# Center for Economic Studies and Research Data Centers Research Report: 2013

*Research and Methodology Directorate*

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**Census** Bureau

# Center for Economic Studies and Research Data Centers Research Report: 2013

*Research and Methodology Directorate*

**Economics
and Statistics
Administration**

**Mark Doms**,
Under Secretary for
Economic Affairs



**U.S. CENSUS BUREAU**

**John H. Thompson**,
Director

**Nancy A. Potok**,
Deputy Director and
Chief Operating Officer

**Thomas A. Louis**,
Associate Director
for Research and Methodology

**Ron S. Jarmin**,
Assistant Director
for Research and Methodology

**Lucia S. Foster**,
Chief, Center
for Economic Studies

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# A MESSAGE FROM THE CHIEF ECONOMIST

The publication of our annual report provides an opportunity to reflect on the accomplishments of the past year and to provide a preview of research in the coming year. Our mission at the Center for Economic Studies (CES) is to undertake research and development activities that benefit the Census Bureau by creating new data products, discovering new ways to use existing Census products, and suggesting improvements to existing Census data products and processes. CES also facilitates the research of others through the Census Research Data Center (RDC) network, the Survey Sponsor Data Center (SSDC) network, in our role as the data repository for Census researchers, and as the archivist for Census business data. All of these activities either directly or indirectly enhance our understanding of the U.S. economy and its people.

This year's annual report has four chapters. The first and last chapters provide an overview of activities at CES ("News" and "Recent Research"). "Recent Research" demonstrates the breadth of CES research by summarizing six recent staff working papers. These papers explore such varied phenomena as productivity dynamics, trends in worker demographics, employer contributions to health insurance, the relationship between childhood housing and adult earnings, employment dynamics, and self-employment.

The second and third chapters provide in depth examples of our product development and research activities, respectively. The data product *OnTheMap for Emergency Management* (OTM-EM) is described by researchers Matthew Graham and Robert Pitts in Chapter 2. As its name suggests, OTM-EM provides information critical for managing responses to emergencies as varied as hurricanes, fires, and floods. Originally designed to provide information on the impact of emergencies on workforces, OTM-EM now provides information on both workers and residents. During Hurricane Sandy, OTM-EM provided information on the impact on commuters in the New York–New Jersey area. Meanwhile, in Chapter 3, one of CES's trade economists, C.J. Krizan, provides an overview of the international trade microdata available at CES and the RDCs and some of the research that has been done with these data. This research has taught us much about international trade and the nature of firms that engage in importing and exporting, yet there is still a vast array of insights to be gained from these data.

In addition to innovations in research and development, CES continues to provide expert research support. Research to improve Economic, Demographic, and Decennial programs at the Census Bureau depends critically on the data processing activities of our research support

*(Continued)*

# A MESSAGE FROM THE CHIEF ECONOMIST—Con.

staff. We also continue to improve and expand the Census Research Data Center network. By adding locations, we have increased accessibility to the research community. Equally important, CES has increased its efforts to host data from other federal statistical agencies at the RDCs.

In sum, it has been an exciting year as our research and development activities continue to help the Census Bureau meet its challenges in providing information about the U.S. economy and its people.

Over the coming year, we are looking forward to the completion of a development project led by Javier Miranda to add innovation and globalization measures to the Business Dynamics Statistics. The Census Bureau and the Bureau of Labor Statistics (BLS) recently received approval to work on a joint project developing micro-level measures of productivity. This research project will examine the feasibility of the BLS and Census jointly publishing a statistic on productivity dispersion. In the area of health economics, we are looking forward to further collaborations within Census, fostered by the creation of the Census Health Research Group cofounded by Alice Zawacki and Kristin McCue. Finally, we expect to produce job-to-job flows information from the Longitudinal Employer-Household Dynamics program.

Thank you to everyone who contributed to this report. Randy Becker compiled and edited all of the material in this report. Design services and editorial review were performed by Linda Chen of the Center for New Media and Promotions and Donna Gillis of the Public Information Office. Linda Chen produced the cover art. Other contributors are acknowledged on the inside cover.

*Lucia S. Foster*

Lucia S. Foster, Ph.D.
Chief Economist and Chief of the Center for Economic Studies

# Chapter 1.
## 2013 News

### EXPANSIONS AND IMPROVEMENTS TO THE RDC NETWORK

As it enters its third decade, the Research Data Center (RDC) network continues to thrive. At the close of 2013, the Center for Economic Studies (CES) was busy preparing for the opening of three new RDC locations in 2014, at the University of Southern California, Pennsylvania State University, and the University of California, Irvine. Once open, these three new locations will bring the total to 18.

The RDC system currently hosts over 550 researchers working on over 150 different projects. In 2013, 43 new RDC projects began. Of those, 19 use Census Bureau microdata (see Appendix 3-A), while 5 use data from the Agency for Healthcare Research and Quality and 23 use data from the National Center for Health Statistics (see Appendix 3-B).

Meanwhile, RDC researchers continue to be tremendously prolific, with at least 65 publications and another 80 working papers in 2013 (see Appendix 2). As the accompanying table shows, RDC-based research is being published in many of the best peer-reviewed journals. Recent and forthcoming articles appeared in 11 of the top 20 journals in economics, including several articles in the *American Economic Review, Econometrica,*

*Journal of Political Economy,* and *Quarterly Journal of Economics.*

RDC researchers include many graduate students working on their Ph.D. dissertations. Currently, there are about 60 such students from 19 different universities, including 50 who use Census microdata. Many of these doctoral candidates are eligible to apply to the CES Dissertation Mentorship Program. Program participants receive two principal benefits: one or more CES staff economists are assigned as mentors and advise the students on the use of Census Bureau microdata, and a visit to CES where they meet with staff economists and present research in progress. In 2013, CES accepted one new participant into the program and has had 20 since the program began in 2008.

The microdata available to researchers has also expanded. Among the notable releases are eight years of historic data from the Services Annual Survey and the 2012 American Community Survey 5-year file. See Appendix 5 for more details.

### PUBLICATIONS BY RDC RESEARCHERS AND CES STAFF: 2013 AND FORTHCOMING

| Economics journals (by rank) | | RDC researchers | CES staff | Total |
|---|---|---|---|---|
| AAA | (1–5) | 7 | 0 | 7 |
| AA | (6–20) | 13 | 5 | 18 |
| A | (21–102) | 12 | 4 | 16 |
| B | (103–258) | 11 | 7 | 18 |
| C | (259–562) | 6 | 5 | 11 |
| D | (563–1202) | 1 | 0 | 1 |
| **Journals outside of economics** | | 10 | 1 | 11 |
| **Book chapters** | | 5 | 3 | 8 |
| *TOTAL* | | 65 | 25 | 90 |

Note: Based on publications listed in Appendix 2, excluding working papers. Ranking of journals in economics is taken from Combes and Linnemer (2010). For the purposes here, the relatively new *American Economic Journals* are assumed to be A-level journals, as is the *Papers and Proceedings* issue of the *American Economic Review.* In a couple of other cases, a ranking was imputed using the journal ranking from RePEc.

## RELEASES OF PUBLIC-USE DATA

Updates and improvements to four CES data products were released in 2013. *Business Dynamics Statistics* and *Quarterly Workforce Indicators* provide information on labor markets. *OnTheMap* and *OnTheMap for Emergency Management* are mapping tools that provide information on labor markets and disaster events.

In July 2013, the Census Bureau released the 2011 **Business Dynamics Statistics** (BDS), which provides annual statistics on establishment openings and closings, firm startups and shutdowns, employment, job creation, and job destruction, from 1976 to 2011, by firm (or establishment) size, age, industrial sector, state, and metropolitan area status.

The latest statistics continue to show the disproportionate

relevance young firms play in the economy. Notably, young firms were especially affected by the recent collapse in home prices. States that experienced the biggest declines also experienced the largest declines in job creation.

To help visualize BDS statistics, the Census Bureau also launched the *Business Dynamics Statistics Visualization Tool*. The tool has three major components, including an interactive thematic map for the 50 states, interactive bar charts that give side-by-side

comparisons of states and business sectors, and time series data comparisons.

More information about the BDS can be found at <www.census .gov/ces/dataproducts/bds>. The BDS results from a collaboration between CES and the Ewing Marion Kauffman Foundation, with additional support from the U.S. Small Business Administration.

The **Quarterly Workforce Indicators** (QWI) are a set of economic indicators—including employment, job creation, earnings, worker turnover, and hires/separations—available by different levels of geography,

Examples of the *Business Dynamics Statistics Visualization Tool* in action.

industry, business characteristics (firm age and size), and worker demographics (age, sex, educational attainment, race, and ethnicity). In 2013, the Census Bureau launched the *LED Extraction Tool*. This easy-to-use interface allows users to extract and download only those QWI indicators (of the 32 available) and categorical variables (i.e., worker and firm characteristics, geography, year and quarter) they are interested in, rather than having to download the entire set of tables. To begin extracting and downloading comma-separated value (CSV) files, visit <ledextract.ces.census.gov>. More information about the QWI can be found at <lehd.ces.census.gov/data>.

CES staff continued to update and improve **OnTheMap**, with releases of versions 6.1.2 and 6.2 in 2013. *OnTheMap* is an award-winning online mapping and reporting application that shows where people work and where workers live. The easy-to-use interface allows the creation, viewing, printing, and downloading of workforce-related maps, profiles, and underlying data. An interactive map viewer displays workplace and residential distributions by user-defined geographies at census block-level detail. The application also provides companion reports on worker characteristics and firm characteristics, employment and residential area comparisons, worker flows, and commuting patterns. In *OnTheMap*, statistics can be generated for specific segments of the workforce, including age, earnings, sex, race, ethnicity, educational attainment, or industry groupings.

This year's releases of *OnTheMap* extended the underlying data through 2011 and introduced firm age and firm size as additional variables.

These new variables allow policymakers, academics, and economic development and transportation analysts to measure the economic impact of

## THE MANAGEMENT AND ORGANIZATIONAL PRACTICES SURVEY

How much does management matter for the success of a business? In January 2013, the Census Bureau released the results from its first-ever management survey, the Management and Organizational Practices Survey (MOPS). The MOPS represents a collaboration between Census Bureau staff—including CES staff—and researchers from Stanford University, the Massachusetts Institute of Technology (MIT), and the London School of Economics. The National Science Foundation also contributed to the collaboration via a grant to the research team.

A supplement to the 2010 Annual Survey of Manufactures (ASM), the MOPS collected data from more than 30,000 of the approximately 50,000 manufacturing plants in the ASM. Taken together, the MOPS and ASM provide information on manufacturing plants' inputs, outputs, and management and organizational practices, and they will be an important resource in assessing manufacturing plant performance, worker productivity, and the ability of plants to succeed in a highly competitive global economy.

Preliminary results from the first research paper using the MOPS were presented at the 2013 American Economic Association meetings. Bloom et al. (2013) focus on the management component of the MOPS and produce summary statistics from the new survey and conduct empirical exercises intended to provide validation of the survey results. The authors find that use of structured management practices varies across U.S. manufacturing establishments: 18 percent of establishments adopt at least 75 percent of structured management practices related to performance monitoring, targets, and incentives, while 27 percent of establishments adopt less than 50 percent of these practices. The authors also find that establishments adopting more management practices enjoy greater productivity, profits, output growth, exports, and innovation.

"Management in America" by Bloom, Brynjolfsson, Foster, Jarmin, Saporta-Eksten, and Van Reenen is available as Center for Economic Studies Discussion Paper #13-01. More on the Management and Organizational Practices Survey is available at <www.census.gov/mcd/mops>. The microdata from the MOPS are now available through the Research Data Centers.

young/old firms or small/large firms in relation to commuting patterns and worker characteristics. Other improvements include a complete redesign of the PDF report output, providing a publication-quality document with high-quality graphics. *OnTheMap* can be accessed at <onthemap.ces.census.gov>, and *OnTheMap Mobile* can be accessed at <onthemap.ces.census.gov/m/>.

In June, version 3.2.2 of **OnTheMap for Emergency Management** (OTM-EM) was released. First introduced in 2010, OTM-EM is an online data tool that provides unique, real-time information on the population and workforce for areas affected by hurricanes, floods, wildfires, winter storms, and federal disaster declaration areas. Through an intuitive interface, users can easily view the location and extent of current and forecasted emergency events on a map and retrieve detailed reports containing population and labor market characteristics for these areas. These reports provide the number of affected residents, by age, race, ethnicity, sex, and housing characteristics. The reports also provide the number and location of jobs, by industry, worker age, earnings, and other worker characteristics. To provide users with the latest information on rapidly changing events, OTM-EM automatically incorporates real-time data updates from the National Weather Service, Departments of Interior and Agriculture, and the Federal Emergency Management Agency. See Chapter 2 of this report for a more detailed

overview of OTM-EM. Among the improvements in the latest release are updated workforce data (through 2011), updated Census geography, and more detailed weather event map displays and reporting. *OnTheMap for Emergency Management* version 3.0 can be accessed at <onthemap.ces.census.gov/em.html>.

Both *OnTheMap* and *OnTheMap for Emergency Management* are supported by the state partners under the Local Employment Dynamics (LED) partnership with the Census Bureau as well as the Employment and Training Administration of the U.S. Department of Labor.

## RDC ANNUAL RESEARCH CONFERENCE

The RDC Annual Research Conference showcases research from current or recent projects carried out in a Research Data Center (RDC) or at CES. This year, the conference was held on September 17 at the Federal Reserve Bank of Atlanta, home of the Atlanta Census RDC. The day featured 21 papers in six sessions, on themes that included international topics, health and health insurance, labor demand and supply, new firms' birth and growth, topics in race and ethnicity, and determinants of long-term individual outcomes. Mark Doms, Under Secretary for Economic Affairs at the Department of Commerce, opened the conference with a keynote on the value of government data, noting their unique advantages of comprehensiveness, transparency, consistency, availability, and confidentiality.

The lunchtime keynote address was given by Martha Bailey, associate professor of economics at the University of Michigan, who discussed the use of restricted data to understand the effects of early childhood interventions, focusing on the role of family planning. The next conference will be held at the Census Bureau on June 12, 2014.

