Research to Improve the Loss-Adjusted Food Availability Data Series

Reducing Food Loss & Waste: A Workshop on Impacts

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- Any opinions, findings, conclusions, or recommendations expressed in this presentation are not attributable to ERS.

Focus of Presentation

- Provide an overview of prior NASEM workshop: Data and Research to Improve the U.S. Food Availability System and Estimates of Food Loss, April 8-9, 2014

- Review recommendations from follow-up study with ERS: Expert Panel on Technical Questions and Data Gaps for the Loss-Adjusted Food Availability Data Series (recently completed)

Data and Research to Improve the U.S. Food Availability Data System and Estimates of Food Loss: A Workshop

- Objectives of workshop held on April 8 and 9, 2014
  - Evaluate data sources and underlying calculations for the
    - core Food Availability (FA) data series
    - Loss-Adjusted Food Availability (LAFA) data series
    - food loss estimates produced in the series
  - Explore potential uses of other data sources
  - Develop understanding of range of uses
  - Contrast the data to international approaches
  - Identify alternatives and improvements

Structure of the April 2014 Workshop

Session 1 Data System Overview	Session 2 Uses of FA and LAFA data	Session 3 Alternative Approaches: FA	Session 4 Alternative Approaches: LAFA
• Food Availability (FA) • Loss-Adjusted Food Availability (LAFA)	• Modeling food demand • Forecasting supply and demand • Analyzing adherence to dietary guidance • Estimating environmental impacts of food system	• FAO food balance sheets for 80 commodities in 185 countries • Reconciliation of FAO balance sheets with household surveys • Potential use of scanner data • Disaggregation of food mixtures in nutrition data	• WRI Food Loss and Waste Protocol • Possible imputation approach to updating fixed FAO loss ratios • OECD review of food loss estimates in 31 countries • EPA methods based on municipal solid waste

Wrap-up session on economic reasons for food loss and waste:

- Optimizing behavior (i.e., benefits of FLW > costs of avoiding FLW)
- Non-optimizing behavior (e.g., various market failures)

General Observations from the April 2014 Workshop

- Efforts to measure and reduce food loss and waste have increased substantially, but we are still struggling with many of the same issues as four years ago.

- Most estimates of food loss and waste across the globe derive from fixed ratios applied to supply and use data.
  - LAFA data series:
    - Appears to be one of the few that uses empirically-estimated loss ratios
    - Is more detailed in terms of number of commodities and stages of the food system than in other countries
  - Much more work needs to be done to improve estimated loss factors globally:
    - Includes explicitly addressing loss factors (1) at all stages of production from farm to consumer and (2) between food-at-home and food-at-home at the retail and consumer levels.

- Possibility of using data from the WRI Food Loss and Waste protocol (in addition to newer commercial tracking technologies) could be explored.

LAFA Expert Panel: Study Team and Methods

- Building off the 2014 workshop, the overall objective was to research and recommend workable, concrete solutions to technical questions and data gaps underlying the LAFA data series.

- RTI and external panel members:
  - Mary Muth, RTI
  - Kristen Giombi, RTI
  - Marc Bellemare, University of Minnesota
  - Brenna Ellison, University of Illinois
  - Brian Roe, Ohio State University
  - Travis Smith, University of Georgia

- Approach:
  - Series of work sessions, information gathering, analysis, and development of recommendations from October 2016-January 2018
  - Reviewed existing literature, consulted with ERS specialists, conducted external interviews, and conducted analyses of available data
  - Panel developed and jointly prioritized recommendations (report to be posted soon)

LAFA Expert Panel Topics

- Research Questions
  - Q1. Incorporating new measures of supermarket shrink into the LAFA Data Series
  - Q2. Structure of the LAFA balance sheets with regard to the inedible portion
  - Q3. Measurement of consumer-level loss for food at home (FAH) separately from food away from home (FAFH)
  - Q4. Feasibility of using a modeling approach to estimate food loss
  - Q5. Methods of using IRI scanner data or FoodAPS data to improve food loss estimates
  - Q6. Accounting for ingredients in food mixtures when estimating food loss
  - Q7. Accounting for changes in food loss over time in the LAFA series
- Data Gaps
  - G1. Supermarket shrink estimates for additional commodities
  - G2. Per capita availability data for rice
  - G3. Updated farm-to-retail conversion factors
  - G4. Measurement of other losses (e.g., theft, donations, transfers)
  - G5. Reuse and recycling of frying fats
  - G6. Availability estimates for additional commodities (e.g., soy products, seeds, whole grains)
  - G7. Loss estimates for additional commodities (e.g., coffee, tea, cocoa)

Approach to Prioritizing Recommendations

- Following data gathering and analysis, prioritized research questions and data gaps based on assessment of:
  - ease of implementing a solution
  - effect on improving the LAFA data series

- Assessed the following:
  - **Data availability**—whether (a) the data currently exist or are likely to be available to implement the recommended approach or (b) a new data collection would need to be conducted
  - **Internal versus external**—whether ERS could likely implement the recommended approach internally versus needing to rely on external resources
  - **Relative effort level**—qualitative assessment of the relative effort in terms of labor hours or time required to implement the recommendation
  - **Effects of calories and servings**—qualitative assessment of the likely impact of implementing the recommendation on the measures relevant to the LAFA series

Summary of LAFA Expert Panel Recommendations: **Top** Priority

- Estimates:
  - Adopt new estimates of retail loss estimates for fruits and vegetables from the Nielsen's Perishables Group study (documented in Buzby et al., 2016) for 2011-2012, and interpolate intervening years from 2005-2006
  - Develop projected values for rice Food Availability estimates after 2010
- Structure of data series:
  - Restructure spreadsheets to put inedible percentages in same column (that is, food supply stage) consistently across commodities, while acknowledging inedible portion could be removed at different stages
  - Retain current time-series format of LAFA data series, while documenting origin and year of estimation of each loss factor

Summary of LAFA Expert Panel Recommendations: **Medium** Priority

- Estimates:
  - Conduct a new primary data collection effort to estimate retail loss estimates for commodities beyond fruits and vegetables
  - Conduct formal expert elicitation to develop updated estimates of "farm-to-retail" or "primary-to-retail" loss factors for groups of commodities
    - Additionally, clearly document the definition of "primary" in each spreadsheet
  - Adjust Food Availability estimates for net export quantities for commodities with high net export values using recipe databases linked to trade harmonization codes
- Structure of data series:
  - Split LAFA spreadsheets into food-at-home and food-away-from-home at the retail and consumer levels due to differences in drivers of food loss

Concluding comments: Related research

- Recently developed updated estimates of consumer-level food loss for the LAFA data series
  - Undergoing external review process
- Initiating work to develop updated estimates of retail-level food loss for the LAFA data series
  - Survey of retailers for ERS
- Modeling the environmental improvements associated with food loss and waste interventions
  - In collaboration with the NSF-funded Socio-Environmental Synthesis Center at University of Maryland

For More Information

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