Methodology for Calculating FY 2020 Medians

Overview

HUD calculates median family 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 family incomes, which means that medians are developed for each metropolitan area, parts of some metropolitan areas, and each non-metropolitan county. For FY 2020, there are no changes to the geographic area definitions used last year. There is, however one fewer record in the EXCEL files because Bedford city in VA is no longer separately incorporated and is now part of Bedford County, VA. It remains part of the Lynchburg, VA MSA but is no longer listed separately as a Virginia city.

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 FY2020 median incomes use survey data from the 2017 ACS and PRCS. The 2017 data are inflated using a Consumer Price Index (CPI) forecast from the Congressional Budget Office (CBO) through the midpoint of FY 2020. 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 median family incomes between 2009 and 2017 (from the ACS). The same CBO forecast is then applied from mid-2017 to the mid-point of the fiscal year, April 2020.

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

As mentioned above, the FY 2020 median family incomes incorporate the 2017 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 2013 through 2017 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[1].

---

[1] For metropolitan subareas without statistically significant five-year ACS data there is no averaging with past years; the larger metropolitan area is used, which is one-year ACS data.

Statistically Valid Estimate

For the FY 2020 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 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 5-year ACS estimate of median family income is greater than half the estimate for more than one of the three years used in averaging (the current year and the two previous years), HUD assigns the state nonmetropolitan median.

CPI Inflation and Trend Factor

HUD uses a CPI forecast from CBO to inflate the 2017 ACS data to the mid-point of FY 2020. The CBO projection of fiscal year CPI, published in January 2020, is used to inflate the 2017 data.

HUD is considering a change that would replace the CBO forecast with the economic forecast of the Office of Management and Budget (OMB), beginning with the calculation of the FY 2021 Medians. This OMB forecast would match the economic assumptions used in the calculation of HUD median family income estimates with assumptions used in the formulation of the Administration's Budget. HUD has not used OMB forecasts previously because they have not been available for public release.

 Median Calculations

Median family incomes start with the development of median family incomes for the nation (with national metropolitan and nonmetropolitan median incomes), for each state and territory (again including national metropolitan and nonmetropolitan median family incomes), and for each metropolitan area and nonmetropolitan area using the FMR area definitions for the United States and its territories. The major steps for calculating medians[2] are detailed below:

HUD uses 2017 ACS or PRCS median family incomes as the basis for FY 2020 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 2017 one-year ACS or PRCS data, that is used. If not, statistically valid 2017 five-year data is used. Where statistically valid five-year data is not available, HUD will average the valid income estimates from the current (where there is valid margin of error of the estimate) and two previous years of ACS or PRCS data or for two of these three years.

The 2016 five-year data and the 2015 five-year data are considered valid if the margin of error of the estimate is less than one-half of the estimate. These are inflated to 2017 using the change in national CPI calculated between 2015 or 2016 and 2017.

Metropolitan subareas, HUD Metro FMR Areas (HMFAs), do not use averaged data from the current and two previous years (adjusted to the current year) if the five-year data is not statistically valid. These subareas use the 2017 ACS data for the larger metropolitan area.

---

[2] 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.

For all places in the US and Puerto Rico:

All estimates (using either one-year data or five-year data) are then trended from 2017 to April 2020using the CPI forecast produced by CBO.

For the non-Puerto Rico Insular Areas of the United States,[3] which currently lack the annual survey of ACS or PRCS, 2010 Decennial Census data were used for the first time in the FY 2016 median family incomes and income limits. This continues to be the basis of the FY 2020 median family incomes and income limits. National ACS median family income changes are used to update 2010 Decennial Census data (which is 2009 median family income data) to 2017 and then the same CPI forecast trend factor is applied to bring the data forward to the midpoint of FY 2020.

Attachment 1 shows the distribution of changes in median family incomes between FY 2019 and FY 2020 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 metropolitan and nonmetropolitan median family incomes for each state and for the United States.

---

[3] The areas without ACS coverage are the U.S. Virgin Islands, Guam, American Samoa, and the Northern Marianas Islands. Puerto Rico is covered by the ACS-equivalent Puerto Rico Community Survey.