## LOCAL EMPLOYMENT DYNAMICS (LED) PARTNERSHIP WORKSHOP

The 2013 LED Partnership Workshop was held at the Census Bureau on June 12–13, 2013. Now in its fourteenth year, this workshop has been a key component in strengthening the voluntary partnership between the Census Bureau and the states. The workshop brings together key stakeholders, including state Labor Market Information directors, data analysts and data providers at state and federal agencies, nonprofit organizations, businesses, and other data users of LED data products, to discuss the latest products enhancements, to discover how their peers are using the data, and to learn about the research that will shape future improvements.

The theme for this year's workshop was "Working Together." Topics addressed by invited speakers, state partners, and data users included local labor markets, commuting, and urban geography. Staff from CES's Longitudinal Employer-Household Dynamics (LEHD) program discussed

## 12TH CONFERENCE ON THE COMPARATIVE ANALYSIS OF ENTERPRISE DATA

The 12th Conference on the Comparative Analysis of Enterprise Data (CAED) was held in Atlanta on September 18–20, 2013. Since the first one in Helsinki in 1996, the aim of CAED conferences has been to promote research using business microdata. This was the second CAED to be held in the United States and the second in which CES played a central role in organizing. The Federal Reserve Bank of Atlanta hosted the conference.

The conference program included 78 papers, organized into 27 themed sessions over three days. Participants came from 16 different countries. CES staff were well-represented on the program with over a dozen papers. Two distinguished keynote speakers addressed the conference. Steven Davis of The University of Chicago spoke on private equity, jobs, and productivity. Kathryn Shaw of Stanford University discussed empirical studies of the effects of management practices on worker productivity. The next CAED conference will likely be in 2015.

newly available data and enhancements to data applications, including QWI 4.0, LODES/OnTheMap, OnTheMap for Emergency Management, the LED Extraction Tool, and QWI Explorer. CES staff also presented some recent research in a session devoted to trends in employment dynamics. Presentations for the 2013 workshop (and those from previous years) can be found at <lehd.ces.census.gov/learning/#workshop>.

Opening the workshop were keynote speakers Nancy Potok, Deputy Director of the Census Bureau, and Erica Groshen, Commissioner of the Bureau of Labor Statistics, who spoke about labor market conditions. Over 160 people attended the workshop, including representatives from 42 states.

The 2014 LED Partnership Workshop will be held on September 9 and 10.

## JOHN HALTIWANGER HONORED

John Haltiwanger, Distinguished University Professor of Economics at the University of Maryland and long-time associate of the Center for Economic Studies, received the 2013 Julius Shiskin Memorial Award for Economic Statistics. The award recognizes unusually original and important contributions in the development of economic statistics and in the use of statistics in interpreting the economy. The Shiskin Award was established in 1980 by the Washington Statistical Society and is now cosponsored with the National Association for Business Economics and the Business and Economics Statistics Section of the American Statistical Association. Maurine Haver, president and founder of Haver Analytics Inc., was a corecipient of this year's award.

The award committee cited Haltiwanger's leading role in developing longitudinal databases at the Census Bureau and in using those databases to develop measurement methodologies that are now widely used to quantify the contribution of firm dynamics to aggregate productivity, investment, and employment growth. The gross job creation and job destruction methodologies developed by Haltiwanger (with Steve Davis) in the late 1980s and early 1990s have become a standard for statistical agencies around the world. In the United States, CES's Business Dynamics Statistics and the Bureau of Labor Statistics' Business Employment Dynamics

He serves on the executive committee of the Conference on Research in Income and Wealth (CRIW), has coedited two CRIW volumes, and has contributed articles to NBER/CRIW volumes on the measurement of capital, productivity, firm dynamics, and labor markets. In addition, he was a member of the Committee on National Statistics (CNSTAT) of the National Academies of Science from 2004–2010, served on the steering committee for a CNSTAT workshop on benefits of interagency business data sharing, and coedited its 2007 report on business dynamics.

Haltiwanger began his association with CES in 1987 as a research associate. He became the Census Bureau's first Chief Economist in 1996, and led CES from 1997 to 1999. He has continued his association with CES since then, first as a research associate and currently as a senior research fellow for the Longitudinal Employer-Household Dynamics (LEHD) program.

program both rely heavily on these methods. To develop similar measures for other countries, Haltiwanger worked with the OECD, World Bank, Inter-American Development Bank, and the Conference Board.

Haltiwanger has coauthored or coedited six books and more than 100 peer-reviewed articles in scientific journals and books, many of which used Census Bureau microdata. He has also supervised more than 60 dissertations, many of which also used Census Bureau microdata. The award committee also noted his many contributions to economic measurement and the federal statistical system.

He has been a member of the Federal Economics Statistics Advisory Committee since 2000.



*John Haltiwanger (left) and Bob Parker, chair of the Julius Shiskin Memorial Award Committee.*

# Chapter 2.
# Providing Key Insights When Disaster Strikes: OnTheMap for Emergency Management

*Matthew R. Graham and Robert Pitts, Center for Economic Studies*

Americans are increasingly living and working in areas affected by a variety of natural disasters, and the economic impact of such events may be on the rise.[1]

To better enable planning, response, and recovery activities, emergency managers and others who work on the complex issues associated with these rapidly changing events need timely access to detailed information about affected populations and workforces. Such information ranges from the number and location of people living and working within affected areas to the demographic characteristics of affected groups and the sectors of the economy impacted.

Historically, answering such questions has been a challenge due to the disparate nature of social and economic data on the one hand and weather and natural hazard data on the other. More challenging still has been satisfying the demand of many emergency managers to receive this information in "real time" as fast-moving disaster events change location and intensity.

## A TIMELY AND FLEXIBLE SOLUTION

To satisfy the need for data during emergency events, such as hurricanes, floods, and wildfires, the Longitudinal Employer-Household Dynamics (LEHD) program of the Center for Economic Studies (CES) has developed an innovative tool called *OnTheMap for Emergency Management*, available at <onthemap.ces.census.gov /em.html>. This public, Web-based application provides an intuitive interface to access tabulations of relevant demographic and economic data for individual emergency events.

The innovative application automatically incorporates real-time weather and hazard event data from various authoritative federal sources (see Table 2-1) into a single searchable archive and map display, for rapid access, visualization, and reporting.

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[1] See, for example, National Climatic Data Center (2014), Smith and Katz (2013), and Ross and Lott (2003).

Table 2-1.
## Emergency Events and Source Agencies

| Event | Source | Details |
|-------|--------|---------|
| Hurricanes | National Weather Service's National Hurricane Center (NHC) | Hurricane and tropical storm data are updated up to six times daily from the NHC and include forecasted, current, and historical storm areas. |
| Flooding and winter storms | National Weather Service's Hydrometeorological Prediction Center (HPC) | Significant flooding, snowfall, and freezing rain data are updated daily by the HPC and include areas with a high likelihood of impact within the forecast period. |
| Wildfires | Geospatial Multi-Agency Coordination Group (GeoMAC) | Wildfire data is supplied daily by the GeoMAC, a consortium of wildfire organizations including the Department of Interior and Department of Agriculture. The data includes wildfire perimeters which measure the areas burned to date. |
| Disaster declaration areas | Federal Emergency Management Agency (FEMA) | Federal disaster declaration areas are updated daily by FEMA. |

This geographic information is then automatically integrated with a select set of population and housing variables from the Census Bureau's 2010 Decennial Census (Summary File 1) and workforce data from the LEHD Origin Destination Employment Statistics (LODES) database.

*OnTheMap for Emergency Management* makes it easy for users to choose and view the location and extent of past, current, and forecasted natural hazards on a map and to see detailed reports containing selected population, workforce, and housing characteristics for affected areas. For an example, see Figure 2-1.

## RESPONDING TO EMERGENCIES

*OnTheMap for Emergency Management* is organized into (1) a map for visualizing the location and extent of disaster events and affected residents and workers, and (2) a control panel with tools for searching for, selecting, customizing, viewing, and exporting events and their associated tabulations. With the simple choice of an event from the map, users can quickly access a series of report templates containing detailed statistics about the local population, housing, and workforce as well as view thematic maps showing the density and distribution of residents and workers for the affected area. Ease of access is emphasized, so users do not need to have emergency management or Geographic Information System (GIS) expertise in order to access these reports and to uncover useful statistics about an event.

Figure 2-1.
### A Report Generated by *OnTheMap for Emergency Management*

**Population**

**Potentially Affected Population**

| | 2010 Count | Share |
|---|---|---|
| Total | 71,760,434 | 100.0% |

**Population by Age**

| | 2010 Count | Share |
|---|---|---|
| Under 18 | 16,375,088 | 22.8% |
| 18 and over | 55,385,346 | 77.2% |
| 20 - 24 | 4,970,646 | 6.9% |
| 25 - 34 | 9,419,405 | 13.1% |
| 35 - 49 | 15,337,756 | 21.4% |
| 50 - 64 | 14,021,232 | 19.5% |
| 65 and above | 9,569,247 | 13.3% |

**Population by Race**

| | 2010 Count | Share |
|---|---|---|
| White | 49,868,408 | 69.5% |
| African American | 11,924,439 | 16.6% |
| Asian | 3,935,553 | 5.5% |
| AIAN | 346,796 | 0.5% |
| NHPI | 34,316 | 0.0% |
| Some Other Race | 3,737,111 | 5.2% |
| Two or More Races | 1,913,811 | 2.7% |

**Population by Ethnicity**

| | 2010 Count | Share |
|---|---|---|
| Hispanic or Latino | 8,773,218 | 12.2% |
| Not Hispanic or Latino | 62,987,216 | 87.8% |

**Population by Sex**

| | 2010 Count | Share |
|---|---|---|
| Male | 34,854,449 | 48.6% |
| Female | 36,905,985 | 51.4% |

**Housing Units**

| | 2010 Count | Share |
|---|---|---|
| Total Housing | 30,500,112 | 100.0% |
| Vacant | 3,155,139 | 10.3% |
| Occupied | 27,344,973 | 89.7% |

**Occupied Housing Units**

| | 2010 Count | Share |
|---|---|---|
| Occupied | 27,344,973 | 100.0% |
| Owner-Occupied | 17,209,972 | 62.9% |
| Renter-Occupied | 10,135,001 | 37.1% |

**Vacant Housing Units**

| | 2010 Count | Share |
|---|---|---|
| Vacant | 3,155,139 | 100.0% |
| For Rent | 824,527 | 26.1% |
| For Sale | 362,819 | 11.5% |
| Occasional Use | 1,137,358 | 36.0% |

**Population by Housing**

| | 2010 Count | Share |
|---|---|---|
| Owner Occupied Population | 45,694,935 | 63.7% |
| Renter Occupied Population | 23,999,107 | 33.4% |

**Workforce**

**All Potentially Affected Workers**

| | 2010 Count | Share |
|---|---|---|
| Total | 25,903,062 | 100.0% |

**Workers by Worker Age**

| | 2010 Count | Share |
|---|---|---|
| Age 29 or younger | 5,774,996 | 22.3% |
| Age 30 to 54 | 14,879,887 | 57.4% |
| Age 55 or older | 5,248,179 | 20.3% |

**Workers by Earnings**

| | 2010 Count | Share |
|---|---|---|
| $1,250 per month or less | 5,021,522 | 19.4% |
| $1,251 to $3,333 per month | 8,834,436 | 34.1% |
| More than $3,333 per month | 12,047,104 | 46.5% |

**Workers by NAICS Industry Sector**

| | 2010 Count | Share |
|---|---|---|
| Agriculture, Forestry, Fishing and Hunting | 81,516 | 0.3% |
| Mining, Quarrying, and Oil and Gas Extraction | 23,961 | 0.1% |
| Utilities | 136,408 | 0.5% |
| Construction | 1,073,974 | 4.1% |
| Manufacturing | 2,043,695 | 7.9% |
| Wholesale Trade | 1,127,708 | 4.4% |
| Retail Trade | 2,794,541 | 10.8% |
| Transportation and Warehousing | 877,997 | 3.4% |
| Information | 663,577 | 2.6% |
| Finance and Insurance | 1,393,256 | 5.4% |
| Real Estate and Rental and Leasing | 433,391 | 1.7% |
| Professional, Scientific, and Technical Services | 2,027,568 | 7.8% |
| Management of Companies and Enterprises | 488,735 | 1.9% |
| Administration & Support, Waste Management and Remedial | 1,337,919 | 5.2% |
| Educational Services | 2,730,876 | 10.5% |
| Health Care and Social Assistance | 3,938,198 | 15.2% |
| Arts, Entertainment, and Recreation | 391,272 | 1.5% |
| Accommodation and Food Services | 1,875,018 | 7.2% |
| Other Services (excluding Public Administration) | 898,344 | 3.5% |
| Public Administration | 1,565,108 | 6.0% |

**Workers by Worker Educational Attainment**

| | 2010 Count | Share |
|---|---|---|
| Less than high school | 2,035,777 | 7.9% |
| High school or equivalent, no college | 4,982,304 | 19.2% |
| Some college or Associate degree | 6,052,331 | 23.4% |
| Bachelor's degree or advanced degree | 7,057,654 | 27.2% |

**Workers by Worker Race**

| | 2010 Count | Share |
|---|---|---|
| White Alone | 19,878,654 | 76.7% |
| Black or African American Alone | 4,174,550 | 16.1% |
| American Indian or Alaska Native Alone | 121,519 | 0.5% |
| Asian Alone | 1,409,756 | 5.4% |
| Native Hawaiian or Other Pacific Islander Alone | 29,800 | 0.1% |
| Two or More Race Groups | 288,783 | 1.1% |

**Workers by Inflow/Outflow Job Counts**

| | 2010 Count | Share |
|---|---|---|
| Employed in the Event Area | 25,903,062 | - |
| Employed in the Event Area but Living Outside | 602,440 | - |
| Employed and Living in the Event Area | 25,300,622 | - |
| Living in the Event Area | 25,852,467 | - |
| Living in the Event Area but Employed Outside | 551,845 | - |
| Employed and Living in the Event Area | 25,300,622 | - |

Figure 2-2 shows *OnTheMap for Emergency Management* on October 25, 2012, when a variety of natural hazard events, including hurricanes, wildfires, disaster declarations, and winter storms, were affecting different communities across the continental United States. Hurricane Sandy is clearly visible off the east coast of Florida, moving north.

