ACCESS TO NUTRIENT-DENSE FOODS IN MALAWI

KATE SCHNEIDER

PHD CANDIDATE

FRIEDMAN SCHOOL

TUFTS UNIVERSITY

STEVIER KAIYATSA

ECONOMIST

MIN. OF FINANCE, PLANNING, AND DEVELOPMENT

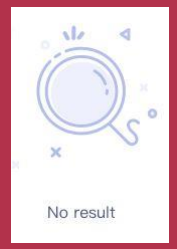
GOVERNMENT OF MALAWI

Tufts UNIVERSITY | GERALD J. AND DOROTHY R. Friedman School of Nutrition Science and Policy

Government of Malawi

WHICH CONSUMERS HAVE ACCESS TO SUFFICIENT NUTRIENT-DENSE FOODS?

Food systems differ in the extent to which they facilitate access to nutrient-dense foods for all consumers.



In low-income countries, limited data are available to analyze access to nutrient-dense foods.

Household survey data and food price monitoring data offer new insights.

DATA & METHODS

Data & References

- Household panel survey data (IHPS 2010, 2013, 2016/17)
- Monthly retail market food price data (Food CPI 2013-2017)
- Malawian Food Composition Table (MAFOODS)
- Dietary Reference Intakes (DRIs)
- Child growth standards and references (WHO 2008)

Methods

- Household nutrient requirements defined by nutrient density needs
  - Flexible to household composition
  - Accounts for household food sharing.
- Energy-adjusted adequacy ratios separate inadequate diet quality from insufficient or excess food quantity.
- Seasonal gaps defined by difference between the peak and trough prices
- Least-cost diets define food items and their quantities that meet all essential nutrient requirements at lowest total cost

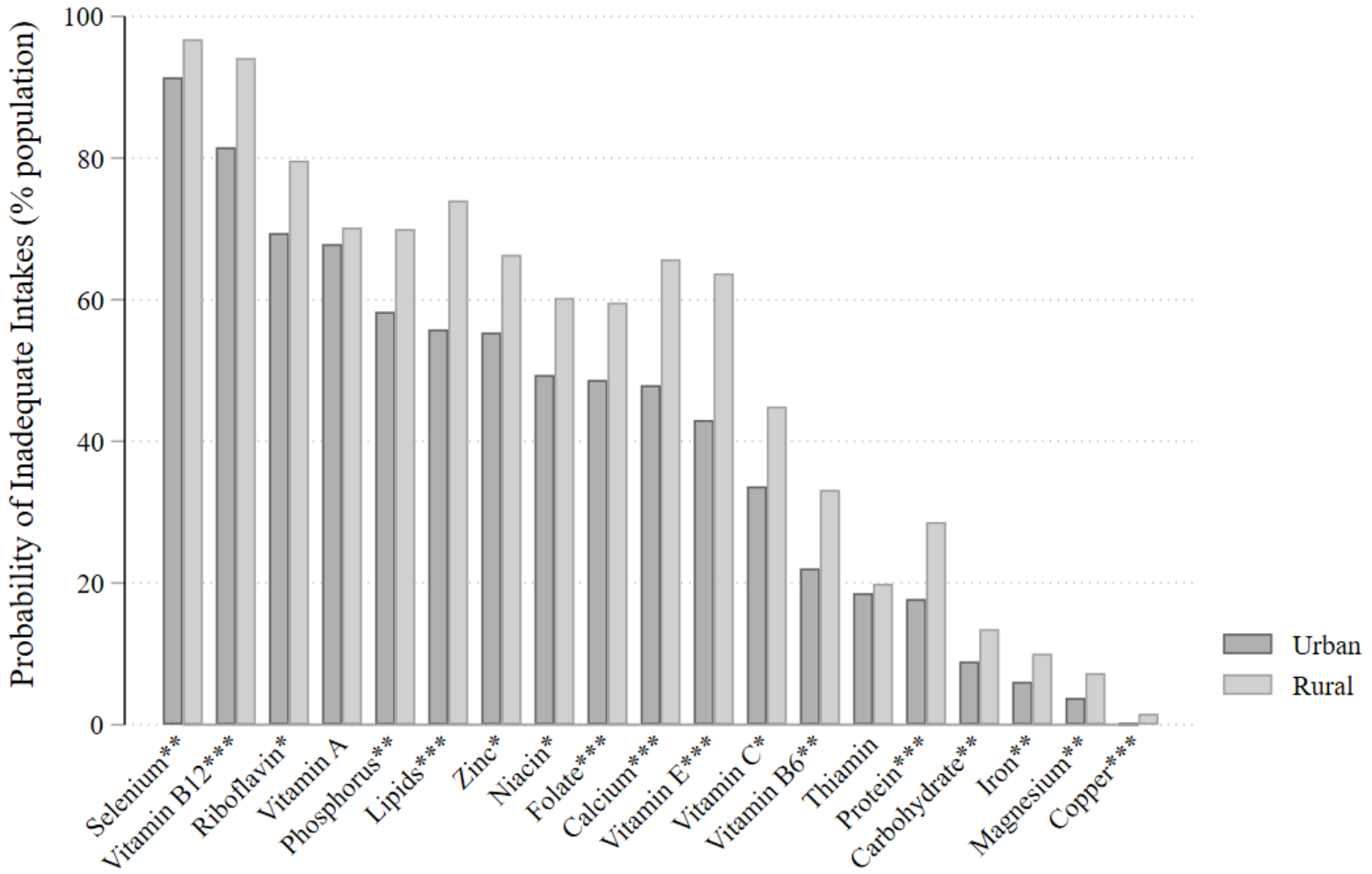
DOES DIET QUALITY DIFFER FOR URBAN COMPARED TO RURAL HOUSEHOLDS?

