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# Research Brief on ETI Purchasing Power and Economic Drilldowns

John Pawasarat

*University of Wisconsin - Milwaukee*, [pawasara@uwm.edu](mailto:pawasara@uwm.edu)

Lois M. Quinn

*University of Wisconsin - Milwaukee*, [lquinn@uwm.edu](mailto:lquinn@uwm.edu)

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## RESEARCH BRIEF ON ETI PURCHASING POWER AND ECONOMIC DRILL DOWNS

by John Pawasarat, Employment and Training Institute,  
University of Wisconsin-Milwaukee, 2016

*Milwaukee Drill photo courtesy of Milwaukee Electric Tool Corporation.*

To help identify the economic assets of central city neighborhoods and to further employment opportunities for city residents the University of Wisconsin-Milwaukee Employment and Training Institute prepared summary data on the workforce residing in and employed in each census tract, along with state-of-the-art purchasing power estimates of consumer expenditures and retail sales leakage/surplus by neighborhood. The ETI drill downs were designed to help determine the diversity of the workforce and to further economic development for underserved communities and for underutilized minority populations. ETI research reports using the drill downs are archived in the University of Wisconsin-Milwaukee Digital Commons collection at [http://dc.uwm.edu/eti\\_pubs/](http://dc.uwm.edu/eti_pubs/).

### I. Project Overview

The drill downs were developed by John Pawasarat (pawasara@uwm.edu), director of the Employment and Training institute; Lois Quinn (lquinn@uwm.edu), senior scientist with the Institute; and Frank Stetzer, senior information processing consultant with the UWM Information and Media Technologies. The ETI drill down reports were supported by funding from the University of Wisconsin-Milwaukee, Milwaukee Department of City Development, Milwaukee Economic Development Corporation, Southern University at New Orleans, Helen Bader Foundation, and The Brookings Institution. Five types of drilldowns were developed.

1. **Purchasing Power Profiles** showed the retail potential for 16 different types of consumer expenditures for all census tracts and residential ZIP codes in the U.S. For the 100 largest metro areas in the U.S., each ZIP code was ranked on spending per square mile for each retail category. Shapefiles and databases were made available for most regions of the U.S.

Purchasing Power Profile ZIP Code 53206		
Consumer Expenditure Category	Est. Annual Expenditures	Expenditures per Square Mile
Food at Home	\$36,951,623	\$13,891,588
Food away from home	\$10,426,438	\$3,919,714
Apparel and related services	\$10,966,440	\$4,122,722
Television equipment, tapes disks	\$4,936,035	\$1,855,652
Audio equipment, CDs, tapes	\$1,190,362	\$447,505
Household textiles	\$615,952	\$231,561
Furniture	\$2,738,776	\$1,029,615
Floor coverings	\$236,413	\$88,877
Major appliances	\$1,398,591	\$525,786
Small appliances and housewares	\$415,079	\$156,045
Computer hardware and software	\$1,232,698	\$463,420
Miscellaneous household equipment	\$1,878,110	\$706,056
Non-prescription drugs and supplies	\$2,392,644	\$899,490
Housekeeping supplies	\$4,303,942	\$1,618,023
Personal products	\$2,823,521	\$1,061,474
Home repair commodities	\$643,269	\$241,830
<b>Total for 16 categories</b>	<b>\$83,149,893</b>	<b>\$31,259,358</b>

Source: University of Wisconsin-Milwaukee Employment and Training Institute, 2004. The analysis is based on 2002 Bureau of Labor Statistics Consumer Expenditure Surveys and 2000 U.S. Census data.

2. **Urban Markets Retail Sales Leakage/Surplus Drill Downs** showed the difference between the purchasing power of residents in each urban census tract compared to the retail sales estimated to result from retail employees in the neighborhood. The retail sales "leakage" or "surplus" was estimated by neighborhood for the 100 largest metro areas in U.S.

**ETI Urban Markets Retail Sales Leakage/Surplus Drill Downs  
for Census Tracts in the 100 Largest Metro Areas,**

**Retail Sales Leakage/Surplus**  
**MSA: MILWAUKEE–WAUKESHA, WI PMSA**  
**State: Wisconsin**  
**County: Milwaukee County**  
**Tracts: 0076 0077 0078 0079 0080 0081 0082 0083 0084 0085 0086 0087 0088 0089 0090**

**Estimated Purchasing Power for 15 Categories of Spending**  

To determine the extent to which existing retail businesses are capturing retail spending of local residents, consumer expenditures are estimated for 15 categories of consumer spending. All of the expenditure categories in the ETI Purchasing Power Profiles except for food-away-from-home (which is not in the NAICS retail sector) are included in the estimates for the census tracts named above.




Estimated resident purchasing power for 15 categories: \$83,977,018

**Estimated Retail Sales Leakage**  

Some neighborhoods are underserved by retail establishments or communities where residents purchase many of their goods outside the neighborhoods. In census tracts where the estimated sales for 15 major consumer areas fall below the estimated purchasing power of residents, neighborhoods are said to have a retail sales leakage. The census tracts named above show the following estimated retail sales leakage.

Estimated retail sales leakage: \$56,602,458

3. **Neighborhood Workforce Drill Downs** described jobs held by local residents with analysis by industry, occupations, type of employer, and racial/ethnic origin. Tables also show worker earnings by race/Hispanic origin and by age and the poverty status of resident workers by their means of transportation to work. Jobs held by residents were compared to similar tables of jobs by place-of-work, as reported in the Employer Diversity Drill Downs and Business Place-of-Work Drill Downs.



**Neighborhood Workforce Drill Downs**  

The University of Wisconsin-Milwaukee Employment and Training Institute has prepared easy- to-use, free downloads of 2000 Census data on workers residing in each U.S. census tract. Researchers, business developers, public officials, and neighborhood organizations can use these tables to examine the characteristics of the resident workforce for any combination of tracts. These drill downs can be used together with the same set of tables for place-of-work drill downs to assess spatial and skill mismatches between resident workers and jobs in and out of their neighborhood.


**Each table profiles jobs held by employed residents who live in the census tracts, regardless of whether the residents work in this neighborhood or elsewhere.**

**ETI Neighborhood Workforce Drill Downs for Census Tracts**  
**Select State:**

Ten tables are provided for each census tract or combinations of tracts.

- Table 1: Workers by Industry by Ethnic Origin
- Table 2: Worker Earnings by Ethnic Origin
- Table 3: Occupations by Ethnic Origin
- Table 4: Class of Worker by Ethnic Origin
- Table 5: Worker Earnings by Age
- Table 6: Poverty Status by Means of Transportation to Work
- 
- Table 7: Worker Earnings by Industry
- Table 8: Occupations by Sex
- Table 9: Hours Worked per Week
- Table 10: Means of Transportation to Work by Industry

4. **Business Place-of-Work Drill Downs** examined the characteristics of jobs located in each neighborhood by type of employer, industry, earnings, occupations, and means of transportation to work for all census tracts in U.S. These drill downs were prepared jointly with faculty at Southern University at New Orleans.



### Business Place-of-Work Drill Downs

The University of Wisconsin-Milwaukee Employment and Training Institute, working with Southern University at New Orleans, now provides Business Place-of-Work Drill Downs, which show the characteristics of jobs in each neighborhood in the U.S. by type of employer, industry, earnings, occupations, and means of transportation to work. The drilldowns are presented for use in business plans, economic development proposals, and academic research.

Each table profiles the status of all workers employed in the neighborhood, whether or not they are residents.

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ETI/SUNO Business Place-of-Work Drill Downs for Census Tracts

Select State:

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Six drilldown tables are provided for each census tract or combination of tracts.

- Table 1: Workers by Industry Place-of-Work
- Table 2: Worker Earnings by Industry Place-of-Work
- Table 3: Occupations by Sex for Place-of-Work
- Table 4: Class of Worker by Place-of-Work
- Table 5: Hours Worked per Week by Place-of-Work
- Table 6: Means of Transportation to Work by Industry Place-of-Work

5. **Employer Diversity Drill Downs** identified the race/Hispanic origin composition of the workforce employed in each U.S. census tract by industry, occupation, and type of employer. Tables also showed the earnings of workers employed in each neighborhood by race/ethnicity and by age, and the poverty status of workers by their means of transportation to work.



### Employer Diversity Drill Downs

The University of Wisconsin-Milwaukee Employment and Training Institute offers Employer Diversity Drill Downs to help identify neighborhoods that offer employment for workers of various racial/ethnic backgrounds and to assess the race/Hispanic origin of the workforce employed in each U.S. neighborhood, according to the 2000 U.S. Census.

Each table profiles the status of workers employed in the neighborhood, whether or not they are residents.

---

Employer Diversity Drill Downs for Census Tracts

Select State:

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- Table 1: Worker Industry by Ethnic Origin for Place-of-Work
- Table 2: Worker Earnings by Ethnic Origin for Place-of-Work
- Table 3: Occupations by Ethnic Origin for Place-of-Work
- Table 4: Class of Worker by Ethnic Origin for Place-of-Work
- Table 5: Worker Earnings by Age for Place-of-Work
- Table 6: Means of Transportation to Work by Poverty Status for Place-of-Work

The reports offer a first-time examination of the Census Transportation Planning Package (CTPP 2000) place-of-work data from the perspective of central city neighborhoods seeking greater business and employment opportunities for their residents. For a description of the methodology and definitions used, see the [Business and Diversity Methodology Page](#). Unless otherwise noted in the methodology, employment status is shown for persons 16 years and older who worked full-time or part-time during in the "reference week" (typically, the week ending on April 1, 2000). For those who worked at two or more jobs, the data refer to the job at which the person worked the most hours.