Figure 2-3 shows the tool providing an estimate of the number of people being potentially affected by Hurricane Sandy as it was making landfall along the mid-Atlantic states four days

Figure 2-2.
**The *OnTheMap for Emergency Management* Interface**
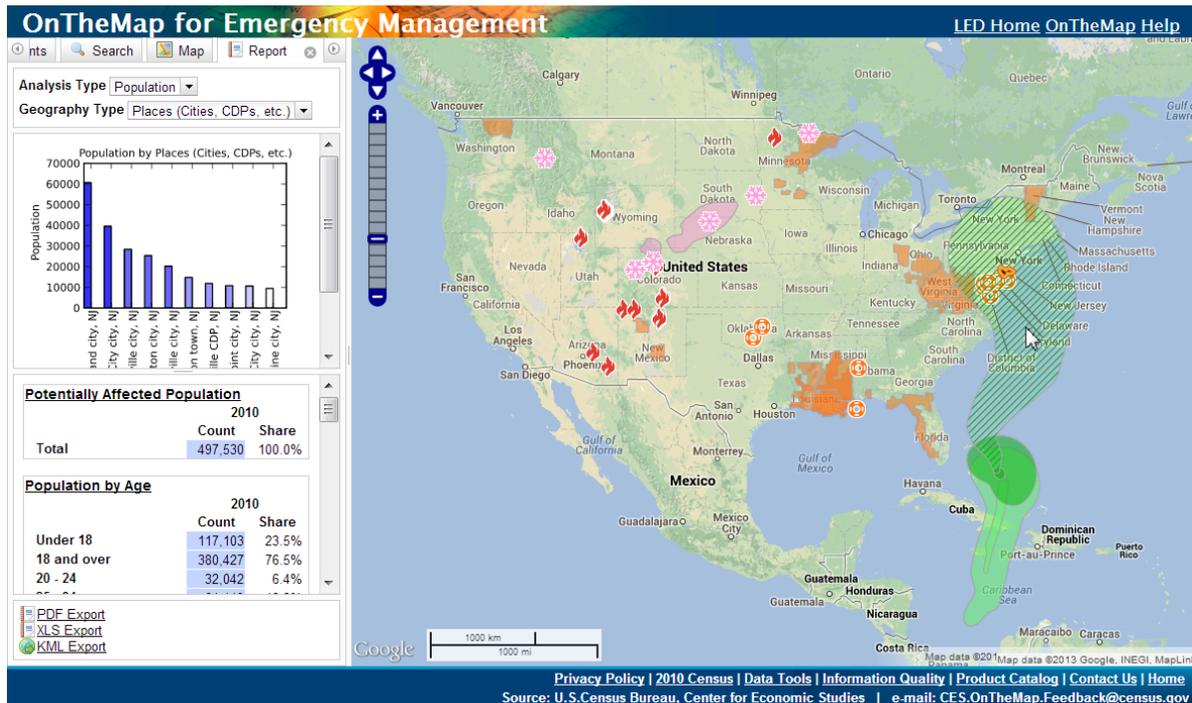


Figure 2-3.
**Hurricane Sandy in *OnTheMap for Emergency Management***
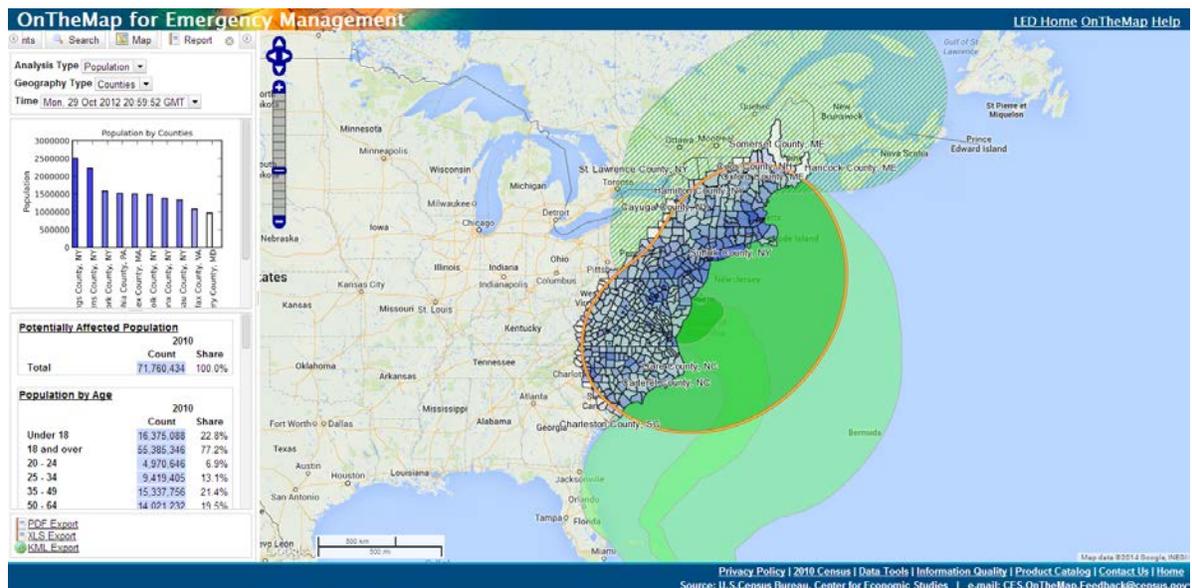
later. In this example, various population statistics tabulated by county are provided for the area being impacted by high winds (outlined in orange). The report shows over 71 million people residing within the affected area while the thematic map provides a visualization of their relative density and distribution by county. Other report templates give additional detail about this area's demographic, housing, and workforce characteristics.

To provide users flexibility in reporting and visualization, each analysis option provides tabulations at different geographies, including place (cities, towns, Census Designated Places, etc.), county, census tract, and state levels. These report templates allow users to address key questions such as:

- How many residents and workers were potentially affected by an event?

- Where are they located?

- What are the demographic characteristics of potentially affected residents and workers?

- What types of industries are located within the affected event area?

- Where do workers live who work in the affected area?

In the case of Hurricane Sandy, the New Jersey State Data Center (NJSDC) used *OnTheMap for Emergency Management* to quickly learn the scope of federal Disaster Declaration Areas, identify affected communities, and generate population and

workforce reports. The NJSDC worked with CES staff to assemble a standardized workflow to produce maps and tabulations that would be useful to local communities recovering from the storm. Some of the outputs of this collaboration can be seen at <lwd.dol.state.nj.us/labor/lpa/sandy/Sandy_index.html>.

## FUTURE IMPROVEMENTS

*OnTheMap for Emergency Management* will continue to undergo enhancements in the coming years. There are plans to integrate additional disaster and statistical data sources as well as to improve the application's functionality, ease of use, and performance for users while maintaining its simple and efficient framework.

***Additional disaster types covered.*** In the future, other disaster/emergency event data sources may be integrated into *OnTheMap for Emergency Management*, beyond the current set (hurricanes, wildfires, floods, disaster areas, and winter storms), including earthquakes, drought areas, and tornadoes, among others. Each new emergency event source brings a variety of challenges that include ensuring practical utility (with clear boundary definitions that are appropriate for the statistical data) as well as reliable access for automation, in order to discover, process, and present events in an easily searchable and usable way. Text Box 2-1 outlines a number of these requirements in further detail.

***Additional demographic data.*** When *OnTheMap for Emergency Management* was initially built, it contained only workforce information. In 2013, selected population and housing statistics from the 2010 Decennial Census were added to the application. Since these data were all released at the block level, integration was relatively easy.

In 2014, similar expansion is planned to include demographic and housing data from the American Community Survey (ACS) 2008–2012 5-year estimates, which will add more current and more detailed demographics. This addition requires further work of geographic integration and special consideration for the issue of geographic scale (discussed in Text Box 2-1) as the highest resolution ACS data are released at the census-block-group level. Additionally, *OnTheMap for Emergency Management* will include margins of error for ACS tabulations. Derived margins of error for aggregate areas will also be developed. This will allow users to compare statistics more accurately.

The integration challenges that we expect to overcome for the ACS data in 2014 should pave the way for the development of a more universal plan for integrating other datasets in the future. Additionally, by accessing these data through the Census Bureau's DataWeb API, we are streamlining the access for any future datasets that are also available from this source.

## REQUIREMENTS FOR EMERGENCY EVENT SOURCES

### Clear Event Definition

Emergency event areas need to be well-defined, both in space and meaning. Even though a hurricane covers a large area with variable impact, the event area definition utilized in *OnTheMap for Emergency Management* is clearly defined and demarcated by the National Hurricane Center.

### Scale Compatibility

Some types of emergency events cannot be integrated with statistical datasets because of incompatible geographic resolutions (e.g., county-level data would not be appropriate or useful for an event defined by a few city blocks). Therefore, the smallest geographic reporting units of the statistical data should be significantly smaller than the emergency event area.

### Data Access

Event datasets must be available in the public domain from a reliable and automated source so that *OnTheMap for Emergency Management* is able to discover, access, and manipulate these geographic data. Data sources that do not have standardized formats, consistent structures and schemas, or stable and reliable release procedures cannot be integrated into *OnTheMap for Emergency Management* in an automated fashion.

### Identifiability

Emergency events should be identifiable by users—preferably with a publicly-known name or widely understood standard-ized ID—within both the set of all similar events as well as the time domain. That is, a single event of interest (e.g., a hurricane) should be differentiable from all other events of the same type using a characteristic *other than geographic location*. Hurricanes, with official names that are seldom reused, are good examples. Having such an identifier makes the set of events easily searchable, which improves overall usability.

### Organizability

Events should be able to be organized and capable of being tracked as they may evolve through time. If an event cannot be linked from one time period to the next, then some of the important functionality of the application will be lost, such as the ability to easily track through time the potentially affected population.

This continued integration and dissemination of Census Bureau datasets will further enhance *OnTheMap for Emergency Management* as a broad economic and demographic tool for understanding potential impacts of emergency events.

***New report types.*** Also under development are a redesigned set of reports. The new designs will simplify data tabulations and make it easier for users to access specific variables of need. The highlights of each dataset will be presented within the context of emergency planning and preparedness and economic recovery. Within this set of reports, not all variables from the source datasets will be shown. Input from users on future improvement to the reports is always welcome by the development team.

***Accessibility and usability enhancements.*** A consistent priority of development for the *OnTheMap for Emergency Management* team is ensuring the tool is easily accessible and usable for the public. As Web programming technology and best practices change and improve, and with feedback from users, the application will be changed and improved. Since the beginning, *OnTheMap for Emergency Management* was designed to give users quick and easy access to tabulations of relevant social and economic data for emergency events, and this will continue to be its primary goal.

***Developing new geo-statistical techniques.*** Combining disparate statistical and geographic data sources accurately for practical use is a nontrivial problem. Initially, *OnTheMap for Emergency Management* (and *OnTheMap* before it) glossed over this issue by tabulating very small units of data (census blocks) relative to the event areas. Here, census

blocks were either in or out of the analysis area, and a single block was assumed to have little marginal effect on the statistics for large events. Also, block-level errors were not tabulated in the public-use applications. As new and differently structured statistical datasets have been added, there has been more incentive to explicitly address the issues of arbitrary tabulation areas.

Specifically, when considering a set of estimates like those from the ACS, in which the margins of error are relatively smaller for bigger geographies, it is beneficial to construct statistical aggregations from the largest areas possible. Thus, the application must take an arbitrary event (e.g., hurricane or flood area) and select the best combination of standard geographic areas for which published statistics exist. This is defined as the set that produces the lowest overall margin of error. So, in practice, an event boundary could be a combination of states, counties, tracts, and so forth depending upon what geographic units have been published in a given statistical data source.

Automating this process through the use of Web technologies (including the choices about whether areas on the very edge of an event are in or out) is a new and developing geo-statistical technique. The applicability of this functionality is not limited to *OnTheMap for Emergency Management* or even to the specific data sources currently available in the application. It applies to any case in which real world analysis areas (i.e., areas that conform more to physical geography than statistical/political geography) are mixed with complex sets of public-use data. While a special tabulation of the underlying (confidential) microdata would provide significantly better data quality and smaller errors, these are not readily produced due to constrained resources, and the public-use methodology may be the best that we can offer to a wide audience.

## CONCLUSION

To meet the growing public need for timely access to detailed statistics describing the local population and workforce affected by natural hazards, the *OnTheMap for Emergency Management* application offers a unique service. From a single intuitive Web-based tool, users can quickly view current and past hazard events across the United States (including hurricanes, floods, wildfires, winter storms, and federal disaster declaration areas), generate a series of reports and thematic maps, and export data in several formats for use in other applications. To handle rapidly changing event areas, the tool automatically incorporates real-time data updates from authoritative federal sources and provides a simple and efficient way of determining the number and location of people living and working within affected areas and identifying impact to various demographic groups and sectors of the economy.

As data sources change and user needs evolve over time, the application will adapt to serve a wide range of uses for statistical, economic, and demographic data during emergency events.

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## *ONTHEMAP FOR EMERGENCY MANAGEMENT*: INNOVATIONS AND BENEFITS

*OnTheMap for Emergency Management* grew out the highly acclaimed application *OnTheMap,* which allows users to explore the spatial distributions of workers' employment locations and residences and the connections between the two. In 2010, the *OnTheMap* developers were recognized by the Secretary of Commerce with a Gold Medal Award for Scientific and Engineering Achievement. First launched in 2010, *OnTheMap for Emergency Management* continues this legacy. It too represents innovative use and dissemination of data that benefit the public by:

- Adding value—by providing a public archive of emergency events along with a new service that integrates social and economic data with the events;
- Improving efficiency—through automation, intra- and inter-agency public data sharing, and standardized data integration; and
- Expanding data use—from making the data and tools easier to access for a wider range of users, including novices and those just browsing.

Here, we highlight some of the main innovations of *OnTheMap for Emergency Management*:

### Emergency Event Archive
At the core of the *OnTheMap for Emergency Management* system is the live database of emergency event areas. This database is a consistent, standardized, single point of access for frequently requested emergency events. By adhering to a standard set of rules (see Text Box 2-1), other event types can be added to this database in the future and made available to users at a relatively small development cost.

