

Supplemental Poverty Measure Thresholds: Imputing Noncash Benefits to the Consumer Expenditure Survey

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Administrative and Survey Data

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Disclaimer

This paper reports the results of research and analysis undertaken by researchers within the Bureau of Labor Statistics (BLS) and Census Bureau.

Any views expressed are those of the authors and not necessarily those of the BLS or Census Bureau.

Supplemental Poverty Measure (SPM) Joint BLS-Census “Research” Project

Bureau of Labor Statistics

(Garner & Gudrais)

- Thresholds
- Research only
- No funding

Bureau of the Census

(Short)

- Resources & Poverty rates
- Publication quality
- Funded FY15

Outline

1. Supplemental Poverty Measure (SPM)
2. Problem in current method
3. Impact on thresholds and poverty rates
4. Imputation of in-kind benefits
5. Discussion and conclusions

Poverty Measures: Official and Supplemental

	Official Poverty Measure	Supplemental Poverty Measure (operational)
Measurement Unit	Families and unrelated individuals	Families, co-habitors, foster children = consumer unit
Resource Measure	Gross before-tax money income	Cash income PLUS federal government in-kind benefits to meet food, clothing, shelter, and utility (FCSU) needs MINUS taxes (or plus tax credits), work expenses, out-of-pocket expenditures for medical expenses
Poverty Threshold	Cost of minimum food diet in 1963	Range of the 30-36 th percentile of expenditures for FCUS plus "a little more" for other basic needs of all consumer units with exactly two children
Threshold Adjustments	Vary by family size and composition	3- parameter equivalence scale Geographic differences in housing costs using 5 years of ACS data
Updating Thresholds	Consumer Price Index: All items	5-year moving average of expenditures on FCSU



Official Measure



Supplemental Measure

What resources do people have to meet their needs?

What we count as available resources differs between the two poverty measures.

The official measure uses cash income, such as wages and salaries, Social Security benefits, interest, dividends, pension or other retirement income.

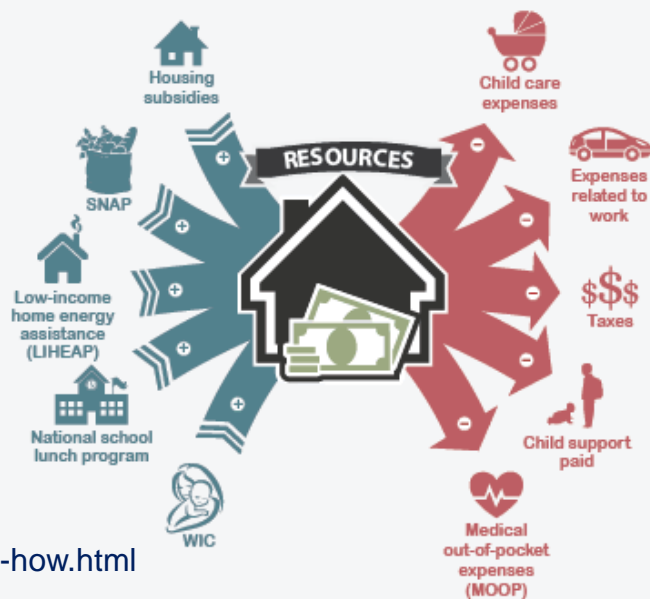
The SPM starts with cash income, then...

ADDING BENEFITS

The SPM adds benefits from the government that are not cash but help families meet their basic needs.

SUBTRACTING EXPENSES

The SPM subtracts necessary expenses like taxes, health care, commuting costs for all workers, and child care expenses while parents work.



ITWG Guidelines for SPM Thresholds

➤ **ITWG stated ...**

*“so far as possible with available data, the calculation of FCSU should include any in-kind benefits that are counted on the resource side for food, shelter, clothing and utilities. **This is necessary for consistency of the threshold and resource definitions.**” (March 2010)*

FCSU = sum (food, clothing, shelter, utilities) at micro-level

SPM Threshold = FCSU + little bit more

Supplemental Nutrition Assistance Program (SNAP)

Housing Subsidies

Supplemental Nutrition Program for Women, Infants, and Children (WIC)

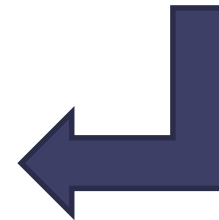
National School Lunch Program (NSLP)

Low-Income Home Energy Assistance (LIHEAP)

Underlying Assumption

- Resources to meet “needs”

- Thresholds represent “needs”




- For resources: cash + value of in-kind benefits for what in thresholds
- For thresholds: spending + value of in-kind benefits
- Therefore: Thresholds are not arbitrary but have specific meaning

Problem: Thresholds and Resources Inconsistently Defined

Thresholds

Resources: Official



Expenditures
for FCSU
(including
SNAP)

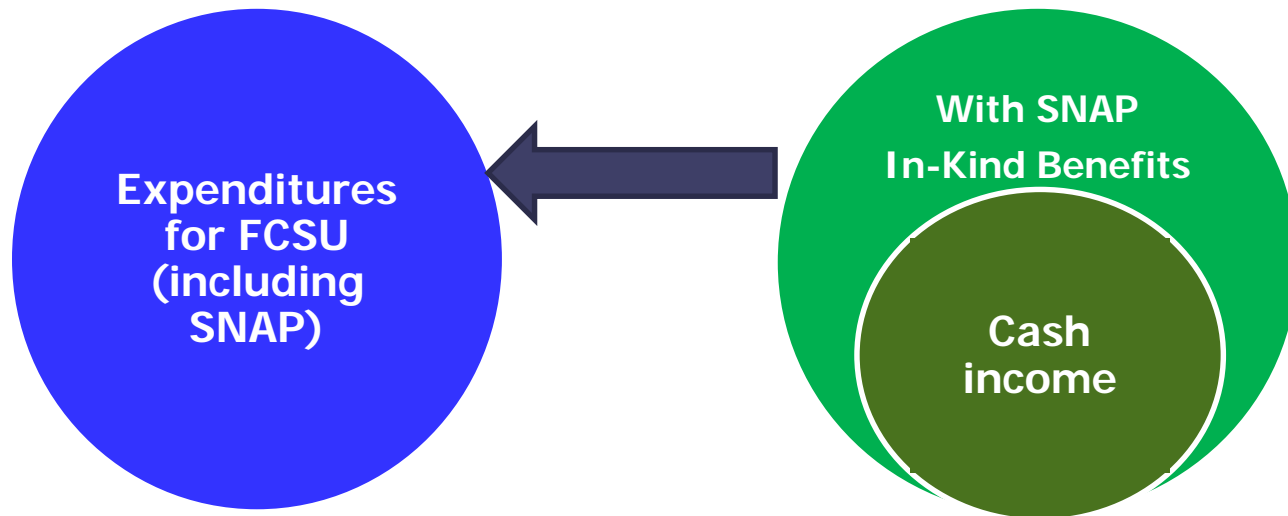


Cash income

Problem: Thresholds and Resources Consistently Defined

Thresholds

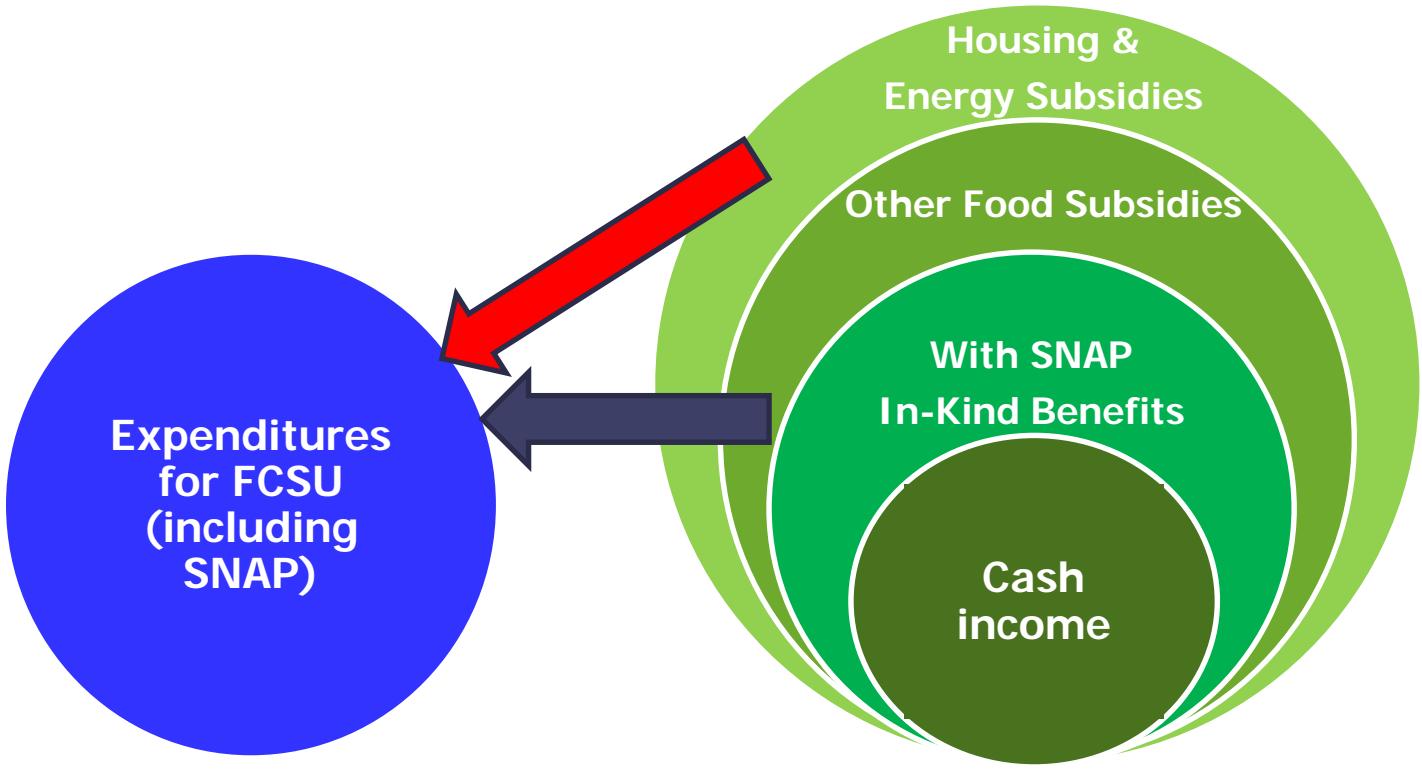
Resources



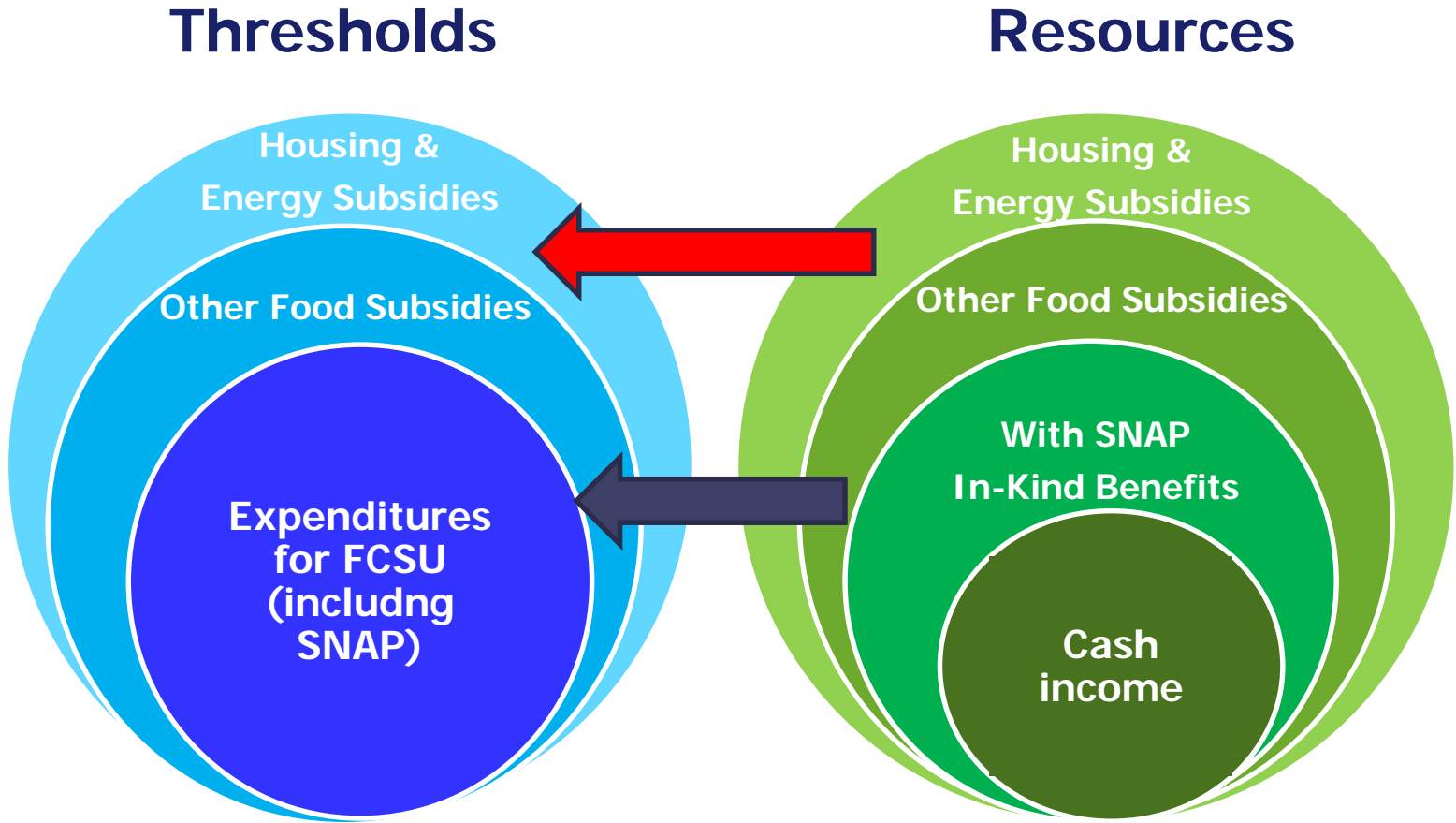
Problem: Thresholds and Resources Inconsistently Defined Thus Far

