

Improving Efficiencies on FoodAPS with Online Food Logs

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FoodAPS Data Collection Goals

- Collect all food items purchased or acquired by all household members over a 7-day period
 - Both food at home (FAH) and food away from home (FAFH)
 - Both purchased and free food
 - Information at the event and item level

FoodAPS-1 Data Collection

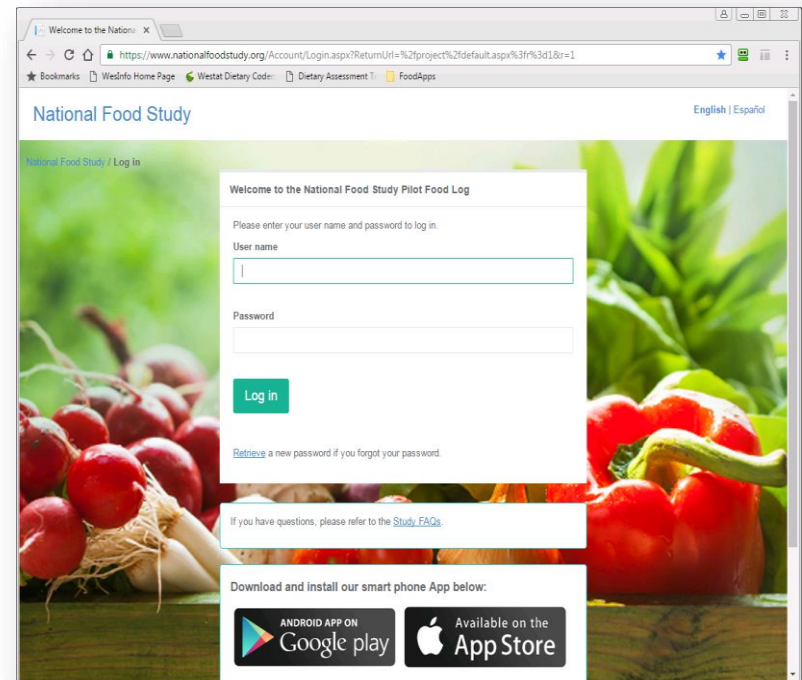
- Started and ended with an in-person interview
- Provided UPC scanner (only technology used)
- Used paper food logs and income worksheets
- Items recorded on paper are reported during daily telephone calls
- Reported receipt information; provide paper copy
- Respondent determined FAH versus FAFH
- Respondent entered addresses of event locations

The image displays three pages of data collection forms used in the FoodAPS-1 study. The first page, 'Daily List - Day 1', is a green and white form with a table for recording food and drink intake. The second page, 'Foods and Drinks Brought into the Home', is a blue and white form with checkboxes for recording food and drink brought into the home. The third page, 'Meals, Snacks, and Drinks You Get Outside Your Home', is a red and white form with checkboxes for recording meals, snacks, and drinks consumed outside the home. Each form includes a 'TAPE RECEIPT HERE' label and a 'QUESTIONS? Call 1-800-275-8819' contact number.

Alternative Data Collection Method (ADCM) Pilot Tested Use of an Online Food Log

Objective: Use technology to reduce burden and improve data quality

- Started and ended with an in-person interview
- Provided UPC scanner, smartphone, laptop + Internet
- Items recorded through an online log
- Uploaded photo of receipts
- System determined FAH versus FAFH: event locations