### Lower Costs, Greater Efficiency, and Wider Access
*OnTheMap for Emergency Management* initially was developed as a response to the increasing number of requests for tabulations of the LEHD Origin Destination Employment Statistics (LODES) data for emergency events. Each request required a GIS analyst to gather various data sources (event geography and workforce and demographic data), perform a series of geographic data processing steps, and manually construct an *ad hoc* report.

By automating the access to disparate geographic and statistical data, defining a standard set of rules for their integration, and tabulating to a standard set of reports via a public Web-based interface, the cost of constructing a single query for a single event shrinks to near zero. This makes dissemination consistent and very efficient. Because creation of the reports is automated and made available through an online archive, many more users are now able to access and make use of the data than was previously possible. In addition, the tool's use of standardized methods allows events and their potential effects to be compared over time and across data sources.

### Real Time Tabulation and Reporting
Automation of the tabulation and report process allows the application to take advantage of real-time access to live data feeds from the various federal agencies that supply information (see Table 2-1). Data feeds are queried every six hours, and a full set of reports is pretabulated for the emergency event area boundaries from those feeds. Whereas manual tabulations can require anywhere from several hours to several days to complete depending upon the study parameters and available resources, the automated method utilized by the application allows users to access the results in near real time (at most six hours of delay) and at any time of the day, regardless of the availability of staff resources.

### Ease of Use
Significant effort is focused on making sure *OnTheMap for Emergency Management* is easy to learn and to use for novice users, as well as making it consistent, reliable, and function-rich for returning advanced users.

# Chapter 3.
# Mining the Potential of International Trade Microdata

*C.J. Krizan, Center for Economic Studies*

International trade is a vital metric of the U.S. economy, and trade statistics, along with inflation and unemployment, are some of the most widely cited economic indicators. Trade measures are critical inputs into Bureau of Economic Analysis' (BEA) national accounts, estimates of GDP, and U.S. balance of payments statistics. Moreover, many businesses and trade associations use these statistics to find new markets and suppliers and to monitor existing ones.

This chapter describes the trade transaction microdata that underlie both the aggregate import and export statistics released to the public as well as the Longitudinal Foreign Trade Transaction Database (LFTTD) created by the Center for Economic Studies (CES). The chapter also discusses findings from research that have used the LFFTD as well as some ongoing, innovative efforts with these data by CES.

The trade microdata at CES have been used in many widely cited research papers, expanding our understanding of both the trading process and the nature of the firms that engage in international trade. Yet much more can be learned. Researchers have barely scraped the surface of the possibilities presented by these data, and many new avenues of investigation remain virtually unexamined.

## THE SOURCES

Whenever a good is imported or exported, the responsible business must complete a customs declaration form, which includes the Employer Identification Number (EIN) of the business, the Harmonized System (HS) code of the good, the value of the transaction, quantity, weight, date, and the country of origin/destination. Text Box 3-1 describes the case of a hypothetical importer.

The data from these customs forms are then used to produce aggregate trade statistics. In particular, the Census Bureau's Foreign Trade Division (FTD), with assistance from U.S. Customs and Border Patrol and the BEA, aggregates the data to provide detailed statistics on the shipment of goods into and out of the United States.[1] These statistics are reported on an annual or monthly basis by a number of categories including HS code, port, state of origin of movement, and country of

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[1] Shipments must meet a minimum cutoff value of $2,500 for exports and $2,000 for imports.

Text Box 3-1.
## A HYPOTHETICAL IMPORTER AND "FACTORYLESS" MANUFACTURER

A number of recent papers have documented an increasingly important trend among U.S. firms to break apart their activities into components that can be outsourced to other firms (e.g., Fort 2013, Kamal et al. 2013). When a company retains all entrepreneurial aspects of its business (e.g., product development, supply chain development, advertising, sales) but outsources the physical transformation of its goods, it becomes a "factoryless" manufacturer. To illustrate this phenomenon, and some of the details involved in importing, let us consider the hypothetical case of a small domestic toy company with plans for a new product.

One of the easiest and increasingly common ways for a company with a new design to find a manufacturer is through an online search engine. For example, Thomasnet.com specializes in U.S. contract manufacturing, while Alibaba.com and Hong Kong Traders Direct focus on foreign producers, particularly those in China. A search on "toys" yields 70 potential domestic matches from Thomasnet.com, while Alibaba.com yields over 7,000 potential matches in China. While a factoryless

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manufacturer need not be an importer, the much larger number of overseas options often means they are.

The toy company narrows the pool of prospective factories to a small set of overseas factories that make goods similar to their new design. The firm can require that these prospective factories have third-party certification of their business licenses and production capabilities. Such services are provided by both Alibaba.com and Bureau Veritas. Another step for the firm may be to contract with a U.S. factory specializing in rapid prototyping, so that it can provide the prospective foreign suppliers with physical examples of the toy. According to Thomasnet, there are about 5,000 domestic factories that can supply such a prototype.

The firm then requests quotes from their candidate factories as well as samples of goods they currently produce. The samples help the toy company gauge the quality of these factories' production, and the quotations include information such as the price per unit, production lead time, and the minimum order quantity. After weighing all of this information, as well as intangibles such as the responsiveness of the manufacturer, the toy company chooses its supplier.

Next, both parties agree on the terms of the sale, including quantity, currency, price, terms of shipment, and delivery date. All of this information is contained in a commercial invoice that the two parties sign. For small businesses such as these, this is something of a formality, as most small- and medium-sized companies would find the process of contract enforcement in a foreign legal system daunting if not impossible. Trust and relationship building are a very important part of the international trading process (Spiers 2001).

For production to begin, the importer usually pays a deposit, often between 30–50 percent, which the manufacturer often uses to cover the costs of material inputs. When the order is finally ready, the balance is paid and the exporter delivers the goods to the importer.

While there are several ways that delivery can be arranged ("Incoterms"), the most common is "Free on Board" (FOB), which means that the supplier agrees to arrange for the transport of the goods onto the ship and the buyer is responsible for transporting the goods to the final destination. While it is possible for the supplier to arrange for transport to the toy company's warehouse, importers generally prefer to be in charge of their own transport costs and schedules, since their interests during the trip and those of the exporter may differ.

To get the finished goods into the United States, the toy company hires a freight forwarder and customs agent. While these are often the same firm, freight forwarders arrange shipment and customs brokers fill out the required documentation and ensure that applicable laws are followed. The information collected by the U.S. Customs Bureau includes such things as the toy company's Employment Identification Number (EIN), the Harmonized System (HS) code of the particular toy, the value of the shipment, quantity, weight, shipment date, country of origin, arrival date, port of entry, and an identifier for the foreign manufacturer. Of these, the HS code is perhaps the most important since both import restrictions and tariff rates are based on the type of goods being traded. In general, since the import documentation is used both for law enforcement and tax purposes, and violation of either can have serious consequences for the parties involved, the information on the forms is believed to be of high quality.

Finally, the toys are delivered to the toy company's warehouse, and the firm can begin the process of marketing and selling its goods.

origin/destination.[2] Some of the best-known reports produced with these data include: U.S. International Trade in Goods and Services, U.S. Exports [Imports] of Merchandise—Monthly, U.S. Exports [Imports] by State, and U.S. Exports [Imports] by Port.

## DELVING DEEPER

While these aggregate trade statistics are very valuable, the microdata from the declaration forms can provide a deeper understanding of international trade and the firms responsible for it. The LFTTD, created by CES, is a unique database that links individual trade

transactions to the U.S. firms that undertake them. That is, it links export transactions to the U.S. exporter and import transactions to the U.S. importer, allowing researchers to explore the nature of trade growth and describe the kinds of firms that drive it. The LFTTD is constructed by matching the transaction-level data to the Census Bureau's file of the universe of businesses (Census' Business Register). The LFTTD links export transactions to the U.S. exporter and import trans-actions to the U.S. importer. With a common firm identifier, the LFTTD can be further combined with other Census data, including the Longitudinal Business Database (LBD), the Economic Censuses, and other business

surveys.[3] For further details on the LFTTD, see the appendix to Bernard et al. (2009).

As the only data that allow investigators to explore the firm-level dynamics of trade, the LFTTD has been the basis for a large number of important papers. Bernard et al. (2009) use the LFTTD to describe multiple attributes of firm-level engagement in international trade. Figure 3-1 shows that only a very small share of firms

[2] The origin of movement is the location from which the goods start the journey to the port of export. This may be the factory that produced the goods or an intermediary's warehouse located away from the factory.

[3] Another source of data on interna-tional activity is the Economic Census itself. In particular, the Censuses of Manufactures, Wholesale, and Retail Trade each ask businesses whether they are exporters and what share of total sales are exports. A more recent addition to the Economic Census is a series of questions on outsourcing activity, either domestic or foreign. Several recent research papers have begun to exploit this information, to examine both outsourcing and offshoring activities and their effects on firm perfor-mance measures (e.g., Fort 2013).

Figure 3-1.
### Firms Engaged in Trade, 2000



Source: Derived from Bernard, et al. (2009).
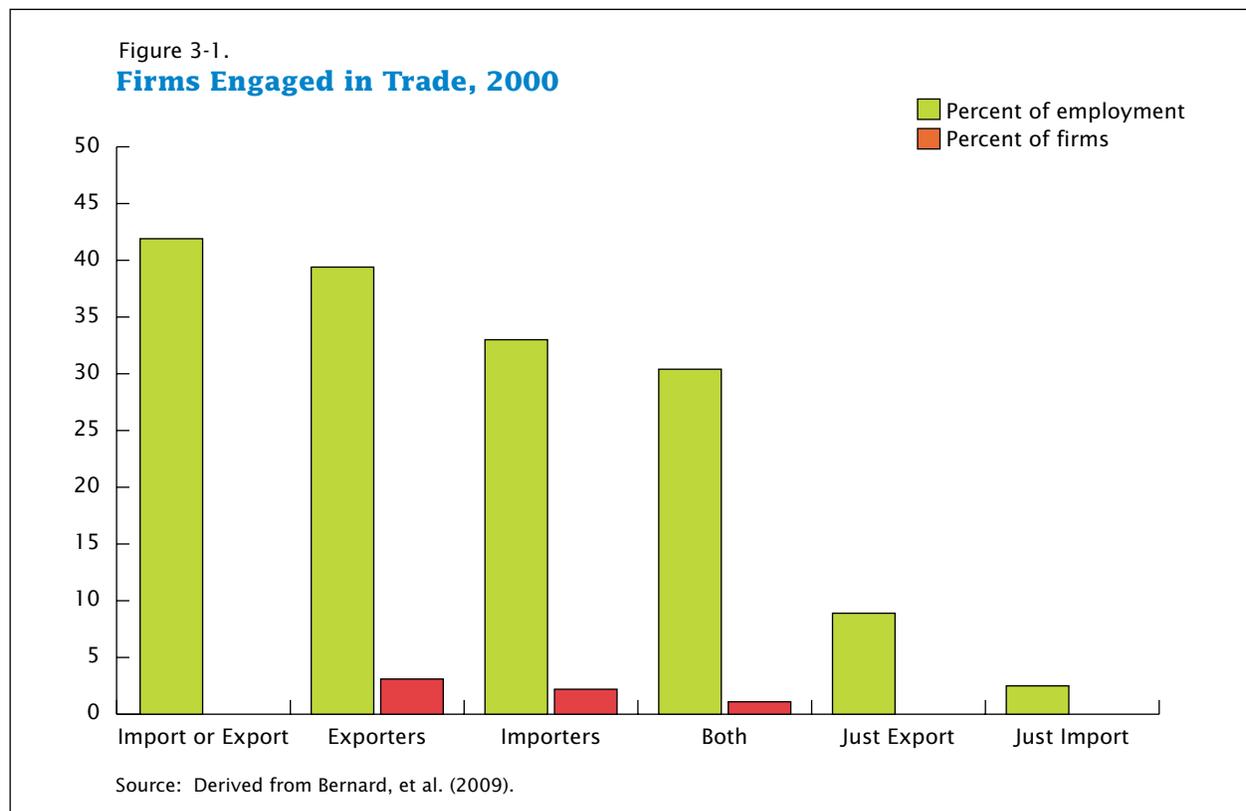
actually engage in international trade, but they account for a hugely disproportionate share of employment. Interestingly, not only is overall economic activity disproportionately concentrated in exporting firms, but trade itself is heavily concentrated in the top trading firms. In particular, Bernard et al. (2009) show that the top 1 percent of firms (by value of trade) account for 80 percent of the overall value of international trade by U.S. businesses, and the top 10 percent of firms account for 96 percent of trade.

These authors also find that these top firms tend to be multinational corporations engaging in a great deal of within-firm (or "related-party") trading. Figure 3-2 shows that the total volume of trade is much greater for those firms that conduct related-party trades compared to those that only trade with unrelated parties. In addition, the mix of within/outside firm trades is different for imports and exports, with intrafirm trade higher for imports while cross-firm trade is greater for exports.

Bernard et al. (2007) further document how trading and non-trading firms differ, including a number of interesting stylized facts about the intensive and extensive margins of trade. As shown in Figure 3-3, most firms that trade do so with just one product and one partner country. On the other hand, firms that trade with businesses from a large number of countries also export a wide variety of products.

There is also a great deal of entry into and exit from exporting. Kamal and Krizan (2012) document how the extensive margin of trade varies by firm characteristics and also explore the characteristics that are associated with being a successful new exporter. They find that entry and exit patterns differ significantly by firm characteristics and that successful new exporting firms tend to be older, retail firms making larger initial trades. By contrast, firms that only export once tend to be young, small, nonmanufacturing firms that engage in between-firm (or "arms-length") transactions with bordering countries.

