



## Percentage of Households below the Quality of Life Threshold Income

This EnviroAtlas map layer estimates the percentage of households in each U.S. Census Block Group with annual incomes below a threshold for quality of life. This threshold is based on a national value of \$75,000, adjusted to reflect county variations in cost of living. It represents (in 2009 dollars) the base for a positive quality of life and accompanying emotional well-being. Income data for this map layer are from U.S. Census American Community Survey (ACS) 5-year Summary Data for 2008–2012.

### Why are data on households below the quality of life income threshold important?

Money may not buy happiness, but it may be a necessary ingredient to achieve higher living standards.<sup>1</sup> Higher economic wealth can improve access to quality education, health care, and housing. One might argue that economic wealth influences mental and physical health.<sup>2</sup> While most research has focused on how income affects psychological well-being, some studies have found that happier individuals are more likely to perform better financially.<sup>3</sup>

A recent analysis of U.S. survey data distinguished satisfaction with one's economic position in life (life evaluation) from emotional well-being. Researchers found that life evaluation continued to increase steadily with household income, but emotional well-being stopped increasing once annual income exceeded \$75,000 (in 2009 dollars). These results suggested that a \$75,000 annual household income may represent a threshold to good quality of life in terms of emotional well-being. At such a threshold, the basic needs of life (food, shelter, health care, leisure time) have been met and some of life's major stresses reduced.<sup>4</sup>

Of course, an income threshold may be affected by many variables—family size, inflation, personal debt, and regional cost of living. A more refined income threshold for well-being or happiness can be readily attained by adjusting for the local cost of living, which is highly variable across the country.<sup>5</sup> For example, when adjusted figures are examined, the \$75,000 income equivalent for Mississippi vs. Hawaii is \$61,600 vs. \$107,000 (in 2015 dollars).<sup>5</sup>

### How can I use this information?

This map is one in a group of five EnviroAtlas maps related to annual household incomes surrounding a quality-of-life threshold value of \$75,000, as adjusted by cost-of-living differences by county. Percentage of Households below



Photo: Boston neighborhood, J. Labor

Quality of Life Income Threshold portrays patterns of economic status and can facilitate healthy community development planning and research. Federal, state, and local governments can use this map to investigate disparities in community living standards and well-being, identifying places that might benefit disproportionately from improved access to quality education, health care, and housing.

Natural infrastructure may also be deployed to buffer hazards, supply goods, and enhance opportunities for healthy lifestyles. Benefits from [ecosystem services](#) may compensate to some degree for household purchasing power to attain good quality of life. This income threshold map can be overlaid with EnviroAtlas ecosystem services maps to portray where natural infrastructure might better serve households beneath the quality of life threshold. This synthesis can be performed nationally, regionally, and, at the block-group level, locally for [more than 1400 cities and towns](#). Examples of 85+ EnviroAtlas maps indicating availability of neighborhood ecosystem services are Percent Green Space, Temperature Reduction due to Tree Cover, and Residential Population not within 500m Walking Distance to a Park Entrance.

Planners may opt to focus on census block groups or tracts with the highest number of people or proportion of vulnerable populations who would be served by additional resources. These strategies can be assessed with overlays of additional socioeconomic and demographic maps available in EnviroAtlas and from the U.S. Census.

## How were the data for this map created?

Income data by block group are derived from U.S. Census American Community Survey (ACS) 5-year Summary Data for 2008–2012, Table B19001, Household Income Categories. ACS data are collected every month through statistical sampling of the total population; estimates are published on an annual basis. Table B19001 lists 16 income categories in intervals. An IPython scripting tool was used to process the data.

The data were then adjusted by a 2011 county-level cost of living index developed by the Council for Community and Economic Research ([C2ER](#)). The \$75,000 threshold was regionally adjusted by the equation:

$$\text{Adjusted threshold} = \$75,000 \times \text{cost of living index}$$

This equation is the basis for the EnviroAtlas data layer, Threshold Income for Quality of Life.

The percent of households below the adjusted quality of life threshold income was calculated based on the equation below:

$$\text{Metric} = \frac{\text{Sum of Households with Income under the Threshold}}{\text{Total Households}}$$

## What are the limitations of these data?

The accuracy of this data layer is linked to the accuracy of the ACS Survey, which could be limited by its multiple data collection agencies, methods, and calculations. Accuracy of ACS data increases with the use of multiple-year summary data (e.g., 2008–2012 summary data) and the use of *percentages* of household characteristics rather than *numbers*. Estimates for rural areas with low populations should be interpreted with caution.

## Selected Publications

1. Organization for Economic Co-operation and Development (OECD). 2012. [Better life index: Topics: Income](#). Accessed May 2021.
  2. Zahran, H.S., R. Kobau, D.G. Moriarty, M.M. Zack, J. Holt, R. Donehoo. 2005. [Health-related quality of life surveillance: United States, 1993–2002](#). Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report Surveillance Summaries* 54(4):1–35.
  3. De Neve, J.E., and A.J. Oswald. 2012. [Estimating the influence of life satisfaction and positive affect on later income using sibling fixed effects](#). *Proceedings of the National Academy of Sciences* 109(49):19953–19958.
  4. Kahneman, D., and A. Deaton. 2010. [High income improves evaluation of life but not emotional well-being](#). *Proceedings of the National Academy of Sciences* 107(38):16489–16493.
  5. Short, D. 2016. [Happiness Revisited: A Household Income of \\$75K?](#) Advisor Perspectives Viewpoint, Advisor Perspectives. Accessed May 2021.
- Killingsworth, M.A. 2021. [Experienced well-being rises with income, even above \\$75,000 per year](#). *Proceedings of the National Academy of Sciences*: January 26, 2021 118 (4) e2016976118; <https://doi.org/10.1073/pnas.2016976118>.
- Lenhart, O. 2018. [The effects of income on health: New evidence from the Earned Income Tax Credit](#). *Review of Economics of the Household* 17:377–410.

While the cost-of-living index was developed at the county scale, these data are presented at the census block-group scale to facilitate synthesis with other EnviroAtlas maps. EPA developers made the assumption that cost of living does not vary significantly within a county. However, variations may exist, particularly for large counties with both urban and rural populations.

## How can I access these data?

EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded.

## Where can I get more information?

A selection of resources on income, quality of life, and well-being is listed below. For additional information on the data creation process, access the [metadata](#) for the data layer. To ask specific questions about this data layer, please contact the [EnviroAtlas Team](#).

## Acknowledgments

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