Multiple Ways to Access Web Food Log

Computer with handheld barcode scanner



Smartphone with downloaded barcode App

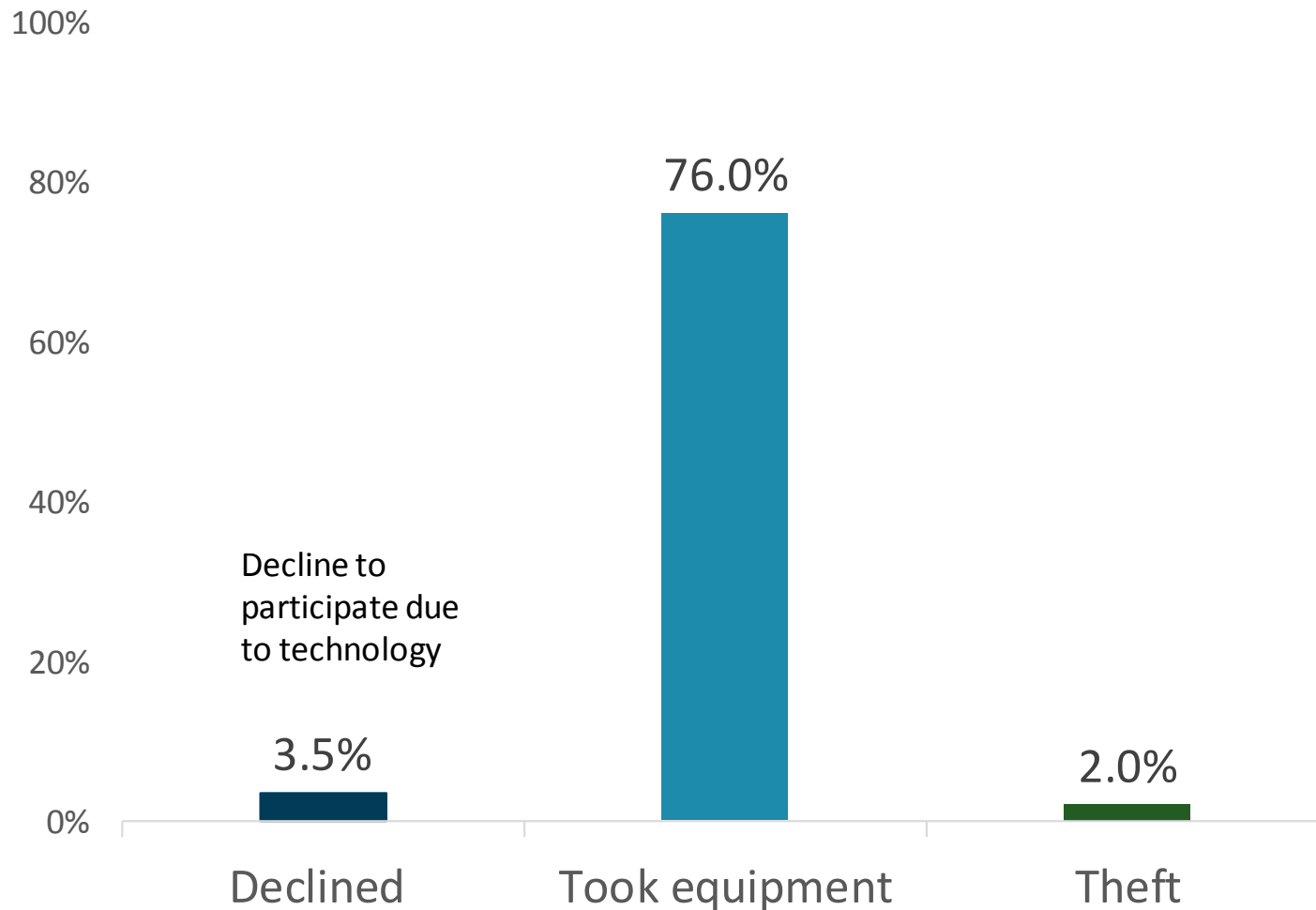


FoodAPS-1 versus the ADCM Data Collection Procedures

FoodAPS-1		ACDM	
Scan UPCs	✓	➡ Scan UPCs, can verify if product match is correct	✓
Paper food logs and income worksheets; report via phone	✓	➡ Web system for food logs + income worksheets	✓
Report receipt information; provide paper copy	✓	➡ Take picture and upload receipts	✓
Respondent determines FAH versus FAFH	✓	➡ System determines FAH vs. FAFH	✓
Respondent enters event locations	✓	➡ Google map look up for location	✓