Meanwhile, other research examines the roles of trading firms in the domestic economy. Kurz and Senses (2013) examine the

Figure 3-2.
## The Share of U.S. Trade That Flows Through Multinational Firms



Source: Bernard, et al. (2009), Figure 14.1.
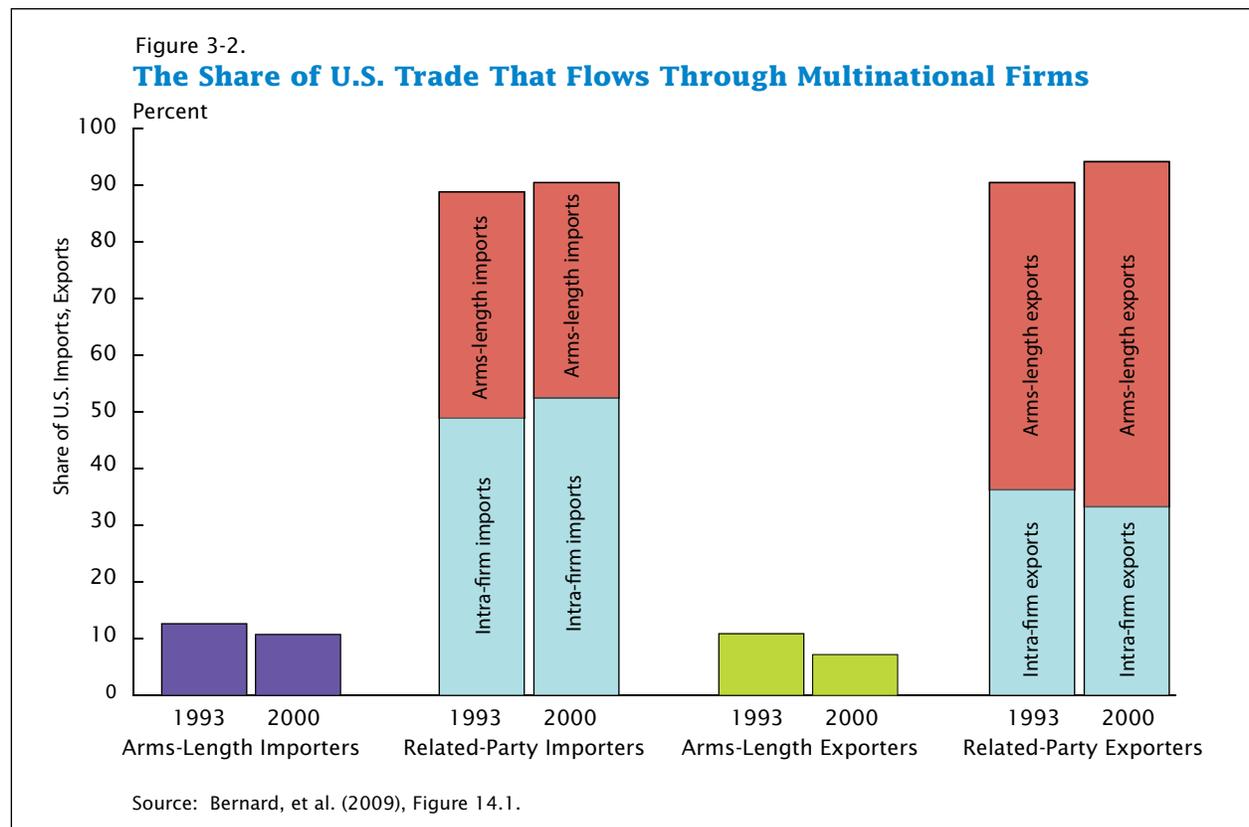
Figure 3-3.

**The Share of Exporting Firms by Number of Products and Export Destinations, 2000**

Percent

Legend:
- Firm exports 1 product
- Firm exports 2 products
- Firm exports 3 products
- Firm exports 4 products
- Firm exports 5 or more products

(Y-axis: Share of Exporting Firms, 0 to 50)
(X-axis: Number of Countries Exported To — 1, 2, 3, 4, 5+)
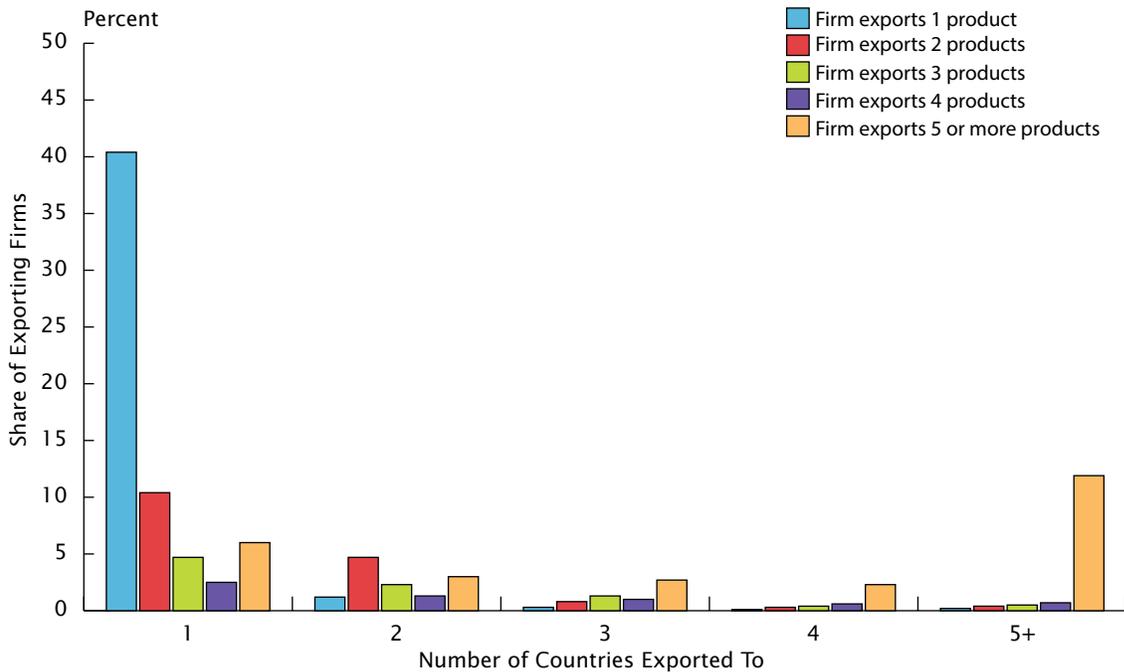
Source: Derived from Bernard, et al. (2007).

connection between trade and employment growth and volatility. They find that employment volatility among trading firms is correlated with trade duration and intensity, the number of products traded, and the characteristics of their trading partners.

While the LFTTD allows measurement of firm-level trade, export activity at the plant level is available in the Annual Survey of Manufactures (ASM) and Census of Manufactures (CM). Lincoln and McCallum (2011) utilize these two data sources to document an 18 percent increase in the share of plants that export. Lin and Lincoln (2013) combine the ASM, CM, and LFTTD to look at the connection between a

country's intellectual property rights policies and the volume of U.S. exports it receives. While only 9 percent of manufacturing firms have patents, they account for about 90 percent of exports. Furthermore, the preliminary findings indicate they are sensitive to the destination country's level of intellectual property rights protection.

While most of the research with the trade microdata to date has focused on exports, the import transaction data present special research opportunities. In particular, the import data also contain a unique firm-level identifier for the foreign company supplying the good. Research is underway that exploits this novel information, including that by Eaton et

al. (forthcoming), which uses the foreign manufacturer identifier to examine the links between buyers and sellers in international transactions. This research is finding that most new exporters to the United States drop out very quickly, but those that do survive rapidly expand their volume of trade. They also find that U.S. importers tend to trade with two or more foreign firms, while foreign firms exporting to the United States supply only one U.S. firm, on average. With these and other findings, the researchers have built a search and learning model of exporting that estimates the costs of finding a trading partner and maintaining the relationship. The model also quantifies the effects of learning on exporter

behavior. The combination of learning and trade costs creates frictions and irreversibilities in export responses to market shocks. They then simulate the effects of these frictions on export dynamics.

In related work, Monarch (2014) uses the import transaction data to look at the costs from switching export partners. He finds evidence suggesting that there are substantial barriers to changing partners. Nearly half of arms-length importers maintain the same partners across years, and those that do switch tend to find a new partner in the same city.

The Economic Census recently began to ask establishments whether they outsource or off-shore any of their activities (see Jarmin, Krizan, and Tang 2009). Fort (2013) utilizes this information to examine how differences in labor costs, geographic distance, and communication technology affect firms' domestic and foreign sourcing behavior. She finds that domestic sourcing is much more common than offshoring and that it is more likely when firms have access to communication technology. In general, firms look to outside sources of production to save on labor costs.

## DATA AND PRODUCT DEVELOPMENT

In a joint effort between CES and FTD, the Census Bureau is currently working to improve and enhance the links between the foreign trade transaction data

and its Business Register, an effort both divisions have previously pursued independently. One goal of this effort is to augment the statistics produced by CES in its Business Dynamics Statistics (BDS). The BDS is a widely used, publicly-available data product that exploits the longitudinal linkages in the Longitudinal Business Database to provide an array of annual measures of the U.S. economy, including the number of businesses, establishment openings and closings, firm start-ups and shut-downs, employment, job creation, and job destruction, by characteristics such as firm size, age, industrial sector, and state. Once trade information is successfully integrated, similar information will be published by the trade status of firms, allowing the exploration of job creation and destruction among U.S. exporters and importers.

In another effort, the LFTTD and other Census Bureau microdata will be linked to data from the U.S. Department of Commerce's Global Markets (GM) export promotion program. Once this match is complete, CES will be able to compare information from various Census datasets to similar information collected from this outside source, thereby shedding light on the quality of Census data. The Census Bureau will also gain information that it does not currently collect, such as participation in an export promotion program, which will permit the development of new statistics on and insights into exporting.

For example, the combined data can be used to estimate how the population of program participants differs, if at all, from firms that did not participate in an export promotion program. In particular, were there differences in employment growth or in exporting behavior, including starting to export, increasing exports, exporting a new product, and exporting to a new country?

## CONCLUSION

A wealth of international trade data are available at the Census Bureau. Although many important research papers have used them, the data still have much to teach us about the dynamics of exporting and importing as well as the nature of firms that engage in international trade. For example, most studies have focused on describing the large firms that account for the vast bulk of exporting. By contrast, little work exists on small- or medium-sized exporters. Similarly, most studies of international trade have focused on exports, but the import data, which identify both parties to the transaction, can teach us a lot. Finally, data collected on outsourcing provide unique and potentially very useful information on the firms' decisions to fragment or offshore their production activities.

International trade is a vital aspect of the economy, and the firm-level microdata available at the Center for Economic Studies are uniquely well-suited to help us learn about it.

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# Chapter 4.
# Recent Research at the Center for Economic Studies

For three decades, staff at the Center for Economic Studies (CES) have used confidential survey microdata on businesses and households, linked employer-employee data, and administrative records from federal and state agencies to carry out empirical research on a wide variety of topics in applied microeconomics, including (but not limited to) productivity, firm behavior, innovation, entrepreneurship, business dynamics, labor and labor dynamics, trade, health care, industrial location, energy, and the environment. This research increases our understanding of the U.S. economy and its people, yields insights that help improve Census Bureau surveys and information products, and leads to the development of new information products for public use. Here we feature some recent research by CES research staff.

## THE GREAT RECESSION AND PRODUCTIVITY

Economic theories differ in their predicted effects of recessions. One theory suggests that recessions have a long-run "cleansing" or "productivity-enhancing" effect, arising because the pace of resource reallocation increases during recessions and because such reallocation typically directs resources from less productive to more productive firms. Alternative theories predict that recessions will not be productivity-enhancing

because of market distortions. For example, even a high productivity firm might not be able to get credit needed to survive and grow if a recession distorts credit markets.

Previous research has found evidence that recessions—at least those prior to the Great Recession—have in fact been productivity-enhancing. However, the unique character of the Great Recession, including its severity and persistence, suggests that it may be different from recent recessions. In a recent working paper (CES-13-42), CES economists **Lucia Foster** and **Cheryl Grim** and coauthor John Haltiwanger study reallocation in the U.S. economy over the last 30 years and examine whether the Great Recession has differed in its impact on resource reallocation and the efficiency gains associated with such reallocation.

Foster et al. find that job reallocation (creation plus destruction) was at a historical low during the Great

Recession, suggesting that the productivity-enhancing effect of recessions may have been weakened. And indeed, the authors find that the Great Recession has been less productivity-enhancing than earlier recessions because its reallocation was less intense and less efficient. Figure 4-1 shows the predicted difference in employment growth rates between high- and low-productivity establishments during different points in the business cycle. In all cases, high productivity establishments are more likely to grow. However, in contrast to prior recessions, the difference between growth rates *decreased* with severity during the Great Recession.

The Great Recession was more costly than recent recessions in terms of higher unemployment, more lost output, and more lost consumption. We now know that there was also less productivity-enhancing reallocation.



*Lucia Foster*



*Cheryl Grim*

Figure 4-1.
## Differences in Employment Growth Rates Between High- and Low-Productivity Establishments Over the Business Cycle
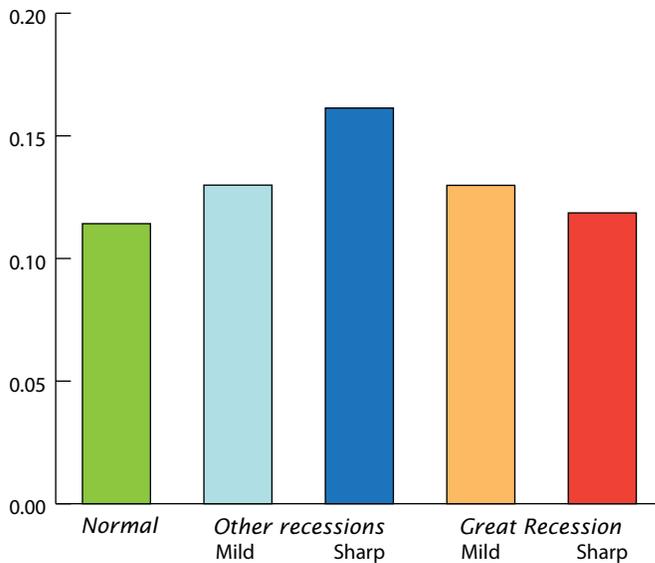


Source: Foster et al. (2013).