## Applications/Templates

To aid users in applying the ETI Drill Down Tool Kits to their communities, ETI prepared a set of templates of drill down reports for a local Main Street project, a HUD renewal community, and diversity drill downs of companies and government employers in the Milwaukee metro area.

1. [How to Use ETI Drill Downs to Map Employment Integration and to Assess Workforce Diversity at Government Jobsites](#) (2005)

This report offered examples of mapping jobsites for African Americans and Hispanics compared to whites for the federal, state and local governments; determining numbers of government jobsites meeting availability standards for employment of minorities; reporting on the diversity record of the largest government worksites in a metro area; and developing a methodology for targeting opportunities for increased employment of minorities and affirmative action efforts by governmental unit and worksite.

2. **How to Use ETI Place-of-Work and Purchasing Power Drill Downs:** [Drill Downs for the Burleigh Main Street Project](#) (2005)

This report focused on one of the City of Milwaukee Main Street Projects seeking to revitalize its commercial district by involving residents in planning strategies to retain and expand existing businesses, convert underutilized commercial properties, and use marketing to improve retail sales.

3. **How to Use Special Census Tabulations for Workforce and Transportation Drill Downs of HUD Renewal Communities, Empowerment Zones, and Community Development Block Grant Neighborhoods:** [Drill Downs for the Milwaukee Renewal Community](#) (2005)

This template described and mapped workers commuting into and out of the HUD renewal community and analyzed the types of jobs and distance traveled to work for four labor markets within the renewal community: Milwaukee's near north side, near southside, the Menomonee Valley, and the Marquette University-Aurora Sinai Medical Center neighborhoods.

## II. Business Place-of-Work Drilldowns

The ETI researchers collaborated with Southern University at New Orleans (before Hurricane Katrina) to produce Business Place-of-Work Drill Downs, which showed the characteristics of jobs in each neighborhood in the U.S. by type of employer, industry, earnings, occupations, and means of transportation to work. The drilldowns were presented for use in business plans, economic development proposals, and academic research.

In the past, descriptions of business activity in urban areas had been difficult to assess at a geographic level necessary for planning and implementation purposes. The ETI place-of-work, transportation, and diversity analysis offered a first-time online examination of existing jobs in city neighborhoods from the

perspective of underserved communities. The place-of-work data were based on responses to the 2000 U.S. Census long-form questionnaire, provided to 1 in 6 households. The reports offered a first-time examination of the Census Transportation Planning Package (CTPP 2000) place-of-work data from the perspective of central city neighborhoods seeking greater business and employment opportunities for their residents. Unless otherwise noted in the methodology, employment status was shown for persons 16 years and older who worked full-time or part-time during in the "reference week" (typically, the week ending on April 1, 2000). For those who worked at two or more jobs, the data referred to the job at which the person worked the most hours. To allow for comparisons with competitive markets or other jurisdictions, six tables were generated for all census tracts in the U.S. with each table profiling the status of all workers employed in the neighborhood, whether or not they were residents.

Appendix A provides a detailed description of the methodology used for the Business Place-of-Work Drilldowns, including the sources of data, definitions of variables used, descriptions of methodology, and rules for rounding cells and totals.

### **III. Employer Diversity Drill Downs**

Employer Diversity Drill Downs were prepared to help identify neighborhoods that offer employment for workers of various racial/ethnic backgrounds and to assess the race/Hispanic origin of the workforce employed in each U.S. neighborhood, according to the 2000 U.S. Census. Each table profiled the status of workers employed in the neighborhood, whether or not they were residents.

The reports offered a first-time examination of the Census Transportation Planning Package (CTPP 2000) place-of-work data from the perspective of central city neighborhoods seeking greater business and employment opportunities for their residents. Again, unless otherwise noted in the methodology, employment status was shown for persons 16 years and older who worked full-time or part-time during in the "reference week" (typically, the week ending on April 1, 2000). For those who worked at two or more jobs, the data referred to the job at which the person worked the most hours.

### **IV. Purchasing Power Profiles**

The ETI Purchasing Power Profiles were based on state-of-the-art methodologies developed by ETI to show the retail potential of urban neighborhoods and to counter false and misleading stereotypes of urban neighborhoods issued by national marketing companies. The reports were based on 2000 U.S. Census and 2002 and 2003 Consumer Expenditure Surveys (CES). After completion of its successful project with the City of Milwaukee and the Helen Bader Foundation, ETI posted data on purchasing power for online downloads by neighborhood for the entire United States. The ETI databases identified spending for major retail expenditure categories, recognizing density advantages of many lower-income central city neighborhoods that are typically ignored by national marketing firms. ETI made its zipcode level database available at no cost for educational, government and commercial users throughout the United States, to help central city communities maximize the strengths of their neighborhoods and to provide accurate data without the anti-urban and race-based stereotypes imbedded in national marketing firm models.

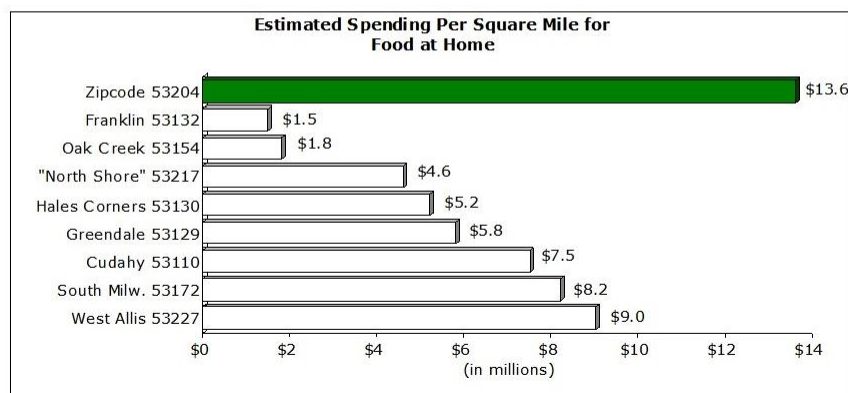
- Milwaukee:** Individual purchasing power reports were prepared in PDF format for 53 Milwaukee area zipcodes and including comparison tables, graphs, aerial photos and density maps. (See report for [zipcode 53206](#).) ETI also developed purchasing power profiles of the assets within a 3-mile radius of 13 Milwaukee commercial districts: [Chavez & National](#), Kinnickinnic & Russell, Layton & Lincoln, 8th & Mitchell, 27th & Center, 27th & Wisconsin, [35th & North](#), 35th & Villard, 53rd & Capitol, 53rd & Burleigh, 55th & North, 60th & Silver Spring, and 83rd & Silver Spring. The reports were posted on the City of Milwaukee website along with contact information for businesses interested in expanding or locating in Milwaukee.

## Within a 3-Mile Radius of 35<sup>th</sup> & North

- Estimated \$839.5 million spent on retail expenditures annually
  - \$308 million for food at home
  - \$111 million for food away from home
  - \$140 million for apparel and related services
  - \$144 million for entertainment
  - \$104 million for household furnishings and equipment
  - \$32 million for personal care products and services
- 78,221 working age income tax filers with \$2.2 billion of adjusted gross income in 1999
- 18,155 elderly persons
- 110,979 active residential postal deliveries and 8,606 active business deliveries
- 85,277 registered vehicles
- 99,017 licensed drivers

## Spending for Food at Home

- Estimated expenditures for food at home are 7-9 times the spending per square mile in Oak Creek or Franklin and more than double the spending in Hales Corners or the "North Shore."





- **Pittsburgh:** Graduate students at the Heinz School of Public Policy and Management at Carnegie Mellon University partnered with the Employment and Training Institute to prepare Pittsburgh Purchasing Power Profiles and analysis comparing two underserved neighborhoods (the Hill District and McKeesport) with neighborhoods historically "more successful in attracting investment" (South Side Flats and Monroeville). A second project class addressed issues related to attracting a supermarket to Pittsburgh's Hill District. The class prepared marketing flyers, a power point presentation for developers, and a 66-page technical paper. The materials addressed issues of crime in the neighborhood, highway and river barriers limiting the value of traditional 1-mile circle analyses of markets, residents' current access to supermarkets, transportation issues for lower-income residents, and estimated grocery sales potential for an available Urban Redevelopment Authority site in the Hill District. Next a team of Carnegie Mellon students developed a plan for Centre Food: Bringing a Non-Profit Food Store to Pittsburgh's Hill District, which won first prize in the 2005 JP Morgan Chase Community Development Competition.
- **New Orleans:** Prior to Hurricane Katrina, faculty at **Southern University at New Orleans** and ETI were collaborating to develop purchasing power analyses of targeted neighborhoods in the New Orleans metro area and to develop customized mapping and reports to spur retail development based on the density assets in targeted African American neighborhoods.
- **Minnesota:** The Concordia University-St. Paul College of Business and Organizational Leadership used the purchasing power density estimates as part of an American Indian Capital project "relating to the community as an asset rather than a deficit."
- **Georgia:** The Center for Agribusiness and Economic Development used the purchasing power data to help identify the economic potential of rural Georgia.
- **Yale University:** The Rudd Center for Food Policy & Obesity identified the ETI purchasing power data as a resource in addressing Access to Healthy Foods in Low-Income Neighborhoods: Opportunities for Public Policy.
- **Congress for the New Urbanism (CNU):** Under the leadership of former Milwaukee Mayor John Norquist, the **Congress for the New Urbanism** used ETI's purchasing power and urban density research as part of its work supporting walkable, efficient, and livable cities and towns.
- **The Brookings Institution:** The Brookings Center on Urban and Metropolitan Policy identified the Employment and Training Institute for its work utilizing local and national data to measure purchasing power in urban neighborhoods. See ETI's 2002 monograph on [Exposing Urban Legends: The Real Purchasing Power of Central City Neighborhoods](#), published by The Brookings Institution.



