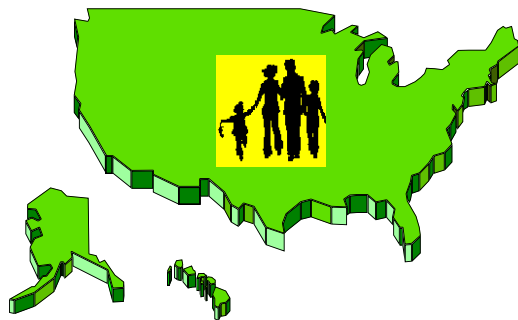


# **Redefining Poverty Measurement in the U.S.:** *Examining the Impact on Inequality and Poverty*

**Kathleen Short, Thesia I. Garner,  
David Johnson, and Martina Shea**  
*Bureau of the Census and Bureau of Labor  
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25th Conference of the IARIW, Cambridge, UK  
28 August 1998

# Outline

- Poverty Status
- Poverty concepts
- Why a new poverty measure
- Recent literature
- Thresholds
  - how defined
- Resources
  - how defined

Impact on:  
Inequality  
Poverty



# Findings

## ■ With New Resource Measure

- Inequality decreases
- Poverty becomes more of a problem

## ■ What matters?

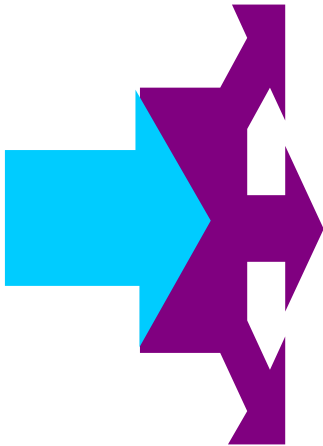
- Definition of resource and thresholds
- Treatment of zero and negative values
- Choice of inequality and poverty measures
- Equivalence scales
- “Standardization” of thresholds

# Determining Poverty Status

- Determine costs of meeting basic needs
- Measure resources that are available to meet basic needs
- If resources are inadequate to meet basic needs this person is POOR

# Poverty Concepts

- **ABSOLUTE:** reflects some standard below which basic needs are assumed cannot be met

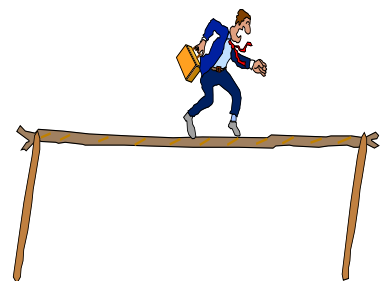


- **RELATIVE:** reflects relative position within a distribution such as income, expenditures, or consumption

- **SUBJECTIVE:** reflects opinions of people about their own situation

# Current U.S. Official Poverty Threshold

- Established in 1963: \$3,100 for a 2-adult/2- child family
- Based on 1955 Household Food Consumption Survey and USDA Economy Food Plan
- Multiplied economy food plan by three (families with 3 or more persons spent 1/3rd of after-tax income on food)
- Adjusted for inflation each year
- 1996: \$15,911 for a 2-adult/2- child family

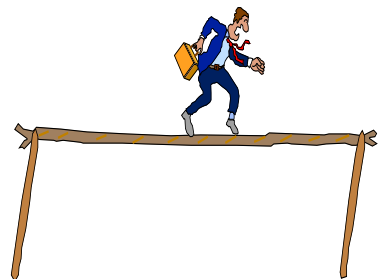


# Why Do We Need a New Poverty Measure?

- **Current threshold** does not reflect social and economic changes, nor changes in expectations and perceptions about necessities in the last 30 years

## The current threshold does not account for:

- ☑ Higher levels of living (purchases, expenditures, expectations)
- ☑ Child care expenditures
- ☑ Change in composition of families
- ☑ Geographic differences in prices
- ☑ Increase in medical care costs and benefits

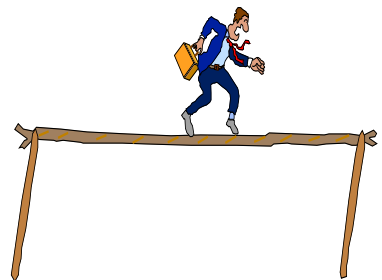


# Why Do We Need a New Poverty Measure? (cont.)

- **Current income** does not account for resources from near-money benefits nor expenses that cannot be used to buy goods and services

## The current measure of income does not account for

- ☑ Provision of near-money benefits (e.g., food stamps, EIC)
- ☑ Increased tax burden for low-income households



