Methodology for Calculating FY 2018 Medians

Overview

HUD calculates median incomes as the basis of its income limits that are used to determine eligibility for various HUD programs. Medians are not directly used in HUD programs and are calculated at the family level only, not the per person level as is done for income limits. The average family size is over 3, so, by convention, HUD equates the median family income for an area with a four-person family for the purposes of calculating income limits.

HUD uses the Section 8 program's Fair Market Rent (FMR) area definitions for its median incomes, which means that medians are developed for each metropolitan area, parts of some metropolitan areas, and each non-metropolitan county. There were no changes to the geographic area definitions used in the calculation of median incomes last year.

HUD uses median family income data (as opposed to median household income data) from the American Community Survey (ACS) for all areas in the United States. For Puerto Rico an annual survey is also conducted and is called the Puerto Rico Community Survey (PRCS). The FY2018 median incomes use survey data from the 2015 ACS and PRCS. The 2015 data are inflated using a Consumer Price Index (CPI) forecast from the Congressional Budget Office (CBO) through the midpoint of FY 2018. Island areas (Guam, American Samoa, Northern Marianna Islands, and the Virgin Islands) use income data from a census conducted in 2010 of the previous year's (2009) income data, augmented by the change in the national income between 2009 and 2015 (from the ACS). The same CBO forecast is then applied from mid-2015 to the mid-point of the fiscal year, April 2018.

ACS Data and its Use in the Production of Median Family Incomes

As mentioned above, the FY 2018 median incomes incorporate the 2015 ACS data into the calculation process. Specifically, for each metropolitan area, subarea of a metropolitan area, and non-metropolitan county, HUD determines if a statistically valid one-year ACS income estimate is available. If one-year data is not available, then statistically valid five-year ACS data (data collected from 2011 through 2015) is used. There are cases where statistically valid five-year ACS data is not available. In those cases, an average of at least two of the past three years of income estimates is used. If at least two years of statistically valid income data are not available, the one-year state nonmetro median is used.

Statistically Valid Estimate

For the FY 2018 median incomes, HUD requires that the margin of error be less than half of the estimate **and** that the survey median is based on at least 100 responses (as identified by a count indicator value of 4 or more in HUD's special tabulations of ACS data). If the current year estimate

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does not meet both conditions, the previous years' estimates must meet the margin of error condition to be used in averaging. In the few cases where the statistical confidence interval for the five-year ACS estimate of median family income is greater than half the estimate for more than one of the past three years, HUD assigns the one-year state nonmetropolitan median.

CPI Inflation and Trend Factor

HUD uses a CPI forecast from CBO to inflate the 2015 ACS data to the mid-point of FY 2018. The CBO projection of fiscal year CPI, published in January 2017 (the January 2018 projections was not published) is used to inflate the 2015 data.

Median Calculations

Median family incomes start with the development of median incomes for the nation (with national metropolitan and nonmetropolitan median incomes) for each state and territory (again including national metropolitan and nonmetropolitan median incomes) and for each metropolitan area and nonmetropolitan area using the FMR area definitions for the United State and its territories.

The major steps for calculating medians[1] are detailed below:

HUD uses 2015 ACS or PRCS median family incomes as the basis for FY 2018 medians for all areas designated as Fair Market Rent areas in the US and Puerto Rico. In areas where there is a statistically valid survey estimate using 2015 one-year ACS or PRCS data, that is used. If not, statistically valid 2015 five-year data is used. Where statistically valid five-year data is not available, HUD will average the valid income estimates from the previous three years of ACS or PRCS data. This data from the current 2015 five-year data will be considered valid if the margin of error of the estimate is less than one-half of the estimate.

This same test will be applied to the 2014 five-year data and the 2013 five-year data, which will be inflated to 2015 using the change in national CPI calculated between 2013 or 2014 and 2015.

For all places in the US and Puerto Rico:

All estimates (using either one-year data or five-year data) are then trended from 2015 to April 2018, the midpoint of FY 2018.

For the non-Puerto Rico Insular Areas of the United States,[2] which currently lack the annual survey of ACS or PRCS, 2010 Decennial Census data were used for the first time in the FY 2016 medians and income limits. This continues to be the basis of the FY 2018 medians and income limits. National ACS income changes are used to update 2010 Decennial Census data to 2015 and then the same CPI forecast trend factor is applied to bring the data forward to the midpoint of FY 2018.

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[1] Family refers to the Census definition of a family, which is a householder with one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption. The definition of family excludes one-person households and multi-person households of unrelated individuals.
[2] The areas without ACS coverage are the U.S. Virgin Islands, Guam, American Samoa, and the Northern Marianas

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Attachment 1 shows the distribution of changes in median incomes between FY 2017 and FY 2018 for each state and the United States, overall. The distribution of changes is also shown separately for metropolitan and nonmetropolitan portions of each state and the United States.