INSIGHTS FROM HOUSEHOLD SURVEY DATA

HOUSEHOLD NUTRIENT ADEQUACY

- Inadequacy is statistically significantly lower in urban areas for almost all nutrients
- Nutrients of concern are common across rural/urban divide:
  - Lipids
  - Riboflavin
  - B12
  - Selenium
- Inadequacies demonstrate a pattern of **low animal-source food** consumption.

Probability of Inadequate Intakes, 2010-2017

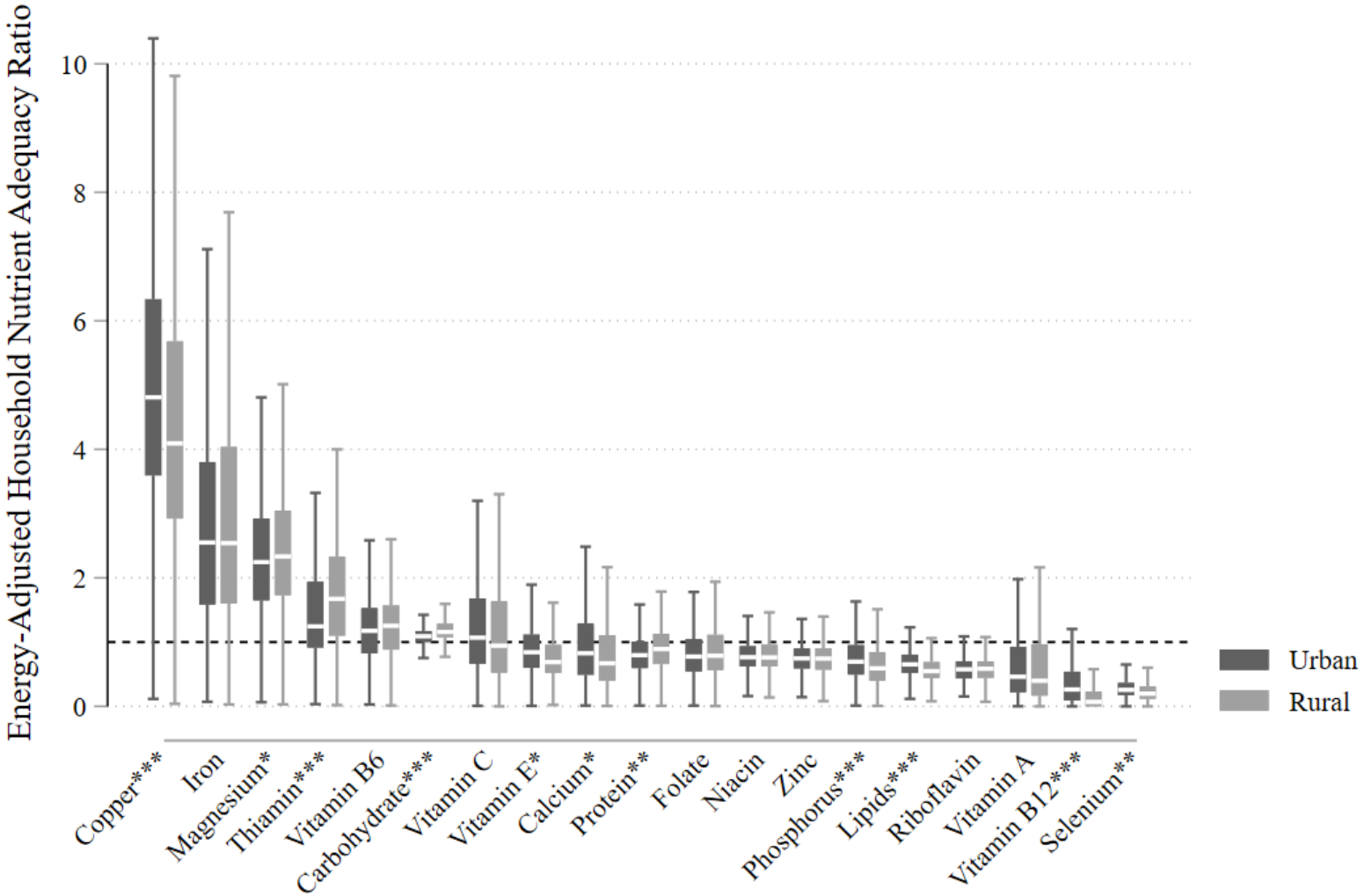


Urban/rural differences tested with survey-weighted bivariate regressions.
Significance denoted *p < 0.05 ** p < 0.01 *** p<0.001.
Excludes outside values. Adjusted for survey weights.

HOUSEHOLD DIET QUALITY

- Patterns of diet quality are consistent across urban/rural households
- Diets are **imbalanced in macronutrients**, with excess carbohydrates and inadequate lipids and protein.
- **High copper intakes may inhibit zinc absorption**; biomarker studies have found higher zinc inadequacy than our food consumption analysis suggests.