Usability of Technology

- No significant issues with the technology



Burden

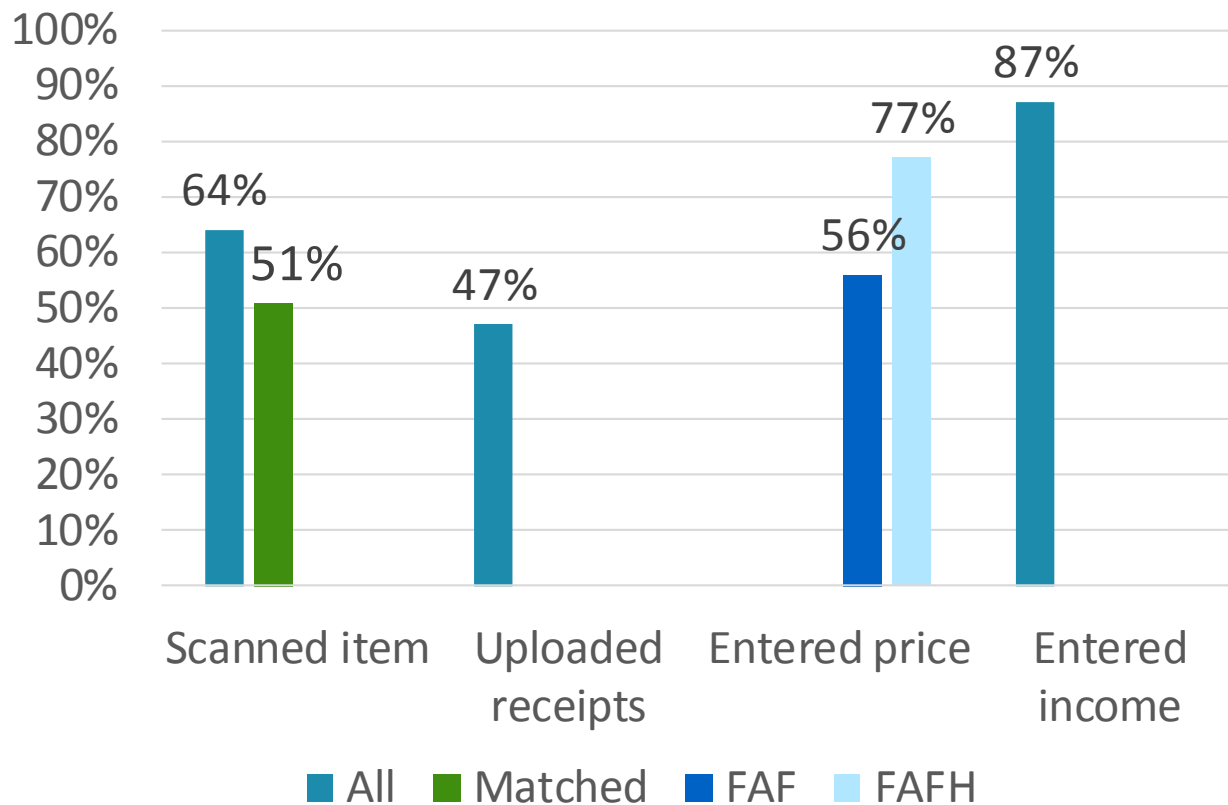
- No direct measure of overall burden
 - Infer from the activities
- Average total time to complete the food log is 49 minutes
- Scanning verses no scanning reduces time per item
 - Scanning cuts average time per item by about 1.5 minutes
 - But found that scanning intensity is inversely related to quantity bought

Data Completeness Challenges

- For items and events reported, not all questions are answered (item non-response)
- Appears that not all events and food items are reported (underreporting)
- Item non-response and underreporting were issues for both FoodAP-1 as well