## **V. ETI Urban Markets Retail Sales Leakage/Surplus Drill Downs**

The ETI drilldowns also provided retail sales estimates to show the difference between the purchasing power of residents in urban neighborhoods compared to the retail sales estimated to result from numbers of retail employees in the neighborhood. Retail sales "leakage" or "surplus" estimates were provided for each census tract in the 100 largest metro areas of the U.S.

## **VI. Avoiding Anti-Urban Stereotypes of National Marketing Firms**

Based on the experience reviewing "profiles" of Milwaukee neighborhoods presented by major marketing firms, the ETI researchers urged cities and neighborhoods to use caution when securing databases from many of the major marketing firms.

1. **Nearly all of the emphasis of the marketing firm data have been placed on average household income, while the density of urban neighborhoods is ignored.** Rather than comparing purchasing power per square mile, marketing companies usually ranked neighborhoods primarily based on household income, race and desirable "family types." A marketing industry has evolved of segmentation models and stereotypes (under such trademark names as PRIZM, MOSAIC, ACORN, MicroVision, Tapestry, P\$CYCLE, LifeP\$YCLE) by firms such as Claritas, CACI, ESRI, and Experian. Typically, sparsely populated suburban areas with high average household income were ranked as "winners" while densely populated urban areas with concentrations of lower-income households were ranked as "losers." These rankings were often used to steer businesses away from densely populated city neighborhoods and into "urban sprawl" communities, where malls and retail outlets compete for customers driving to their location from longer and longer distances.
2. **National marketing firms frequently used racial and class-based stereotypes to describe urban neighborhoods.** For example, CACI reported that African Americans in Milwaukee (and in many other cities) "splurge on fast food and spend leisure time going to bars and dancing" and that residents of a local neighborhood with a significant Hispanic population "don't know the amount of money needed to retire comfortably." Claritas described residents of a Milwaukee African American neighborhood as "very low income families [who] buy video games, dine at fast food chicken restaurants [and] use non-prescription cough syrup" while describing wealthy white suburbanites as "interested in civic activities, volunteer work, contributions and travel." A review of zipcode profiles for other cities uncovered identical descriptions used to characterize hundreds of urban neighborhoods around the country. In some cases these market segmentation models, sorted in large part by race, have helped steer businesses away from African American and Latino customers and central city neighborhoods. See the following ETI reports:
  - [Confronting Anti-Urban Marketing Stereotypes: A Milwaukee Economic Development Challenge](#) (2001)

- [Exposing Urban Legends: The Real Purchasing Power of Central City Neighborhoods](#), a discussion paper for The Brookings Institution (2002).

In 2001, after Milwaukee Mayor John Norquist criticized Claritas and CACI for using misleading information that discouraged business expansion in innercity neighborhoods, the president and CEO of Claritas reported to the press that the marketing company would remove references to gambling or use of tobacco and alcohol in characterizing neighborhoods. The new stereotypes subsequently posted on the Internet, however, described central city Milwaukee African Americans as "inner city strugglers" who "watch a lot of television and listen to a lot of radio."

3. In many cases, the "geodemographic segmentation" overlay of stereotypes generated by computer did not relate to the community described. In one marketing firm's apparent attempt to provide a more "positive" image of a lower-income Milwaukee neighborhood, elderly low-income African American residents were described by Claritas as stamp collectors and shoppers at "Banana Republic." The website for ESRI, a firm offering a community segmentation model as part of its package of data for businesses and educational institutions, described the two predominant household types of San Quentin (ZIP Code 94964) as "Cozy and Comfortable" (i.e., "older, settled married couples") and "Laptops and Lattes" ("the most eligible and unencumbered marketplace") without reporting that 96 percent of the population in the zipcode was incarcerated.
4. Ignoring urban density in their standard products, marketing firms began to team up with non-profit organizations to sell special "inner city" databases and analyses to promote urban communities. At the same time, these firms' websites and client reports continued to denigrate central city neighborhoods. A popular new approach (i.e., marketing niche) was to argue that central city neighborhoods were profitable retail markets only when special studies were utilized tapping into their "underground economy," unreported income sources, welfare and food stamp payments, and "barter" economies. City governments were asked to pay for specially tailored "inner city" reports while the same marketing firms distributed anti-urban, racially-driven segmentation market profiles and reports stressing average household income (rather than per square mile expenditures) to their national customers.

## **VII. Guides for Other Communities**

Online data were provided by the Employment and Training Institute to assist other communities in planning workforce development investment programs, developing business plans, furthering central city economic development, addressing retail needs in underserved markets, and supporting balanced and sustainable communities. ETI assisted educational institutions by making data bases available to students in business, economics, education, marketing, sociology, urban planning, and urban studies, free of the inaccurate and questionable stereotypes that accompany the geodemographic segmentation data bases commonly purchased by university libraries. The following steps were identified for new business developers and entrepreneurs:

1. Utilize purchasing profile data to prepare business plans and marketing plans for start-up companies to meet untapped consumer demand in central city neighborhoods.
2. Identify your neighborhood's workforce density for higher demand industrial sectors.
3. Compare neighborhoods' purchasing power for retail expenditures, based on the ETI state-of-the art analysis of the Consumer Expenditure Survey by household and family type. Data is provided for 16 categories of expenditures, including for food at home, food away from home, clothing, television equipment, audio equipment, large and small appliances, computer hardware and software, personal products, home repair products, housekeeping supplies, non-prescription drugs, and various household furnishings.
4. Map urban ZIP codes or combinations of census tracts to show the relative purchasing power per square mile.
5. Identify underserved central city neighborhood markets and gaps in retail services for grocery stores, pharmacies, clothing stores, shoe stores, fast food restaurants, electronics stores, and stores selling automotive parts.
6. Identify the type of industries your residents work for, including manufacturing firms, retail trade companies, educational services, health care and social services establishments, accommodations and food service establishments, and public administration.
7. Identify the number of workers (resident and non-resident) employed by companies located in your ZIP code. To help assess spatial mismatches between the local workforce and jobs available in nearby companies, tables for each ZIP code show the employment levels of companies located in the ZIP code, including manufacturing, wholesale trade, retail trade, transportation and warehousing, information services, finance and insurance, real estate, professional services, administrative support, educational service, health care, arts and entertainment, accommodations and food service establishments.
8. Describe the density of your neighborhood's workforce by major occupational groupings, including management and professional occupations, service occupations, sales and office occupations, and production, transportation, and material moving occupations.
9. Identify the number of resident workers using public transportation versus those traveling to work by private vehicles.
10. Describe the utilization and underutilization of your neighborhood's workforce, according to 2000 U.S. Census data on residents working full-time year-round, part-time year-round, and part-time part-year.

## APPENDIX A

### Methodology for Business Place-of-Work, Employer Diversity, and Neighborhood Workforce Drill Downs

Using Census Transportation Planning Package (CTPP) files released in 2004 and 2005, the University of Wisconsin-Milwaukee Employment and Training Institute has prepared customized place-of-work data from the perspective of central city neighborhoods seeking greater business and employment opportunities for their residents. ETI developed three sets of drill down reports using CTPP files: Business Place-of-Work Drill Downs, Employer Diversity Drill Downs, and Neighborhood Workforce Drill Downs. These drill down reports are now available free from the Employment and Training Institute website (at [www.eti.uwm.edu](http://www.eti.uwm.edu)) for all census tracts in the U.S.

The Census Transportation Planning Package is a special tabulation available for the 1990 and 2000 censuses, offering detailed tables of the work location of residents and commuters in each census tract, tailored to meet the data needs of transportation planners nationwide. The 2000 CTPP was sponsored by the state and federal departments of transportation.

***Most of the definitions and description of methodology reported here are excerpted from the "Census Transportation Planning Package 2000 Definition of Subject Characteristics," posted at [www.mtc.ca.gov/maps\\_and\\_data/datamart/census/ctpp2000/CTPP\\_TechDoc.pdf](http://www.mtc.ca.gov/maps_and_data/datamart/census/ctpp2000/CTPP_TechDoc.pdf). See also, the [Department of Transportation CTPP website](#) and the [U.S. Census Bureau website](#).***

#### Census Data Tabulations

The CTPP2000 includes a series of tabulations for various levels of geography, including state, county, place, census tract and block group, and traffic analysis zone (TAZ). The tables in the CTPP relate social and demographic characteristics of persons, households, and workers to their journey-to-work characteristics, such as travel time and travel mode to work.