Thresholds

Resources



Problem: Thresholds and Resources Consistently Defined



Challenge: Data in the U.S. Consumer Expenditure Interview Survey

■ Limited data on Rental Assistance Programs

- ▶ Indicator variables for rented living quarters
 - Is this house a public housing project, that is, it is owned by a local housing authority or other local public agency? (CE variable: pub_hous)
 - Are your housing costs lower because the Federal, State, or local government is paying part of the cost? (CE variable: govtcost)
- ▶ Total rent payments for each of last 3 months (do not include direct payments by local, state, or federal agencies)
- ▶ Expenditures for utilities

■ No data on programs but data on potential participants

- ▶ National School Lunch Program (NSLP)
- ▶ Supplemental Nutrition Program for Women, Infants, and Children (WIC)
- ▶ Low income Home Energy Assistance (LIHEAP)

The President's 2016 Budget and SPM

- Proposes funds for BLS to produce spending measures that would help the U.S. Census Bureau measure poverty more accurately
- If Congress funds this proposal, it would allow BLS to:
 - ▶ Release consumer spending data more quickly to help the Census Bureau produce alternative poverty measures each year.
 - ▶ Add questions to the Consumer Expenditure Survey on topics such as school breakfasts and lunches and help paying for home heating and other household expenses.
 - ▶ Continue research to improve how federal agencies measure poverty.
- Without the funding, our ability to be a full participant in development and maintenance of the supplemental poverty measure is not possible.

President's 2016 budget would fund data on export prices and poverty measures

March 13, 2015 [BLS Commissioner](#)

<http://blogs.bls.gov/blog/2015/03/13/presidents-2016-budget-would-fund-data-on-export-prices-and-poverty-measures/>

What Approach to Assign In-Kind Benefits to CUs in Consumer Expenditure Survey?

Criteria Assignment

- Use eligibility criteria and CU characteristics data to imputed eligibility
 - ▶ Garner 2010
- Imputed eligibility + participation adjustments
 - ▶ Garner, Gudrais, and Short, 2015

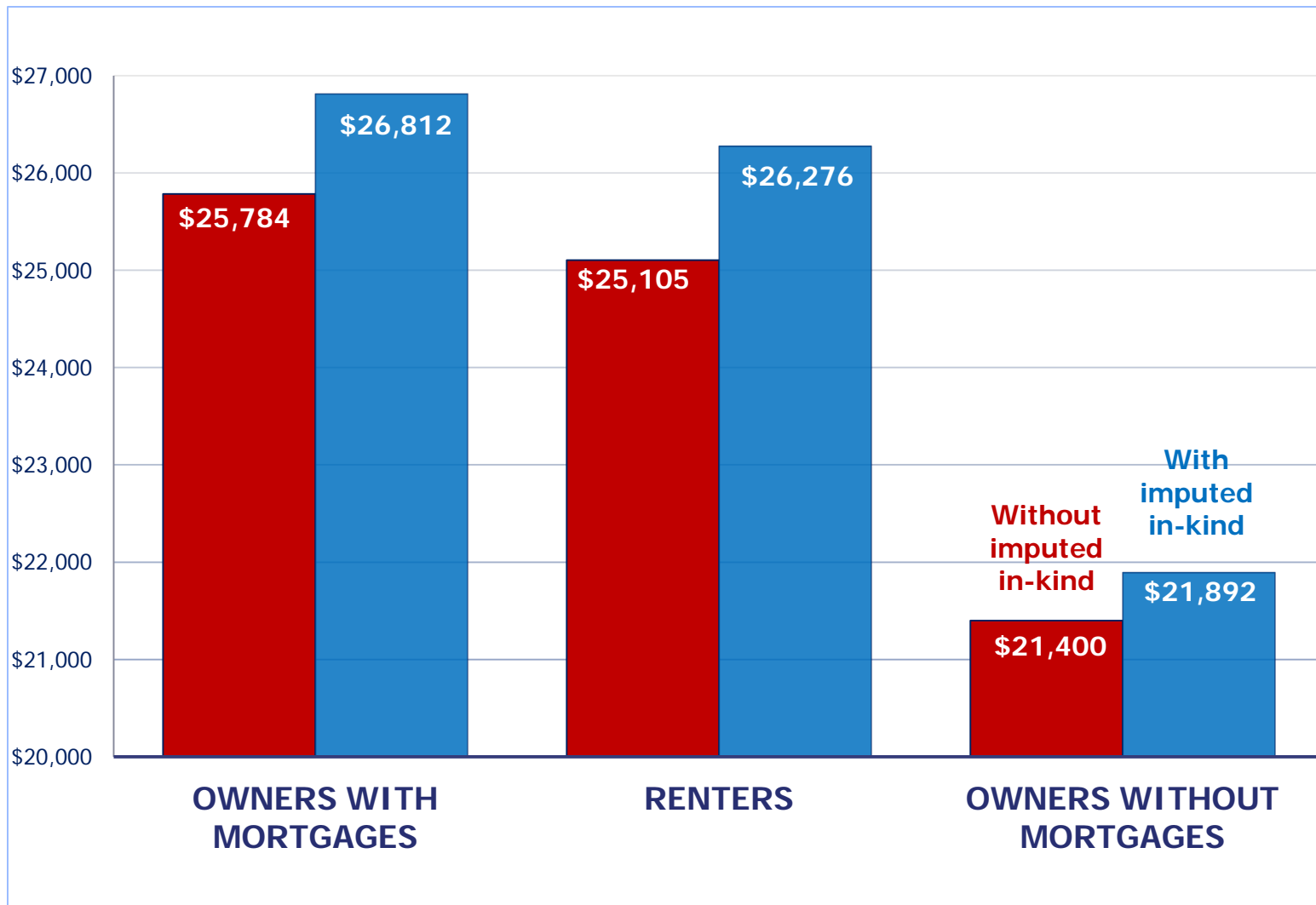
Regression Model Assignment

- Use participation from another survey plus CU characteristics to impute participation to CUs in CE
 - ▶ Garner and Hokayem 2012 with CPS

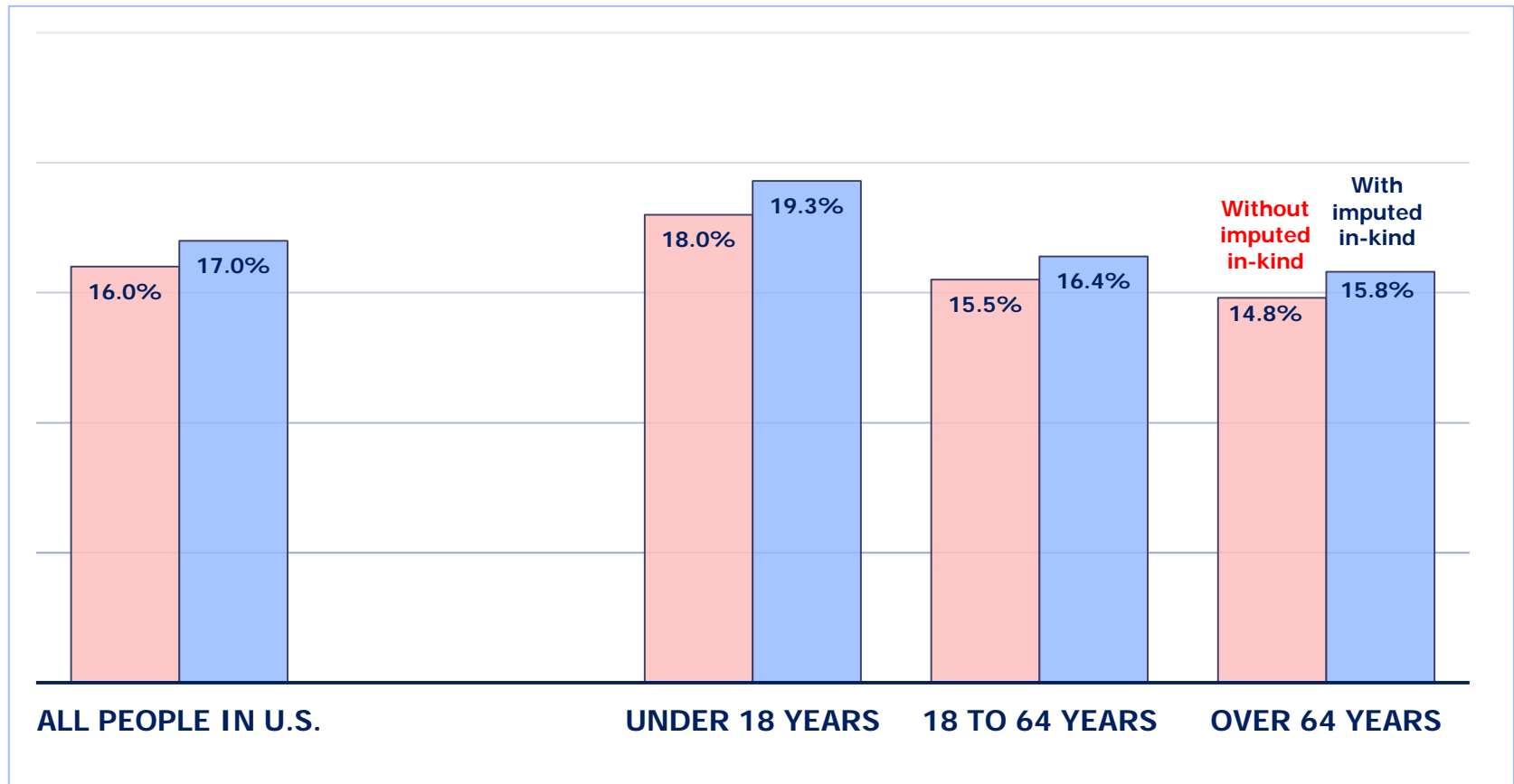
Use administrative data for benefits levels

IMPACT ON THRESHOLDS AND POVERTY RATES

SPM Thresholds for 2 Adults with 2 Children without and with Imputed In-Kind Benefits: 2012



Poverty Rates by Age Group Using SPM Thresholds without and with Imputed In-Kind Benefits: 2012



METHODS

FOCUS ON THRESHOLDS

Data for 2012 Thresholds, Resources and Poverty Rates

Thresholds

- U.S. Consumer Expenditure Interview Survey (CE)
- Five years: 2008Q2-2013Q1
- Quarterly data assumed to be independent
- Benefits inputed for each quarter for full CE sample
- FCSU expenditures including in-kind in 2012 dollars
- Produce 2+2 thresholds