Attachment 2 shows the median incomes by state and for the United States and the State Metropolitan median incomes and the State Nonmetropolitan medians.

Islands. Puerto Rico is covered by the ACS-equivalent Puerto Rico Community Survey.

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ATTACHMENT 1
FY 2017 - 2018 Distribution of changes in Area Median Income
(100 Percent = FY 2017 Income Level)

| STATE | Percent Change | | | | | | | | | | | Median |
	less than 80%	80% to 84.9%	85% to 89.9%	90% to 94.9%	95 to 99.9	100% to 105%	105.1% to 110%	110.1% to 115%	115.1% to 120%	120.1% to 125	125.1% or more	
					2	2	2	1				105
AK				1	4	15	5	3				103
AL				3	9	27	8	5	1	1		103
AR				3	9	37	13	3	1			103
AZ		1			2	5	2	3	1			105
CA					10	24	11	6				104
CO			1		9	27	14	4				102
CT					1	7	4					104
DE						1	1					106
FL				1	7	23	13	5	2	1		104
GA			2	6	21	51	20	9	1			102
GU						1						106
HI		1					2	1	1			110
IA					7	64	17	2				103
ID				1	4	22	10	1			1	103
IL				2	9	44	23	3				104
IN					8	44	14	1		1		104
KS					16	47	18	8	1		1	103
KY			1	4	13	50	20	4	1		1	103
LA				1	8	20	9	4	2			103
MA				1	2	5	4	1	1			104
MD				2		10	2					103
ME					2	11	4	1		1		103
MI				1	6	51	14	3				103
MN					3	54	11	1	1			103
MO					8	70	18			1		104
MS			1	6	13	30	11	8	3			102
MT			1	4	6	26	14	3	1			103
NC				1	15	37	17	4	5	2	1	104
ND					3	26	16	5	2			105
NE					10	48	19	10	1			104
NH						5	2	2		1		106
NJ						1	2	1				107
NM					10	11	7	1	1			102
NV					1	11	3	1				103
NY				2	1	27	13	3	1			105
OH			1	1	1	40	15	8	2			104
OK					6	45	16					103
OR				1	5	14	9	2				105
PA					5	29	11	6				104
PR		1		1	1	7	2	1			1	103
RI				1		4		1				102
SC					6	15	8	5	1		1	104
SD				5	7	31	14		4			103
TN				1	10	47	14	3				103
TX		1	2	10	31	95	55	15	5	1		104
UT				1	4	12	7	1	1			104
VA			1	2	5	38	16		1			104
VI						3						106
VT						10	1	1				104
WA				1	4	16	7	3		2		104
WI				1	1	34	21	2	3			104
WV				1	8	22	7	3	2		1	103
WY					1	17	5					103
US		4	10	65	314	1409	575	158	46	11	7	104

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ATTACHMENT 1A
FY 2017 - 2018 Distribution of changes in Area Median Income
(100 Percent = FY 2017 Income Level)
Metropolitan Areas

STATE	less than 80%	80% to 84.9%	85% to 89.9%	90% to 94.9%	95 to 99.9	100% to 105%	105.1% to 110%	110.1% to 115%	115.1% to 120%	120.1% to 125	125.1% or more	Median
					1	1		1				104
AK						1	1	1				110
AL					1	8	3	4				105
AR					3	4	4					103
AZ						3	2	1	1			106
CA					7	8	10	5				105
CO					1	1	4	2				108
CT					1	7	3					103
DE						1	1					106
FL				1	2	13	10	2	1			105
GA			1	1	4	10	6	2	1			104
HI		1					1	1				110
IA					2	8	1	1				103
ID					1	3	2				1	104
IL				1	4	5	7	2				105
IN					3	9	6	1		1		104
KS						4	1				1	104
KY				1	2	4	2	1				104
LA					2	5	6	2				107
MA				1	1	5	3	1				104
MD				1		6	1					103
ME					2	3	2	1				102
MI				1	2	8	4	3				105
MN					1	8	1					103
MO						10	4			1		105
MS					1	2	2	2				106
MT				1	1	1	1					102
NC					5	8	8	4	1	1	1	106
ND						2	1		2			109
NE						3	5					106
NH						2		1				105
NJ						1	2	1				107
NM					1	2			1			104
NV						1	2					108
NY						13	8	1	1			105
OH					1	8	5	3	1			106
OK					1	6	1					104
OR					1		5	2				109
PA					3	10	6	2				105
PR		1		1	1	7	2	1				103
RI				1		4		1				102
SC					3	5	5	2	1			105
SD						3	1					103
TN				1	2	15	3	1				103
TX					6	20	12	3	1	1		104
UT						1	2	4				106
VA					2	13	3		1			104
VT								1				113
WA					1	7	4	2		1		105
WI						8	5	1	2			105
WV				1	2	4	1	1	1			103
WY						1	1					103
US		2	1	12	72	283	172	60	15	5	3	105