Nutrient Density of the Diet, 2010-2017

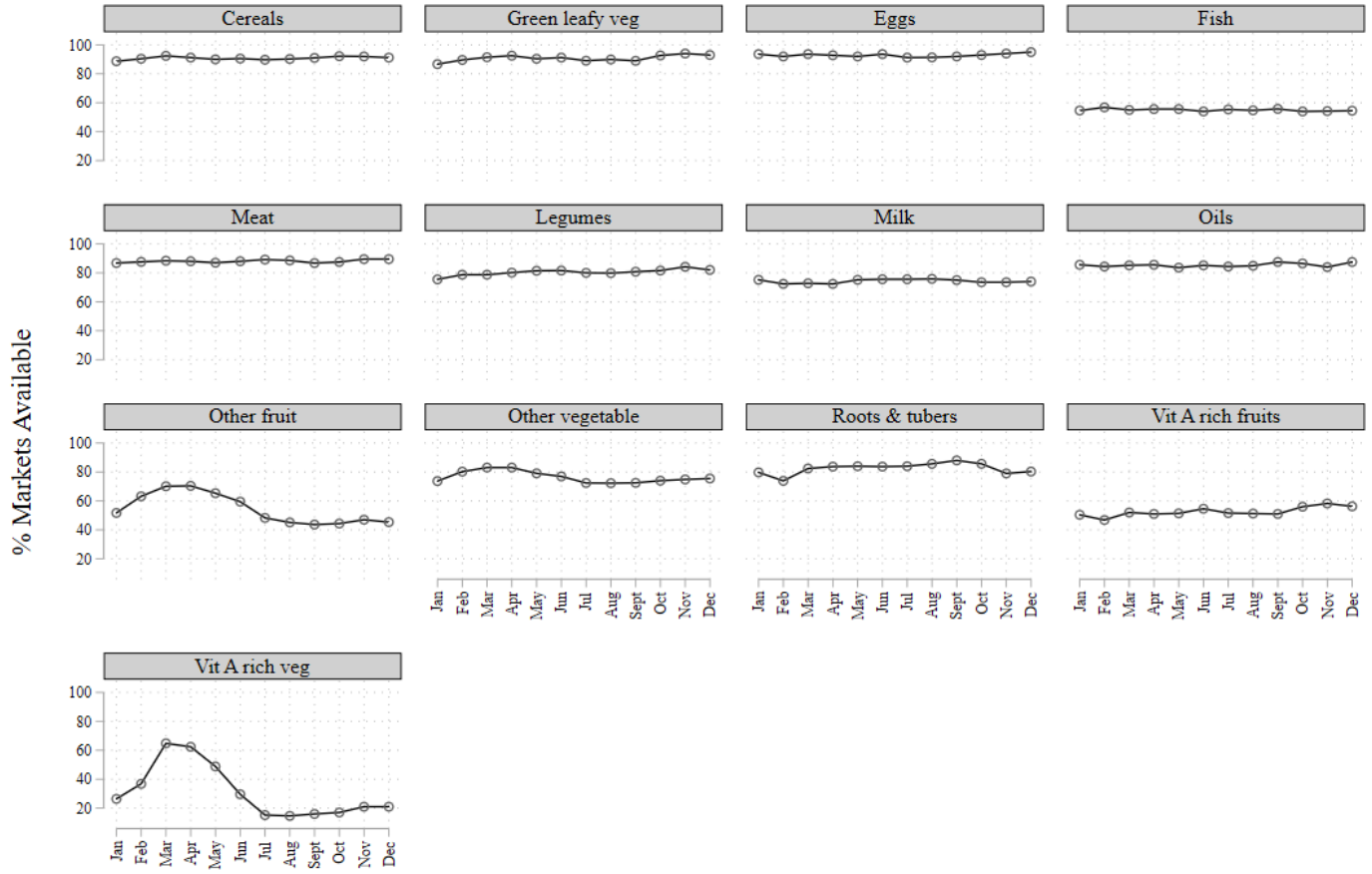


Black line marks an adequacy ratio of 1 indicating optimal nutrient density. Urban/rural differences tested with survey-weighted bivariate regressions. Significance denoted *p < 0.05 ** p < 0.01 *** p<0.001.
Excludes outside values. Adjusted for survey weights.