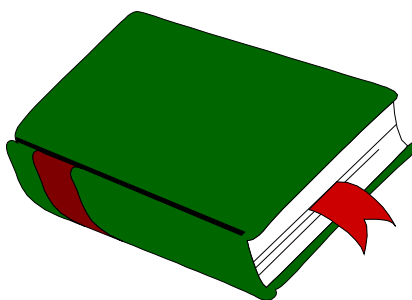


# Recent Detailed Examination

***Measuring Poverty: A New Approach***  
Connie Citro & Robert Michael (eds.),  
National Academy of Sciences  
Panel on Poverty and Family Assistance  
1995

**“THE REPORT”**

**“THE PANEL”**



# **Poverty Measures Should Be:**

- understandable and broadly acceptable to the public
- statistically defensible
- operationally feasible

# Defining the Poverty Threshold

**Hybrid of absolute and relative measures**

**Reflect different family types**

**Reflect geographic variations**

**Updating**

# Thresholds Based on Expenditures

## ■ Food and non-alcoholic beverages

- food at home
- food away from home



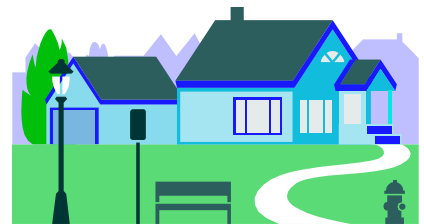
## ■ Clothing

- apparel, upkeep, related

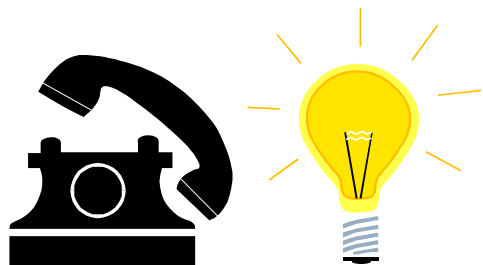


## ■ Shelter

- rent for renters
- mortgage interest for owners, property taxes
- maintenance, repairs insurance, other



## ■ Utilities

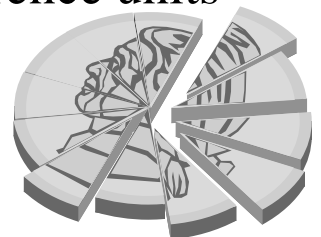


# Poverty Threshold

$$T = \left[ \frac{(M_1 * P_1 * median) + (M_2 * P_2 * median)}{2} \right]$$
$$= \left[ \frac{(1.15 * .78) + (1.25 * .83)}{2} \right] * median$$

$T$  = reference unit poverty threshold,  
 $M_1, M_2$  = multipliers for smaller and larger  
additional amounts,  
 $P_1, P_2$  = higher and lower percentages,  
 $median$  = median expenditures for the basic bundle  
of food, clothing, shelter, and utilities of  
two-adult with two children reference units

$$T = 0.96725 * median$$



# Two-Parameter Equivalence Scale

## Scale value

$$(A + PC)^F = (A + 0.7C)^{0.65 \text{ to } 0.75}$$

$A$  = number of adults

$C$  = number of children

### Accounts for:

- Differing needs of children and adults
- Economies of scales



# Data for Thresholds

## U.S. Consumer Expenditure Survey

- Interview
- Quarterly expenditures (rotating sample)
- Consumer units:
  - members of household who related
  - living alone
  - some sharing of expenditures with others in terms of housing, food, and other living expenses

# Assumptions for Experimental Thresholds

“Family”	2 adults with 2 children consumer unit
Restriction on quarters	Independent
Periods of data	Most recent three years: 1989-91 for 1991 thresholds
Expenditures	Out-of-pocket
Equivalence scale	$P=0.7$ , $F=0.65$
Geographic adjustment	Panel’s approach: 1990 Census data on gross rents for apartments
Updating	1992-96 CPI-U applied to 1991 thresholds



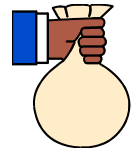
# Poverty Thresholds for 2 Adults and 2 Children

(not adjusted for geographic price  
differences)

	<b>Census Family Official CPI-U adjusted</b>	<b>CU Experimental CPI-U adjusted</b>
1991	\$13,812	\$13,891
1992	14,228	14,309
1993	14,654	14,738
1994	15,029	15,115
1995	15,455	15,543
1996	15,911	16,002