Three types of data tabulations are provided in the CTPP:

- **Place of residence** tables show the number and characteristics of housing units, persons, and workers who live in each geographic area.
- **Place-of-work** tables show the number and characteristics of persons who work in each geographic area (regardless of where they live).
- **Commuter flow** tables show the number and characteristics of persons in each worktrip origin-destination pair of geographic areas.

The three types of data tabulations are produced for a full range of areas in the geographic hierarchy. Summary levels include state, county, minor civil division, and place. At the detailed geographic level, data are available at the census tract level and for participating states, at the block group and/or traffic analysis zone level.

The data on workers in CTPP 2000 are drawn from answers to questions 21, 22, 27, 28 and 29 of the Census 2000 long-form questionnaire, mailed to one in six U.S. households. (The long form questionnaire is available at on the [Census Bureau website](#). Data were tabulated for workers 16 years old and over who were at work during the week prior to when the questionnaire was filled out. This large sample is used to estimate totals for the entire population.

## Rounding Used in the CTPP 2000 Data

The estimates of workers in the CTPP 2000 tabulations have been rounded for each reported cell. Values from 1 thru 7 were rounded to 4. Values of 8 or greater were rounded to the nearest multiple of 5, unless the estimate already ended in 5 or 0, in which case it was not changed. As a result, estimates derived from these files may not be identical to comparable figures contained in other census products. The greater the number of records from these files that are summed for comparison purposes, the more rounding errors there may be and the greater the difference between the estimates from different sources may be.

## Definition of Workers

In the special tabulations, **workers** are defined as people 16 years and older who were employed and at work during the Census reference week. This is the week prior to when the questionnaire was filled out, for most people the week ending with April 1, 2000. Workers include both civilians and people in the Armed Forces, and part-time workers as well as full-time. People who did not work during the reference week but had jobs or businesses from which they were temporarily absent due to illness, bad weather, industrial dispute, vacation, or other personal reasons are not included in the place-of-work data.

If a worker held two jobs, only data about the primary job (the one where the person worked the most hours during the preceding week) was requested. People who regularly worked in several locations during the reference week were requested to give the address at which they began work each day. For cases in which daily work was not begun at a central place each day, the person was asked to provide as much information as possible to describe the area in which he or she worked most during the reference week.

## CTPP Workers-at- Work Compared to Other Employment Estimates

Counts of workers-at- work obtained from CTPP 2000 will differ from other employment data sources. **While examining CTPP worker counts against other data sources, note that total jobs and total employment in each geographical area will be HIGHER than CTPP worker counts.** The number of workers shown in CTPP Part 2 will be approximately 91 to 93 percent of the number of jobs counted by establishment inventories. (See the CTPP Status Report, May 2003.) There are several reasons for differences between worker counts and total jobs:

1. Census 2000 counts employed persons, not jobs. For persons with more than one job, characteristics on only the principal job are collected. Nationally, about 6 percent of workers have second jobs.
2. CTPP 2000 reports only those workers who were **at work** during the reference week. About 2 percent of employed workers are absent who are from work in any given week. The Census Bureau also notes that people who had irregular, casual, or unstructured jobs during the reference week may have erroneously reported themselves as not working.
3. CTPP includes full-time and part-time workers, of all classes (wage and salary, self-employed, private or public). By contrast, most other employment data sources count jobs. Some sources omit persons who are self-employed, some count only wage and salary jobs, and some exclude most public sector jobs.
4. Because the decennial census questions on employment are designed to capture the workplace at which the respondent worked the most hours, workers who worked two or more jobs are captured at only one of their workplaces. The local effect is that CTPP data may show substantially fewer workers in those areas/zones where second jobs and part-time employment are more the norm. Examples of such areas include:
  - Areas where retail trade and similar service industries are predominant.

- Colleges and university areas. Typically, colleges/universities employ considerable numbers of part-time adjunct teachers, a trend that increased during the 1990s. Therefore, census tracts or traffic analysis zones (TAZs) with colleges and universities may reflect lower worker totals than the institution's own figures.
- 5. Multi-site businesses and some job types are not reported consistently by employers or employees, and as a result are difficult to geocode and likely to show variability from one source to another. In business and establishment surveys, companies with more than one work location may still report all their workers at a single location, typically a corporate office building. The state unemployment insurance agencies that maintain ES-202 files vary in their efforts to distribute job counts to the company's individual work locations.
- 6. While most workers have only a single work location, there are industries where the majority of jobs do not follow this pattern. Some people will give the address of their current assignment, some will give the headquarters' address appearing on their mail or paycheck, and some may give no answer.

### **"Place of Work" Definitions**

The address where the individual worked most often during the reference week was recorded on the Census 2000 questionnaire (question 22). The exact address (number and street name) of the place of work was asked, as well as the place (city, town, or post office); whether or not the place of work was inside or outside the limits of that city or town; and the county, state or foreign country, and ZIP Code. If the person's employer operated in more than one location, the exact address of the location or branch where the respondent worked was requested. When the number and street name were unknown, a description of the location, such as the building name or nearest street or intersection, was to be entered.

In areas where the workplace address was coded to the block level, people were tabulated as working inside or outside a specific place based on the location of that address, regardless of the response to question 22c concerning city/town limits. In areas where it was impossible to code the workplace address to the block level, people were tabulated as working in a place if a place name was reported in question 22b and the response to question 22c was either "yes" or the item was left blank. In selected areas, census designated places (CDPs) may appear in the tabulations as places of work. The accuracy of place-of-work data for CDPs may be affected by the extent to which their census names were familiar to respondents, and by coding problems caused by similarities between the CDP name and names of other geographic jurisdictions in the same vicinity.

Place-of-work data are given for minor civil divisions (MCDs) (generally, cities, towns, and townships) in 12 selected states (Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin), based on the responses to the place of work question. Many towns and townships are regarded locally as equivalent to a place, and therefore, were reported as the place of work. When a respondent reported a locality or incorporated place that formed a part of a township or town, the coding and tabulating procedure was designed to include the response in the total for the township or town.

### **Comparability of Place-of-Work Data: 1980 - 2000**

The wording of the question on place of work was substantially the same in Census 2000, the 1990 census, and the 1980 census. However, data on place of work from Census 2000 and the 1990 census are based on the full census sample, while data from the 1980 census were based on only about one-half of the full sample. For the 1980 census, nonresponse or incomplete responses to the place-of-work question were not allocated, resulting in the use of "not reported" categories in the 1980 publications. However, for Census 2000 and the 1990 census, when place of work was

not reported or the responses was incomplete, a work location was allocated to the person based on their means of transportation to work, travel time to work, industry, and location of residence and workplace of others. Census 2000 and 1990 census tabulations, therefore, do not contain a "not reported" category for the place-of-work data.

Comparisons between 1980, 1990 or Census 2000 data on the gross number of workers in particular commuting flows, or the total number of people working in an area, should be made with extreme caution. Any apparent increase in the magnitude of the gross numbers may be due solely to the fact that for Census 2000 and the 1990 census, the "not reported" cases have been distributed among specific place-of-work destinations, instead of tallied in a separate category, as, a nonwork destination.

### **Definitions of Race/Ethnicity**

The CTPP2000 used four racial categories for reporting its data tables:

- White alone
- Black or African American alone
- Asian alone
- All other (including persons reported as 2 or more races, Native Hawaiian or Pacific Islander, American Indian or Alaska Native, or other race.

Workers were also identified as

- Hispanic or Latino
- Not Hispanic or Latino

For the ETI Diversity Drill Downs, all workers identified as "Hispanic or Latino" are included in that category. The four categories of race listed above were used for persons who were not identified as Hispanic or Latino. The resulting five racial/ethnic categories are used in the drilldowns:

1. Hispanic or Latino (all races)
2. White alone AND non-Hispanic/Latino
3. Black or African American alone AND non-Hispanic/Latino
4. Asian alone AND non-Hispanic/Latino
5. All other races and combinations of races AND non-Hispanic/Latino

### **Comparability of Race/Ethnic Data**

The data on race in Census 2000 are not directly comparable to those collected in previous censuses. First, respondents were allowed to select more than one category for race in 2000. The CTPP tabulations considered persons to be of a race if they indicated that race **alone**. Persons indicating two or more races were included in an "all other" category for many of the tables provided. The fifth category listed above ("all other races and combinations of races AND non-Hispanic/Latino") is consequently larger than the "Some other race" category shown in the 2000 Census since it includes people with more than one race.



As in 1980 and 1990, people who reported a Hispanic or Latino ethnicity in the question on race and did not mark a specific race category were classified in the "Some other race" category ("Other" in 1980 and "Other race" in 1990). They commonly provided a write-in entry such as Mexicans, Puerto Rican, or Latino. In the 1970 census, most of these responses were included in the "White" category. In addition, some ethnic entries that in 1990 may have been coded as White or Black are now shown in the "Some other race" group.

