



Special Attention of:

NOTICE PDR-2008-01

Regional Directors, Field Office Directors,
Economists, Public & Indian Housing
Division Directors, Multifamily Hub Directors,
Multifamily Program Center Directors

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Cross References:

Subject: Estimated Median Family Incomes for Fiscal Year 2008

This memorandum transmits median family income (MFI) and income distribution estimates for Fiscal Year (FY) 2008. They are calculated for each metropolitan and nonmetropolitan area using the Fair Market Rent (FMR) area definitions applied in the Section 8 Housing Choice Voucher Program. The estimated MFI for the United States for FY 2008 is \$61,500.

This year's estimates make use of the Census American Community Survey (ACS) results collected in 2006. HUD's FY 2008 MFI estimates use the same methodology as used for the FY 2007 MFIs, but instead of using 2005 ACS data, 2006 ACS data are used. The 2000 Census data are updated using the 2006 ACS data in two ways:

- Application of local area ACS 2006 estimates of family income for places with a population of at least 65,000 where such surveys have been published.
- Application of the change between the 2000 Census state MFIs and 2006 ACS state MFIs attenuated by change in local average wages according to Bureau of Labor Statistics (BLS) data.

Local BLS wage data continue to be used to influence estimates for areas with a population of less than 65,000. All estimates are projected forward from 2006 to April 1, 2008, using an annual trend factor of 3.5 percent. Except for minor modifications, HUD continues to use the same area definitions used in FY 2007.

An explanation of the methodology used to develop FY 2008 MFIs and related documents are attached. Attachment 1 provides an explanation of the estimation methodology used. Attachment 2 provides state-level MFI estimates. Attachment 3 provides metropolitan-area and nonmetropolitan-county estimates of MFIs. Attachment 4 provides the area definitions used in calculating MFIs.

Please note that the use of the HUD MFI estimates is subject to individual program guidelines covering definitions of income and family, family size, effective dates, and other factors. If you have any questions concerning these matters, please refer them to your field office economist.

HUD MFI estimates are also available at the Department's Internet site, which provides a menu from which you may select the year and type of data of interest (<http://www.huduser.org/datasets/il.html>).

/s/

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Attachments

ATTACHMENT 1

HUD METHODOLOGY FOR ESTIMATING FY 2008
MEDIAN FAMILY INCOMES

FY 2008 HUD estimates of median family income (MFI) are based on 2000 Census MFIs updated with Census American Community Survey (ACS) results collected in 2006. HUD's FY 2008 MFI estimates use the same methodology as used for the FY 2007 MFIs. Separate HUD MFI estimates are calculated for all Metropolitan Statistical Areas (MSAs), and nonmetropolitan counties.

HUD's use of ACS data depends on the type of data available, which differs by the size of a place. Local ACS MFI estimates are available for areas with populations of 65,000 or more; however, not all area estimates have high statistical reliability. HUD MFI estimates are calculated using a weighted average of the local area survey estimates and the state-level estimates. The higher the statistical reliability of local estimates, the more heavily they are used. Local ACS MFI estimates are used in inverse proportion to the size of their margins of error (MoEs)¹. In practice, HUD MFI estimates for areas with small MoEs are almost entirely based on local ACS estimates but, where MoEs are large, state-level estimates more heavily influence results. For areas without local ACS estimates, update factors are generated using a combination of state-level 2000 Census to 2006 ACS MFI change and local area Bureau of Labor Statistics (BLS) wage change data. All estimates are then updated from 2006 to April 1, 2008 using an annual trend factor of 3.5 percent, which reflects the average annual change in median income from 1990 to 2000.

Areas of 65,000 or more

While the ACS provides the best data on local median incomes in areas with a population of 65,000 or more² since the 2000 Census, ACS estimates differ from those of the 2000 Census in significant ways. Annual ACS estimates of MFI do not have the same reliability as the decennial Census estimates. This is primarily due to the fact that the annual ACS survey sample is about one-fifth the size of the decennial census "long-form" sample, which results in larger estimated MoEs for the ACS tabulations. In the 2000 Census, the MoEs for local MFIs in metropolitan areas range from 0.3 percent to 9 percent and have an average of 1.5 percent. Ninety-one percent of 2000 Census metropolitan areas have MoEs of 2.5 percent or less. In the 2006 ACS, the MoEs for local MFIs in metropolitan areas range from 0.9 percent to over 20 percent, and average 6.1 percent. Less than 10 percent of the ACS MFI estimates have MoEs of less than 2.5 percent. One-year ACS survey results, even for the largest areas, are inherently less reliable than 2000 Census results.