## TRENDS IN THE RACIAL AND ETHNIC COMPOSITION OF LOCAL GOVERNMENT WORKFORCES

Since lifting the immigration quota system in 1965, the population of the United States has become increasingly diverse, particularly with the growth of populations of Asian and Hispanic origin. Of interest is whether and how the racial and ethnic composition of the workforce in various sectors and occupations has changed in this time. In a recent working paper (CES-13-38), CES researcher **Todd Gardner** examines the racial and ethnic composition of local government employees in the 100 largest metropolitan areas over the last half century. Historically, one route to upward social mobility has been such employment.

Using microdata from the decennial censuses and the American Community Survey from 1960 to 2010, Gardner divides local government employees into high- and low-wage occupations, based on the median earned income for each occupational title in 1990. He then compares the proportion of the population from each of four racial/ethnic groups (non-Hispanic Whites, non-Hispanic Blacks, Hispanics, and other races) employed in local government to the proportion of that group in the local working-age population.

Gardner finds that those employed in high-wage local government jobs have consistently been disproportionately White over the past 50 years. Still, this high-wage local government employment has become more diverse as the population has changed. By 2008, Blacks became proportionately represented in high-wage government jobs in most large metropolitan areas, but Hispanics and other races remain underrepresented in such jobs.

Meanwhile, low-wage local government jobs are an interesting variation on this theme. Blacks have long been disproportionately represented in low-wage local government employment, but the degree of disproportion has been slowly declining since 1970. Hispanics were underrepresented in such low-wage employment before 1980 but have become proportionally represented in recent years. These patterns are more pronounced in the historical "central cities" of large metropolitan areas.

Gardner also finds some regional variation in trends. In particular, high-wage local government employees in the South were less diverse and more disproportionately White in 1960—prior to the passage of civil rights legislation. By 2000, however, the diversity of high-wage employees in the South was comparable to that in the rest of the United States. In metropolitan areas in the West, with larger and more rapidly growing Hispanic and Asian populations, high-wage local government employment has had comparatively greater difficulty in mirroring the diversity of the general population in recent years.

## IMPUTING EMPLOYER HEALTH INSURANCE PREMIUM CONTRIBUTIONS

Measuring employers' contributions towards workers' health insurance premiums is important for measuring household income and for monitoring the Affordable Care Act's impact on employment-based health insurance. However, respondents to household surveys, including the Annual Social and Economic (or "March") Supplement of the Current Population Survey (CPS), are generally unable to report their employers' contributions. Currently, the Census Bureau imputes these contributions based on data from the 1977 National Medical Care Expenditure Survey (NMCES). In a recent working paper (CES-13-41), CES economist **Alice Zawacki** and Census Bureau colleagues Brett O'Hara and Hubert Janicki compare estimates of employer contributions using the current method to alternate estimates, developed by the authors, using the 2010 Medical Expenditure Panel Survey-Insurance Component (MEPS-IC). In addition to utilizing more recent data, the MEPS-IC method imputes contributions separately for different coverage types, accounts for whether the employer pays all/part of the premium cost, and eliminates the need to deflate estimates.

The differences in the estimates under these two methodologies are significant and suggest that using the MEPS-IC captures the current distribution of contributions better than the NMCES method. For nonfederal workers, Zawacki et al. find the annual median contribution using the MEPS-IC was significantly higher at $6,159 versus $5,444 using the NMCES. Similarly, the authors find contributions by gender, race, ethnicity, and educational groups were all greater using the MEPS-IC than those constructed using the NMCES. Hawaii is the only state with smaller employer contributions using the MEPS-IC method. For the sake of comparability to the NMCES method, the authors impose the restriction of a maximum employer contribution of $9,999. When this restriction is removed, the average employer contribution based on the MEPS-IC increases from $6,346 to $7,210.

Zawacki et al. argue that future research should examine the implication of this alternate methodology on the measurement of household income and the analysis of health care reform, including the impact of health insurance exchanges on employers' offers of insurance and their contribution levels. A proposal to adopt this new imputation methodology into the Current Population Survey's Annual Social and Economic Supplements and the Survey of Income and Program Participation production processes is now under review.



*Alice Zawacki*

## CHILDHOOD HOUSING AND ADULT EARNINGS

For decades, economists, sociologists, and policy makers have wondered whether subsidized housing provides a path out of poverty, or reinforces it. Beyond the direct benefit of housing subsidies, advocates hoped that the design of housing projects would provide stability. Others saw design flaws that concentrated poverty. The impact on the households' children is of particular interest. However, with the exception of the *Moving to Opportunity* experiment, much of the research in this area has been limited to case studies and smaller survey samples.

In a recent working paper (CES-13-48), CES economists **Mark Kutzbach** and **Giordano Palloni**, along with Census Bureau colleague Daniel Weinberg and coauthors Fredrik Andersson, John Haltiwanger, and Henry Pollakowski, investigate the long run effects of subsidized housing on children. The authors link housing subsidy recipient data from the Department of Housing and Urban Development with 2000 Decennial Census records and with earnings records from



*Mark Kutzbach*

the Longitudinal Employer-Household Dynamics (LEHD) program, to examine the effect of the subsidized housing of 1.8 million children between the ages of 13–18 on their employment and earnings about 10 years later. To remove the effects of selection bias in who receives housing benefits, the researchers use the differences in housing exposure between a household's siblings.

Controlling for such selection issues, the authors find heterogenous effects of housing subsidies on subsequent earnings and employment outcomes, including some positive effects. In particular, girls in Black households derive a considerable positive effect on later earnings from having lived in voucher-supported housing, and a somewhat lesser effect from having lived in public housing. Meanwhile, boys in Black households fare relatively worse than girls. In contrast, girls in White households tend to have relatively worse outcomes than boys in White households.

In ongoing research, this research team is using the quasi-natural experiment inherent in housing project demolitions.

## THE RECENT DECLINE IN EMPLOYMENT DYNAMICS

Over the course of the last two decades, both the Census Bureau and the Bureau of Labor Statistics have provided data on hires and separations, job creation and job destruction, and job-to-job flows. One consistent story these data tell

is that employment dynamics in the United States exhibit double-digit declines during the first decade of the twenty-first century. Figure 4-2 shows that between 1998 and 2010, hires and separations rates fell between 10 percent and 38 percent, depending upon the data source. In a recent working paper (CES-13-03), CES economists **Henry Hyatt** and **James Spletzer** document and attempt to explain this recent decline in employment dynamics.



*Henry Hyatt*



*James Spletzer*

Hyatt and Spletzer use the four leading datasets of quarterly employment dynamics in the United States—the Longitudinal Employer-Household Dynamics (LEHD), the Business Employment Dynamics (BED),

the Job Openings and Labor Turnover Survey (JOLTS), and the Current Population Survey (CPS). Their analysis yields four major empirical findings. First, the declining dynamics exhibit a "stair step" pattern, with the declines concentrated in recessions and little, if any, increase during subsequent expansions. Second, changes in the composition of workers and businesses can explain only a small amount of the decline in employment dynamics. Third, any explanation for the decline in job creation and job destruction will account for no more than one-third of the decline in hires and separations. And fourth, the decline in hires and separations is driven by the disappearance of short-duration jobs in the U.S. economy.

Declining employment dynamics could be either a good or a bad development for the U.S. labor market, depending upon the source of the decline. For example, declining dynamics might be indicative of increasing adjustment costs or the loss of "stepping stone" jobs that help young workers begin their careers, which might be considered "bad" for the labor market. On the other hand, declining dynamics could be indicative of increasing match quality or reduced uncertainty—both "good" for the labor market. Further empirical research is needed to differentiate amongst these explanations.

**Figure 4-2.**
## Hires and Separations Rates



Source: Hyatt and Spletzer (2013).

## ENTREPRENEURS WITH "DAY JOBS"

Much attention has been paid to the kinds of incentives and financing required to encourage entrepreneurship. But entrepreneurship and self-employment take many forms, and less attention has been paid to the millions of small business owners whose goal may not be to become the next Google or Facebook but instead to provide supplemental income for an owner's regular wage and salary job.

In a recent working paper (CES-13-45), CES economists **Christopher Goetz** and **Kristin Sandusky**, along with coauthors Monica Garcia-Perez and John Haltiwanger, use a novel dataset on the universe of sole proprietors and the wage and salary jobs held by these same individuals, allowing them to observe business owners as they initiate business ventures and transition between the worlds of traditional employment and self-employment.

The authors find that the barrier between wage and salary work and self-employment is extremely fluid, with large flows occurring in both directions. At the same time, a large fraction of business owners assume both roles simultaneously. Over half of sole proprietors retain a wage job during the initial years of a business's creation.

These "day jobs" are found to impact the success of the businesses these owners create. In



*Christopher Goetz*



*Kristin Sandusky*

particular, the authors find that sole proprietors who embark on a business while maintaining traditional employment are more likely to have a business that survives than those who do not. Sole proprietors *with employees* are more likely to remain employers from one year to the next if the business owner had a wage and salary job. Interestingly, for these employers, while holding a stable job boosts the survival of an owner's business, higher wages actually lowers survival.

For sole proprietors *without employees*, the authors find roughly similar patterns but with some key differences. Here, higher wages boosts survival. And the stability of the outside job is found to increase the likelihood of becoming an employer.

Also, having recent employment experience in the same industry greatly increases the probability of survival of these non-employer businesses.

The evidence suggests that a business owner's employment experience may reflect both human and financial capital that translates into business success.

## RECENT WORKING PAPERS BY CES ECONOMISTS

CES authors are in bold. CES discussion papers can be downloaded at <www.census.gov/ces/publications>. For a list of recent journal publications by CES staff, see Appendix 2.

### When It Rains It Pours: Under What Circumstances Does Job Loss Lead to Divorce
*Melissa Ruby Banzhaf*
CES-13-62

Much of the previous research that has examined the effect of job loss on the probability of divorce rely on data from the 1970s–80s, a period of dramatic change in marital formation and dissolution. It is unclear how well this research pertains to more recent trends in marriage, divorce, and female labor force participation. This study uses data from the Survey of Income and Program Participation (SIPP) from 2000 to 2012 (thus including effects of the Great Recession) to examine how displacement (i.e., exogenous job loss) affects the probability of divorce. The author finds clear evidence that the effects of displacement appear to be asymmetric depending upon the gender of the job loser. Specifically, displacement significantly increases the probability of divorce but only if the husband is the spouse that is displaced and his earnings represented approximately half of the household's earnings prior to displacement. Similarly, results show that the probability of divorce increases if the wife is employed and as her earnings increase. While the mechanism behind these asymmetric results remains unclear, these results are consistent with recent research that finds a destabilizing effect on marriages when a wife earns more than her husband.

### Are We Undercounting Reallocation's Contribution to Growth?
*Mitsukuni Nishida, Amil Petrin, and* **T. Kirk White**
CES-13-55

Reallocation growth occurs when an input moves from a lower marginal product to a higher marginal product activity. Three recent studies use two distinct methodologies to examine the sources of the strong surge in aggregate productivity growth (APG) in India's manufacturing sector since 1990 following significant economic reforms. They all conclude that APG was primarily driven by within-plant increases in technical efficiency and not between-plant reallocation of inputs. Given the nature of the reforms, where many barriers to input reallocation were removed, this finding has surprised researchers and been dubbed "India's Mysterious Manufacturing Miracle." In this paper we show that these findings may be an artifact of the way the studies estimate reallocation.

One approach counts all reallocation growth arising from the movement of intermediate inputs as technical efficiency growth. The second approach introduces measurement error into estimated reallocation by using plant-level average products—total factor productivity residuals—as a proxy for marginal products, which could be problematic as economic theory suggests that average products and marginal products are unrelated in equilibrium. Using microdata on manufacturing from four countries—the United States, Chile, Colombia, and Slovenia—we show that both approaches significantly understate the true role of reallocation in economic growth. In the United States almost 50 percent of reallocation growth is due to movements of intermediate inputs, meaning if India is similar to the United States then reallocation's share of total Indian manufacturing APG since 1990 increases from the previous estimate of one-third to almost two-thirds.

## An 'Algorithmic Links with Probabilities' Concordance for Trademarks: For Disaggregated Analysis of Trademark and Economic Data
**Nikolas Zolas**, *Travis J. Lybbert, and Prantik Bhattacharyya*
CES-13-49

Trademarks (TMs) shape the competitive landscape of markets for goods and services in all countries through branding and conveying information and quality inherent in products. Yet, researchers are largely unable to conduct rigorous empirical analysis of TMs in the modern economy because TM data and economic activity data are organized differently and cannot be analyzed jointly at the industry or sectoral level. We propose an 'Algorithmic Links with Probabilities' (ALP) approach to match TM data to economic data and enable these data to speak to each other. Specifically, we construct a NICE Class Level concordance that maps TM data into trade and industry categories forward and backward. This concordance allows researchers to analyze differences in TM usage across both economic and TM sectors. In this paper, we apply this ALP concordance for TMs to characterize patterns in TM applications across countries, industries, income levels and more. We also use the concordance to investigate some of the key determinants of international technology transfer by comparing bilateral TM applications and bilateral patent applications. We conclude with a discussion of possible extensions of this work, including deeper indicator-level concordances and further analyses that are possible once TM data are linked with economic activity data.

## Childhood Housing and Adult Earnings: A Between-Siblings Analysis of Housing Vouchers and Public Housing
*Fredrik Andersson, John C. Haltiwanger,* **Mark J. Kutzbach**, **Giordano Palloni**,
*Henry O. Pollakowski, and Daniel H. Weinberg*
CES-13-48

Research on effects of living in voucher-assisted and public housing to date has largely focused on short-term outcomes, while data limitations and challenges of identification have been an obstacle to conclusive results. In contrast, this paper assesses effects of children's housing on their later employment and earnings, uses national longitudinal data, and makes use of within-household variation to mitigate selection issues. We combine several national datasets on housing assistance, teenagers and their households, and the subsequent earnings and employment outcomes, such that we are able to follow 1.8 million children aged 13–18 in 2000 in over 800,000 households within many different assisted and unassisted housing settings, controlling for neighborhood conditions, and examine their labor market outcomes for the 2008–2010 period. By focusing on within-family variation in subsidy treatment, we remove a substantial source of unobserved

heterogeneity affecting both a child's selection into housing and their later outcomes. OLS estimates show a substantial negative effect of housing subsidies on earnings and employment outcomes. However, using within-household variation to control for selection issues attenuates these effects, and results in positive effects for some demographic groups. The large sample size allows us to study to what extent results vary by gender and race/ethnicity, and we find strong evidence of heterogeneous effects. Children in Black households who have lived in voucher-supported housing and public housing often benefit in terms of positive subsequent economic outcomes. Girls raised in Black households derive a considerable positive effect on later earnings from having lived in voucher-supported housing, and a somewhat lesser effect from having lived in public housing. Boys raised in Black households fare relatively worse than girls; in contrast, girls in White households tend to have relatively worse outcomes than boys.