ATTACHMENT 1
FY 2019 - 2020 Distribution of changes in Median Family Incomes
(100 Percent = FY 2019 Income Level)

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	4	2					104
AK				2	4	17	5					102
AL					8	26	13	5	1		1	104
AR					8	39	14	3	2			104
AZ				1	3	5	2	2		1		103
CA				2	3	18	18	6	2		2	107
CO				1	10	26	14	1	2	1		103
CT					4	6	2					101
DE						2						104
FL			2	3	5	20	18	3			1	105
GA				5	16	51	23	9	3	2	1	104
GU						1						104
HI						1	1	1	1			110
IA					7	60	21	1	1			104
ID				1	5	22	6	1	2	1	1	103
IL				2	7	52	16	4				103
IN				2	5	39	17	4	1			104
KS		1			20	49	16	5				103
KY				3	14	43	22	10		1	1	104
LA		1			11	22	5	4		1		102
MA				1	3	6	3	1				101
MD					1	8	5					104
ME					1	9	7	1		1		105
MI			1	1	5	48	18	2				104
MN				1	5	51	13					103
MO					8	61	24	4				104
MS	1		1	3	6	30	23	5	2	1		105
MT				1	13	25	11	4	1			104
NC				1	9	38	23	9	2			104
ND				2	5	24	17	2	1		1	104
NE				2	6	51	28		1			104
NH				1	1	5	2	1				105
NJ						3	1					104
NM		1		1	7	16	3	2				102
NV					1	8	5	1		1		105
NY				1	3	33	9	1				102
OH				1	5	42	15	3	2			103
OK		1		3	12	39	10		2			102
OR				1	6	13	7	3	1			104
PA					5	34	10	2				103
PR	1	1	4	2	1	2	2	1				91
RI					1	3	2					105
SC		1		2	7	12	11	3				104
SD			3	1	11	29	12	1	1	3		103
TN					11	36	23	4	1			104
TX	1	1	2	7	23	106	47	18	6	1	3	104
UT					1	12	8	4	1			105
VA				1	4	39	12	7				104
VI						3						104
VT					1	11						104
WA				1	3	17	7	3	1		1	103
WI					4	46	11			1		104
WV			2	2	4	28	6	1	1			103
WY			1		2	13	5	1	1			104
US	3	7	17	57	306	1404	595	143	39	15	12	104

ATTACHMENT 1A
FY 2019 - 2020 Distribution of changes in Median Family Incomes
(100 Percent = FY 2019 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
						2	1					105
AK				1	1	1						99
AL						2	7	5	1			1	101
AR						7	3		1			104
AZ					3		2	1		1		107
CA				2	2	8	12	5			1	107
CO				1	1	3	2	1				102
CT					4	5	2					101
DE						2						104
FL			1		3	8	14	3				106
GA				3	5	12	2	2		1		104
HI						1			1			109
IA					3	7	1		1			103
ID					1	3	2		1			105
IL				1	2	10	3	3				104
IN				2	2	11	2	3				104
KS		1			1	3	1					101
KY				1	1	4	3	1				104
LA		1			3	5	2	3		1		101
MA					3	5	2	1				102
MD					1	5	2					104
ME					1	1	5			1		106
MI				1	3	9	4	1				102
MN						6	4					104
MO					3	8	4					103
MS						4	3					105
MT					2		1	1				102
NC				1	2	11	10	3	1			105
ND						2	2	1				106
NE						5	3					102
NH				1		1	1					105
NJ						3	1					104
NM		1				3						103
NV						2	1					104
NY					2	15	6					102
OH					1	9	5	2	1			105
OK				1	3	5						101
OR				1	3	2		1	1			100
PA					4	11	6					103
PR	1	1	3	2	1	2	2	1				91
RI					1	3	2					105
SC		1		2	2	5	6					104
SD					1	2		1				101
TN					3	8	10	1				105
TX				1	2	1	20	9	7		1	2	104
UT						4	3					105
VA						14	2	3				105
VT					1							98
WA				1	2	5	4	2	1			104
WI					2	11	2			1		103
WV			2		2	5	1					104
WY						2						103
US	1	5	7	23	78	287	158	48	8	6	4	104