HUD's objective is to minimize the possibility of publishing income estimates with annual changes driven more by survey error than changes in underlying economic conditions. HUD therefore uses a formula to incorporate 2006 ACS local median income estimates into its FY 2008 MFI estimates that explicitly considers the MoE in the local ACS tabulations. The formula gives low weight to ACS local median income estimates with large MoEs, thereby limiting the influence of the local

¹ The numbers computed by adding and subtracting the published margin of error from the median family income estimate form the "90 percent confidence interval" for the estimate. There is a 90 percent probability that any random sample of the same size from the population will yield an estimate of the median family income in this range.

² These areas include most MSAs and HUD Metro FMR Areas as well as some large nonmetropolitan counties -- 544 total areas.

ACS estimates in these areas on the HUD MFI estimates. Conversely, the formula gives high weights to ACS local median income estimates with small MoEs, allowing the ACS estimate to be the dominant component of the HUD estimate in these areas.

Put simply, the formula produces a multiplicative update factor for the 1999 MFI reported in the 2000 Census. The factor is a weighted average of (a) the change in local area MFI from 1999 (2000 Census) to 2006 (local 2006 ACS), and (b) the change in state MFI from 1999 (state 2000 Census estimates) to 2006 (state 2006 ACS estimates). The weight assigned to the change in state MFI (b) is five times the local “margin of error ratio” (MoER), or one, whichever is smaller. The MoER is defined as the margin of error of the 2006 ACS local estimate divided by the 2006 ACS estimate of local MFI. The weight assigned to the change in local median family income from the ACS (a) is the larger of 1 minus 5 times the MoER or zero³.

HUD updates the 1999 MFI from the 2000 Census to 2006 using the update factor described above. This estimate is then trended forward from December 2006 to April 2008 (FY 2008) by multiplying it by the national average annual income growth factor.

The step-by-step procedures used to develop FY 2008 estimates for areas with a population of 65,000 or more are as follows:

1. The 2000 Census was used to estimate what are treated as mid-1999 local median family income estimates⁴.
2. The 2000 Census estimates are updated from mid-1999 to end-2006 using the following formula:

$$(1 - 5 * \text{margin of error}) * (\text{ACS2006 local median}^5 / \text{Census 2000 local median}) + (5 * \text{margin of error}) * (\text{ACS2006 state median} / \text{Census 2000 state median})$$

³ Because the largest MoER in the FY 2006 ACS local data is approximately 0.2, the factor of 5 ensures that the local ACS estimates with the largest MoERs exert almost no influence on the FY2007 MFI estimates. In cases where HUD’s special tabulations of MFIs have MoERs larger than in Census-published areas, HUD effectively excludes their use by capping the value of 5 times MoER at 1.

⁴ Estimates of income need to be associated with a point in time. This poses the need to attribute an “as of” date to estimates when such dates are not explicitly defined. The 2000 Census income data, for instance, are based on questions regarding total income for 1999. For most households, income for a year is based on an income stream with at least some changes during the year. For purposes of estimation, HUD assumes that the 2000 Census income estimates have an “as of” date of mid-1999.

⁵ ACS estimates are based on samples drawn throughout the survey year that ask about income for the previous 12 months, thereby reflecting income over a 24 month period. All responses are then adjusted by the Bureau of the Census to “annual” 2005 values using the CPI index for the month of the survey over the annual CPI index for the year. See “Income, Earnings, and Poverty from the 2005 American Community Survey”, August 2006 page 2 for a discussion of inflation adjustments made by Census for the ACS. HUD makes a further adjustment to these values by moving the “as of” date to December of the survey year, again using CPI indexes. Specifically, HUD adjusts the annual 2006 estimate to December using the seasonally adjusted December 2006 CPI (202.8) over the 2006 annual CPI (201.6). All 2006 ACS and BLS data are adjusted to December of 2006 in this way.