# New Resource Measure Should Be Based On

- Gross Money Income from all Public and Private Sources



- Plus the Value of In-kind Government Subsidies



- Minus Taxes Paid

- Minus Child Support Paid



- Minus Other Work Expenses including Child Care



- Minus Medical Out-of-Pocket Expenditures



# Basic Data for Resources

## CPS

- Cross section
- Annual income
- Program participation

## SIPP

- Longitudinal
- Monthly income
- More programs
- Supplementary questionnaires

# Assumptions for Experimental Resources

“Family”                      Persons living together  
related by blood,  
marriage, or adoption

Reference period              Previous calendar year

Data                              CPS March supplement  
1992 and 1997  
SIPP 1991 Panel

Resources                      Cash income  
+ value of inkind  
transfers  
- necessary expenses

# Income in CPS - Annual

- Earnings
- Unemployment
- Workers comp
- Social Security
- Supplemental Security Income
- Public Assist
- Veterans payments
- Alimony
- Disability benefits
- Pensions
- Interest
- Dividends
- Rents, royalties
- Educational assist
- Child support
- Regular private transfers

# Income in SIPP - monthly

- Earnings
- Social Security/RR
- SSI/fed and state
- UI
- Supplementary unemployment insurance
- Veterans comp
- Black lung
- Worker compensation
- State temp disability
- Employer or union temp
- Payments from insurance
- AFDC/TANF/GA
- Indian/Cuban or refugee assist
- Foster child care
- WIC
- Child support
- Alimony
- Pension, military retirement
- Paid up life insurance policies
- Annuities
- Estates and trusts
- Other retirement/survivor
- GI bill
- Educational assistance
- Charitable income
- Private transfers
- Lump sums
- National guard or reserve

# Income from SIPP - continued

- Interest income from
  - savings accounts
  - money market deposit accounts
  - certificates of deposit
  - interest earning checking accounts
  - money market funds
  - U.S. government securities
  - municipal or corporate bonds
- Dividends from stocks or mutual funds
- Rental property income
- Mortgages
- Royalties
- Other financial investments

# **Adding Non-cash Transfers**

- **Food Stamps**
- **School lunch and breakfast**
- **WIC**
- **Housing subsidies**
- **Energy Assistance**



# **Subtract Necessary Expenses**

- Taxes
- Work related expenses including child care
- Medical out of pocket expenses
- Child support paid

# To Evaluate Measure: Questions Addressed

- How does the new poverty measure change our view of who is poor?
- How does the new poverty measure affect poverty rates over time?

# Additional Questions Addressed Here

- ☑ How does the distribution of the experimental resource measure compare with that based on official income?
- ☑ What does the experimental measure say about the distribution of 'resources' among people in the U.S.?
- ☑ How do more comprehensive poverty statistics, beyond the head count ratio, compare when we change our basic measure of poverty?

# Answering the Questions

- Compute basic descriptive statistics of income and resources
- Compute various inequality statistics and compare to official measures
- Compute more complex poverty statistics using both experimental and standardized thresholds

# Data for this Study

- Consumer Expenditure Survey: 1989-1991
- Survey of Income and Program Participation: 1991 panel with topical modules
- Current Population Survey: March 1992 - 1997

# Inequality Measures

Gini coefficient

Theil General Entropy Measures

- » Mean log deviation  $I_{\alpha=0}$
- » Theil coefficient  $I_{\alpha=1}$
- » Half the coefficient of variation squared  $I_{\alpha=2}$

# Poverty Measures

- Official poverty measure
- Experimental poverty measure - implements the Panel's recommendations with slight modifications
- Standardized poverty measure- adjusts the experimental thresholds in order to match the official poverty rate for all persons in a given year: 1991 and 1996

# Poverty Statistics

**Head Count Ratio**

$$= \frac{q}{n}$$

$q$  = number of poor persons (or families)

$n$  = total number of persons (or families)

**Average Poverty Gap**

$$= \frac{1}{q} \sum_{i=1}^q (z_i - y_i)$$

$z_i$  = family poverty threshold

$y_i$  = family income

**Foster-Greer-Thorbecke (FGT) Measures**

$$P_{\alpha}(y, z, \alpha) = \frac{1}{n} \sum_{i=1}^q \left( \frac{z_i - y_i}{z_i} \right)^{\alpha}$$

=measure of poverty aversion (larger  $\alpha$  gives greater emphasis to poorest),  $\alpha \geq 0$



# Summary and Conclusions

- With New Resource Measure
  - Inequality decreases
  - Poverty becomes more of a problem
- What matters?
  - Definition of resource and thresholds
  - Treatment of zero and negative values
  - Choice of inequality and poverty measures
  - Equivalence scales
  - “Standardization” of thresholds