Resources

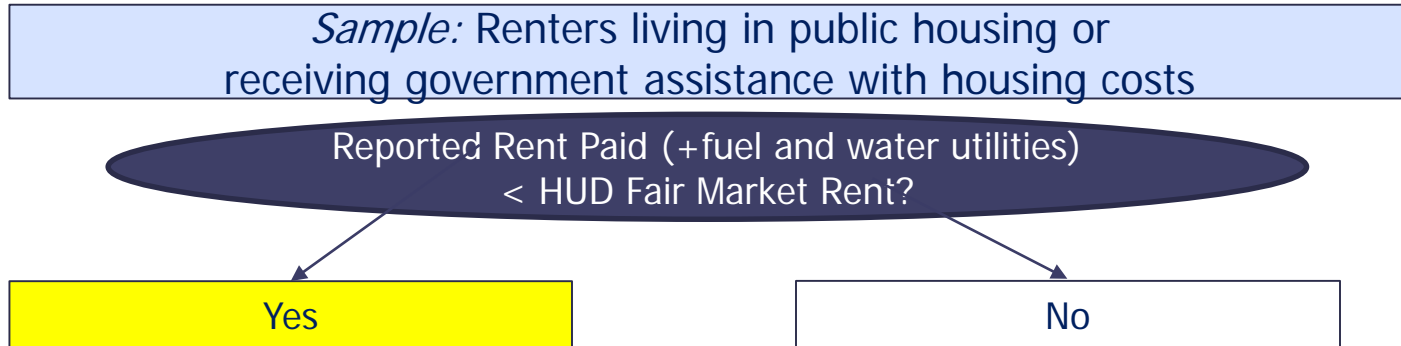
- U.S. Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC)
- 2013 March refers to 2012
- Cash and in-kind

In-Kind Benefits Assigned in the CE to All Consumer Units

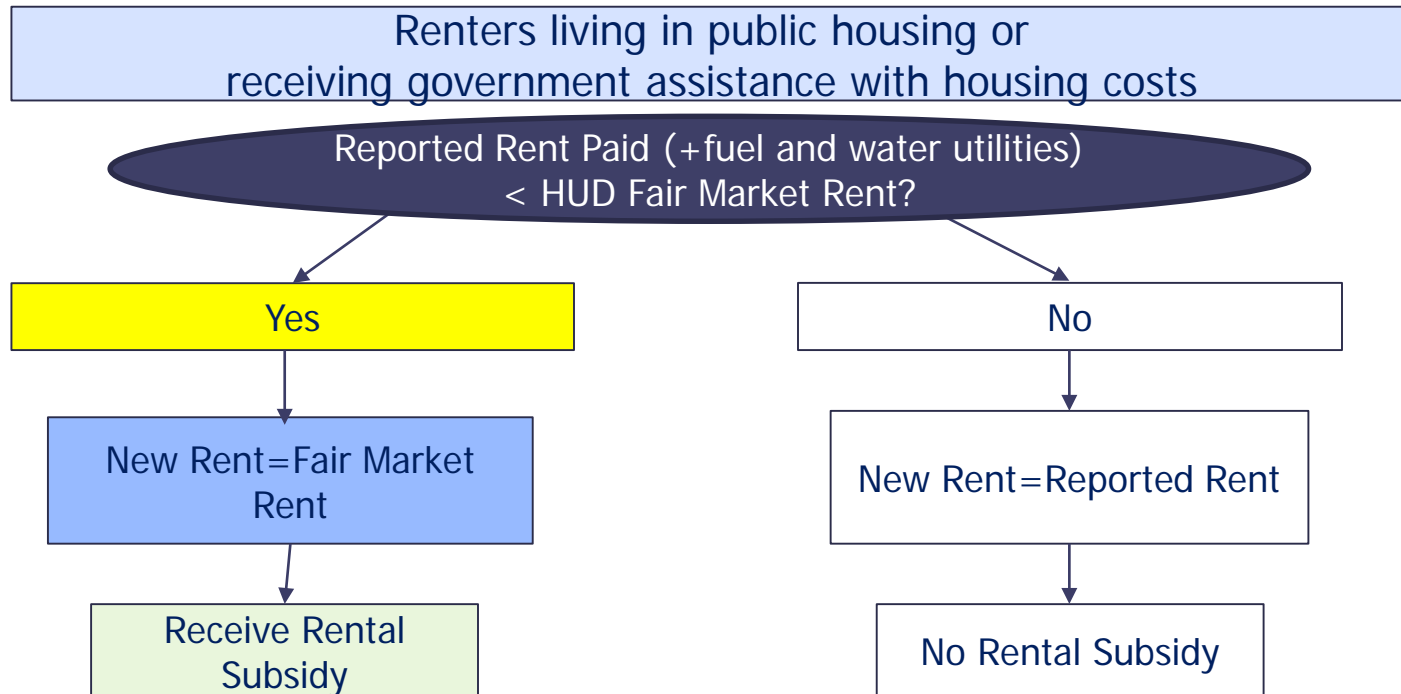
- CE Assigned
 - ▶ Eligibility
 - ▶ Participation
 - ▶ Benefits

- Comparisons to
 - ▶ Administrative data
 - ▶ Current Population ASEC
 - Reported participation
 - Imputed benefits

Reported Participation: Housing



Reported Participation: Renters



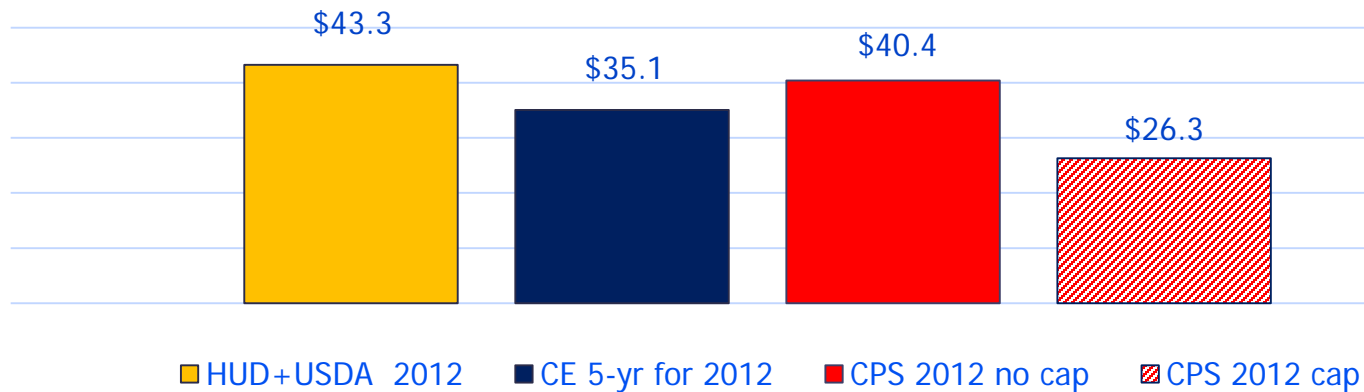
Results Using 5 Years of CE Data for Annual 2012 Estimates:

122 million consumer units in CE, of these

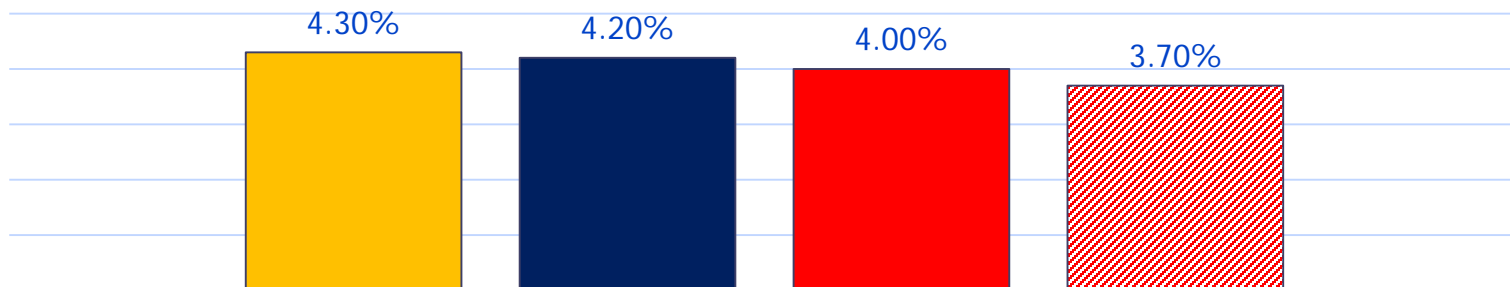
4.95% reported living in public housing or receiving government assistance with housing costs

Rental Subsidies: 2012

Aggregate Rental Subsidies in Billions \$



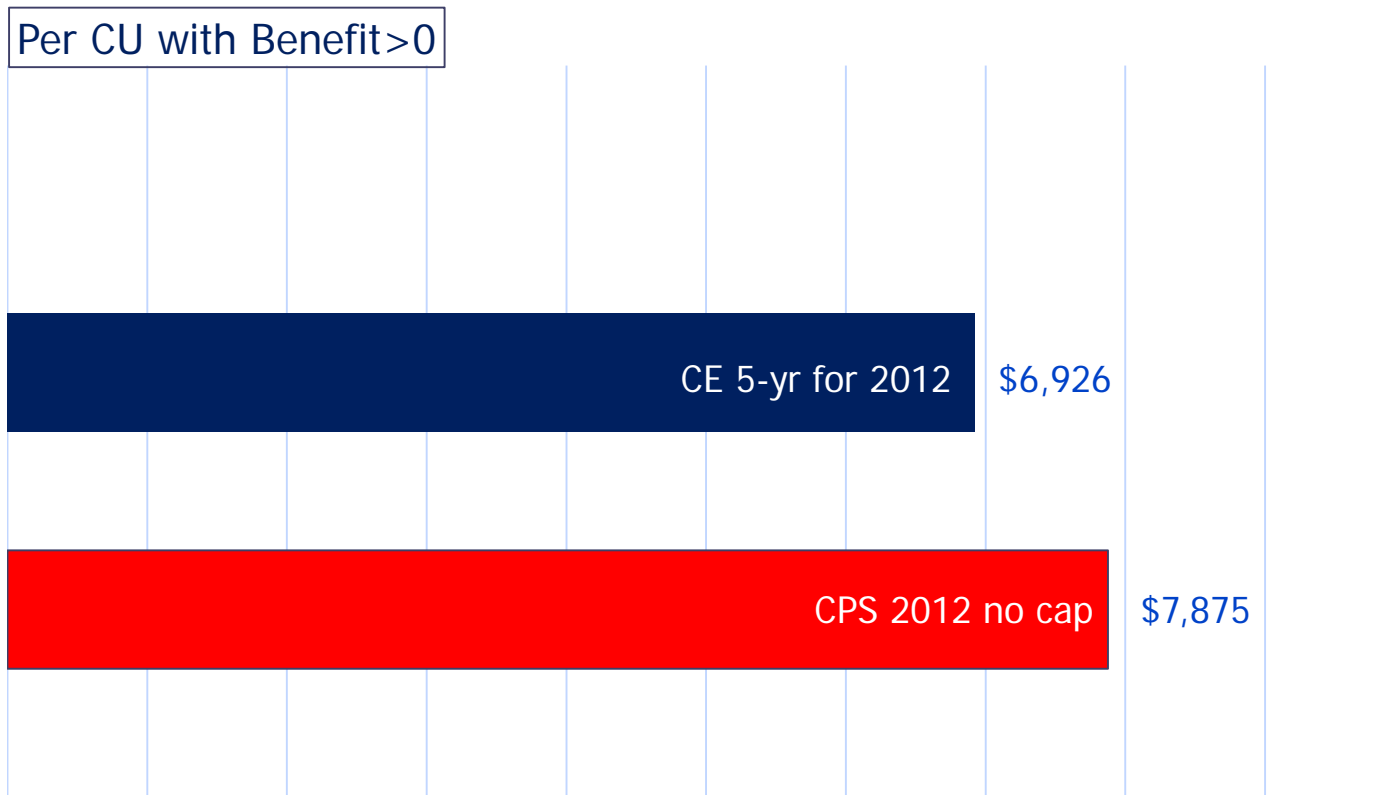
Subsidized Rental Units as Percent of All Occupied Housing Units: Subsidy > \$0



Survey results based on weighted data.

NOTE: CPS no cap values reflect no ratio adjustment for living in public housing while CPS cap values do.

