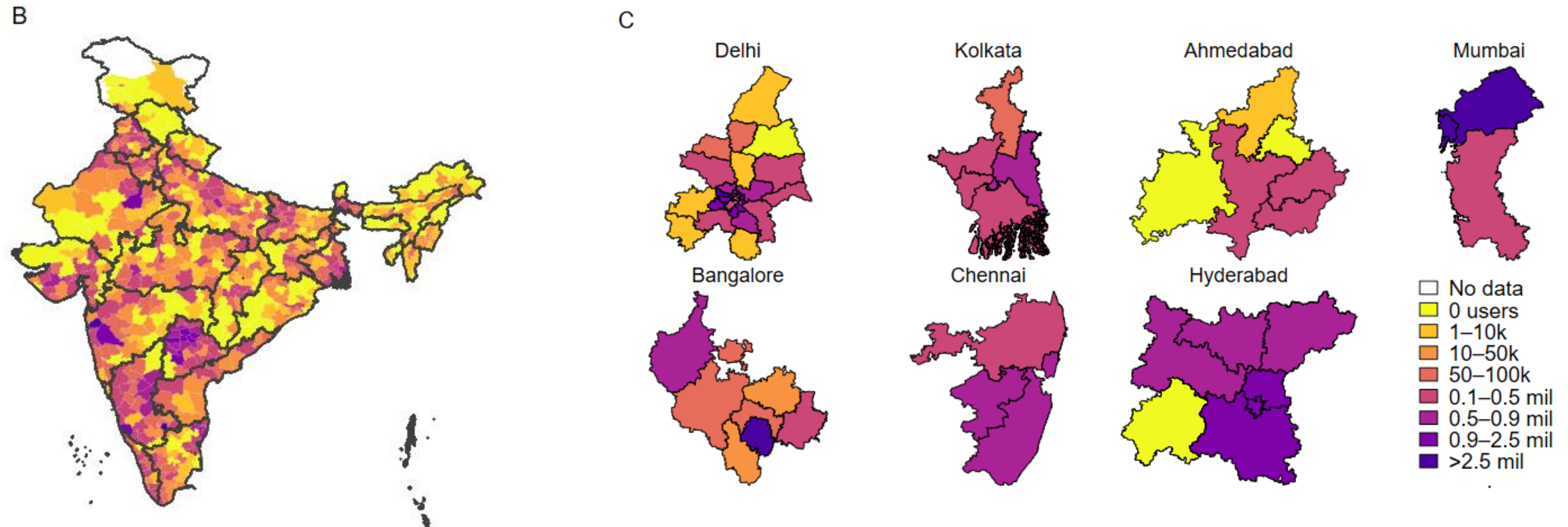
Which foods are ordered and by whom?