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ATTACHMENT 1B
FY 2017 - 2018 Distribution of changes in Area Median Income
(100 Percent = FY 2017 Income Level)
Non-metropolitan Areas

STATE	less than 80%	80% to 84.9%	85% to 89.9%	90% to 94.9%	95 to 99.9	100% to 105%	105.1% to 110%	110.1% to 115%	115.1% to 120%	120.1% to 125	125.1% or more	Median
					1	1	2					105
AK				1	4	14	4	2				103
AL			3		8	19	5	1	1	1		102
AR			3		6	33	9	3	1			103
AZ		1			2	2		2				105
CA					3	16	1	1				102
CO			1		8	26	10	2				102
CT							1					106
FL					5	10	3	3	1	1		103
GA			1	5	17	41	14	7				102
GU							1					106
HI							1		1			114
IA					5	56	16	1				103
ID				1	3	19	8	1				103
IL				1	5	39	16	1				103
IN					5	35	8					104
KS					16	43	17	8	1			103
KY			1	3	11	46	18	3	1		1	103
LA				1	6	15	3	2	2			102
MA					1		1		1			107
MD				1		4	1					102
ME						8	2			1		104
MI					4	43	10					103
MN					2	46	10	1	1			103
MO					8	60	14					104
MS			1	6	12	28	9	6	3			102
MT			1	3	5	25	13	3	1			103
NC				1	10	29	9		4	1		103
ND					3	24	15	5				104
NE					10	45	14	10	1			103
NH						3	2	1		1		106
NM					9	9	7	1				102
NV					1	10	1	1				100
NY				2	1	14	5	2				104
OH			1	1		32	10	5	1			104
OK					5	39	15					103
OR				1	4	14	4					104
PA					2	19	5	4				103
PR											1	136
SC					3	10	3	3			1	104
SD				5	7	28	13		4			103
TN					8	32	11	2				103
TX		1	2	10	25	75	43	12	4			103
UT				1	3	10	3	1	1			104
VA			1	2	3	25	13					104
VI							3					106
VT						10	1					103
WA				1	3	9	3	1		1		103
WI				1	1	26	16	1	1			104
WV					6	18	6	2	1		1	103
WY					1	16	4					103
US		2	9	53	242	1126	403	98	31	6	4	103

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ATTACHMENT 2

FY 2018 Median Family Incomes for States,
Metropolitan and Nonmetropolitan Portions of States

	-------- TOTAL	FY 2018 METRO	-------- NONMETRO
Alabama	60200	64800	48500
Alaska	91000	95700	81200
Arizona	64300	65200	45000
Arkansas	55300	60600	48200
California	77500	78200	59700
Colorado	82600	85500	67300
Connecticut	96300	96300	96800
Delaware	79000	79000	58400*
District of Columbia	100000	100000	58400*
Florida	62500	63100	52100
Georgia	64600	68600	48900
Hawaii	88300	92800	78500
Idaho	63300	66900	57000
Illinois	77900	80800	63900
Indiana	66600	69100	61000
Iowa	73100	77600	67800
Kansas	73100	80000	61100
Kentucky	59200	67200	49400
Louisiana	62100	64700	49500
Maine	68100	74400	60200
Maryland	96500	97100	71300
Massachusetts	95500	95600	80700
Michigan	67300	69900	58700
Minnesota	84200	89800	69500
Mississippi	52800	60200	47000
Missouri	66400	72000	53100
Montana	67500	69000	66700
Nebraska	74900	79700	68000
Nevada	66600	65800	71200
New Hampshire	90500	97400	80600
New Jersey	95100	95100	58400*
New Mexico	59200	62500	53700
New York	77800	79600	64300
North Carolina	63300	66900	52300
North Dakota	83900	84700	82900
Ohio	68700	70800	61400
Oklahoma	63500	66700	56700
Oregon	69900	73500	54700
Pennsylvania	74000	75900	60500
Rhode Island	80800	80800	58400*
South Carolina	62500	65100	48300
South Dakota	71300	77300	66600
Tennessee	60900	64900	50100
Texas	68800	70500	56500
Utah	75500	75900	71100
Vermont	79700	93000	71900
Virginia	84700	90100	55900
Washington	81100	83700	65000
West Virginia	56300	59600	52200
Wisconsin	74700	77500	67800
Wyoming	79600	77400	80400
US	71900	74400	58400

* US non-metropolitan median

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