### **Definitions of Class of Worker**

In addition to naming their employer and describing the type of work, workers were asked to indicate the type of employer for which they worked the most in the prior week. Occupations and types of work are then broken down into the following classes.

#### **Private Wage and Salary Workers**

includes people who worked for wages, salary, commission, tips, pay-in-kind, or piece rates for a private-for-profit employer or a private-not-for-profit, tax-exempt, or charitable organization. Self-employed people whose business was incorporated are included with private wage and salary workers because they are paid employees of their own companies. Some tabulations present data separately for these subcategories: "For profit," "Not-for-profit," and "Own business incorporated."

#### **Government Workers**

includes people who are employees of any local, state, or federal governmental unit, regardless of the activity of the particular agency. Employees of foreign governments, the United Nations, or other formal international organizations controlled by governments should be classified as "Federal Government employee."

#### **Self-Employed Workers**

includes people who worked for profit or fees in their own unincorporated business, profession, or trade, or who operated a farm.

#### **Unpaid Family Workers**

includes people who worked 15 hours or more without pay in a business or on a farm operated by a relative.

In tabulations that categorize persons as either **salaried or self-employed**, the salaried category includes private and government wage and salary workers; self-employed includes self-employed people and unpaid family workers.

### **Means of Transportation to Work**

Means of transportation to work refers to the principal mode of travel or type of conveyance that the worker usually used to get from home to work during the reference week. People who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip.

The category "Car, truck, or van - drove alone" includes people who usually drove alone to work, as well as people who were driven to work by someone who then drove back home or to a nonwork destination during the reference week. The category "Carpooled," includes workers who reported that two or more people usually rode to work in the vehicle during the reference week. The category "Public transportation" includes workers who usually used a bus, trolley bus,

streetcar, trolley car, subway, elevated, railroad, ferryboat, or taxicab during the reference week. The category "Other means" includes workers who used a mode of travel that is not identified separately. The category "Other means" may vary from table to table, depending on the detail shown in a particular distribution.

The means of transportation data for some areas may show workers using modes of public transportation that are not available for those areas (for example, subway or elevated riders in a metropolitan area where there actually is no subway or elevated service). This result is largely due to people who worked during the reference week at a location that was different from their usual place of work (such as people away from home on business in an area where subway service was available) and people who used more than one means of transportation each day but whose principal means was unavailable where they lived (for example, residents of nonmetropolitan areas who drove to the fringe of a metropolitan area and took the commuter railroad most of the distance to work).

### **Poverty Status in 1999**

The Census Bureau used the federal government's official poverty definition. The poverty status of families and unrelated individuals in 1999 was determined using 48 thresholds (income cutoffs) arranged in a two dimensional matrix. The matrix consists of family size (from one person to nine or more people) cross-classified by presence and number of family members under 18 years old (from no children present to eight or more children present). Unrelated individuals and two-person families were further differentiated by the age of the reference person (under 65 years old, and 65 years old and over).

To determine a person's poverty status, the person's total family income is compared with the poverty threshold appropriate for that person's family size and composition. If the total income of that person's family is less than the threshold appropriate for that family, then the person is considered poor, together with every member of his or her family. If a person is not living with anyone related by birth, marriage, or adoption, then the person's own income is compared with his or her poverty threshold. Poverty status was determined for all people except institutionalized people, people in military group quarters, people in college dormitories, and unrelated individuals under 15 years old. These groups also were excluded from the numerator and denominator when calculating poverty rates. They are considered neither "poor" nor "nonpoor."

### **Definitions of Industries**

The Census long-form questionnaire asked for the name of the employer ("company, business, or other employer" for which each worker worked in the reference week along with a description of the kind of business or industry taking place where the worker was employed. Responses were coded using the industry classification system developed from the 1997 North American Industry Classification System (NAICS) published by the Office of Management and Budget. NAICS is an industry description system that groups establishments into industries based on the activities in which they are primarily engaged. NAICS is erected on a production- oriented or supply-based conceptual framework in that establishments are grouped into industries according to similarity in the processes used to produce goods or services. The NAICS sectors, their two-digit codes, and the distinguishing activities of each are excerpted from the Department of Commerce site at [www.ntis.gov/naics](http://www.ntis.gov/naics).

#### **11 Agriculture, Forestry, Fishing and Hunting**

Activities of this sector are growing crops, raising animals, harvesting timber, and harvesting fish and other animals from farms, ranches, or the animals' natural habitats.

#### **21 Mining**

Activities of this sector are extracting naturally occurring mineral solids, such as coal and ore, liquid minerals, such as crude petroleum; and gases, such as natural gas; and beneficiating (e.g., crushing, screening, washing, and flotation) and other preparation at the mine site, or as part of mining activity.

## **22 Utilities**

Activities of this sector are generating, transmitting, and/or distributing electricity, gas, steam, and water and removing sewage through a permanent infrastructure of lines, mains, and pipe.

## **23 Construction**

Activities of this sector are erecting buildings and other structures (including additions); heavy construction other than buildings; and alterations, reconstruction, installation, and maintenance and repairs.

## **31-33 Manufacturing**

Activities of this sector are the mechanical, physical, or chemical transformation of material, substances, or components into new products.

## **41-43 Wholesale Trade**

Activities of this sector are selling or arranging for the purchase or sale of goods for resale; capital or durable nonconsumer goods; and raw and intermediate materials and supplies used in production, and providing services incidental to the sale of the merchandise.

## **44-46 Retail Trade**

Activities of this sector are retailing merchandise generally in small quantities to the general public and providing services incidental to the sale of the merchandise.

## **48-49 Transportation and Warehousing**

Activities of this sector are providing transportation of passengers and cargo, warehousing and storing goods, scenic and sightseeing transportation, and supporting these activities.

## **51 Information**

Activities of this sector are distributing information and cultural products, providing the means to transmit or distribute these products as data or communications, and processing data.

## **52 Finance and Insurance**

Activities of this sector involve the creation, liquidation, or change in ownership of financial assets (financial transactions) and/or facilitating financial transactions.

## **53 Real Estate and Rental and Leasing**

Activities of this sector are renting, leasing, or otherwise allowing the use of tangible or intangible assets (except copyrighted works), and providing related services.

## **54 Professional, Scientific, and Technical Services**

Activities of this sector are performing professional, scientific, and technical services for the operations of other organizations.

## **55 Management of Companies and Enterprises**

Activities of this sector are the holding of securities of companies and enterprises, for the purpose of owning controlling interest or influencing their management decision, or administering, overseeing, and managing other establishments of the same company or enterprise and normally undertaking the strategic or organizational planning and decision making of the company or enterprise.

## **56 Administrative and Support and Waste Management and Remediation Services**

Activities of this sector are performing routine support activities for the day-to-day operations of other organizations.

**61 Educational Services**

Activities of this sector are providing instruction and training in a wide variety of subjects.

**62 Health Care and Social Assistance**

Activities of this sector are providing health care and social assistance for individuals.

**71 Arts, Entertainment, and Recreation**

Activities of this sector are operating or providing services to meet varied cultural, entertainment, and recreational interests of their patrons.

**72 Accommodation and Food Services**

Activities of this sector are providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption.

**81 Other Services (except Public Administration)**

Activities of this sector are providing services not elsewhere specified, including repairs, religious activities, grantmaking, advocacy, laundry, personal care, death care, and other personal services.

**91-93 Public Administration**

Activities of this sector are administration, management, and oversight of public programs by Federal, State, and local governments.

**Definitions of Occupational Groupings**

The occupational classification system used during Census 2000 consists of 509 specific occupational categories arranged into major occupational groupings. Some occupation groups are related closely to certain industries (i.e., healthcare providers account for major portions of health care occupations). However, the industry categories include people in other occupations. (For example, people employed in the health care industry include occupations such as security guard, and secretary.) The following occupational groupings used for the CTPP 2000 tables are summarized from the CTPP documentation files on CD.

1. **Management Occupations, Part** -- chief executives; general and operations managers; legislators; managers, including advertising and promotions, marketing and sales, public relations, administrative service, computer and information systems, finance, human resources, industrial production, purchasing, transportation, storage, and distribution managers.
2. **Farmers and Farm Managers** -- farm, ranch, and other agricultural managers; farmers and ranchers.
3. **Management Occupations, Part** -- education administrators; funeral directors; managers in construction, engineering, food service, gaming, lodging, medical and health services, natural sciences, property, real estate, community association, social and community service; postmasters and mail superintendents.
4. **Business and Financial Operations Specialists** -- agents and business managers of artists, performers, and athletes; purchasing agents and buyers; claims adjusters, appraisers, examiners, and investigators; compliance officers, except agriculture, construction, health and safety, and transportation; cost estimators; human resources, training, and labor relations specialists; logisticians; management, budget, and credit analysts; meeting and convention planners; financial and other business operations specialists; accountants and auditors; appraisers and assessors of real estate; personal financial advisors; insurance underwriters; financial examiners; loan counselors and officers; tax examiners, collectors, and revenue agents; tax preparers.
5. **Computer and Mathematical Occupations** -- computer scientists and systems analysts; computer programmers, software engineers, and support specialists; database, network, and computer systems administrators; network systems and data communications analysts; actuaries; mathematicians; operations research analysts; statisticians; miscellaneous mathematical science occupations.