Assessing the effects of OFD on diet quality

Average treatment effects, standard dev

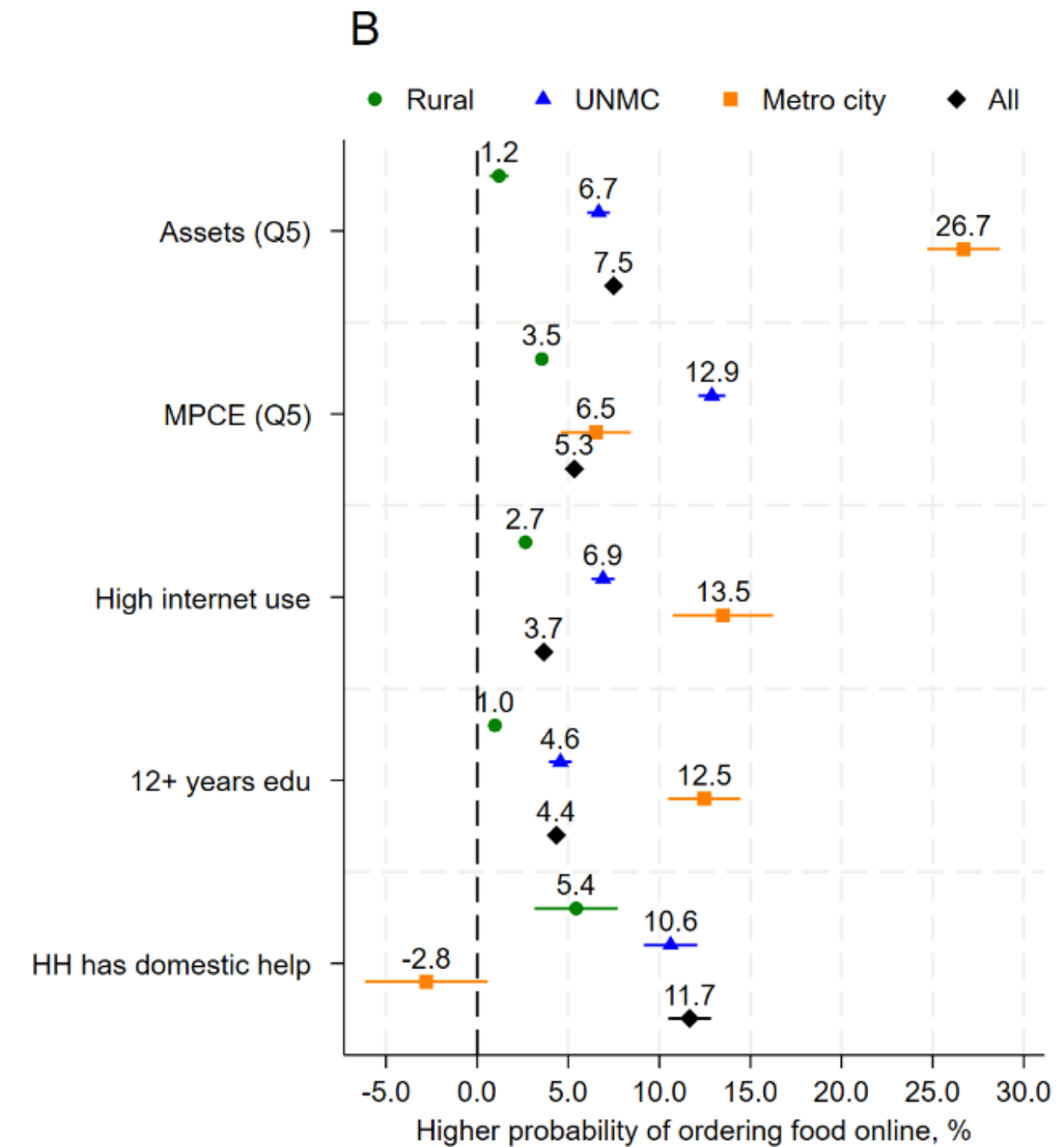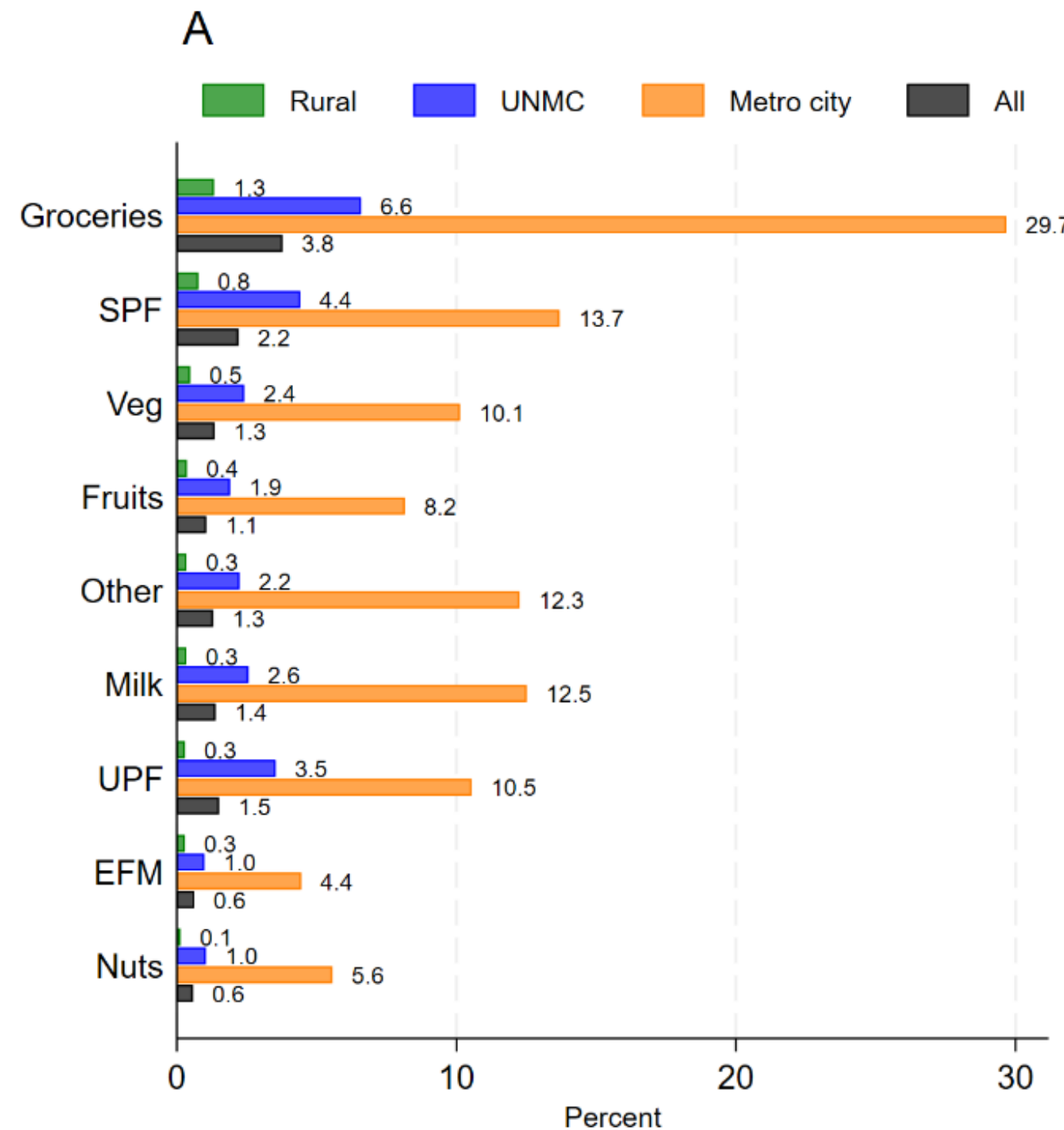