3. Median family income estimates for April 1, 2008, are then estimated as follows:

Step 1 median family income
 * Step 2 adjusted local update factor
 * 1.035 (3.5% annual trending)⁶1.25 years⁶
 = FY 2008 Median Family Income estimate

Areas of less than 65,000

The income adjustment factors used to update the 2000 Census-based estimates of MFIs for areas with a population of less than 65,000⁷ are developed in several steps. Census and ACS survey data are used to develop national and state-level estimates of change in MFIs. (State-level ACS income data are now available for calendar years 2000 through 2006.) BLS local area wage data are used to develop an indicator of relative income change within states, but adjusted so that when summed to the state level they produce the same change as the ACS. Based on research, HUD is currently using a combination of state ACS and local BLS data to update local 2000 Census-based MFI estimates until more localized ACS data begin to be available.⁸

The step-by-step procedures used to develop FY 2008 estimates for smaller areas are as follows:

1. The 2000 Census was used to estimate what are treated as mid-1999 local median family income estimates.
2. Census 2000 and 2006 American Community Surveys were used to estimate the change in State MFIs for the mid-1999 to end-2006 period. The state income changes for the 1999-2006 period were calculated as follows:

$$\frac{\text{ACS state MFI (2006)}}{\text{Census state MFI (1999)}} = \text{7-year increase factor for ACS Median Family Income} = \text{ACS State Income Change}$$

3. State and Local (metropolitan areas and nonmetropolitan counties) BLS average wage changes for all employees for the 1999-2006 period were calculated:

$$\frac{\frac{\text{BLS Wages (2006)}}{\text{BLS Employees (2006)}}}{\frac{\text{BLS Wages (1999)}}{\text{BLS Employees (1999)}}} = \text{7 year BLS wage increase factor} = \text{BLS Average Wage Change}$$

⁶ The caret symbol (^) means applying the exponent 1.25, commonly phrased “raised to the power”.

⁷ These include most nonmetro counties and a few small MSAs and small HUD Metro FMR Areas -- 2,030 total areas.

⁸ See the ACS operations plan at <http://www.census.gov/acs/www/Downloads/OpsPlanfinal.pdf> for further details.

4. Local area update factors were derived using local BLS average wage changes in conjunction with state-level income changes. They were combined according to the results of research done on the determinants of income change between 1990 and 2000⁹.

$$(17\% * \text{Local BLS Average wage change}) \\ + (83\% * \text{ACS State Income Change}) = \text{Local Update Factor}$$

5. A state-level factor was generated by computing the employee-weighted average of the local area BLS wage change data for the state and adding the same proportion of the ACS state income change, as follows:

$$(17\% * \text{State Weighted Average Local BLS wage changes}) \\ + (83\% * \text{ACS State Income Change}) = \text{State Update Factor}$$

6. A state ACS control factor was developed that adjusted for differences between the aggregated results of the step 5 local update factors and the Census-ACS state-level change factor for the same period.¹⁰ This was done as follows:

$$\frac{\text{ACS State MFI (2006)}}{\text{Census State MFI (1999)}} = \text{State Control Factor}$$

$$\text{State Update Factor (from step 5)}$$

7. Local area update factors were adjusted with the state control factor as follows:

$$\text{Local update factor (step 4)} * \text{State Control Factor (step 6)} = \text{Adjusted Local Update Factor}$$

8. Convert the step 1 median family income estimate to an April 1, 2008, estimate as follows:

$$\text{Step 1 median family income} \\ * \text{Step 7 Adjusted Local Update Factor} \\ * 1.035 (3.5\% \text{ annual trending}) ^{1.25 \text{ years}} \\ = \text{FY 2008 Median Family Income estimate}$$

⁹ The equation is the result of an Ordinary Least-Squares regression on metropolitan area data where the dependent variable is the change in local median family income between 1989 and 1999 (decennial census income years), and the independent variables are the change in state median family income and the change in BLS local average wages during the same period.

¹⁰ Changes in BLS-reported average wages, even though they are a component of family income, are not a direct measure of changes in family income and require adjustment if being used for that purpose