### A Comparison of Person-Reported Industry to Employer-Reported Industry in Survey and Administrative Data

*Emily Isenberg*, *Liana Christin Landivar, and Esther Mezey*
CES-13-47

The Census Bureau collects industry information through surveys and administrative data and creates associated public-use statistics. In this paper, we compare person-reported industry in the American Community Survey (ACS) to employer-reported industry from the Quarterly Census of Employment and Wages (QCEW) that is part of the Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program. This research provides necessary information on the use of administrative data as a supplement to survey data industry information, and the findings will be useful for anyone using industry information from either source. Our project is part of a larger effort to compare information on jobs from household survey data to employer-reported information. This research is the first to compare ACS job data to firm-based administrative data. We find an overall industry sector match rate of 75 percent, and a 61 percent match rate at the 4-digit Census Industry Code (CIC) level. Industry match rates vary by sector and by whether industry sector is classified using ACS or LEHD industry information. The educational services and health care and social assistance sectors have among the highest match rates. The management of companies and enterprises sector has the lowest match rate, using either ACS-reported or LEHD-reported sector. For individuals with imputed industry data, the industry sector match rate is only 14 percent. Our findings suggest that the industry distribution and the sample in a particular industry sector will differ depending on whether ACS or LEHD data are used.

### Don't Quit Your Day Job: Using Wage and Salary Earnings to Support a New Business

*Monica Garcia-Perez, ***Christopher Goetz***, John Haltiwanger, and ***Kristin Sandusky***
CES-13-45

This paper makes use of a newly constructed Census Bureau dataset that follows the universe of sole proprietors, employers and nonemployers, over 10 years and links their transitions to their activity as employees earning wage and salary income. By combining administrative data on sole proprietors and their businesses with quarterly administrative data on wage and salary jobs held by the same individuals both preceding and concurrent with business startup, we create the unique opportunity to quantify significant workforce dynamics that have up to now remained unobserved. The data allow us to take a first glimpse at these business owners as they initiate business ventures and make the transition from wage and salary work to business ownership and back. We find that the barrier between wage and salary work and self-employment is extremely

fluid, with large flows occurring in both directions. We also observe that a large fraction of business owners take on both roles simultaneously and find that this labor market diversification does have implications for the success of the businesses these owners create. The results for employer transitions to exit and nonemployer suggest that there is a "don't quit your day job" effect that is present for new businesses. Employers are more likely to stay employers if they have a wage and salary job in the year just prior to the transitions that we are tracking. It is especially important to have a stable wage and salary job but there is also evidence that higher earnings from the wage and salary job makes transition less likely. For nonemployers, we find roughly similar patterns but there are some key differences. We find that having recent wage and salary income (and having higher earnings from such wage and salary activity) increases the likelihood of survival. Having recent stable wage and salary income decreases the likelihood of a complete exit but increases the likelihood of transiting to be an employer. Having recent wage and salary income in the same industry as the nonemployer business has a large and positive impact on the likelihood of transiting to being a nonemployer business.

## Measuring 'Factoryless' Manufacturing: Evidence from U.S. Surveys
*Fariha Kamal*, *Brent R. Moulton, and Jennifer Ribarsky*
CES-13-44

"Factoryless" manufacturers, as defined by the U.S. Office of Management and Budget, perform underlying entrepreneurial components of arranging the factors of production but outsource all of the actual transformation activities to other specialized units. This paper describes efforts to measure "factoryless" manufacturing through analyzing data on contract manufacturing services (CMS). We explore two U.S. firm surveys that report data on CMS activities and discuss challenges with identifying and collecting data on entities that are part of global value chains.

## Falling House Prices and Labor Mobility: Evidence from Matched Employer-Employee Data
*Christopher F. Goetz*
CES-13-43

This study uses worker-level employment data from the Census Bureau to test whether falling home prices affect a worker's propensity to take a job in a different metropolitan area from where he is currently located. Using a sample of workers from the American Community Survey, I employ a within-MSA-time estimation that compares homeowners to renters in their propensities to relocate for jobs according to data from the Longitudinal Employer-Household Dynamics database. This strategy allows me to disentangle the influence of house prices from that of other time-varying, location-specific shocks. Estimates show that homeowners who have experienced declines in the nominal value of their home are approximately 20 percent less likely to take a new job in a location outside of the metropolitan area that they currently live and work in, relative to an equivalent renter. This evidence is consistent with the hypothesis that housing lock-in has contributed to the decreased labor mobility of homeowners during the recent housing bust.

### Reallocation in the Great Recession: Cleansing or Not?
*Lucia Foster*, *Cheryl Grim*, and *John Haltiwanger*
CES-13-42

The high pace of output and input reallocation across producers is pervasive in the U.S. economy. Evidence shows this high pace of reallocation is closely linked to productivity. Resources are shifted away from low productivity producers towards high productivity producers. While these patterns hold on average, the extent to which the reallocation dynamics in recessions are "cleansing" is an open question. That is, are recessions periods of increased reallocation that move resources away from lower productivity activities towards higher productivity uses? It could be recessions are times when the opportunity cost of time and resources are low, implying recessions will be times of accelerated productivity enhancing reallocation. Prior research suggests the recession in the early 1980s is consistent with an accelerated pace of productivity enhancing reallocation. Alternative hypotheses highlight the potential distortions to reallocation dynamics in recessions. Such distortions might arise from many factors including, for example, distortions to credit markets. We find that in post-1980 recessions prior to the Great Recession, downturns are periods of accelerated reallocation that is even more productivity enhancing than in normal times. In the Great Recession, we find the intensity of reallocation fell rather than rose (due to the especially sharp decline in job creation) and the reallocation that did occur was less productivity enhancing than in prior recessions.

### Comparing Methods for Imputing Employer Health Insurance Contributions in the Current Population Survey
*Hubert Janicki, Brett O'Hara, and* **Alice Zawacki**
CES-13-41

The degree to which firms contribute to the payment of workers' health insurance premiums is an important consideration in the measurement of income and for understanding the potential impact of the 2010 Affordable Care Act on employment-based health insurance participation. Currently the U.S. Census Bureau imputes employer contributions in the Annual Social and Economic Supplement of the Current Population Survey based on data from the 1977 National Medical Care Expenditure Survey. The goal of this paper is to assess the extent to which this imputation methodology produces estimates reflective of the current distribution of employer contributions. The paper uses recent contributions data from the Medical Expenditure Panel Survey-Insurance Component to estimate a new model to inform the imputation procedure and to compare the resulting distribution of contributions. These new estimates are compared with those produced under current production methods across employee and employer characteristics.

### The Racial and Ethnic Composition of Local Government Employees in Large Metro Areas, 1960–2010
*Todd Gardner*
CES-13-38

This study uses census microdata from 1960 to 2010 to look at how the racial and ethnic composition of local government employees has reflected the diversity of the general population in the 100 largest metro areas over the last half century. Historically, one route to upward social mobility has been employment in local government. This study uses microdata that predates key immigration and civil rights legislation of the 1960s through to the present to examine changes in the

racial and ethnic composition of local government employees and in the general population. For this study, local government employees have been divided into high- and low-wage occupations. These data indicate that local workforces have grown more diverse over time, though representation across different racial and ethnic groups and geographic areas is uneven. African-Americans were underrepresented in high-wage local government employment and overrepresented in low-wage jobs in the early years of this study, particularly in the South, but have since become proportionally represented in high-wage jobs on a national level. In contrast, the most recent data indicate that Hispanic and other races are underrepresented in this employment group, particularly in the West. Though the numbers of Hispanic and Asian high-wage local government employees are increasing, it appears that it will take several years for those groups to achieve proportional representation throughout the United States.

### How Firms Respond to Business Cycles: The Role of Firm Age and Firm Size
*Teresa C. Fort, John Haltiwanger, Ron S. Jarmin, and **Javier Miranda***
CES-13-30

There remains considerable debate in the theoretical and empirical literature about the differences in the cyclical dynamics of firms by firm size. This paper contributes to the debate in two ways. First, the key distinction between firm size and firm age is introduced. The evidence presented in this paper shows that young businesses (that are typically small) exhibit very different cyclical dynamics than small/older businesses. The second contribution is to present evidence and explore explanations for the finding that young/small businesses were hit especially hard in the Great Recession. The collapse in housing prices accounts for a significant part of the large decline of young/small businesses in the Great Recession.

### Human Capital Traps? Enclave Effects Using Linked Employer-Household Data
*Liliana D. Sousa*
CES-13-29

This study uses linked employer-household data to measure the impact of immigrant social networks, as identified via neighborhood and workplace affiliation, on immigrant earnings. Though ethnic enclaves can provide economic opportunities through job creation and job matching, they can also stifle the assimilation process by limiting interactions between enclave members and nonmembers. I find that higher residential and workplace ethnic clustering among immigrants is consistently correlated with lower earnings. For immigrants with a high school education or less, these correlations are primarily due to negative self-selection. On the other hand, self-selection fails to explain the lower earnings associated with higher ethnic clustering for immigrants with postsecondary schooling. The evidence suggests that coethnic clustering has no discernible effect on the earnings of immigrants with lower education, but may be leading to human capital traps for immigrants who have more than a high school education.

### Community Determinants of Immigrant Self-Employment: Human Capital Spillovers and Ethnic Enclaves

*Liliana D. Sousa*

CES-13-21

I find evidence that human capital spillovers have positive effects on the proclivity of low human capital immigrants to self-employ. Human capital spillovers within an ethnic community can increase the self-employment propensity of its members by decreasing the costs associated with starting and running a business (especially, transaction costs and information costs). Immigrants who do not speak English and those with little formal education are more likely to be self-employed if they reside in an ethnic community boasting higher human capital. On the other hand, the educational attainment of coethnics does not appear to affect the self-employment choices of immigrants with a postsecondary education to become self-employed. Further analysis suggests that immigrants in communities with more human capital choose industries that are more capital-intensive. Overall, the results suggest that the communities in which immigrants reside influences their self-employment decisions. For low-skilled immigrants who face high costs to learning English and/or acquiring more education, these human capital spillovers may serve as an alternative resource of information and labor mobility.

### Evolving Property Rights and Shifting Organizational Forms: Evidence from Joint-Venture Buyouts Following China's WTO Accession

*Fariha Kamal* and Mary E. Lovely

CES-13-05

China's WTO accession offers a rare opportunity to observe multinationals' response to changes in property rights in a developing country. WTO accession reduced incentives for joint ventures while reducing constraints on wholly owned foreign subsidiaries. Concomitant with these changes was a more liberal investment environment for indigenous investors. An adaptation of Feenstra and Hanson's (2005) property rights model suggests that the higher the productivity and value added of the joint venture, but the lower its domestic sales share, the more likely the venture is to become wholly foreign owned following liberalization. Theory also suggests that an enterprise with lower productivity but higher value added and domestic sales will be more likely to switch from a joint venture to wholly domestic owned. Using newly created enterprise-level panel data on equity joint ventures and changes in registration type following China's WTO accession, we find evidence consistent with the property rights theory. More highly productive firms with higher value added and lower domestic sales shares are more likely to become wholly foreign owned, while less productive firms focused on the Chinese market are more likely to become wholly domestic owned rather than remain joint ventures. In addition to highlighting the importance of incomplete contracts and property rights in the international organization of production, these results support the view that external commitment to liberalization through WTO accession influences multinational and indigenous firms' behavior.

### The Recent Decline in Employment Dynamics
*Henry R. Hyatt* and *James Spletzer*
CES-13-03

In recent years, the rate at which workers and businesses exchange jobs has declined in the United States. Between 1998 and 2010, rates of job creation, job destruction, hiring, and separation declined dramatically, and the rate of job-to-job flows fell by about half. Little is known about the nature and extent of these changes, and even less about their causes and implications. In this paper, we document and attempt to explain the recent decline in employment dynamics. Our empirical work relies on the four leading datasets of quarterly employment dynamics in the United States—the Longitudinal Employer-Household Dynamics (LEHD), the Business Employment Dynamics (BED), the Job Openings and Labor Turnover Survey (JOLTS), and the Current Population Survey (CPS). We find that changes in the composition of the labor force and of employers explain relatively little of the decline. Exploiting some identities that relate the different measures to each other, we find that job creation and destruction could explain as much of a third of the decline in hires and separations, while job-to-job flows may explain more of the decline. We end our paper with a discussion of different possible explanations and their relative merits.

### Management in America
*Nicholas Bloom, Erik Brynjolfsson,* **Lucia Foster**, *Ron Jarmin, Itay Saporta-Eksten, and John Van Reenen*
CES-13-01

The Census Bureau recently conducted a survey of management practices in over 30,000 plants across the United States, the first large-scale survey of management in America. Analyzing these data reveals several striking results. First, more structured management practices are tightly linked to better performance: establishments adopting more structured practices for performance monitoring, target setting and incentives enjoy greater productivity and profitability, higher rates of innovation and faster employment growth. Second, there is a substantial dispersion of management practices across the establishments. We find that 18 percent of establishments have adopted at least 75 percent of these more structured management practices, while 27 percent of establishments adopted less than 50 percent of these. Third, more structured management practices are more likely to be found in establishments that export, who are larger (or are part of bigger firms), and have more educated employees. Establishments in the South and Midwest have more structured practices on average than those in the Northeast and West. Finally, we find adoption of structured management practices has increased between 2005 and 2010 for surviving establishments, particularly for those practices involving data collection and analysis.

# Appendix 1.
# OVERVIEW OF THE CENTER FOR ECONOMIC STUDIES

The Center for Economic Studies (CES) partners with stakeholders within and outside the Census Bureau to improve measures of the economy and people of the United States through research and the development of innovative information products.