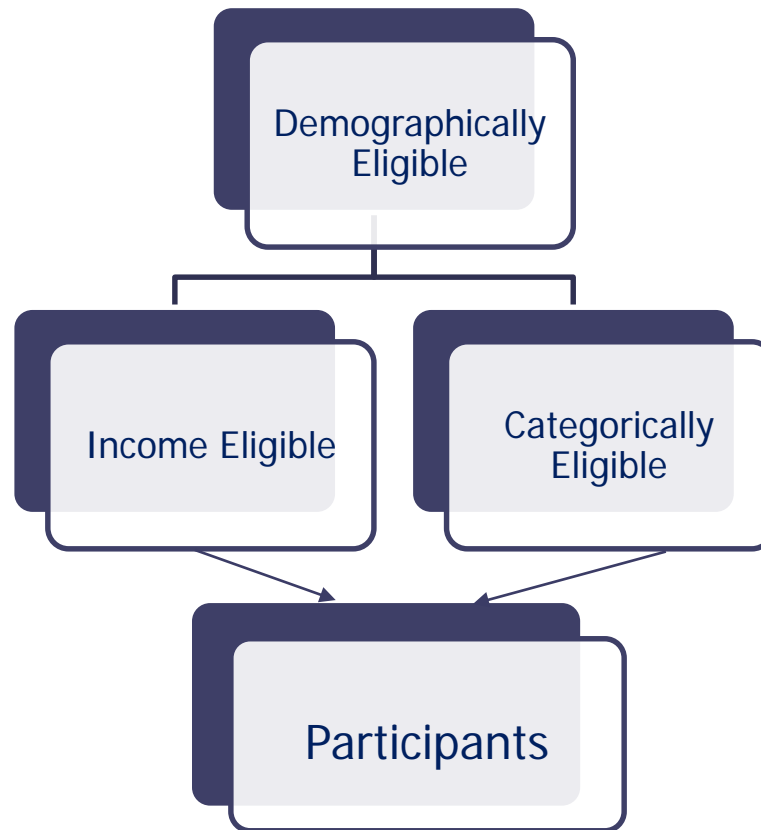
Average Annual Rental Subsidy Benefits: 2012



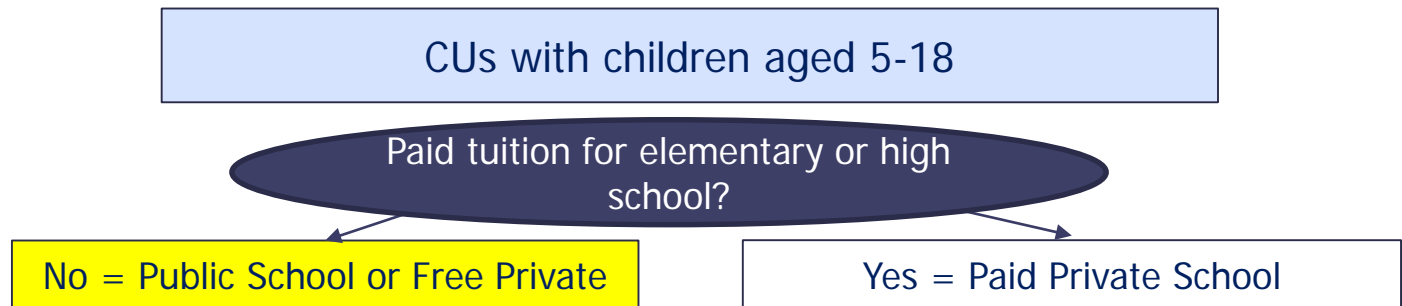
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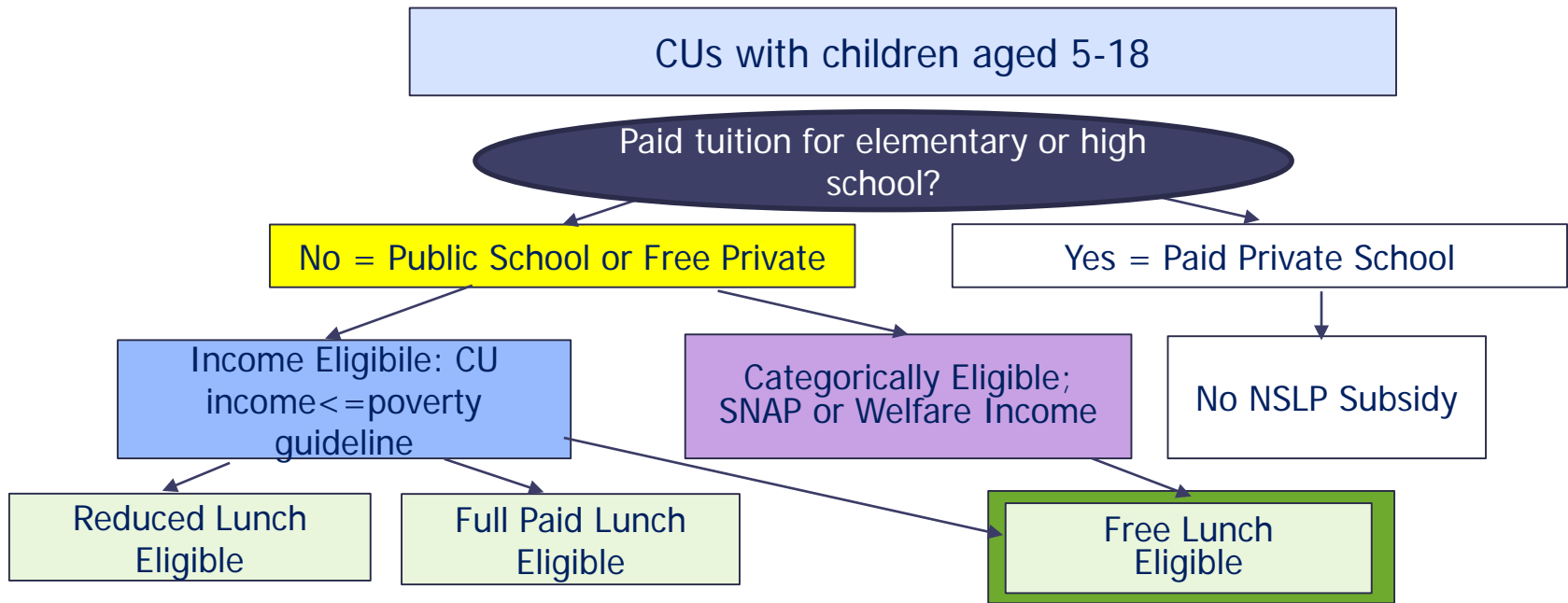
Assumptions for NSLP, WIC, and LIHEAP