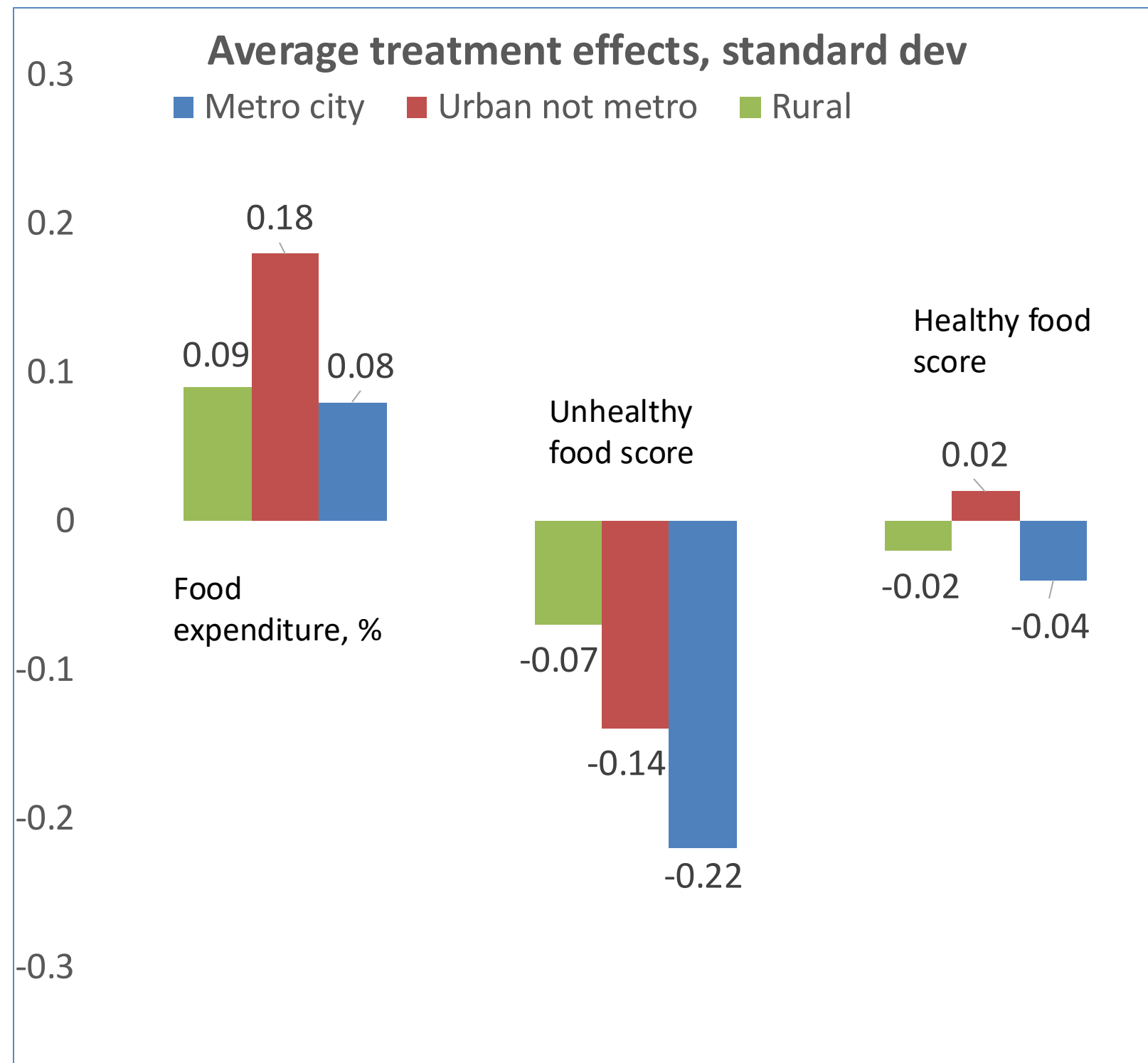Legend: Metro city (blue), Urban not metro (red), Rural (green)