Completeness/Cleanliness of Items Reported

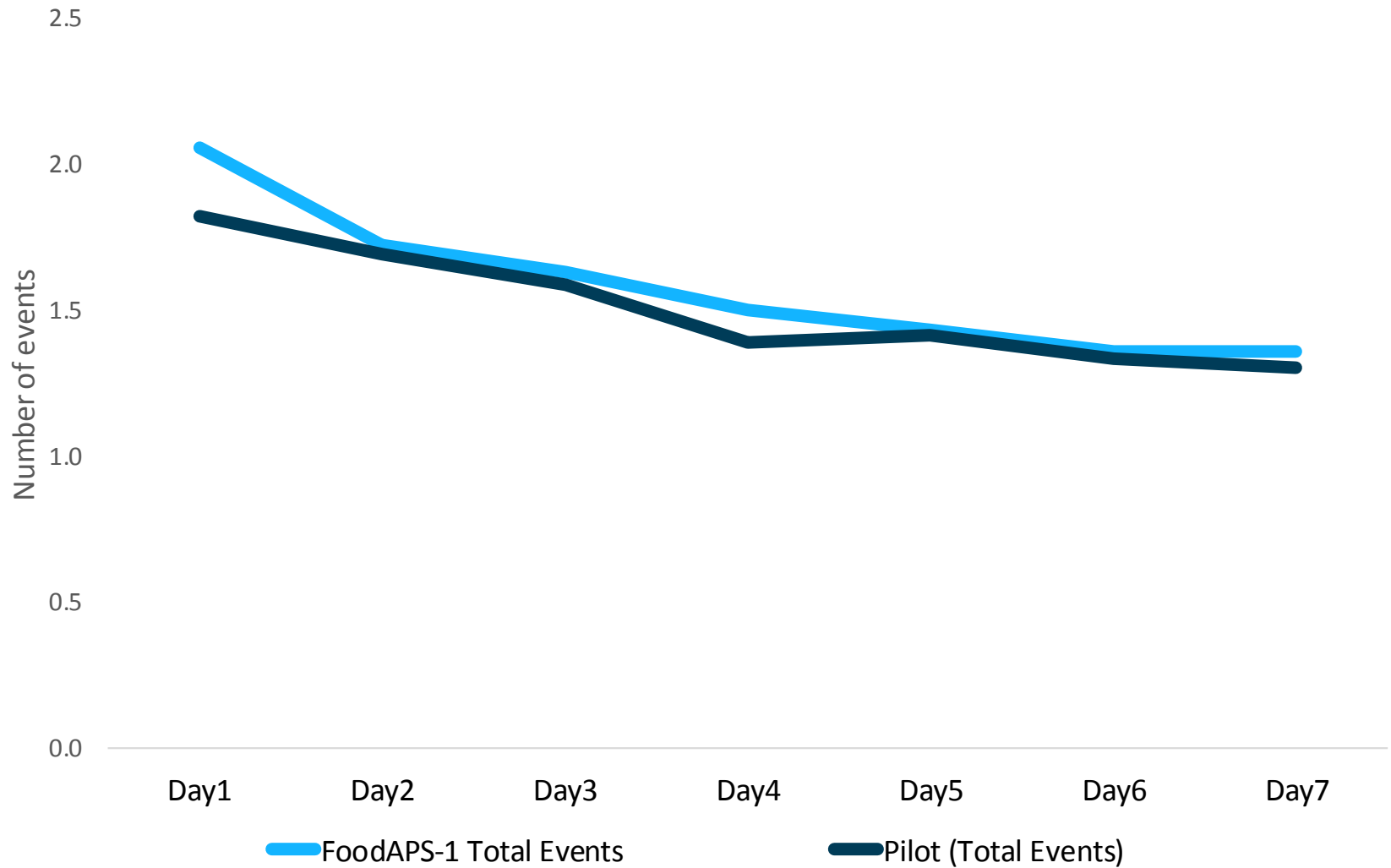
- 100% match of items to events and events to households
- Medium to high use of automated data entry features
 - data entered by automated methods are fairly clean