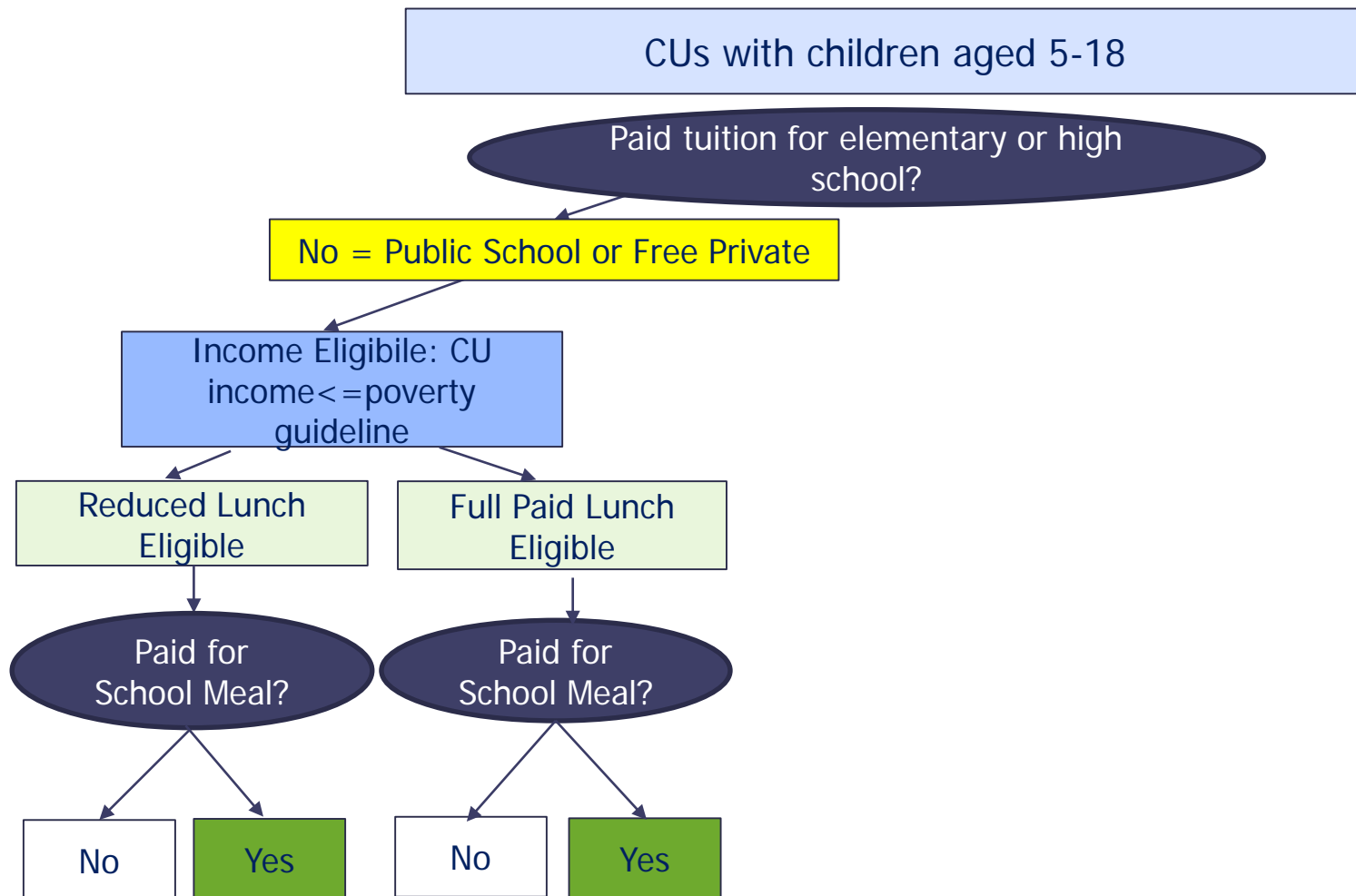
Eligibility: NSLP



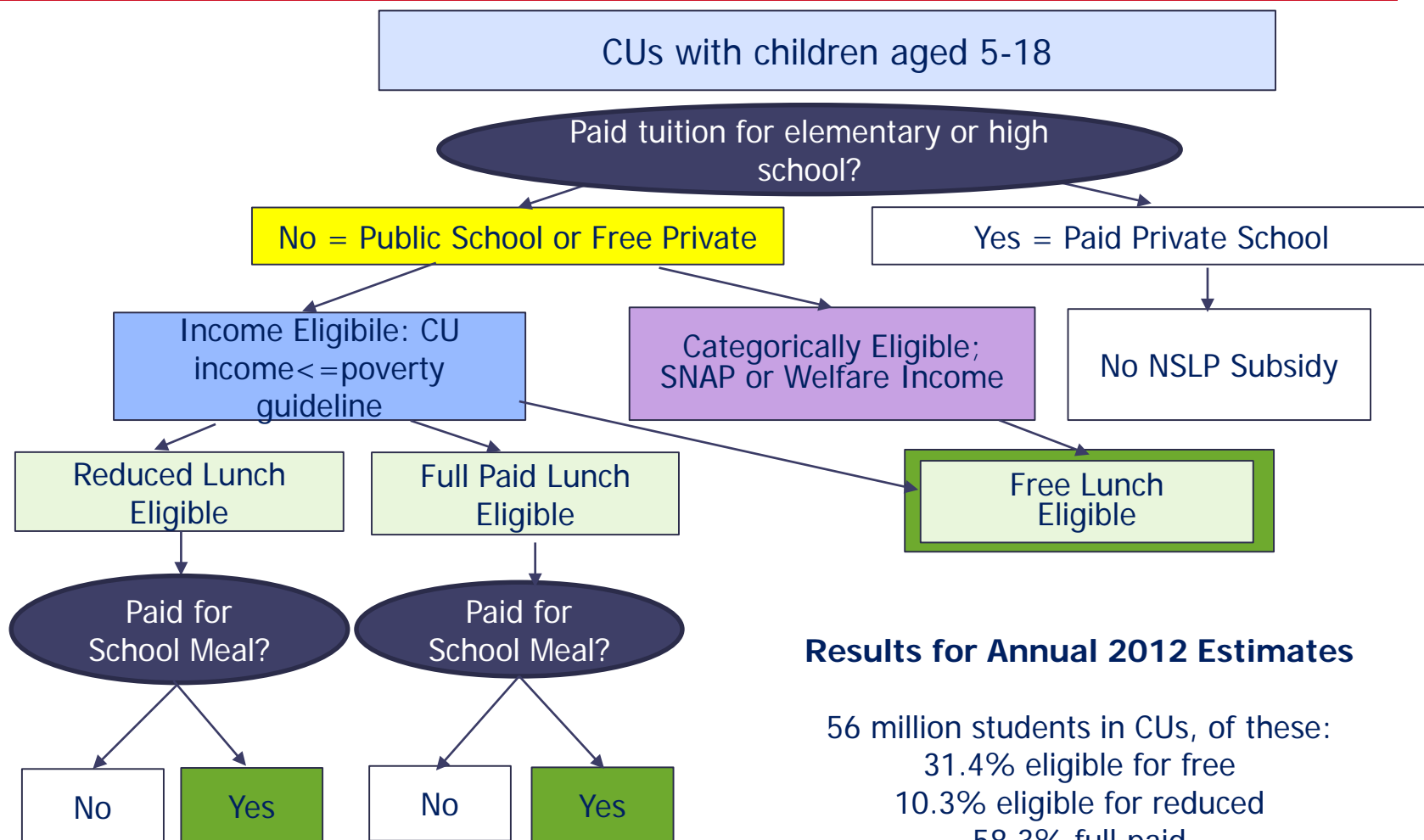
Eligibility: NSLP



Eligibility: NSLP



Eligibility: NSLP



Results for Annual 2012 Estimates

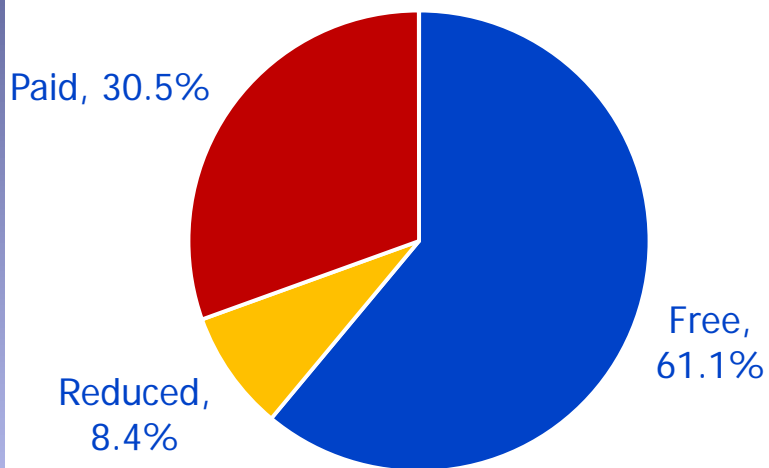
56 million students in CUs, of these:
 31.4% eligible for free
 10.3% eligible for reduced
 58.3% full paid

Assign NSLP Participation: 2012

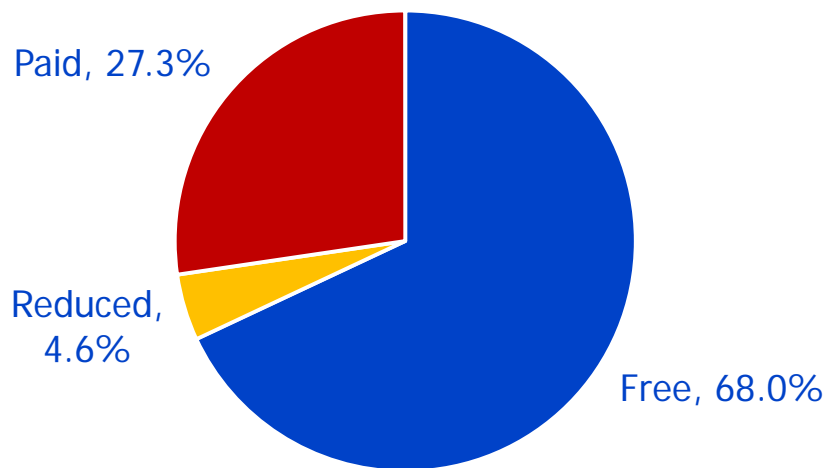
- Impute CE participation starting with CE derived eligibility
- Apply participation rates based on USDA Food and Nutrition Service administrative data
 - ▶ Participation rate for each meal category = average daily meals served divided by number of students certified/approved in the category
 - ▶ Rates available for FY 2005-2010; assume 2010 rates for 2011-2013 (CNSTAT: Schirm and Kirkendall, eds., 2012)
 - ▶ Example for FY 2010: of those approved for
 - Free: 81.9% participate
 - Reduced: 73.1% participate
 - Paid full: 43.7% participate

Distribution of NSLP Student Participation: 2012

USDA Reported



CE 5-yr for 2012

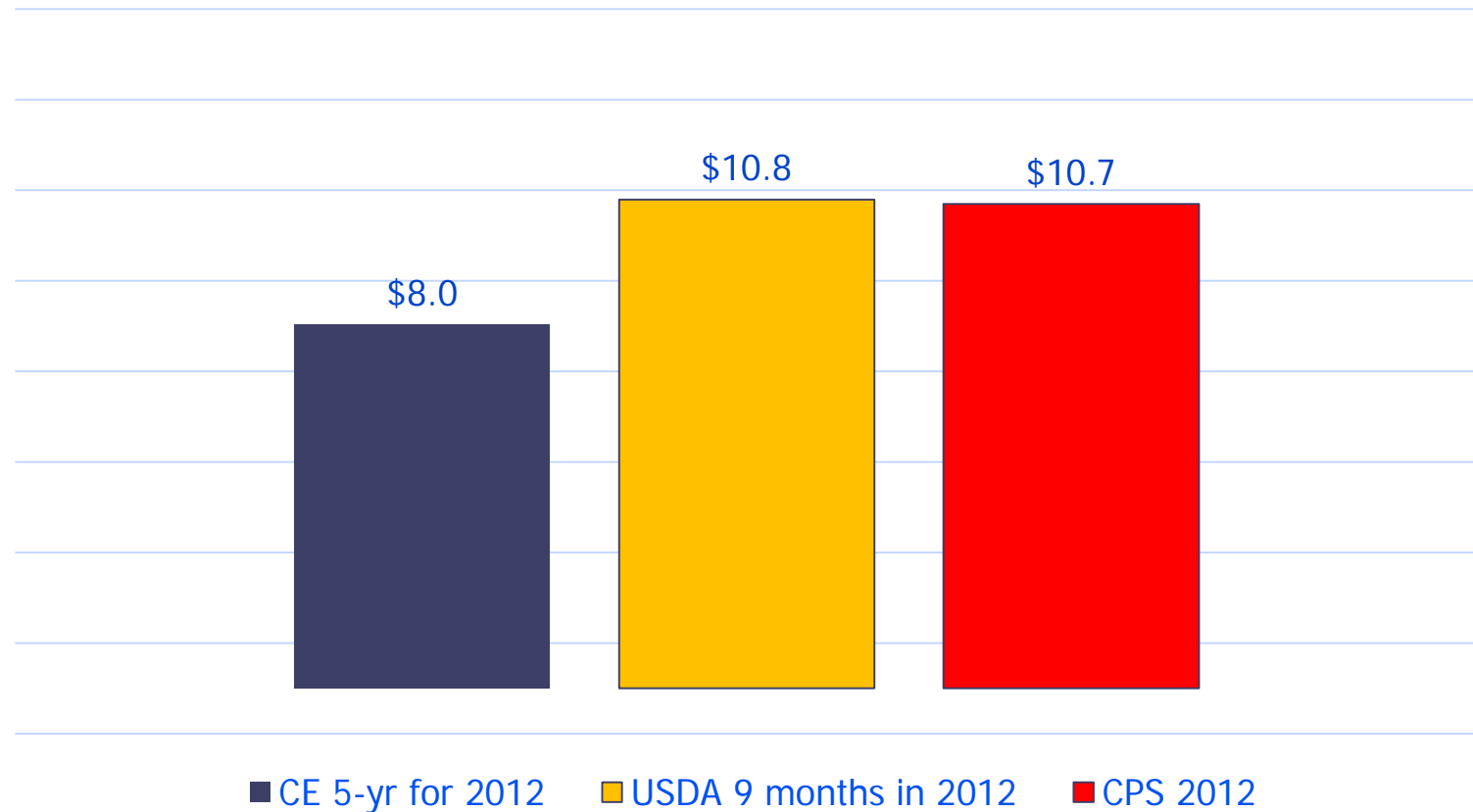


Assign NSLP Benefits: 2012

- Follow Census Bureau approach to assign NSLP benefit to individuals in Cus
- Use “lower 48 states” average per meal values reported by USDA for schools in which less than 60% of lunches were served during the preceding year were free or reduced price, plus commodity program values
- Assume students attend school 9 months (167 days)

NSLP Aggregate Benefits: 2012

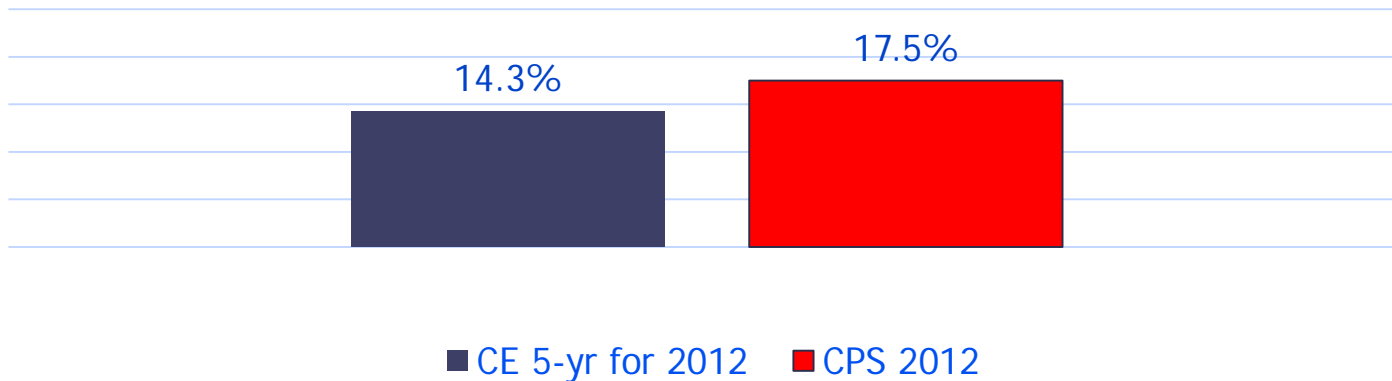
in Billions \$



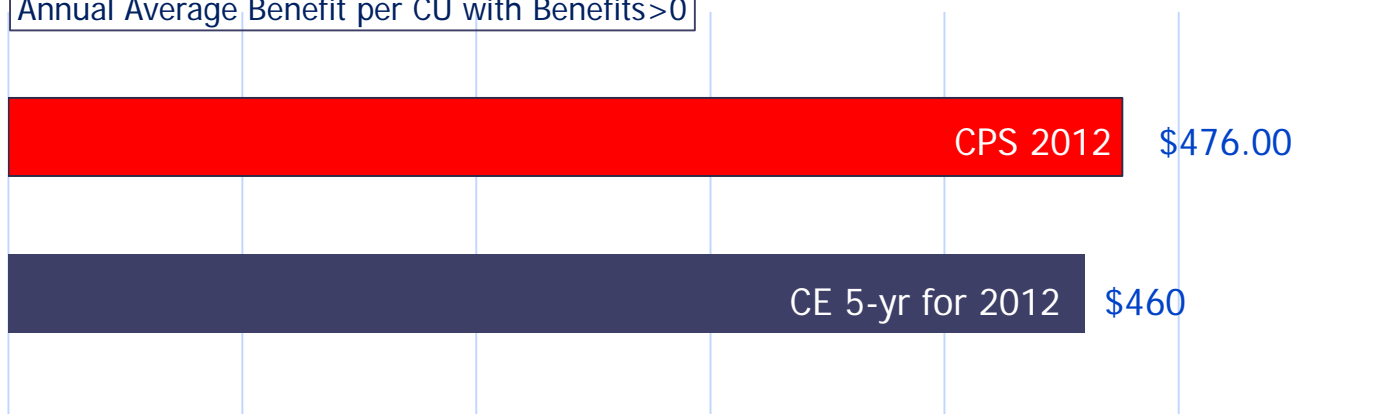
■ CE 5-yr for 2012 ■ USDA 9 months in 2012 ■ CPS 2012