Food expenditure, %:
- Rural: 0.09
- Urban not metro: 0.18
- Metro city: 0.08

Unhealthy food score:
- Rural: -0.07
- Urban not metro: -0.14
- Metro city: -0.22

Healthy food score:
- Rural: -0.02
- Urban not metro: 0.02
- Metro city: -0.04

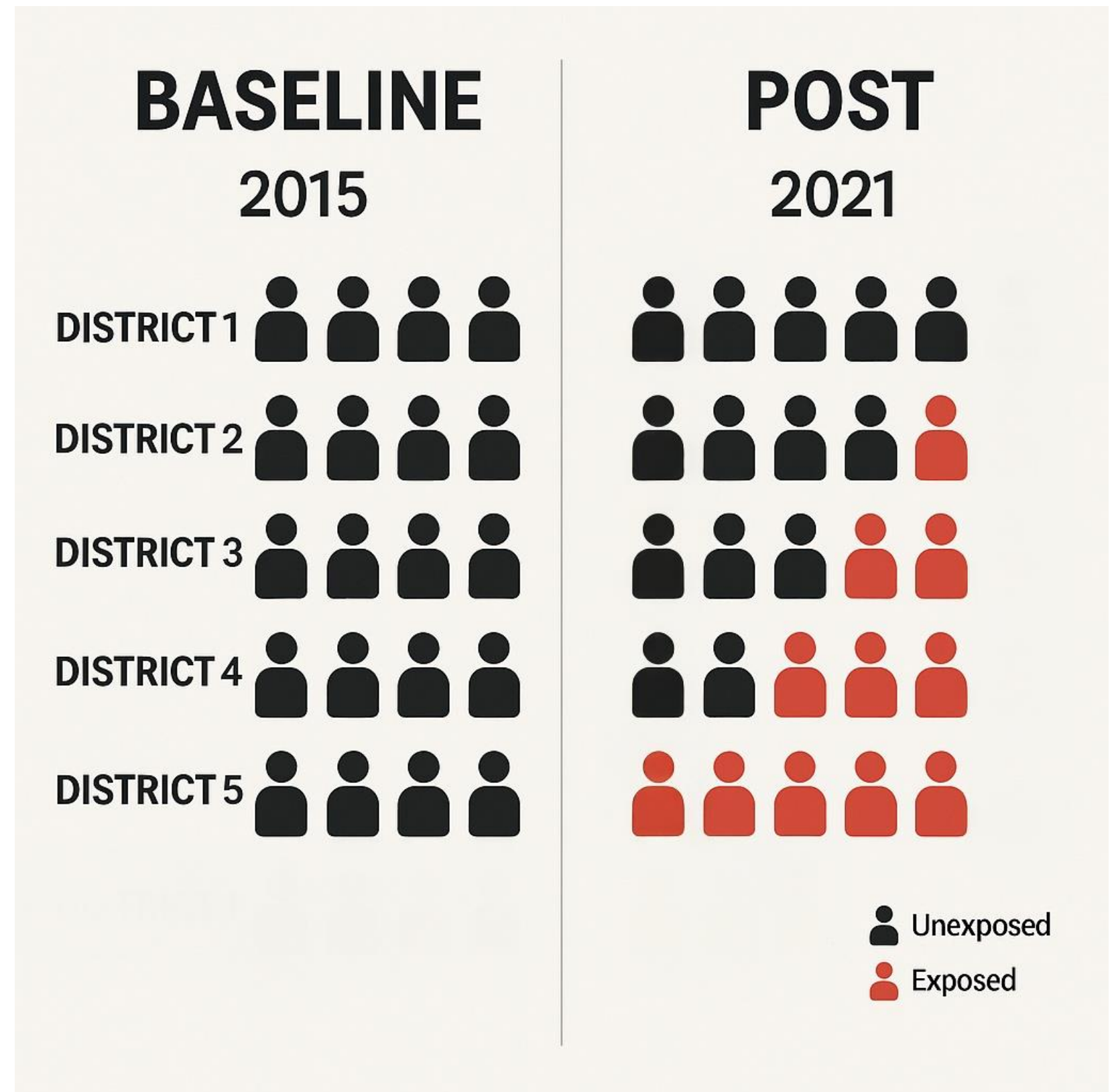Outcomes:

GDQS plus – healthy

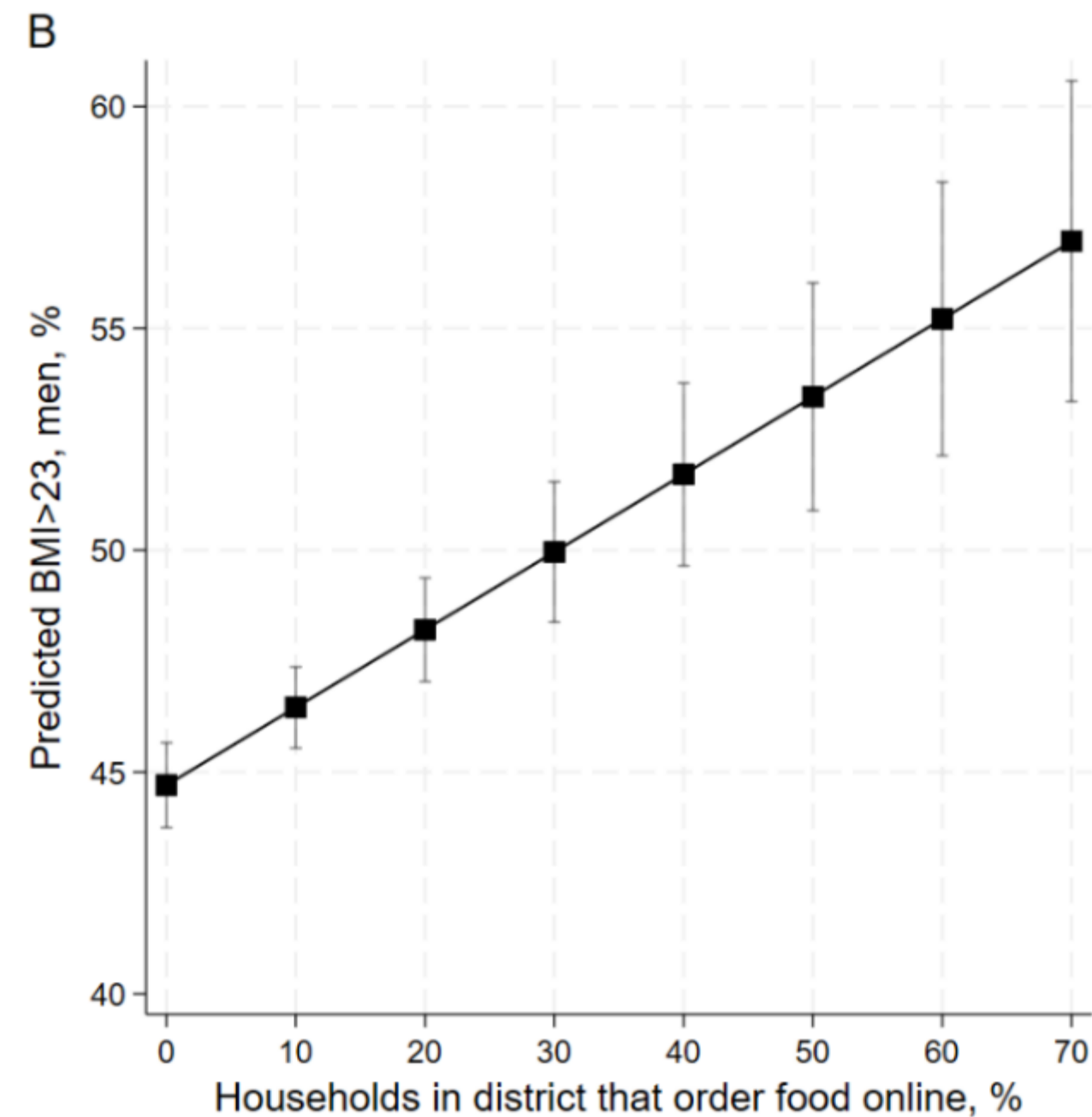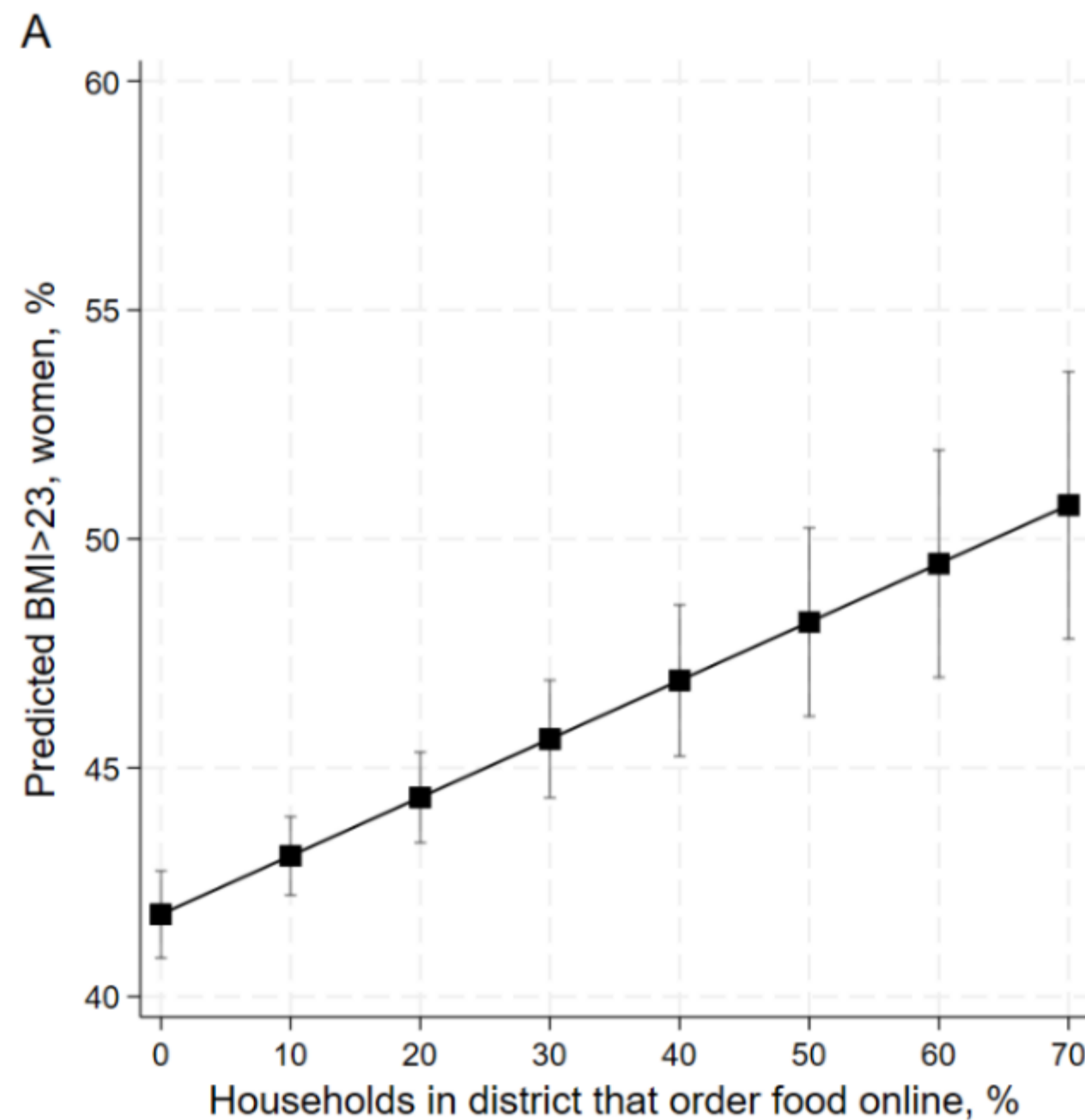GDQS minus – unhealthy

% of food expenditure

- Data: HCES

- Method: Propensity score matching

Is OFD associated with overweight/obesity?

1. Outcome: NFHS – BMI>=23 (individual level)

2. Exposure: HCES - OFD coverage (district level)

3. Method: Difference in differences with covariates and a dose-response

Overweight/obesity increases by 7pp as OFD increases from 0-70% in a district

Key takeaways

Online food delivery
-is set to increase rapidly as incomes rise.

-higher unhealthy food consumption
-higher food expenditure

-higher obesity.

Early regulation of digital food environments is needed.
-healthier defaults

-transparent labels such as traffic light labels for HFSS foods

-BCC on healthy diets, portion-size, ordering frequency, etc.

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