SEASONALITY IN THE AVAILABILITY AND PRICE OF NUTRIENT-DENSE FOODS

INSIGHTS FROM CONSUMER FOOD PRICE DATA

YEAR-ROUND AVAILABILITY OF FOOD GROUPS



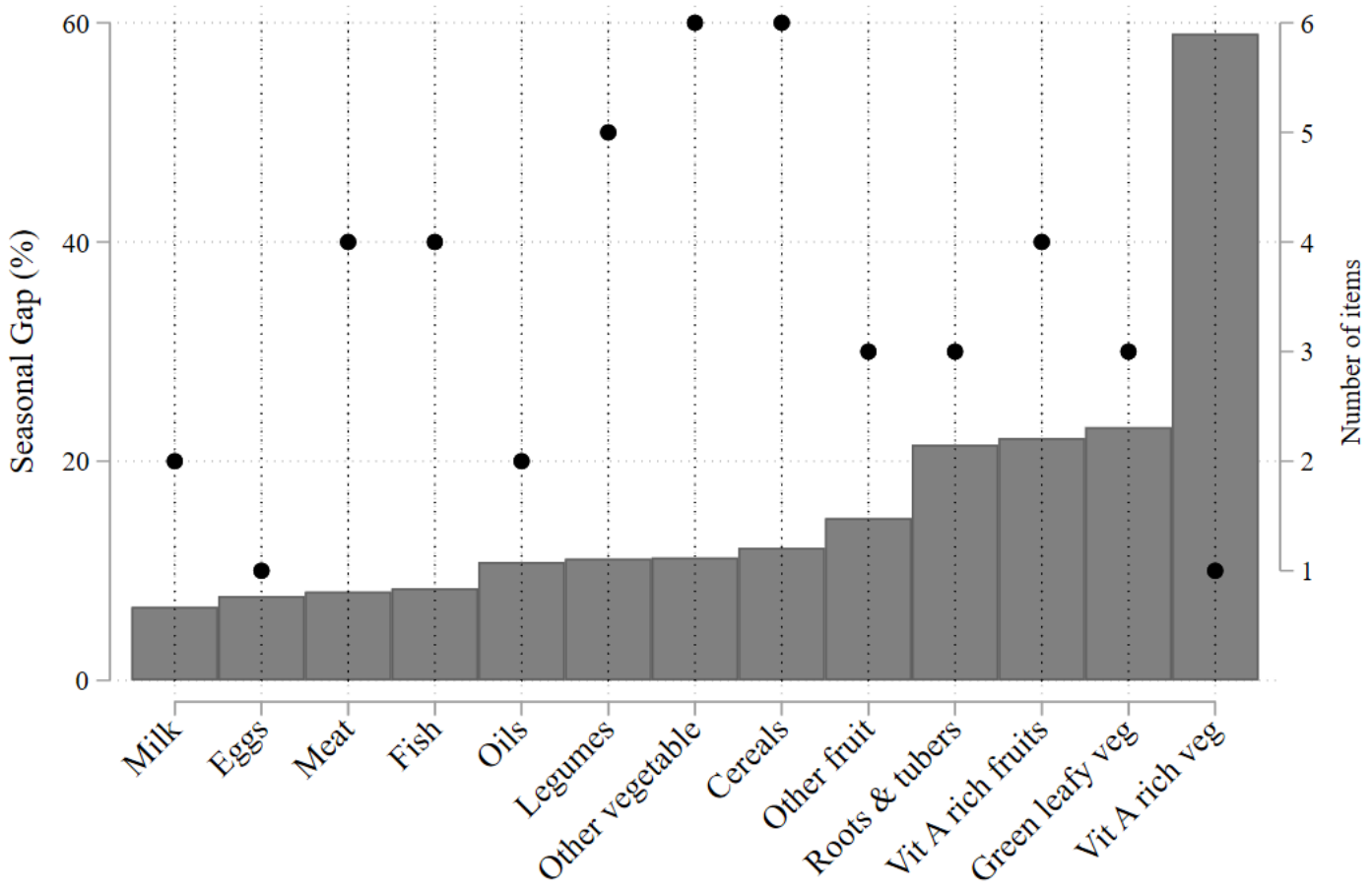
Availability

- Least available: fish, vitamin A-rich fruits
- Most seasonality in availability: fruit, vitamin A-rich vegetables
- Available year round in almost all markets:
  - Green leafy veg
  - Eggs
  - Meat
- Average 2.8 vendors per item in each market (SD 1.1)