Percentage of CUs Receiving NSLP Benefits and Average Annual Subsidy: 2012

Percent of all CUs: Benefits > 0



Annual Average Benefit per CU with Benefits > 0



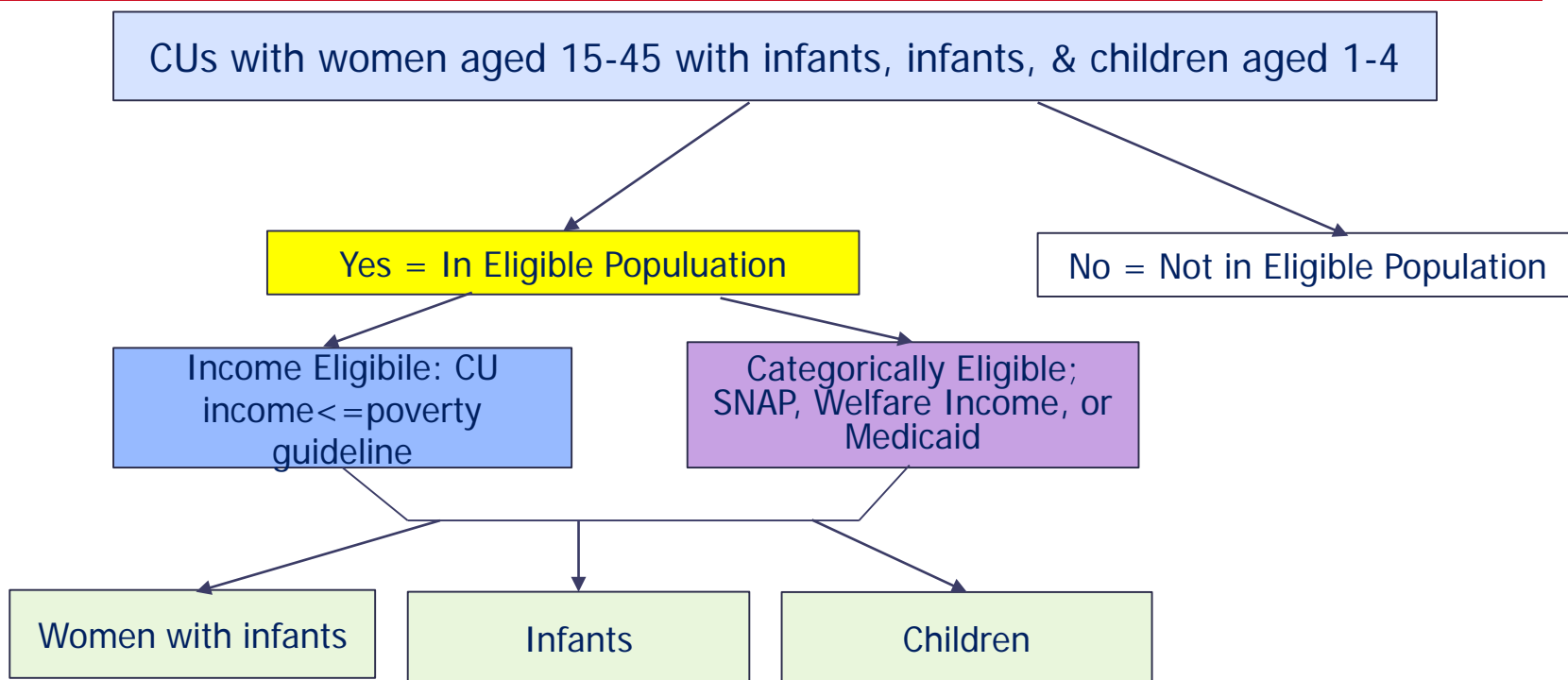
Eligibility: WIC

CU's with women aged 15-45 with infants, infants, & children aged 1-4

Yes = In Eligible Population

No = Not in Eligible Population

Eligibility: WIC



Results for Annual 2012 Estimates

12 million moms, infants, and children, of these:

14.8% infants eligible

73.4% children aged 1 to 4 years eligible

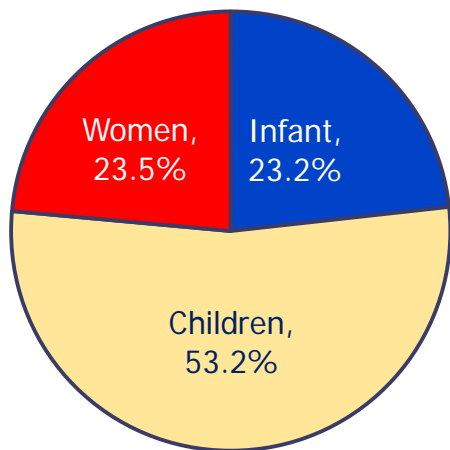
11.9% women eligible

Assign WIC Participation: 2012

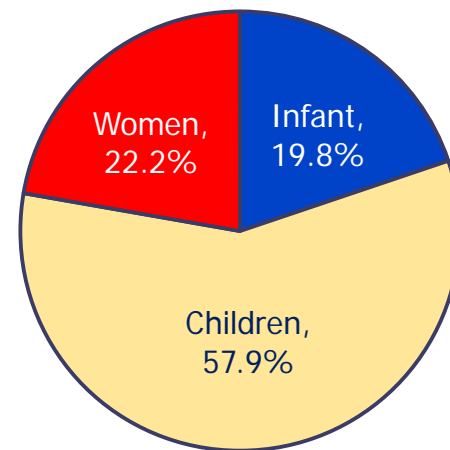
- Impute CE participation starting with CE derived eligibility
- For CE, apply published coverage rates to eligible children and women
 - ▶ Coverage rate = number of individuals participating divided by number eligible for women, infants, and children by geographic area
 - ▶ Eligibility estimated by researchers using CPS data (FNS by Urban Institute: Betson et al. 2011 for 2009 and Johnson et al. 2015 for 2010-2012)
 - ▶ Number of participants in WIC from FNS administrative data

Distribution of WIC Individual Participation: 2012

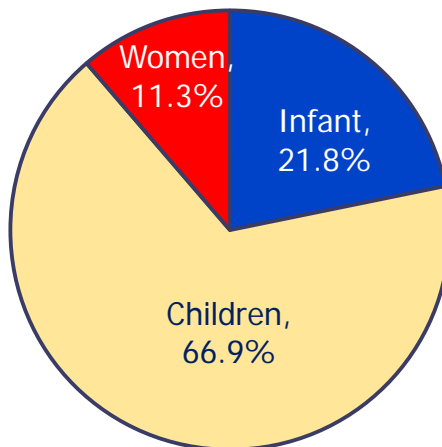
USDA Reported



CPS Reported



CE 5-yr for 2012

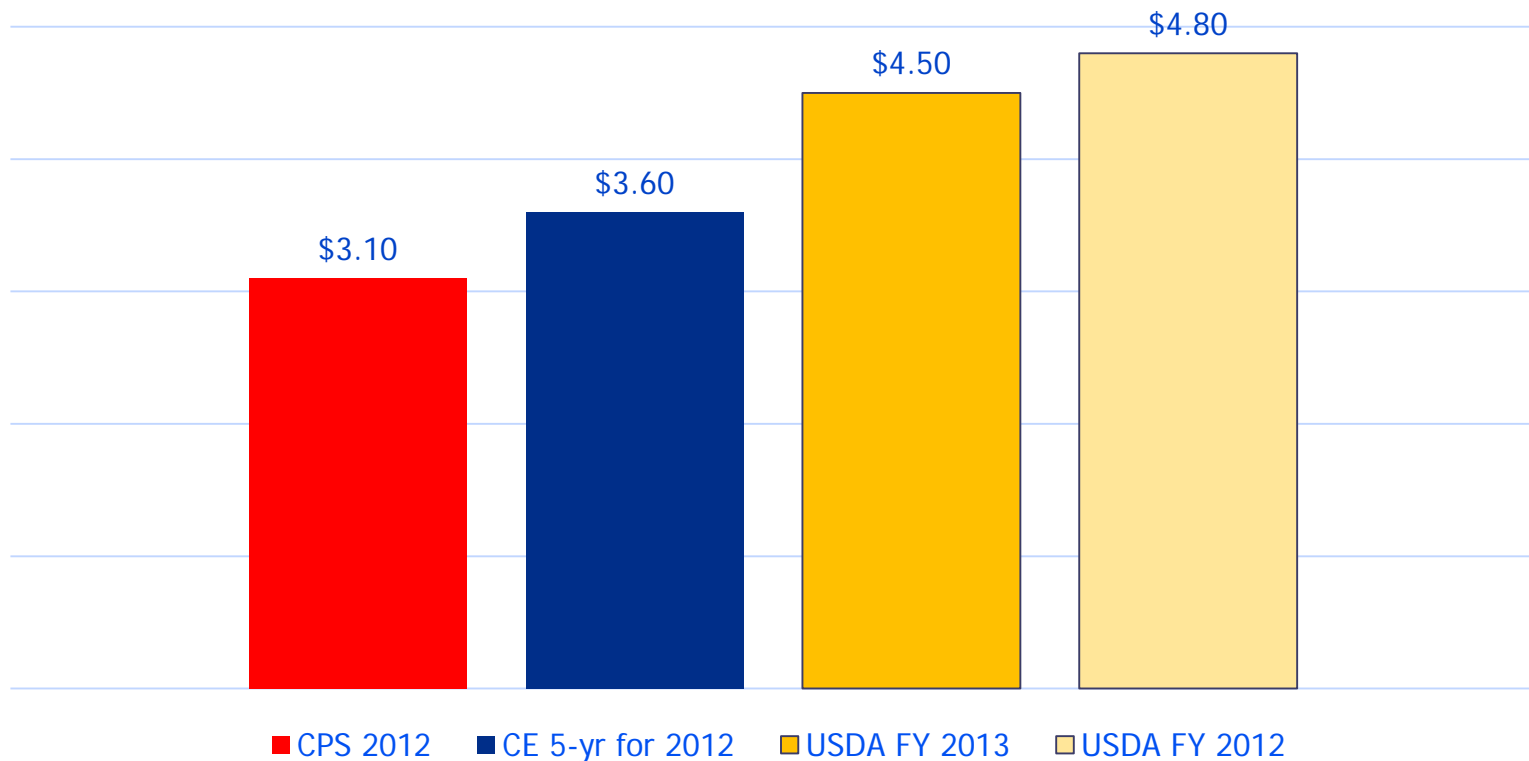


Assign WIC Benefits: 2012

- Follow Census Bureau approach to assign WIC benefit to individuals in Cus
- Use national monthly per person reported by USDA to derive annual estimates
- Assume all children receive benefits for year
- Assume all but “pregnant” moms receive benefits for year; preg. 9 months

