National Academy of Sciences Recommendations

2.1-2.4 A poverty threshold with which to initiate a new series of official U.S. poverty statistics should be derived from Consumer Expenditure Survey [CE] data for a reference family of four persons (two adults and two children).

- Basic bundle
- Percentage of median expenditures
- Multiplier for other needs
- Updating
- Real growth in consumption

3.1 Adjustments

The NAS recommended a Procedure.
This paper builds on research since 2005 JSM

- Threshold
  - Concepts
  - Basic needs

- Assumptions
  - Data
  - Time period
  - Distribution
  - Reference unit
  - Use of equivalence scales
  - Updating

- Equations

- Results when assumptions change
Concepts Used to Define Thresholds

- **Spending**
  - How much does it cost, or does one need to spend, to meet basic needs?

  _But …_ for some needs, such as housing, spending does not equal consumption (e.g., subsidized, own)

- **Consumption**
  - How much does it cost, or what is the consumption value, to meet basic needs?
Thresholds Defined in Terms of...

Food, Clothing, Shelter, and Utilities

FCSU

- **Spending**
  - Official poverty threshold
  - CE-publication expenditures (NAS and Census)
  - Out-of-pocket (OOP) expenditures
    - Inclusion of mortgage principal payments

- *Alternative:* Spending and Consumption
  - Expenditures with adjusted for select consumption
FCSU Threshold: Out-of-pocket Spending

- Food (includes Food Stamps value)
- Clothing
- Utilities (includes telephone)
- For renters, shelter expenditures
- For homeowners, non-vacation shelter expenditures that include
  - Mortgage interest payments
  - Mortgage principal repayments ("pp")
  - Prepayment penalties
  - Property taxes
  - Maintenance, repairs, insurance and other related expenditures
FCSU Threshold Accounting for Consumption

- Out-of-pocket spending on
  - Food
  - Clothing
  - Utilities (includes telephone)
  - Rent of renters

- Food as pay
- Rent as pay
- Rental equivalence of owners
Caution....

For a more complete consumption based threshold, would also need data on:

- Rent controlled or government subsidized housing
- School breakfast, school lunch, WIC, energy assistance, elder coupons
- Medical consumption not financed out-of-pocket
- Goods and services received as gifts (“net” value of gifts)

And values would be added to resources for consistency.
Basic and Alternative Assumptions

- U.S. Consumer Expenditure Interview Survey (CE) FCSU expenditures
  - With mortgage principal payments (pp)
  - Without mortgage principal payments

- Which CE data used and updated to threshold year?
  - Time period
    - Most recent three years
    - One year of data
  - Independence of data
    - Quarterly reports independent
    - Quarterly reports not independent
  - CPIs used to update quarterly data to threshold year
    - Annual
    - Moving average quarterly

- Which point on the distribution of the sum of FCSU expenditures?
  - Median multiplied by percentages of the median (0.78 and 0.83)
  - 33rd percentile

- How to account for other basic needs?
  - Apply multiplier to distribution point (1.15 to 1.25)

- Whose expenditures are used as the reference?
  - Census family (related) composed of 2 adults and 2 children (CF)
  - Consumer units composed of 2 adults and 2 children (CU)
  - All members within the population

- How to derive thresholds for other units?
  - Apply 3-parameter scale to threshold to obtain thresholds for other consumer units/family types
Threshold Equations

Have used in the past

\[
\frac{(1.15 \times P_L \times \text{Median}) + (1.25 \times P_H \times \text{Median})}{2}
\]

- Used the midpoints of the percentages and multipliers

Recent proposal

1.20 \times 33\text{rd percentile}
Three-parameter Equivalence Scale

- **one and two adults**
  
  \[ [\text{adults}]^{0.5} \]

- **single parents**
  
  \[ [\text{adults} + 0.8 \times \text{1st child} + (0.5 \times \text{children} - 1)]^{0.7} \]

- **all other families**
  
  \[ [\text{adults} + 0.5 \times \text{children}]^{0.7} \]
2007 FCSU Thresholds Based on Alternative Assumptions

Based on Medians

Based on 33rd percentile
2007 FCSU Thresholds: Basic Assumptions

“CF” refers to Census family composed of 2 adults and 2 children.
2007 FCSU Thresholds: Spending vs. Consumption

$25,791
$27,512
$27,956

CF BASE pp
CF REQ fixed pc
CF REQ vary PC
2007 FCSU Thresholds: Independent Quarters vs. 4 Complete Quarters

- CF BASE pp: $25,791
- CR 4 comp not ind: $26,183
- CF 4 comp ind: $26,878
2007 FCSU Thresholds: Restricted to Census Families vs. Equivalized Adults

Both thresholds for Census Family composed of 2 adults and 2 children

CF BASE pp

CF equiv

$25,791

$22,785
2007 Thresholds: Census Families vs. Consumer Units and Price Adjustment

$25,791
$25,151
$25,865
$25,179

CF BASE pp
CU 2+2, Median, ACPI
CU 2+2, Median, QCPI
CU 2+2, 33, QCPI
2007 Thresholds for Consumer Units by Housing Payment Status

- CU 2+2, 33, QCPI: $25,179
- with mort, rent pay: $26,732
- no mort, no rent pay: $14,833
Changes in CE Interview Questionnaire in 2007Q2 that Can Affect Thresholds

- Mortgage edits in processing
- Change in question wording for food away from home expenditures
2007 Improvements to Mortgage Edits

Prior to 2007Q2
- Before 2006, Field Representatives (FRs) could not report a mortgage as an “interest only” mortgage.
- In 2006, FRs were given the ability to report a mortgage as “interest only”, but the information was not used in processing.

Beginning with 2007Q2
- The questionnaire was revised to better collect interest only mortgages.
- Mortgage edit processing began utilizing the “interest only” designation.
2007 Improvements to Food Away From Home Data Collection

- Prior to 2007Q2
  - The CE Interview survey collected the usual monthly expenditures for food away from home.
  - Cognitive testing indicated that collecting the usual weekly amount results in more accurate data.

- Beginning with 2007Q2
  - The questionnaire was revised to collect usual weekly expenditures for food away from home.
  - The Interview data for food away for 2007 was more comparable with the Diary data for 2007 as compared to past years.
CE Interview-Based FCSU Median Expenditures (no principal payments)

Year-to-Year Percentage Changes in Median FCSU Expenditures (no principal payments)
Income and Expenditures: Census Family

FCSU: without principal payments
“Median” expenditures based on data for thresholds (e.g., 2007 “median” expenditures based on data from 2005Q2-2008Q1)

Shelter in this example does not include mortgage principal payments
2007 FCSU Thresholds: Reference Unit and Using Three Years of Data vs. One

Census Family

Consumer Unit
Summary and Conclusions

- Spending- and consumption-based thresholds
- Underlying assumptions affect threshold levels
  - With or without mortgage principal payments
  - Define needs in terms of consumption
  - Reference unit: Census family or consumer unit
  - Use all data or only data for reference unit
  - Years or quarters of data to use
  - Quarters independent or not
  - Update underlying data using annual versus rolling average quarterly price indexes
  - Change in CE question wording affect threshold levels

- How will differing assumptions affect trends?
  - To be examined in the future
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