SEASONAL GAP IN FOOD GROUP PRICES

Food Price Seasonality

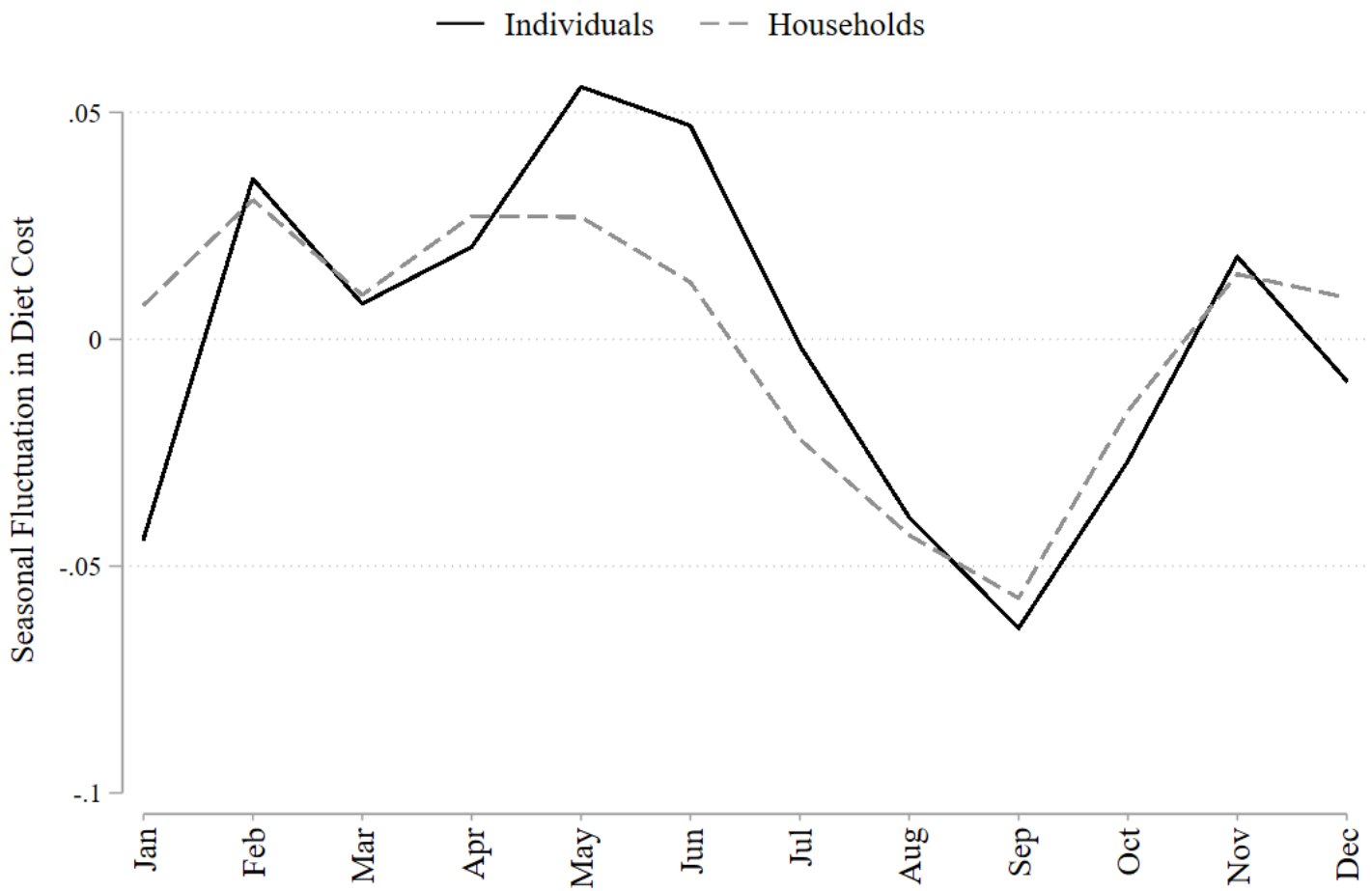
- Fruits and vegetables exhibit the highest seasonal gap – average 25%
- Animal source foods have generally stable prices throughout the year – average 8%



SEASONAL GAP IN COST OF NUTRIENT ADEQUATE DIETS

Diet Cost Seasonality

- Diet costs peak in:
  - February,
  - May
  - November
- Adequate diets are least expensive in September
  - For households also in January



CONCLUSIONS

- Dietary intake patterns are largely consistent between urban and rural households in Malawi.
- The probability of inadequate intakes is slightly lower for urban households for all nutrients.
- Nutrients of concern in terms of intake quantities and nutrient density in the diet are: lipids, riboflavin, B12, selenium, phosphorus, and zinc.
- Many nutrient dense foods are available year-round: eggs, meat, leafy green vegetables.
- Many nutrient dense foods have stable prices throughout the year: milk, eggs, meat fish, oils, legumes
- Seasonal gaps in fruits and vegetables are much higher (25%) than that of animal-source foods (8%)
- The cost of a nutrient adequate diet peaks multiple times throughout the year in: February, May, and November.
- Adequate diets are most affordable in September.

RESOURCES & THANKS

- Nutrient requirements software tools provide guidance, spreadsheets with requirements, and software code available here.
- Further information and related studies on the CANDASA project site.

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