ATTACHMENT 2

**FY 2008 MEDIAN FAMILY INCOMES FOR STATES, METROPOLITAN AND
NONMETROPOLITAN PORTIONS OF STATES**

| | ----- TOTAL | FY 2008 METRO | ----- NONMETRO | ----- TOTAL | 1999 METRO | ----- NONMETRO |
|----------------------|----------------|------------------|-------------------|----------------|---------------|-------------------|
| ALABAMA | 51700 | 55000 | 45400 | 41657 | 44345 | 36633 |
| ALASKA | 73400 | 76000 | 67400 | 59036 | 61161 | 54260 |
| ARIZONA | 58500 | 60100 | 42300 | 46723 | 47998 | 33811 |
| ARKANSAS | 47400 | 51900 | 42000 | 38664 | 42408 | 34268 |
| CALIFORNIA | 67800 | 68300 | 53800 | 53024 | 53451 | 42074 |
| COLORADO | 67900 | 70400 | 53800 | 55870 | 58000 | 44319 |
| CONNECTICUT | 82100 | 82600 | 76900 | 65521 | 65943 | 61354 |
| DELAWARE | 65800 | 69800 | 54700 | 55258 | 58619 | 45203 |
| DISTRICT OF COLUMBIA | 64200 | 64200 | 49300* | 46283 | 46283 | . |
| FLORIDA | 57200 | 58000 | 45400 | 45625 | 46300 | 36238 |
| GEORGIA | 58900 | 62800 | 44600 | 49280 | 52536 | 37277 |
| HAWAII | 73800 | 77900 | 65500 | 56961 | 60118 | 50547 |
| IDAHO | 54200 | 58000 | 48800 | 43490 | 46523 | 39157 |
| ILLINOIS | 66300 | 69500 | 51900 | 55545 | 58262 | 43476 |
| INDIANA | 58600 | 60200 | 53200 | 50261 | 51692 | 45683 |
| IOWA | 58500 | 63900 | 53500 | 48005 | 52409 | 43847 |
| KANSAS | 59700 | 66900 | 50100 | 49624 | 55623 | 41651 |
| KENTUCKY | 51200 | 60300 | 41000 | 40938 | 48265 | 32782 |
| LOUISIANA | 50700 | 53800 | 41600 | 39774 | 42193 | 32654 |
| MAINE | 55400 | 60900 | 49200 | 45179 | 49629 | 40087 |
| MARYLAND | 81700 | 82700 | 66200 | 61875 | 62636 | 50109 |
| MASSACHUSETTS | 78200 | 78200 | 74000 | 61663 | 61673 | 58382 |
| MICHIGAN | 60900 | 64200 | 50200 | 53457 | 56384 | 44086 |
| MINNESOTA | 70200 | 76900 | 56700 | 56872 | 62325 | 45957 |
| MISSISSIPPI | 45000 | 51900 | 40300 | 37405 | 43160 | 33535 |
| MISSOURI | 55700 | 61600 | 43800 | 46045 | 50949 | 36187 |
| MONTANA | 53600 | 57200 | 51700 | 40488 | 43226 | 39044 |
| NEBRASKA | 59800 | 68000 | 51800 | 48032 | 54645 | 41598 |
| NEVADA | 64500 | 64800 | 62500 | 50849 | 51078 | 49209 |
| NEW HAMPSHIRE | 74700 | 81100 | 66200 | 57577 | 62442 | 50966 |
| NEW JERSEY | 81800 | 81800 | 49300* | 65370 | 65370 | . |
| NEW MEXICO | 50600 | 55500 | 43200 | 39425 | 43195 | 33627 |
| NEW YORK | 65300 | 66800 | 52700 | 51691 | 52887 | 41753 |
| NORTH CAROLINA | 55000 | 59100 | 48100 | 46335 | 49800 | 40571 |
| NORTH DAKOTA | 58200 | 66400 | 52800 | 43656 | 49842 | 39664 |
| OHIO | 59000 | 60800 | 51600 | 50037 | 51617 | 43778 |
| OKLAHOMA | 50400 | 54800 | 44000 | 40709 | 44258 | 35546 |
| OREGON | 58700 | 62600 | 48100 | 48680 | 51880 | 39834 |
| PENNSYLVANIA | 61100 | 63300 | 51500 | 49184 | 50959 | 41452 |
| RHODE ISLAND | 68000 | 68000 | 49300* | 52780 | 52780 | . |
| SOUTH CAROLINA | 52900 | 55200 | 46500 | 44227 | 46219 | 38930 |
| SOUTH DAKOTA | 56500 | 63600 | 51600 | 43234 | 48701 | 39484 |
| TENNESSEE | 52300 | 56200 | 44400 | 43517 | 46735 | 36972 |
| TEXAS | 55000 | 57300 | 43600 | 45862 | 47797 | 36410 |
| UTAH | 61100 | 62600 | 49300 | 51022 | 52316 | 41227 |
| VERMONT | 61100 | 69600 | 57900 | 48625 | 55412 | 46087 |
| VIRGINIA | 70200 | 75300 | 50600 | 54169 | 58055 | 39000 |
| WASHINGTON | 66900 | 69500 | 52600 | 53761 | 55868 | 42260 |
| WEST VIRGINIA | 46200 | 51200 | 41100 | 36484 | 40433 | 32454 |
| WISCONSIN | 63700 | 67400 | 56200 | 52912 | 56008 | 46677 |
| WYOMING | 60400 | 61000 | 60100 | 45685 | 46159 | 45472 |
| US | 61500 | 64300 | 49300 | 50046 | 52398 | 40117 |

* US non-metropolitan median