ATTACHMENT 1B
FY 2019 - 2020 Distribution of changes in Median Family Incomes
(100 Percent = FY 2019 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	2	1					104
AK				1	3	16	5					102
AL					6	19	8	4	1			104
AR					8	32	11	3	1			104
AZ				1		5		1				103
CA					1	10	6	1	2		1	105
CO					9	23	12		2	1		103
CT						1						102
FL			1	3	2	12	4				1	103
GA				2	11	39	21	7	3	1	1	103
GU						1						104
HI							1	1				110
IA					4	53	20	1				104
ID				1	4	19	4	1	1	1	1	103
IL				1	5	42	13	1				103
IN					3	28	15	1	1			104
KS					19	46	15	5				103
KY				2	13	39	19	9		1	1	104
LA					8	17	3	1				102
MA				1		1	1					100
MD						3	3					106
ME						8	2	1				103
MI			1		2	39	14	1				104
MN				1	5	45	9					103
MO					5	53	20	4				104
MS	1		1	3	6	26	20	5	2	1		105
MT				1	11	25	10	3	1			104
NC					7	27	13	6	1			103
ND				2	5	22	15	1	1		1	104
NE				2	6	46	25		1			104
NH					1	4	1	1				105
NM				1	7	13	3	2				102
NV					1	6	4	1		1		105
NY				1	1	18	3	1				103
OH				1	4	33	10	1	1			103
OK		1		2	9	34	10		2			103
OR					3	11	7	2				104
PA					1	23	4	2				103
PR			1									89
SC					5	7	5	3				103
SD			3	1	10	27	12		1	3		104
TN					8	28	13	3	1			104
TX	1	1	1	5	22	86	38	11	6		1	104
UT					1	8	5	4	1			106
VA			1		4	25	10	4				104
VI						3						104
VT						11						104
WA					1	12	3	1			1	103
WI					2	35	9					104
WV				2	2	23	5	1	1			103
WY			1		2	11	5	1	1			104
US	2	2	10	34	228	1117	437	95	31	9	8	104

ATTACHMENT 2
FY 2020 Median Family Incomes for States,
Metropolitan and Nonmetropolitan Portions of States

```
                          --------  FY 2020  --------
                          TOTAL     METRO     NONMETRO
Alabama                   65300     69400     53600
Alaska                    92200     95000     86500
Arizona                   72100     73500     49300
Arkansas                  61000     67400     52500
California                87100     87500     70700
Colorado                  90200     93300     71000
Connecticut               99700     99400     102600
Delaware                  81900     81900     62300*
District of Columbia      113100    113100    62300*
Florida                   68000     68700     52800
Georgia                   72200     76700     54700
Hawaii                    97100     100700    81600
Idaho                     68200     72300     60900
Illinois                  84100     86700     67700
Indiana                   72300     75000     65300
Iowa                      79700     85700     72500
Kansas                    76500     83400     64600
Kentucky                  65400     75900     53400
Louisiana                 64300     66800     50100
Maine                     76600     84300     67300
Maryland                  104500    105700    72800
Massachusetts             104900    105300    85400
Michigan                  74000     76800     63900
Minnesota                 91800     98700     72600
Mississippi               59400     67500     52700
Missouri                  71500     78200     56100
Montana                   73300     76700     71400
Nebraska                  79800     85600     71600
Nevada                    72500     72100     75000
New Hampshire             96700     106000    85300
New Jersey                103300    103300    62300*
New Mexico                61900     66200     54900
New York                  85100     86700     67200
North Carolina            70000     74200     58100
North Dakota              86900     91000     83600
Ohio                      73900     76500     65100
Oklahoma                  65300     69900     57200
Oregon                    77700     81700     61400
Pennsylvania              80700     83400     64900
Rhode Island              89800     89800     62300*
South Carolina            66300     69000     52400
South Dakota              77800     82100     73100
Tennessee                 66800     71600     54800
Texas                     74500     76300     58900
Utah                      82800     83900     74100
Vermont                   79000     89700     74600
Virginia                  91600     98100     60400
Washington                89800     92900     67300
West Virginia             59600     63600     54900
Wisconsin                 80100     83700     70800
Wyoming                   79500     78600     79700

US                        78500     81200     62300
```

```
* US non-metropolitan median
```