6. **Architecture and Engineering Occupations** - architects; surveyors, cartographers, and photogrammetrists; engineers, including aerospace, agricultural, biomedical, chemical, civil, computer hardware, electrical and electronics, environmental, industrial engineers, marine, materials, mechanical, mining and geological, nuclear, petroleum, and all other engineers; drafters; engineering technicians; surveying and mapping technicians.
7. **Life, Physical and Social Science Occupations** - scientists, including agricultural, food, biological, conservation, medical, atmospheric and space, materials, environmental, physical, and all other scientists; astronomers and physicists; chemists; geoscientists; economists; foresters; market and survey researchers; psychologists; sociologists; urban and regional planners; miscellaneous social scientists and related workers; technicians, including agricultural and food science, biological, chemical, geological and petroleum, nuclear, and other life, physical, and social science technicians.
8. **Community and Social Service Occupations** -- counselors; social workers; miscellaneous community and social service specialists; clergy; directors, religious activities and education; religious workers, all other.
9. **Legal Occupations** -- lawyers; judges, magistrates, and other judicial workers; paralegals and legal assistants; miscellaneous legal support workers.
10. **Educations, Training, and Library Occupations** - teachers, including postsecondary, preschool, kindergarten, elementary, middle school, secondary school, special education, and other teachers and instructors; archivists, curators, and museum technicians; librarians; library technicians; teacher assistants; other education, training and library workers.
11. **Arts, Design, Entertainment, Sports, and Media Occupations** - artists; designers; actors; producers and directors; athletes, coaches, umpires; dancers and choreographers; musicians, singers, and related workers; entertainers and performers, sports and related workers; announcers; news analysts, reporters and correspondents; public relations specialists; editors; technical writers; writers and authors; miscellaneous media and communication workers; broadcast and sound engineering technicians and radio operators; photographers; television, video, and motion picture camera operators and editors; all other media and communication equipment workers.
12. **Healthcare Practitioners and Technicians Occupations** -- chiropractors; dentists; dietitians and nutritionists; optometrists; pharmacists; physicians and surgeons; physician assistants; podiatrists; registered nurses; audiologists; occupational, physical, radiation, recreational, respiratory and all other therapists; speech-language pathologists; veterinarians; all other health diagnosing and treating practitioners; clinical laboratory and diagnostic related technologists and technicians; dental hygienists; emergency medical technicians and paramedics; health diagnosing and treating practitioner support technicians; licensed practical and licensed vocational nurses; medical records and health information technicians; opticians; miscellaneous health technologists and technicians; other healthcare practitioners and technical occupations.
13. **Healthcare Support Occupations** -- nursing, psychiatric, and home health aides; occupational therapist assistants and aides; physical therapist assistants and aides; massage therapists; dental assistants; medical assistants and other healthcare support occupations.
14. **Protective Service Occupations** -- first-line supervisors/managers of correctional officers, police and detectives, and fire fighting and prevention workers; supervisors, protective service workers, all other; fire fighters; fire inspectors; bailiffs, correctional officers, and jailers; detectives and criminal investigators; fish and game wardens; parking enforcement workers; police and sheriff's patrol officers; transit and railroad police; animal control workers; private detectives and investigators; security guards and gaming surveillance officers; crossing guards; lifeguards and other protective service workers.
15. **Food Preparation and Serving Related Occupations** -- chefs and head cooks; first-line supervisors/managers of food preparation and serving workers; cooks; bartenders; food preparation and service workers, including fast food; counter attendants, cafeteria, food concession, and coffee shop; waiters and waitresses; food servers;

dining room and cafeteria attendants and bartender helpers; dishwashers; hosts and hostesses, restaurant, lounge, and coffee shop.

16. **Building and Grounds cleaning and Maintenance Occupations** -- first-line supervisors/managers of housekeeping and janitorial, landscaping, lawn service, and groundskeeping workers; janitors and building cleaners; maids and housekeeping cleaners; pest control workers; grounds maintenance workers.
17. **Personal Care and Service Occupations** -- first-line supervisors/managers of personal service and gaming workers; animal trainers; nonfarm animal caretakers; child care, personal care and service, recreation and fitness, funeral service, and gaming workers; motion picture projectionists; ushers, lobby attendants, and ticket takers; miscellaneous entertainment attendants and related workers; barbers; hairdressers, hairstylists, and cosmetologists; baggage porters, bellhops, and concierges; tour and travel guides; transportation attendants; personal and home care aides; and residential advisors.
18. **Sales and Related Occupations** -- first-line supervisors/managers of sales workers; cashiers; counter and rental clerks; salespersons; advertising sales agents; insurance, securities, commodities, and financial service sales agents; travel agents; sales representatives; models, demonstrators, and product promoters; real estate brokers and sales agents; sales engineers; telemarketers; door-to-door sales workers, news and street vendors, and related workers; sales and related workers, all other.
19. **Office and Administrative Support Occupations** -- first line supervisors/managers of office and administrative support workers; clerks, including billing, posting, accounting, auditing, payroll, timekeeping, procurement, brokerage, correspondence, court, municipal, license, file, loan, new accounts, order, information, loan, record, postal service, mail, travel, shipping, receiving, traffic, stock, hotel, motel, resort desk, production, planning, expediting, insurance claims, policy processing, and office clerks; operators, including switchboard, telephone, communications equipment, mail processors, mail processing machine, and office machine operators; bill and account collectors; gaming cage workers; tellers; credit authorizers, checkers; customer service representatives; eligibility and loan interviewers; library assistants, clerical; human resources assistants; receptionists; reservation and transportation ticket, cargo, and freight agents; couriers and messengers; dispatchers; meter readers, utilities; postal service mail carriers and sorters; order fillers; weighers, measurers, checkers, and samplers, recordkeeping; secretaries and administrative assistants; computer operators; data entry keyers; word processors and typists; desktop publishers; proofreaders and copy markers; statistical assistants; other office and administrative support workers.
20. **Farming, Fishing, and Forestry Occupations** -- first-line supervisors/managers of farming, fishing, and forestry workers; agricultural inspectors; animal breeders; graders and sorters, agricultural products; miscellaneous agricultural workers; fishers and related fishing workers; hunters and trappers; forest and conservation workers; logging workers.
21. **Construction and Excavation Occupations** -- first-line supervisors/managers of construction trades and extraction workers; boilermakers; brickmasons, blockmasons, and stonemasons; carpenters; carpet, floor, and tile installers and finishers; cement masons, concrete finishers, and terrazzo workers; construction laborers; paving, surfacing, and tamping equipment operators; pile-driver operators; operating engineers and other construction equipment operators; drywall installers, ceiling tile installers, and tapers; electricians; glaziers; insulation workers; painters, construction and maintenance; paperhangers; pipelayers, plumbers, pipefitters, and steamfitters; plasterers and stucco masons; reinforcing iron and rebar workers; roofers; sheet metal workers; structural iron and steel workers; helpers, construction trades; construction and building inspectors; elevator installers and repairers; fence erectors; hazardous materials removal workers; highway maintenance workers; rail-track laying and maintenance equipment operators; septic tank servicers and sewer pipe cleaners; derrick, rotary drill, and service unit operators, oil, gas, and mining; earth drillers; explosives workers, ordnance handling experts, and blasters; mining machine operators; roof bolters, mining; roustabouts, oil and gas; helpers-extraction workers; other extraction workers.