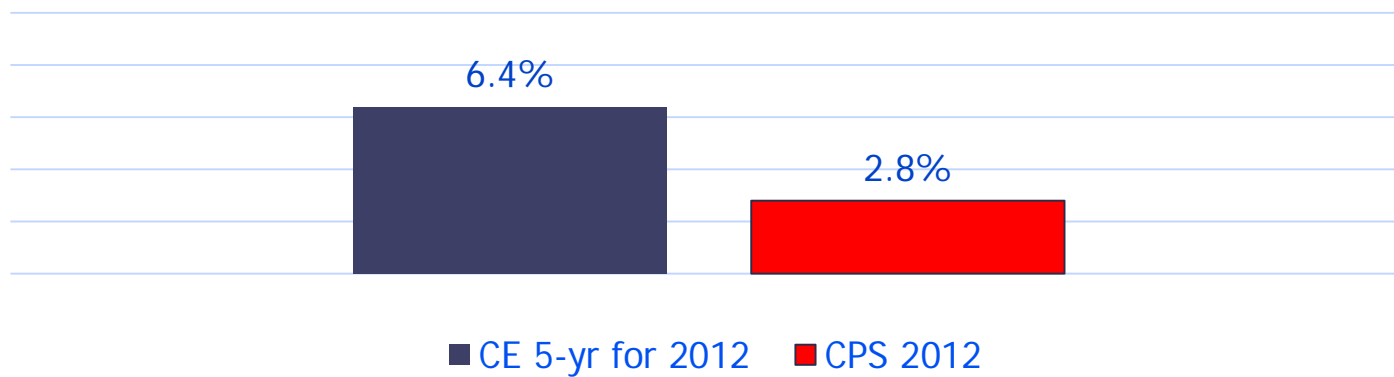
WIC Aggregates: 2012

In Billions \$



Percentage of CUs Receiving WIC Benefits and Average Annual Subsidy: 2012

Percent of all CUs: Benefits > 0



Annual Average Benefit per CU with Benefits > 0



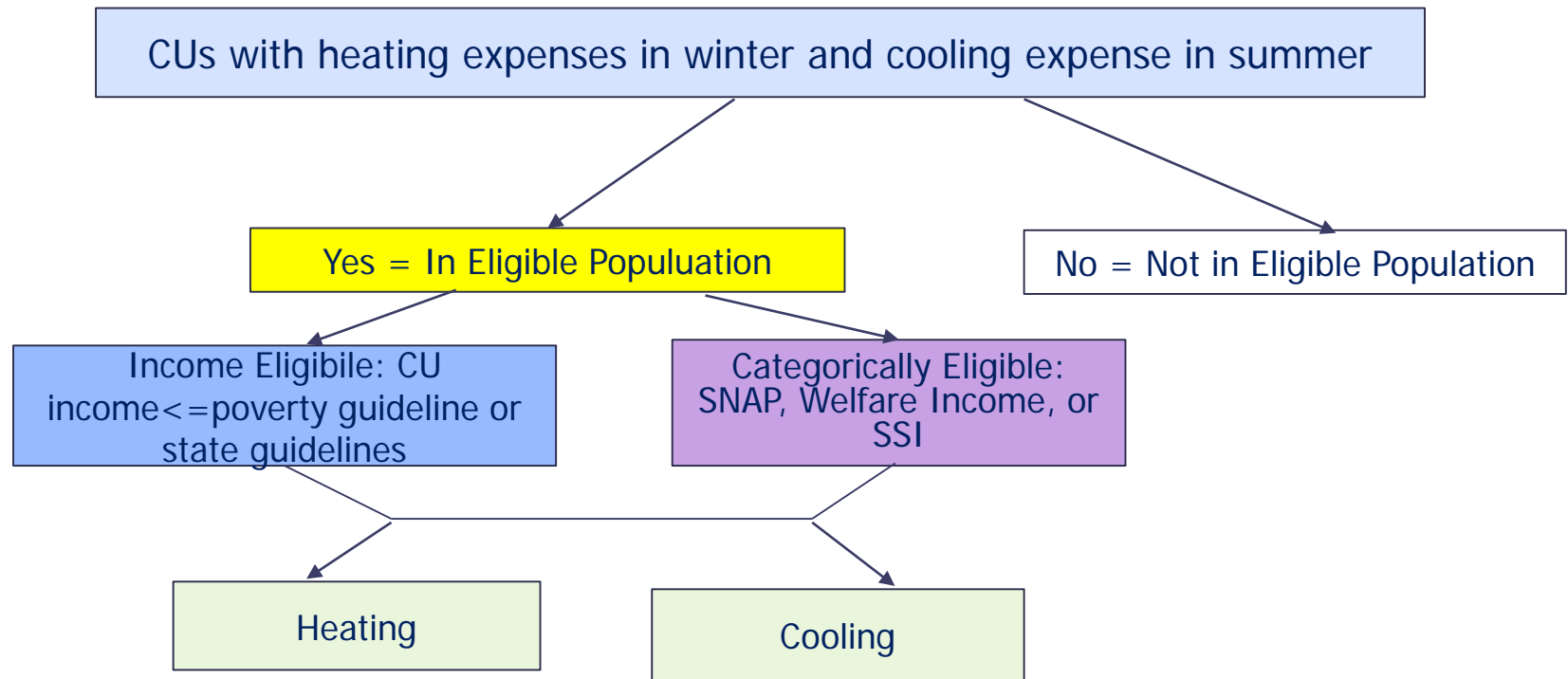
Eligibility: LIHEAP

CUUs with heating expenses in winter and cooling expense in summer

Yes = In Eligible Population

No = Not in Eligible Population

Eligibility: LIHEAP



Results for Annual 2012 Estimates

122 million Consumer Units, of these:
29.9% eligible (no duplicates)
(27% income eligible; 12% program eligible)

compared to 26%-38% Income Eligibility using HHS derived eligibles and data from CPS data for 2010

Assign LIHEAP Participation: 2012

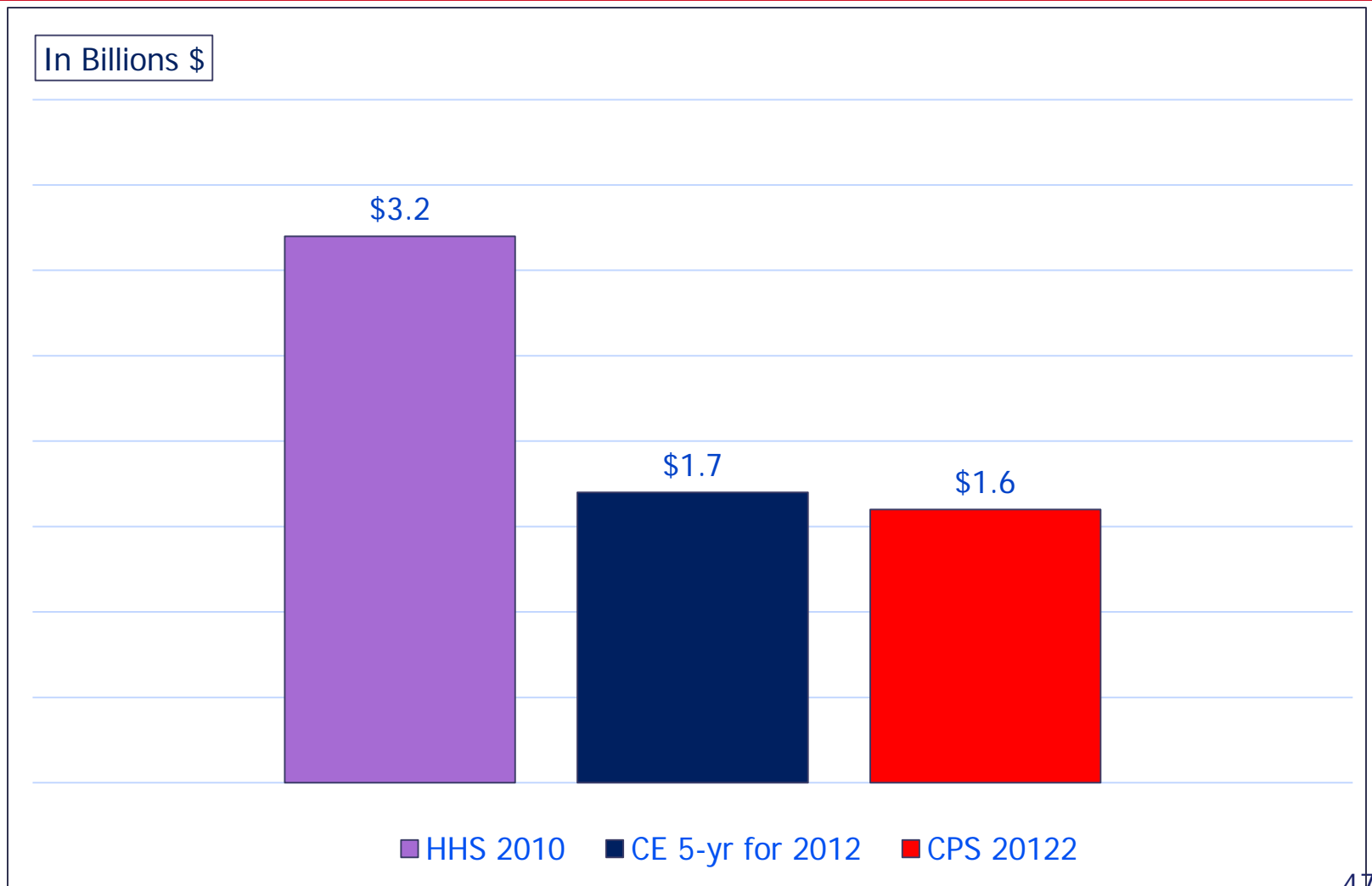
- Derive conditional participation rates (for all who are eligible) from HHS administrative data and CPS household data
 - ▶ Income eligibility estimated by HHS contractor using CPS data (LIHEAP Report to Congress for Fiscal Year 2010)
 - ▶ Participation rate for heating assistance by state = number of households receiving assistance from HHS administrative data divided by estimated number income eligible households based on CPS data
 - ▶ Participation rate for cooling assistance by state = number of households receiving assistance from HHS administrative data divided by estimated number income eligible households based on CPS data

- Apply HHS conditional participation rates to CE eligibles
 - ▶ Unable to identify exactly which CUs participate so assign conditional probability to each LIHEAP eligible CU by state
 - ▶ Results in lower average LIHEAP benefit for larger percentage of CUs

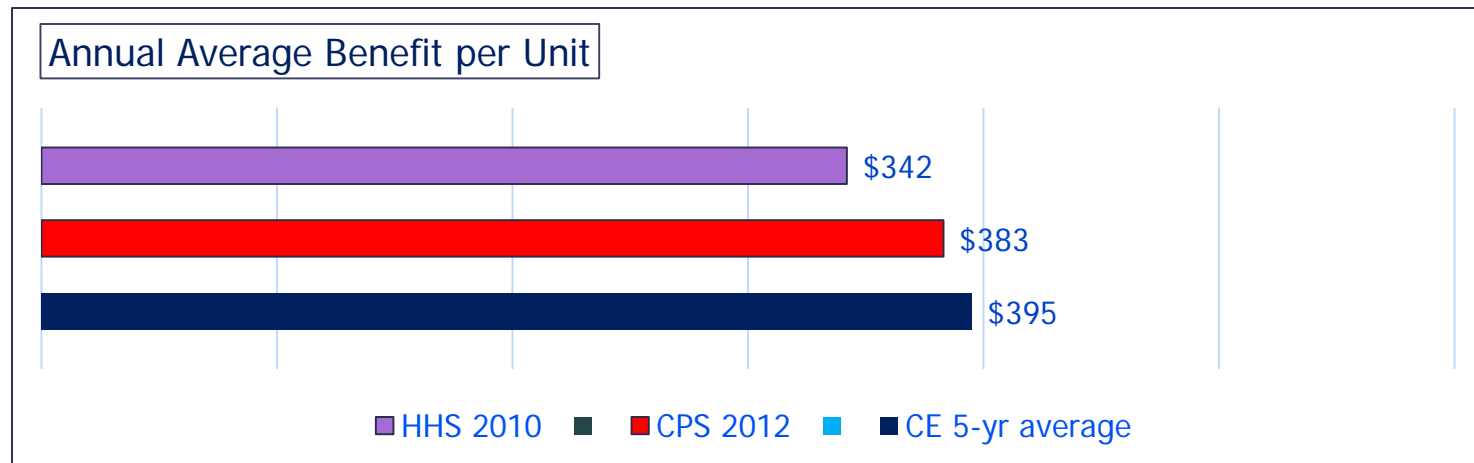
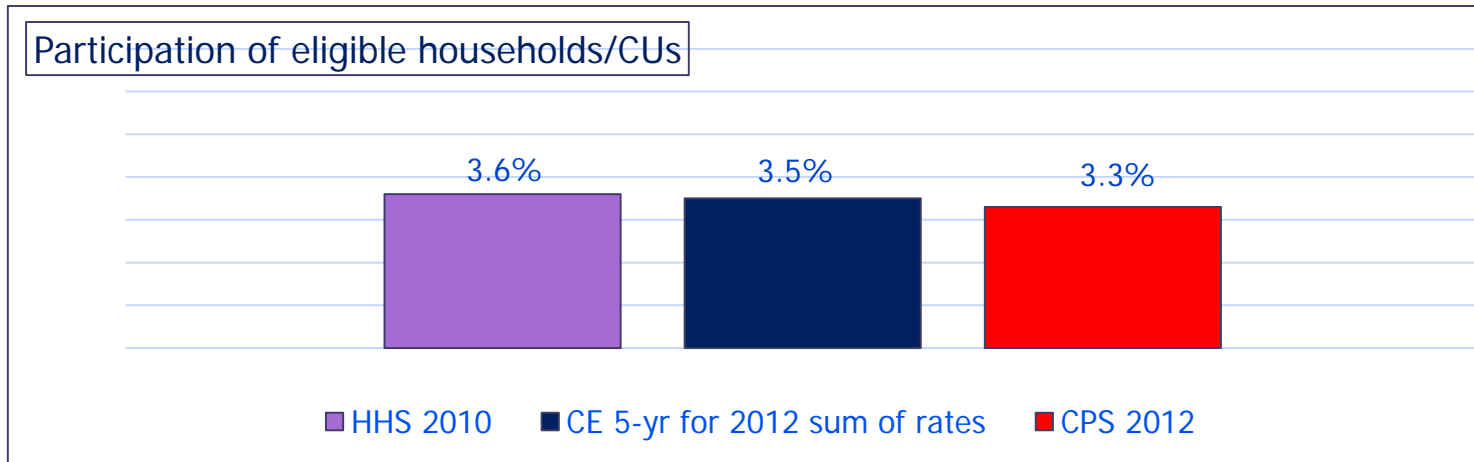
Assign LIHEAP Benefits: 2012