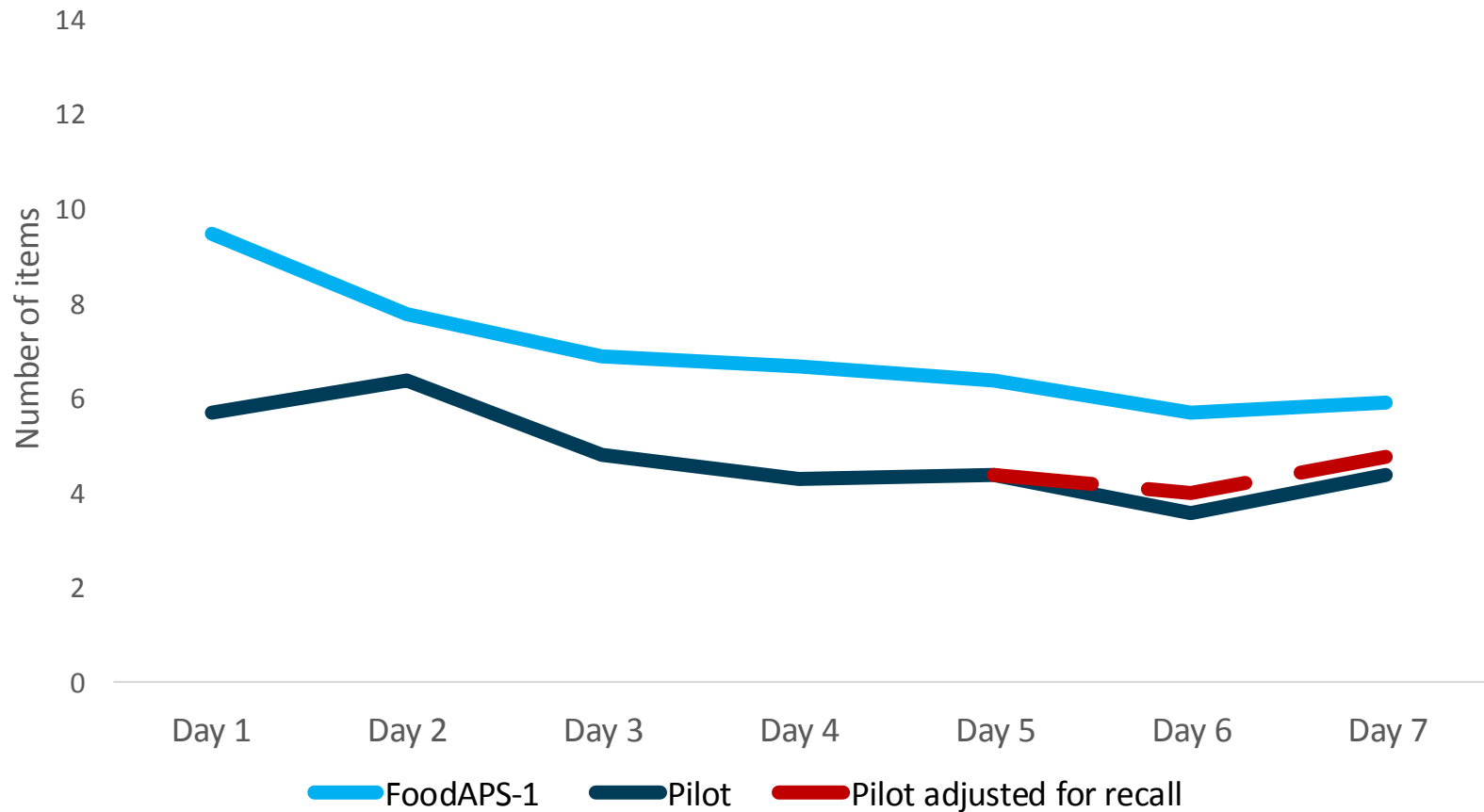
Evidence of Event and Item Under Reporting

- Daily reporting
 - Reporting drops off over the 7 days data collection period
 - Similar to FoodAPS-1 pattern
- Recall validation suggests 25 percent of respondents forgot to report at least one item in last 2 days

Events Reported by Day



Items Reported by Day Adjusting for Recall



Pilot: n= 419 HHs, Weighted
FoodAPS1: n=4,826 HHs, weighted

How to Improve the Online Diary?

- Extract data from receipts in real-time
 - Lessens reporting time and effort
 - Reduced burden could result in more complete reports
 - Provides an accurate record of the actual purchase
- Won't eliminate manual data entry but can substantially lessen it
 - Perhaps cut it in half

