



Percent of Workers Who Work from Home

This EnviroAtlas map estimates the percentage of workers residing within each U.S. Census block group who work from home using 5-year Summary Data for 2008–2012 from the U.S. Census American Community Survey.

Why is commuter transport choice important?

City planners use metrics that examine commuting modes of travel to evaluate the accessibility of workplaces, the diversity of land use, and the usage of alternative forms of transport. Three out of 4 people in the U.S. drive to work.¹ In 2014, urban Americans spent an extra 6.2 billion hours in traffic congestion at a cost of an extra 3.1 billion gallons of fuel (about \$160 billion).² However, according to the 2010 American Community Survey, more than 4% of the working population avoided the daily commute by spending the majority of their work week working at home. Other surveys, such as the U.S. Census Survey of Income and Program Participation (SIPP), conducted with different criteria, estimate a higher participation of about 9.5% of the working population working at home one day per week or more.³

The advance of computer and electronic technologies created opportunities for work to be done remotely away from centralized workplaces.³ Workers in management, business, and financial occupations compose the largest share of home-based workers followed by workers in computer, engineering, and science occupations, a category that increased 69% between 2000 and 2010. All of these occupations are adaptable to computer technology and remote connectivity and communication.³

On an individual level, working at home provides a number of benefits to both employer and employee. From the employer's position, hiring home workers allows recruitment of talent from a broader, almost unlimited, geographic region and reduces the need for office space. Other possible benefits to the employer are harder to quantify, such as employee satisfaction and motivation, lower turnover, and higher productivity. On the other hand, employers may consider it a disadvantage to lose direct supervision of their home workers. Businesses employing home workers have found it necessary to adapt to a results-oriented system of evaluating output to assess positive employee performance rather than relying as much on visual evidence and personal interactions.^{4,5}

Employee benefits from working at home begin with financial savings from reducing or avoiding the daily commute and



fewer expenses for auto maintenance and fuel, parking fees, and a workplace wardrobe. The home worker also has more control over the home office atmosphere and personal comfort through office design, lighting, ventilation, and decoration.⁵ The home office has the potential to be relatively quiet with fewer interruptions than the central workplace, presumably resulting in higher productivity.

Besides financial savings, convenience, and stress reduction, a home worker may experience a sense of greater autonomy in planning work flow and output. The time gains from working at home tend to improve work/life balance and compensate for some loss of close collegial work relationships. Research studies have attempted to quantify some of these factors. A recent analysis of 46 telecommuting studies recorded all of the beneficial effects outlined above. It also found that home worker isolation did not harm worker-supervisor relationships or career advancement as had been feared. The results suggested that working at home provides a net benefit to employers and workers as well as a societal contribution in the form of fewer vehicle miles traveled and reduced [greenhouse gas emissions](#).⁵ Global Workplace Analytics estimated that if U.S. workers with compatible jobs worked from home half the time, businesses would save \$11,000 per person/year, telecommuters would save between \$2,000 and \$7,000 per year, and the reduction in greenhouse gases would be equivalent to the permanent removal of the entire New York State workforce from the road.⁶

How can I use this information?

This map allows users to evaluate various census block groups by the percentage of workers who commute to work by walking or bicycling. Federal, state, and local policymakers can use commuting information to understand workers' transportation choices and make suggestions for improving future transportation infrastructure. Employers can use this information to help workers to adopt alternative transport options. Communities seeking to decrease vehicle miles traveled may encourage pedestrian- and bicycle-friendly development in areas already supporting a large working age population.

This information may also be useful when marketing the availability of areas for development. Planners can use the information to help evaluate whether proposed commercial development may improve or exacerbate regional imbalances between the location of job centers and residential areas. New employment in areas with poor accessibility to residential neighborhoods would likely result in longer commutes and additional traffic on regional highways, particularly if public transportation were lacking. New employment in areas of high accessibility, on the other hand, can provide more residents with opportunities to live closer to jobs, shopping, and services and to take alternate means of travel to work.

How were the data for this map created?

This metric was compiled from U.S. Census [American Community Survey \(ACS\)](#) 5-year Summary Data for 2008–2012. ACS obtained the data (Table B08301) at the census block group scale through survey questions related to commuting mode. The ACS data are collected every month through statistical sampling of the total population; estimates are published on an annual basis. The data cover workers older than 16 years of age and younger than 64 years who were employed during the week prior to the ACS reference week and did not work at home. Respondents answered questions

Selected Publications

1. Kramer, M. 2013. [Our built and natural environments: A technical review of the interactions among land use, transportation, and environmental quality, Second edition](#). Environmental Protection Agency, Washington, D.C. 139 p.
2. Schrank, D., B. Eisele, T. Lomax, and J. Bak. 2015. [Urban mobility scorecard](#). Report published jointly by the Texas A&M Transportation Institute and Inrix, Inc. 47 p.
3. Mateyka, P.J., M.A. Rapino, and L.C. Landivar. 2012. [Home-based workers in the United States: 2010 household economic studies](#). U.S. Census Bureau, Washington, D.C.
4. Hill, E.J., M. Ferris, and V. Mårtinson. 2003. [Does it matter where you work? A comparison of how three venues \(traditional office, virtual office, and home office\) influence aspects of work and personal/family life](#). *Journal of Vocational Behavior* 63:220–241.
5. Gajendran, R.S., and D.A. Harrison. 2007. [The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences](#). *Journal of Applied Psychology* 92(6): 1524–1541.
6. Lister, K. 2015. [Latest telecommuting statistics](#). GlobalWorkplaceAnalytics.com. Accessed August 2016.

about the means of transportation used to get to work. The percentage of workers using a specific travel mode was obtained by dividing the number of workers in that category by the total population of workers.

What are the limitations of these data?

The accuracy of this data layer depends on 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 and the use of *percentages* of household characteristics rather than *numbers*. Estimates for rural areas with low populations should be interpreted with caution.

How can I access these data?

EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. American Community Survey [annual](#) and [summary file](#) data may be downloaded from the ACS websites. Commuting data may be found on the U.S. Census Bureau website [American Fact Finder](#), enter ID number B08301.

Where can I get more information?

A selection of resources on the relationships among city planning, commuting modes, and environmental quality is listed below. For additional information on data creation, access the [metadata](#) for the data layer. To ask specific questions about this data layer, please contact the [EnviroAtlas Team](#).

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