



Retail Job Density

This map estimates the number of retail jobs per unprotected acre within each U.S. Census block group in 2010.

Why is retail job density important?

Retail job density is one of many measures or variables used by city planners to examine the proportions of residents, jobs, and services in urban areas and to guide development planning for efficient city design and transit networks. Besides indicating the number of jobs per unprotected acre within a census block group, the metric also suggests a level of economic activity in the block group. Job densities in particular job classes may be compared with overall employment density to highlight job distributions within and among block groups.

Since the 1960s, the number retail jobs in the U.S. increased from 5.5 million to over 13 million jobs, a faster growth rate than overall employment.^{1,2} In 2011, retail represented about 10% of U.S. jobs and 8% of the gross domestic product.^{3,4} The number of retail jobs is projected to continue growing; however, retail wages are some of the lowest compared to other occupations. In 2011, the national median hourly wage in the retail sector was \$10.88, compared to \$16.57 for all workers.³ When adjusted for inflation, real retail wages have actually decreased by 12% since 1979.²

Deregulation, consolidation, erosion of worker protections, and the rise of big box discount stores have all contributed to the insecurity of the retail worker. Consolidation of retail stores into big discount stores affects retail employment by reducing the overall number of retail jobs available.¹ Retail companies have decreased the number of full-time jobs and established flexible staffing practices that follow weekly, daily, or even hourly peaks in shopper volumes. Shift scheduling keeps many retail workers on-call or in involuntary, fluctuating part-time status, making it difficult for workers to manage child care, education, or a second job.⁴ A few large retailers have managed to remain profitable by taking the opposite track, offering stable scheduling, benefits, and higher-than-average wages to retain employees.

Retail job density tends to be higher in downtown central business districts and in outlying urban subcenters in areas with higher median incomes. Low income neighborhoods outside of downtown generally have very low retail densities.⁵ Knowing the distribution of various job densities is prerequisite to planning for affordable housing centers that



are accessible to jobs of all wage classes. The occurrence of affordable-accessible housing near retail work locations gives workers the option to save on transportation costs, which can be prohibitive for low wage workers.

Smart Growth planning programs promote the development of a diversity of residences, employment opportunities, and services within compact neighborhoods. Planning strategies promote housing in job-rich areas and new employment centers in dense residential zones. Research indicates that people who live in compact neighborhoods walk more, use transit more, and drive less than people living in lower density neighborhoods.⁶ Resident workers with easy accessibility to a diversity of job types in various wage classes can reduce not only vehicle miles traveled (VMT) but fuel consumption and [greenhouse gas emissions](#) (GHGs) associated with employee commuting trips.

Recent research has found that for every 10% increase in the number of retail and service jobs within 4 miles of one's residence, shopping vehicle miles traveled were reduced by about 1.7%.⁶ Though similar studies have shown that this retail-housing mixing does not affect vehicle miles traveled as much as jobs-to-housing balance, the two compact neighborhood approaches complement each other to reduce overall regional vehicle miles traveled.

How can I use this information?

This map, Retail Job Density, allows users to evaluate various block groups by the number of retail jobs per unprotected acre relative to other characteristics. Comparing this map to areas of relatively high-, low- and middle-wage

worker residential density may indicate the effectiveness of community design and road networks to link potential workers with job opportunities. Planners may want to promote increased affordable housing in block groups with high retail employment density and a low resident working population. They may identify neighborhoods with optimal densities of jobs and housing that can support new or enhanced transit service. Economic development agencies in regions with limited transit service may use this map to encourage the siting of new retail centers in areas that are highly accessible to the regional workforce.

This data layer may be compared to other EnviroAtlas demographic and Smart Location data layers. The aerial-image base map (seen by increasing the transparency of the map layers) can be used to show the spatial distribution of the built environment within the block groups. For select communities, users can overlay EnviroAtlas community land cover maps that show impervious surfaces, street trees, and other common land covers at 1-meter resolution.

How were the data for this map created?

The 2010 [Census LEHD](#) (Longitudinal Employer-Household Dynamics) database gave the total number of retail jobs (NAICS sectors 44 and 45) by U.S. Census block group. Rather than calculate density over the entire land area of the block group, EPA instead isolated just the areas of the block group that were not protected from development. NAVTEQ data (2011) provided the location of federal, state, and local parks, zoos, cemeteries, public beaches, and water bodies. The Protected Area Database (PAD-US v1.3) provided the locations of parks and protected natural areas as well as privately-owned land area with restrictions on development (such as conservation easements). The relevant portions of each protected area dataset were intersected and dissolved into a single polygon layer that represented all areas in which development was restricted. The resulting protected areas layer was then integrated with the block group areas in GIS. EPA used this block group unprotected acreage as the denominator to calculate retail employment density. The metric, listed as D1c8_Ret10, may be found in the [Smart Location Database User Guide](#).

Selected Publications

1. Neumark, D., J. Zhang, and S. Ciccarella. 2008. [The effects of Wal-Mart on local labor markets](#). *Journal of Urban Economics* 63(2):406–430.
2. Linn, A. 2014. [The future of retail work: Many see low pay, little flexibility](#). NBC News. Accessed May, 2015.
3. The Aspen Institute. 2013. [Reinventing low wage work](#). Accessed May; 2015.
4. Luce, S. 2013. [Global retail report](#). UNI Global Union, Nyon, Switzerland.
5. J Schuetz., J. Kolko, and R. Meltzer. 2012. [Are poor neighborhoods “retail deserts”?](#), Research Brief, USC Lusk Center for Real Estate, Marshall School of Business, University of Southern California, Los Angeles, California.
6. Cervero, R., and M. Duncan. 2006. [Which reduces vehicle travel more: Jobs-housing balance or retail-housing mixing?](#) *Journal of the American Planning Association* 72(4):475–490.

What are the limitations of these data?

A block-group is a collection of census blocks, the smallest area mapped by the U.S. Census Bureau. It is important to remember that jobs or residences are not distributed evenly throughout the area of a block-group. A diversity of land uses or activities may be sparsely distributed in large census block groups. On the other hand, a small block group may be uniform and low in diversity, but it may be located within easy access to a more diverse block group. Using the aerial-image base map will give an indication of the proportions of developed and undeveloped land in each census block group. The U.S. Census Bureau maintains a website on methodology and [reliability of data](#).

How can I access these data?

EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. Data from the [2010 U.S. Census](#) may be viewed and downloaded from the census website.

Where can I get more information?

A selection of resources on the relationships among retail jobs, city planning, and environmental quality is listed below. EPA’s [Smart Growth Program](#) provides tools, resources, and technical assistance to communities seeking to pursue compact and mixed-use development strategies to create vibrant, walkable neighborhoods while protecting public health and the environment. For additional information on the data creation process, access the metadata for the data layer from the drop down menu on the interactive map table of contents and click again on metadata at the bottom of the metadata summary page for more details. To ask specific questions about this data layer, please contact the [EnviroAtlas Team](#).

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