- Follow HHS and State guidelines for applying average state LIHEAP benefits (based on 2009 reports)
- Assume cooling assistance benefit if CU referenced April-September
- Assume heating assistance benefit if CU referenced October-March
- Weighted average when overlap months in survey

Aggregate LIHEAP Benefits: 2012



Percentage of Households/CUs Participating in LIHEAP and Average Annual LIHEAP Subsidy: 2012

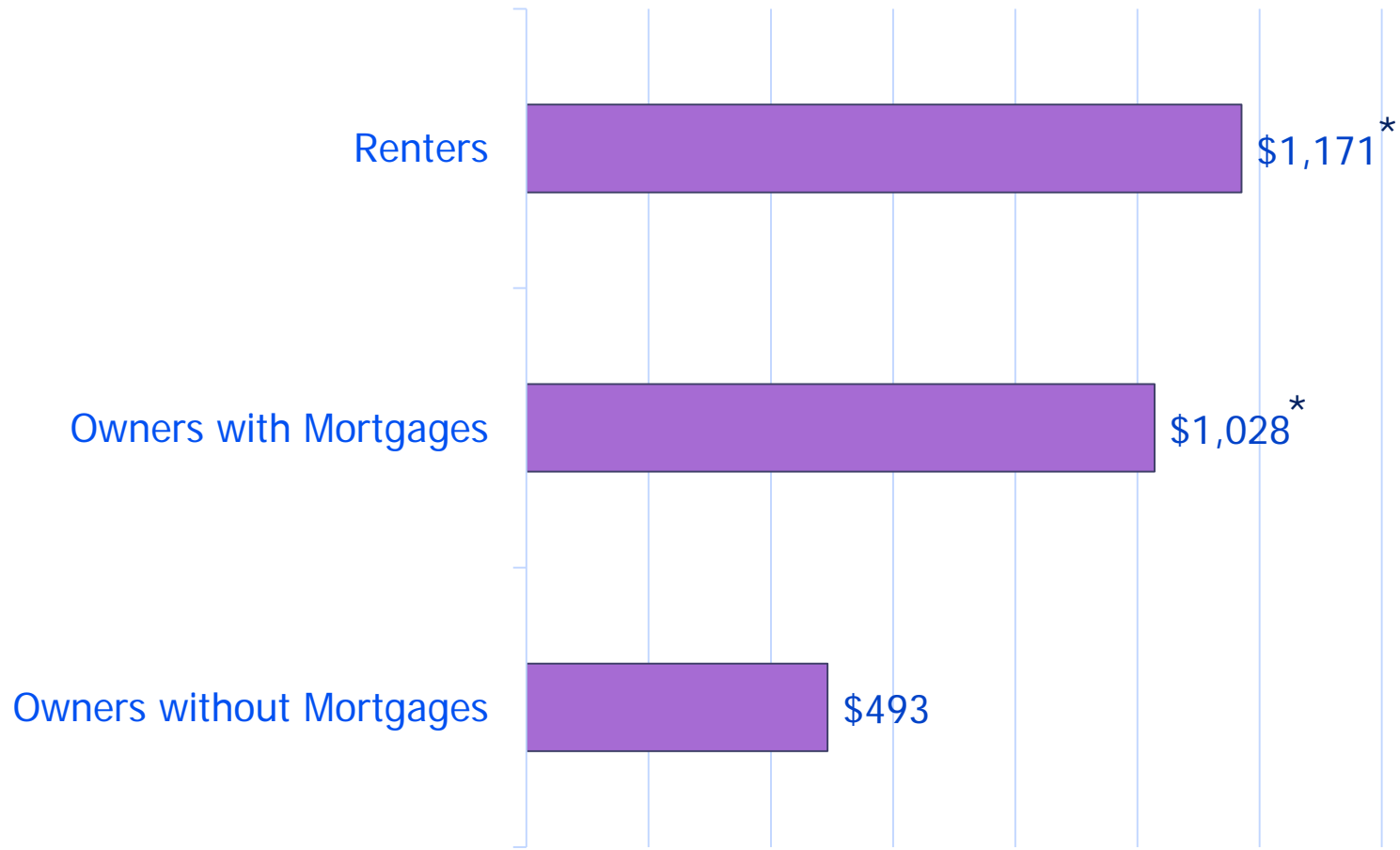


HHS: simple average heating and cooling



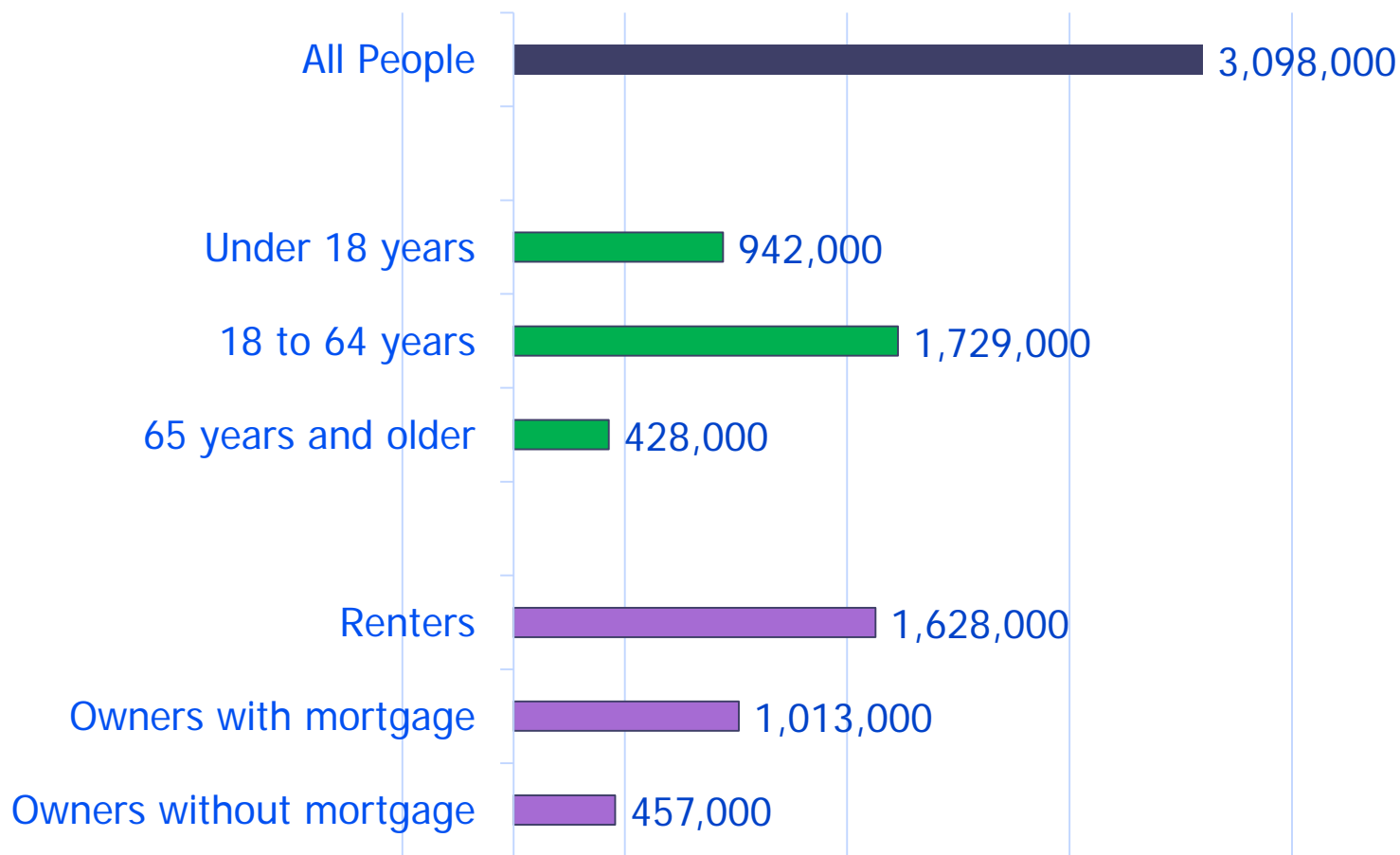
IMPLICATIONS FOR SPM POVERTY

2012 SPM Thresholds that Account for In-Kind Benefits are Higher: Differences in SPM Thresholds with and without In-Kind Benefits



* Statistically significant from zero

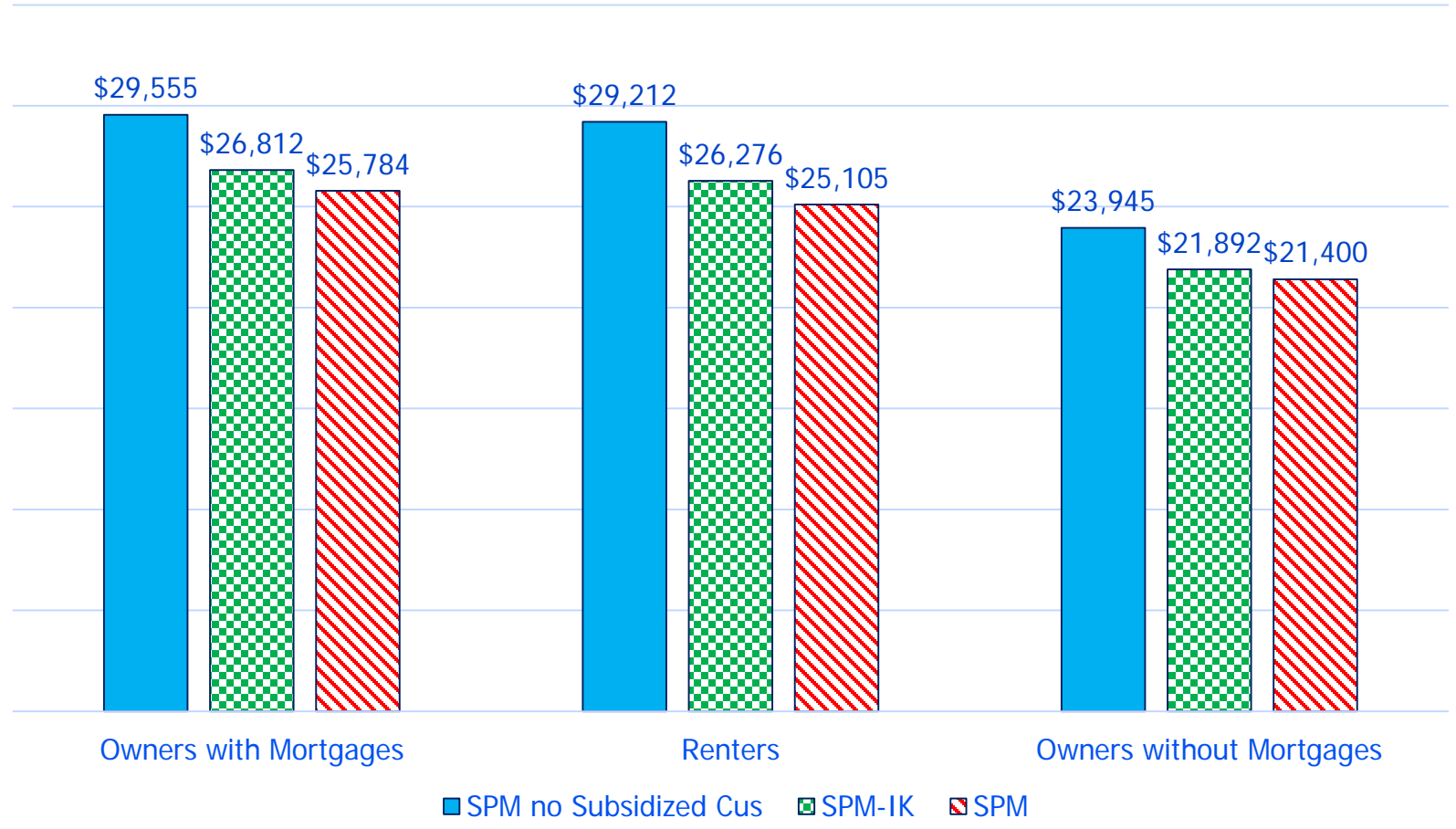
Greater Population Poverty in 2012 when Consistently Defined SPM Thresholds and Resources



All are statistically significant differences in poverty populations.

SPM poverty values for owners without mortgages also include consumer units living in rent free housing units.

SPM vs. SPM-IK vs. SPM with Unsubsidized CUs Only Thresholds for 2 Adults + 2 Children: 2012



Conclusion

- Valuing in-kind benefits to be included in thresholds estimation critically important for consistency with resources
- Challenges associated with getting data from administrative sources and integrating with survey data
- Improved imputation needed for LIHEAP benefits
- Funding from Congress to improved CE for SPM threshold production

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