22. **Installation, Maintenance, and Repair Occupations** -- first-line supervisors/managers of mechanics, installers, and repairs; repairers, including computer, automated teller, office machine, electric motor, power tool, electrical, electronics, electronic equipment, automotive body, home appliance, precision instrument and equipment, signal and track, and office machine repairers; installers and repairers, including electronic home entertainment equipment, radio and telecommunications equipment, automotive glass, control and valve, electrical power-line, and telecommunications line installers and repairers; avionics technicians; security and fire alarm systems installers; aircraft mechanics and service technicians; automotive service technicians and mechanics; bus and truck mechanics and diesel engine specialists; heavy vehicle and mobile equipment service technicians and mechanics; small engine, vehicle, and mobile equipment mechanics; heating, air conditioning, and refrigeration mechanics and installers; industrial and refractory machinery mechanics; maintenance and repair workers, general; maintenance workers, machinery; millwrights; coin, vending, and amusement machine servicers and repairers; commercial divers; locksmiths and safe repairers; manufactured building and mobile home installers; riggers; helpers-installation, maintenance, and repair workers; other installation, maintenance, and repair workers.
23. **Production Occupations** -- first-line supervisors/managers of production and operating workers; assemblers, including aircraft structure, surfaces, rigging, systems, electrical, electronics, electromechanical, engine, and other machine assemblers and fabricators; machine operators and tenders, including food and tobacco roasting, baking, drying, food cooking, shoe, textile bleaching and dyeing, packaging and filling, and cementing and gluing machine operators and tenders; machine setters, operators, and tenders, including extruding and drawing, forging, rolling, cutting, punching, press, drilling and boring, milling and planing, molding, plating and coating, textile cutting, textile knitting, weaving, textile winding and twisting and drawing out, extruding and forming, wood sawing, woodworking, chemical processing, extruding, forming, pressing, compacting, and paper goods machine setters, operators, and tenders; machine tool setters, operators and tenders, including drilling and boring, grinding, lapping, polishing, buffing, lathe, turning, and multiple machine tool setters, operators, and tenders: structural metal fabricators and fitters; bakers; butchers and other meat poultry, and fish processing workers; food batchmakers; computer control programmers and operators; machinists; metal furnace and kiln operators and tenders; model makers and patternmakers; welding, soldering, and brazing workers; heat treating equipment settlers, operators, and tenders; heat treating equipment setters, operators, and tenders, metal and plastic; lay-out workers; tool grinders, filers, and sharpeners; metalworkers and plastic workers, all other; bookbinders and bindery workers; job printers; prepress technicians and workers; printing machine operators; laundry and dry-cleaning workers; pressers, textile, garment, and related materials; sewing machine operators; shoe and leather workers and repairers; tailors, dressmakers, and sewers; fabric and apparel patternmakers; upholsterers; textile, apparel, and furnishings workers, all other; cabinet makers and bench carpenters; furniture finishers; model makers and patternmakers, wood; woodworkers, all other; power plant operators, distributors, and dispatchers; stationary engineers and boiler operators; water and liquid waste treatment plant and system operators; miscellaneous plant and system operators; crushing, grinding, polishing, mixing, and blending workers; cutting workers; furnace, kiln, oven, drier, and kettle operators and tenders; inspectors, testers, sorters, samplers, and weighers; jewelers and precious stone and metal workers; medical, dental, and ophthalmic laboratory technicians; painting workers; photographic process workers and processing machine operators; semiconductor processors; cleaning, washing, and metal pickling equipment operators and tenders; cooling and freezing equipment operators and tenders; etchers and engravers; molders, shapes, and casters; tire builders; helpers-production workers; production workers, all other.
24. **Transportation and Material Moving Occupations** -- Supervisors, transportation and material moving workers; aircraft pilots and flight engineers; air traffic controllers and airfield operations specialists; ambulance drivers and attendants, except emergency medical technicians; bus drivers; driver/sales workers and truck drivers; taxi drivers and chauffeurs; operators, including motor vehicle, railroad brake, signal, switch, ship, conveyor,



dredge machine, excavating machine, loading machine, hoist, winch, industrial truck, industrial tractor, pumping station, crane, tower, and shuttle car operators; locomotive engineers and operators; railroad conductors and yardmasters; subway, streetcar, and other rail transportation workers; sailors and marine oilers; ship and boat captains; ship engineers; bridge and lock tenders; parking lot and service station attendants; transportation inspectors; other transportation workers; conveyor tenders; cleaners of vehicle sand equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; refuse and recyclable material collectors; tank car, truck, and ship loaders; material moving workers, all other.

25. **Armed Forces** -- Military officer special and tactical operations leaders/managers; first-line enlisted military supervisors/managers; military enlisted tactical operations and air/weapons specialists and crew members; military, rank not specified.

### For Further Information

For more information on definitions of variables from the 2000 Census and calculations used, see the [Census Bureau site](#) and the U.S. Department of Transportation [Census Transportation Planning Package 2000 website](#). Drill downs for any community or target market in the U.S. were previously made accessible through the UWM Employment and Training Institute website.



Templates for using drill down reports for local projects included drill down applications for a Milwaukee Main Street Project (Burleigh Street Commercial District) and drill downs for four labor markets within the Milwaukee HUD renewal community. Examples of PowerPoint presentations using the drill down data were available for the Chavez Drive/National Avenue commercial district in Milwaukee and the Hill District in Pittsburgh. To show the relative strength of its central city neighborhoods, the City of Milwaukee Department of City Development website provided free purchasing power reports for all 34 residential ZIP codes in Milwaukee County, including comparison tables, graphs, aerial photos, and density maps.

## APPENDIX B

### Methodology for the ETI Urban Purchasing Power Profiles and Urban Markets Retail Sales Leakage/Surplus Reports

The University of Wisconsin-Milwaukee Employment and Training Institute provides comparison data on purchasing power, business activity, and workforce density for all residential ZIP codes and the 100 largest metro areas in the U.S. The profiles are designed to help cities, businesses, developers, and organizations assess the advantages of urban density for underserved city neighborhoods.

Each year, the U.S. Census Bureau conducts detailed analyses of the spending habits of residents by their household size, type, and income levels. These Consumer Expenditures Surveys are used by marketing firms to estimate expenditures of consumers and to assist retail companies in deciding where to locate and what populations to target for their consumer items and services. In most cases, marketing firms have based their data and recommendations on

median household income of residents by geographic locations, while ignoring the advantages of urban density and the concentrated spending that takes place in city neighborhoods.

The purchasing power profiles developed by the Employment and Training Institute provide an easy-to-comprehend method to estimate purchasing power for common retail expenditures. Five steps are involved in the process. The ETI Purchasing Power Profiles presented here are based on analyses of 2002 and 2003 Consumer Expenditure Surveys (CEX) and the 2000 U.S. Census. In Milwaukee, ETI partnered with the City of Milwaukee Department of City Development to provide purchasing power analyses using current CEX data and income data more recent than the 2000 Census by using detailed ZIP code and block level data from the Wisconsin Department of Revenue on the most recent income tax year filings. This advanced methodology allowed the partners to adjust for changes in the economy and employment by neighborhood. These data offered comparable estimates for Wisconsin areas. At the same time, the nationwide statistics are available for comparisons with other metro areas throughout the U.S.

Note: The national reports and online drilldowns available online since 2003 have not been updated for more recent CES or Census data.

#### **STEP #1: Using the CEX to determine what households buy.**

The ETI Purchasing Power Profiles are based on spending patterns taken from the 2002 Consumer Expenditure Survey, utilizing survey responses from more than 30,000 interviews of households with complete income and expenditure responses. Additional data are drawn from the 2002 and 2003 CEX diary files, which includes patterns of spending by more than 22,000 respondents with complete income and expenditure data. The Purchasing Power Profiles focus on 16 categories of expenditures:

##### **FOOD AT HOME**

includes expenditures for food purchased at grocery stores and convenience stores, and food prepared at home for out-of-town trips.

##### **FOOD AWAY FROM HOME**

includes expenditures for meals at restaurants, carry-out orders, food purchased on out-of-town trips, school lunches, and meals as pay.

##### **APPAREL AND RELATED SERVICES**

includes expenditures clothing (suits, coats, sweaters, shirts, skirts, nightware, undergarments, hosiery, uniforms, costumes, etc.), accessories, footwear, material for making clothes, watches, jewelry, shoe repair, laundry and dry cleaning costs, and clothing storage.

##### **TELEVISION EQUIPMENT, TAPES AND DISCS**

includes expenditures for TVs, VCRs and video disc players; video cassettes, tapes and discs; video game hardware and software; cable and satellite service; repairs of TVs, radio and sound equipment; and rental of televisions.

##### **AUDIO EQUIPMENT, CDs, AND TAPES**

includes expenditures for radios; tape recorders and players; sound components and component systems; records, CDs, audio tapes, and needles; record, tape, CD and video mail order clubs; musical instruments; accessories and other sound equipment; satellite dishes; and rental of above equipment.

##### **HOUSEHOLD TEXTILES**

includes expenditures for bathroom, bedroom, kitchen and dining room linens; curtains and draperies; slipcovers and decorative pillows; sewing materials for the home.

##### **FURNITURE**

includes expenditures for mattresses and springs; sofas; living room tables and chairs; kitchen and dining room furniture; infants' furniture; outdoor furniture; wall units, cabinets and other occasional furniture.

#### FLOOR COVERINGS

includes expenditures for wall-to-wall carpeting (for renters and homeowners) and non-permanent floor coverings.

#### MAJOR APPLIANCES

includes expenditures for dishwashers, garbage disposals, refrigerators, freezers, washing machines, clothes dryers, cooking stoves, microwave ovens, air conditioners; floor cleaning equipment, and sewing machines.

#### SMALL APPLIANCES AND HOUSEWARES

includes expenditures for china, dinnerware, flatware, glassware, serving pieces, small electric kitchen appliances, and portable heating and cooling equipment.

#### COMPUTER HARDWARE AND SOFTWARE

includes expenditures for computers, computer hardware, computer software and accessories, for nonbusiness use.

#### MISCELLANEOUS HOUSEHOLD EQUIPMENT

includes expenditures for window coverings, infants' equipment, outdoor equipment, clocks, lamps and lighting fixtures; other household decorative items; telephones and accessories; lawn and garden equipment; power tools; hand tools; plants and fresh flowers; closet and storage items; rental of furniture; and luggage.

#### NON-PRESCRIPTION DRUGS AND SUPPLIES

includes expenditures for non-prescription drugs, non-prescription vitamins, eyeglasses and contact lenses, topicals and dressings, medical equipment for general use, supportive and convalescent medical equipment, and rental and repair of medical equipment.

#### HOUSEKEEPING SUPPLIES

includes expenditures for laundry and cleaning supplies, cleansing and toilet tissue, paper towels and napkins, miscellaneous household products, and lawn and garden supplies.