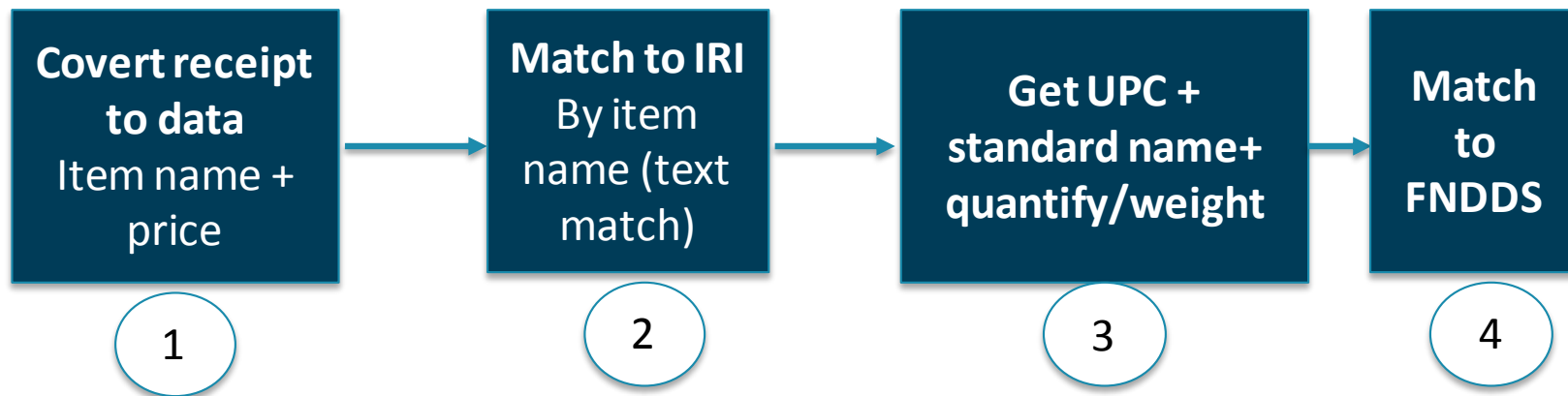
Use of Receipts in FoodAPS-2

- With current funding
 - Upload receipt images for both FAH and FAFH events
 - Compare receipt information to reported usual shopping behavior; telephone prompt to under reporting households
 - Use receipt in post-data collection Q/C and coding
- Explored partially automating data entry using receipts but currently unfunded
 - Few available receipt scanning software capture item level information
 - Found none that do this accurately in real-time
 - Requires new development

Challenges of Automating Reading of Receipts

- Need to translate receipt into data in real-time
 - Defined variables
 - At a minimum: Item name, item price
- Variation in receipt structure makes it hard to convert to data
 - May need separate code for each store chain
- No common naming convention to items
 - Use chain specific short hand names for items
 - Only a minority of receipts contain UPCs (Walmart)
 - 12 percent of the Pilot study events and 19 percent of expenditures were from Walmart

Automating Reading of Receipts



- If receipt has UPCs, step 1-2 is a straight forward UPC match
- Without UPCs, step 1-2 requires text matching
 - Ultimately build a thesaurus that links grocery store names to IRI names
 - Thesaurus has use beyond FoodAPS

Other issues using receipts

- Removing non-food items
 - These are almost always coded
- Not all items will have a UPC match
 - Some cases will require respondent identifies the item

Walmart Receipt (with UPCs)



(813) 932-0562
 Manager COLLEEN BRICKEY
 8885 N FLORIDA AVE
 TAMPA FL 33604

ST# 5221	OP# 00001061	TE# 06	TR# 05332
BREAD	007225003712	F	2.88 N
BREAD	007225003712	F	2.88 N
GV PNT BUTTR	007874237003	F	3.84 N
GV PNT BUTTR	007874237003	F	3.84 N
GV PNT BUTTR	007874237003	F	3.84 N
GV PNT BUTTR	007874237003	F	3.84 N
GV PARM 16OZ	007874201510	F	4.98 O
GV CHNK CHKN	007874206784	F	1.98 N
GV CHNK CHKN	007874206784	F	1.98 N
12 CT NITRIL	073191913822		2.78 X
FOLGERS	002550000377	F	10.48 N
SC TWIST UP	007874222682	F	0.84 X
EGGS	060538871459	F	1.88 O
SUBTOTAL			46.04
TAX 1	7.000 %		0.26
TOTAL			46.30
DEBIT TEND			46.30
CHANGE DUE			0.00

Example: 13 items purchased, receipt has UPCs
 For illustration assume "12 Cy Nitril" and "Folgers" do not match to a UPC

Screen 1: Upload your receipt
Provides directions

Real-time UPC match program is run. System returns list of unmatched food items. "12 Cy Nitril" is unmatched but is coded on the receipt as not food, so it is automatically removed

EFT DEBIT PAY FROM PRIMARY
 ACCOUNT : 5259
 46.30 TOTAL PURCHASE
 PAYMENT DECLINED DEBIT NOT AVAILABLE
 11/06/11 02:21:54

EFT DEBIT PAY FROM PRIMARY
 ACCOUNT : 5259
 46.30 TOTAL PURCHASE
 REF # 131000195280
 NETWORK ID. 0071 APPR CODE 297664
 11/06/11 02:22:54

Screen 2: For unmatched item, system asks respondent to provide a complete name and weight.

Please provide a detailed item **Please provide item weight**

item name (use receipt name as a guide bought but write out any abbreviations) (from package, receipt, or if produce, quantity)

Folgers Instant coffee **8 oz.**



Conclusion

- Using an online diary is an incremental improvement over paper
- Burden could be lessened and data quality potentially improved through real-time reading of receipts
 - Non-trivial effort to set up
 - Still will require manual inputs from respondent