#### PERSONAL PRODUCTS

includes expenditures for hair care products, nonelectric articles for the hair, wigs and hairpieces, oral hygiene products and articles, shaving needs, cosmetics, perfume, bath preparation products, deodorants, feminine hygiene articles, and miscellaneous personal care items.

#### HOME REPAIR COMMODITIES

includes expenditures for paints; wallpapers; electrical supplies for heating and cooling equipment; materials for hard surface flooring, repair and replacement; materials and equipment for roof and gutters; materials for plastering, paneling, siding, windows, doors, screens, awnings; materials for patios, walks, fences, driveways, brick, masonry and stucco work; materials for landscaping maintenance; materials to finish basements, remodel rooms, or build patios, walks, etc.

Note: The ETI Purchasing Power Profiles do not include certain high-end purchases often included in national marketing firm reports (e.g., cars and boats), which are better identified through other data bases.

### **STEP #2: Determining expenditures by 5 household types and 5 income levels.**

The Consumer Expenditure Survey provides data on spending by income levels and family types, which makes it possible to estimate expenditures within communities. For the ETI Purchasing Power Profiles, five types of households and five levels of income ranges by the same family types and income levels using 2000 U.S. Census data were considered in estimating expenditures for each of the 16 retail categories listed above. The five household types are:

1. Families with children under age 18, with married parents.
2. Families with children under age 18, with a single parent.
3. Families with no children under age 18, with married heads of household.
4. Families with no children under age 18, with a single head of household.
5. Non-family households.

The annual household income ranges used are: \$0 - \$24,999; \$25,000 - \$49,999; \$50,000 - \$74,999; \$75,000 - \$99,999; and \$100,000 and above. In all, 25 expenditure estimates (i.e., 5 household types X 5 income levels) are calculated separately for each of 16 categories of expenditures.

The table below presents the estimates, based on CEX data, of annual expenditures for food purchased for the home by the 25 household/income cells. As shown in the table, expenditures for food at home by type of household increase only gradually as income doubles, triples, or even quadruples.

<b>ESTIMATES OF ANNUAL EXPENDITURES FOR FOOD AT HOME BY ANNUAL HOUSEHOLD INCOME</b>					
<b>Type of Household</b>	<u>Annual Expenditures by Annual Household Income:</u>				
	<b>\$0- \$24,999</b>	<b>\$25,000- \$49,999</b>	<b>\$50,000- \$74,999</b>	<b>\$75,000- \$99,999</b>	<b>\$100,000- and above</b>
Families with children under age 18					
With married parents	\$4,809	\$4,953	\$5,317	\$5,684	\$6,893
With single parent	\$3,685	\$4,117	\$5,126	\$5,488	\$6,141
Families with no children under age 18					
With married parents	\$3,430	\$3,780	\$4,190	\$4,635	\$5,327
With single parent	\$3,159	\$3,665	\$4,108	\$4,329	\$5,065
Non-family households	\$1,944	\$2,490	\$2,856	\$3,153	\$3,613

The CEX data further shows that a large number of households in the U.S. are in the lowest income category and/or single parents -- groups often ignored or denigrated by marketing firm stereotypes.

<b>ESTIMATES OF NUMBER OF HOUSEHOLDS IN THE U.S. BY ANNUAL HOUSEHOLD INCOME</b>					
<b>Type of Household</b>	<u>Number of Households by Annual Household Income:</u>				
	<b>\$0- \$24,999</b>	<b>\$25,000- \$49,999</b>	<b>\$50,000- \$74,999</b>	<b>\$75,000- \$99,999</b>	<b>\$100,000- and above</b>
Families with children under age 18					
With married parents	4,893,474	2,922,042	1,076,752	382,633	326,974
With single parent	1,907,308	1,729,770	771,438	317,394	171,986
Families with no children under age 18					
With married parents	3,006,793	5,325,310	5,705,498	3,875,143	4,406,655
With single parent	5,107,187	6,548,635	4,903,928	3,209,307	3,885,130
Non-family households	18,174,910	7,900,311	3,143,023	1,086,162	1,103,594

### **STEP #3: Determining the number of household types in each income category in each neighborhood.**

The 2000 U.S. Census data are used to obtain estimates of the number of households in each of the 25 cells identified above at the zipcode, census tract, and block group level. U.S. Census Bureau definitions of geographic units are used.

#### **ZIP CODE TABULATION AREA (ZCTA)**

A ZCTA is a statistical geographic entity that approximates the delivery area for a U.S. Postal Service five-digit or three-digit ZIP Code. ZCTAs are aggregations of census blocks that have the same predominant ZIP Code associated with the residential mailing address in the U.S. Census Bureau's Master Address File. Three-digit ZCTA codes are applied to large contiguous areas for which the U.S. Census Bureau does not have five-digit ZIP Code information in its Master Address File. ZCTAs do not precisely depict ZIP Code delivery areas, and do not include all ZIP Codes used for mail delivery. *(Source: U.S. Census Bureau)* Only ZCTAs with residential populations are included in the ETI analyses.

#### **BLOCK GROUPS**

A block group consists of all census blocks having the same first digit of their four-digit identifying numbers within a census tract. Block groups generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. Block groups on American Indian reservations, off-reservation trust lands, and "special places" (i.e., correctional institutions, military installations, college campuses, worker's dormitories, nursing homes, and group homes) must contain a minimum of 300 people. *(Source: U.S. Census Bureau)*

#### **CENSUS TRACTS**

Census tracts are small, relatively permanent statistical subdivisions of a county or statistically equivalent entity delineated by local participants as part of the U.S. Census Bureau's Participant Statistical Areas Program. The primary purpose of census tracts is to provide a stable set of geographic units for the presentation of decennial census data. Census tracts in the U.S. generally have between 1,500 and 8,000 people, with an optimum size of 4,000 people. Counties and statistically equivalent entities with fewer than 1,500 people have a single census tract. Census tracts on American Indian reservations, off-reservation trust lands, and "special places" (see above) must contain a minimum of 1,000 people. *(Source: U.S. Census Bureau)*

#### **PRIMARY METROPOLITAN STATISTICAL AREAS (PMSAs)**

The PMSA consists of a large urbanized county or cluster of counties (cities and towns in New England) that demonstrate very strong internal economic and social links. The title of a PMSA may contain up to three place names (including the name of its largest central city and up to two additional central city names), sequenced in order of population from largest to smallest. *(Metropolitan area definitions are determined by the Office of Management and Budget.)*

### **STEP #4: Applying expenditure estimates against household/income data for the neighborhood.**

Once the number of households are determined for the 25 cells (5 household types by 5 income levels), CEX expenditure patterns for each retail area are applied against the population in each of the 25 cells for each neighborhood. Separate calculations are made for each of the 16 retail categories, based on the findings of the 2002 and 2003 Consumer Expenditure Survey studies.

### **STEP #5: Calculating expenditures per square mile.**

Emphasis on average household income by major marketing firms misses the significant spending by this large population of lower income families, and particularly the aggregate spending that occurs in dense urban neighborhoods. First, as seen above, families with lower incomes spend much higher percentages of their income on common retail purchases. Additionally, these families are often clustered in very dense neighborhoods while many upper income families reside in sparsely populated suburban or exurban areas.

The land area of each geographical unit is used to calculate density per square mile for the ETI Purchasing Power Profiles.

#### LAND AREA

The area measurements of block groups, census tracts, and ZCTAs are calculated from the specific boundary recorded for each entity in the U.S. Census Bureau's geographic database, TIGER (the Topologically Integrated Geographic Encoding and Referencing). The U.S. Census Bureau provides area measurement data for both land area and total water area.

#### **STEP #6: Calculating urban markets retail sales leakage or surplus.**

Some neighborhoods are underserved by retail establishments and residents purchase many of their goods outside their community. Those census tracts where neighborhood retail sales fall below the estimated purchases of residents are said to have a **retail sales leakage**. That retail sales leakage is calculated by comparing the sales levels estimated from retail employment data with retail purchases from the purchasing power profiles. **Retail sales surpluses** occur in other tracts where retail sales estimated from retail employment data exceed local resident expenditures. These communities may have retail establishments attracting customers from outside the neighborhood, e.g. shoppers attracted to particular retail businesses, in-coming commuters, or stores serving metrowide markets.

Estimates are developed for all census tracts in the 100 largest metro areas in the U.S. to gauge retail sales activity in each neighborhood. To determine the extent to which existing retail businesses are capturing retail spending of local residents, consumer expenditures were estimated for 15 categories of consumer spending. All of the expenditure categories in the ETI Purchasing Power Profiles except for food-away-from-home (which is not in the NAICS retail sector) are included in the estimates for each census tract. This total is compared to estimates of retail sales derived from comparing employment in retail sales work by census tract with the total employment in retail sales for the metro area. Average retail sales per retail employee were calculated for each of the 100 largest MSAs by dividing the sum of the 15 categories of consumer spending estimated for the MSA by the number of retail workers in the MSA from census place-of-work tables. This average is then multiplied by the number of retail workers in each tract using place-of-work tables to get the estimated sales in the tract. Differences are reported as estimated retail sales "leakage" or "surplus."