## RESEARCH

CES research staff use confidential microdata from Census Bureau censuses and surveys of business and households, linked employer-employee data, and administrative records from federal and state agencies to carry out empirical research that leads to

- discoveries in economics and other social sciences not possible using publicly available data,
- improvements in existing Census Bureau surveys and data products, and
- new statistics and information products for public use.

Research findings are disseminated through publications (see Appendix 2), CES discussion papers (see Appendix 4), conferences and seminars, and this annual report.

## PRODUCTS

CES uses microdata from existing censuses and surveys, and from administrative sources, to create innovative public-use information products, including:

- *Business Dynamics Statistics (BDS).* Tabulations on establishments, firms, and employment with unique information on firm age and firm size.
- *LED Data Extraction Tool.* Beta tool providing easy access to the raw data products produced through the Local Employment Dynamics (LED) Partnership (see Appendix 7).
- *OnTheMap.* Online mapping and reporting application showing where the U.S. population and workforce live and work.
- *OnTheMap for Emergency Management.* Intuitive Web-based interface for accessing U.S. population and workforce statistics, in real time, for areas being affected by natural disasters.
- *Quarterly Workforce Indicators (QWI).* Workforce statistics by demography, geography, and industry for each state.
- *Synthetic Longitudinal Business Database (SynLBD).* Beta version of synthetic microdata on all U.S. establishments.

## RESEARCH DATA CENTERS (RDCs)

CES administers the Census Research Data Centers (RDCs), which are Census Bureau facilities that provide secure access to restricted-use microdata for statistical purposes. Qualified researchers with approved projects can conduct research at RDCs that benefit the Census Bureau by improving measures of the economy and people of the United States. Research conducted at the RDCs spans a variety of topics, and results from this research are regularly published in major peer-reviewed journals (see Appendix 2).

Through partnerships with leading universities and research organizations (see Appendix 6), CES currently operates 16 Research Data Centers located in Ann Arbor, Atlanta, Berkeley, Cambridge, Chicago, College Station (TX), Durham, Ithaca (NY), Los Angeles, Minneapolis, New York, Seattle, Stanford (CA), and the Washington DC area, with more being planned.
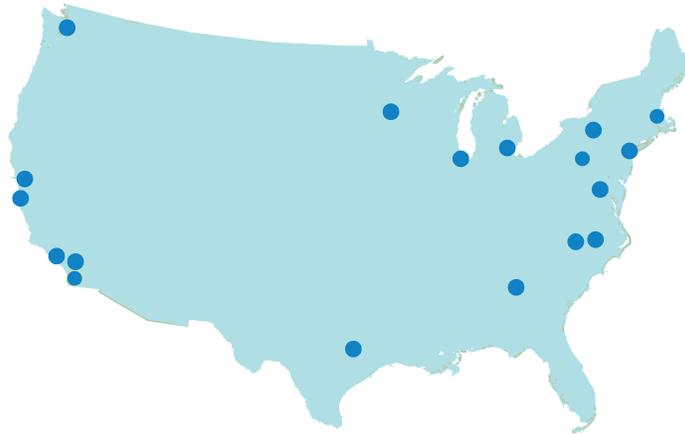
Research proposals submitted to CES are evaluated for

- potential benefits to Census Bureau programs,
- scientific merit,
- clear need for nonpublic data,
- feasibility given the data, and
- no risk of disclosure.

Proposals meeting these standards are further reviewed by the Census Bureau's Office of Analysis and Executive Support. Proposals may also require the approval of other data-providing entities. Abstracts of recently approved projects appear in Appendix 3-A.

All RDC researchers must become Special Sworn Status (SSS) employees of the Census Bureau—passing a background check and swearing for life to protect the confidentiality of the data they access. Failing to protect confidentiality subjects them to significant financial and legal penalties.

Selected restricted-access data from the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS) can also currently be accessed in the RDCs. Proposals to use those data must meet the requirements of those agencies. Abstracts of recently approved AHRQ and NCHS projects appear in Appendix 3-B.

## PARTNERSHIPS

CES relies on many supporters and partners within and outside the Census Bureau, including:

- Census Bureau divisions that collect, process, and produce the business and household data. These areas provide CES with
  o the latest census and survey microdata, which are at the foundation of the research files CES makes available (see Appendix 5 for new data releases),
  o expert knowledge of the methodologies underlying the microdata, and
  o occasional reviews of RDC research proposals.
- The universities and research organizations that support the Research Data Centers operated by CES (see Appendix 6).
- The National Science Foundation, which supports the establishment of new RDCs.
- The members of the Local Employment Dynamics (LED) partnership (see Appendix 7), who provide employment and earnings data to CES that serve as the foundation for LEHD research microdata and a number of public-use data products, including *OnTheMap* and the *Quarterly Workforce Indicators*.
- Census Bureau divisions that provide administrative and technical support, especially our colleagues in the Economic Directorate and the Research and Methodology Directorate.

# CENTER FOR ECONOMIC STUDIES (CES) STAFF AND RESEARCH DATA CENTER (RDC) SELECTED PUBLICATIONS AND WORKING PAPERS: 2013

[Term inside brackets indicates work by CES staff or RDC researchers.]

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# Appendix 3-A.
## ABSTRACTS OF PROJECTS STARTED IN 2013: U.S. CENSUS BUREAU DATA

Projects in this portion of the appendix use data provided by the Census Bureau.

### FIRM NETWORKS AND FIRM EXPANSION

*Chad Syverson – University of Chicago*
*Mehmet Atalay – University of Chicago*
*Hector Perez Saiz – Bank of Canada*
*Rui Silva – London Business School*

This research seeks to characterize the U.S. buyer-supplier network. Arguably one of the most vital economic systems in existence, surprisingly no one to date has theoretically or empirically modeled its structure. The researchers will begin by establishing basic (yet previously undocumented) facts about the U.S. input-output structure. They will then develop a dynamic model of firm birth, death, expansion, contraction, and trade that captures the economic fundamentals driving the evolution of the economy's buyer-supplier network structure. Solving the model to generate predicted vertical production patterns, they will take these to the data to estimate the model's parameters. This will permit any one of a number of conceptual exercises to investigate how various policies or changes in economic fundamentals would impact the equilibrium buyer-supplier network structure. The analyses will revolve around the following questions: When are two establishments likely to be linked to one another? How are shocks transmitted across linked establishments/firms? How are shocks transmitted within firms and how is production organized within firms, across their establishments? Finally, do shocks to individual firms or establishments have aggregate effects?

### DISABILITY INSURANCE AND EMPLOYMENT DECISIONS

*John Bound – University of Michigan*
*Tanya Byker – University of Michigan*
*Peter Hudomiet – University of Michigan*
*Bryan Stuart – University of Michigan*
*Desmond Toohey – University of Michigan*

Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) for the disabled and blind are both federal programs designed to insure people against loss of income due to health conditions, and participation in these programs is an important issue for millions of American households. Together, DI and SSI make up one of the four major insurance programs of the country (Krueger and Meyer, 2002). This study will examine the employment effects of DI and SSI and will explore channels of disability insurance application as well as factors influencing disability insurance applications. This research will use the Census Bureau's primary survey of government transfer programs, the Survey of Income and Program Participation (SIPP). The researchers will link SIPP panels (core and selected modules) to the Master Beneficiary Records (MBR) of the SSA, to the so-called 831 files, and to earnings records. Usage of these SIPP surveys will be further enhanced by creating monthly and weekly person-level panels, and by assessing the quality of self-reported health status in the SIPP.

## ESTIMATING THE EFFECTS OF BANKRUPTCY REGIMES ON FIRM OUTCOMES

*Shai Bernstein – Stanford University*

This study will identify the differing economic impacts, measured in a variety of ways, between two forms of bankruptcy: the reorganization process of chapter 11 and the liquidation process of chapter 7. Using Census microdata combined with external data, the establishment-level operations of these firms can be observed following the bankruptcy resolution, and the different impacts will be quantified. Typically, research treats the cost of bankruptcy in terms of reduction in the market value of the bankrupt firm. However, when a firm is completely liquidated, it does not end with zero total economic value since its assets (and human capital) are sold to other productive firms and thereby redeployed. This research will quantify the costs of bankruptcy in terms of employment, payroll, and productivity losses, rather than just the dollar value lost to the bankrupt firm and its creditors. This will more accurately depict from where the losses caused by financial distress come, and how large they truly are. Furthermore, relatively little consideration has been given to the question of whether financial distress imposes externalities on other companies. Suppliers, customers, and competitors may be affected when a firm is liquidated or reorganized. This project will examine the behavior of other firms operating in the local economies of bankrupt firms in different bankruptcy regime, in order to quantify the bankruptcy regime differential impact. Although it is very difficult to overcome the selection into the two bankruptcy regimes, the researchers will use heterogeneity across bankruptcy judges as an instrumental variable to estimate the unbiased effect that compares the effects these bankruptcy regimes have on financially distressed firms.

## THE "SAFE DESIGN PROJECT": ADDRESSING DISCLOSURE RISK OF CONTEXTUALIZED MICRODATA IN SURVEY DESIGN

*Michael Elliott – University of Michigan*
*Kristine Witkowski – University of Michigan*

Demand for contextualized microdata has increased dramatically over the last decade and is expected to increase even more in years to come. The Census Bureau collects data to produce timely population estimates on demographic, social, housing, and economic characteristics for a broad spectrum of geographic areas in the United States and is therefore in a unique position to meet some of this demand. However, releasing geographic details in public-use microdata may increase the risk of disclosure. Current disclosure limitation practices involve suppressing geographic details for spatial units that fail to meet a predefined population threshold (e.g., 100,000). Users interested in studying persons nested within less-populated geographies (e.g., rural counties, tracts, block groups) must access restricted-use data through data enclaves. Neither of these approaches fully satisfies the growing demand for geographically-rich microdata that is being fueled by a variety of researchers, analysts, decision-makers, and administrators. To help alleviate barriers to use, this project will develop methodology that supports the efficient identification of sampling and database designs and associated masking techniques that allow more geographic detail to be released on microdata products, without increased disclosure risk or unnecessary survey costs. This research will use the 2005–2009 American Community Survey (ACS) data as the empirical foundation, with the aim of producing statistics that summarize findings from the evaluation of the methodology and broad guidelines derived from disclosure simulations, all of which are to be carefully constructed so as to ensure the confidentiality of the underlying data and disclosure practices.

## LABOR MARKET IMPLICATIONS OF EXTERNAL SHOCKS

*James Sallee – University of Chicago*
*David Silver – University of California, Berkeley*
*W. Reed Walker – University of California, Berkeley*

The ways in which external economic forces influence firm-level input and output decisions have important implications for economic welfare and social well-being. Firms and plant-owners often make decisions to maximize profits or shareholder value, and they may not fully internalize the effects of their production decisions on the local economy in which they are located. Similarly, firm owners or managers do not necessarily internalize the potential long run costs to workers when making plant layoff decisions. In some cases, these externalities create market failures. Addressing these externalities requires a proper understanding both of how external economic forces influence firm and worker decisions as well as how these decisions influence long run costs and economic incidence. This project will characterize how external market and nonmarket forces influence firm and worker behavior, while also evaluating the costs and incidence of sectoral reallocation of the labor market more generally. The researchers will evaluate the costs and incidence of sectoral reallocation in the labor market using the longitudinal earnings and employment records from the LEHD infrastructure file. This research will produce estimates quantifying how changes in demand drive employment responses and worker outcomes in the automobile industry and how demand shocks in a particular industry may propagate to nearby industries. The researchers will also evaluate how environmental regulation influences the type of worker hired at newly regulated firms. In addition, this research will evaluate how environmental regulation influences technology choice within a firm, and how these technology choices influence the skill mix and wage structure within that particular firm.

## IMPROVING THE CONNECTION BETWEEN THE SPATIAL AND THE SURVEY SCIENCES

*David Folch – University of Colorado, Boulder*
*Seth Spielman – University of Colorado, Boulder*

The Spatial Sciences Census Research Node (SSCRN) will foster a connection between the spatial and the survey sciences. This bridge will yield both immediate and long term benefits for the estimation, dissemination, and usability of the small area statistics produced by the Census Bureau. Small area statistics describe the character of the population within small geographic zones, such as census tracts, and can be imprecise. Apart from the impractical solution of increasing the sample size, the only way to reduce the uncertainty of survey estimates is to utilize ancillary information about the population. Historically, very little attention has been paid to the geographic distribution of populations within these small areas. This research will increase knowledge about the organization of the population within small geographic areas, and exploit new forms of geographic information and recent advances in spatial statistics, to make small area estimates more accurate. This project will develop software tools that will enhance the usability of small area estimates from the American Community Survey (ACS) by allowing users to intelligently combine tracts to reduce uncertainty in variables of interest. In addition to improving small area population estimates, an improved understanding of the geographic micro-structure of the U.S. population is of broad scientific interest and may expand knowledge about socio-spatial processes like segregation and neighborhood effects.

## THE DETERMINANTS AND CONSEQUENCES OF PERSONAL BANKRUPTCY

*Jonathan Fisher – U.S. Census Bureau*
*Tai Gross – Columbia University*
*Nathaniel Johnson – Baruch College*

This project will examine the determinants and consequences of filing for personal bankruptcy in the United States. The research will make use of the Decennial Census of Population, American Community Survey, and the Survey of Income and Program Participation (SIPP) panels, combined with external data on personal bankruptcy filings from 1998–2008. The researchers will measure the correlates of bankruptcy, describing the particular demographic characteristics of households that declare bankruptcy. They will also calculate trends in these demographics, describing for the first time how the sample of Americans who declare bankruptcy has changed over time, especially since the change in the federal bankruptcy law in 2005.

## INTRODUCTION OF HEAD START, MATERNAL LABOR SUPPLY, AND CHILD OUTCOMES

*Robert Kaestner – University of Illinois at Chicago*
*Cuiping Long – University of Illinois at Chicago*

This research will estimate the effect of Head Start on maternal labor supply and the effect of Head Start on child school progression. This study will use data from decennial censuses to estimate changes in aggregate maternal labor force participation rates and hours worked per week in response to the enrollment of 3–5 year old children in the Head Start program. First, the researchers will examine the nonresponse rates on maternal labor force participation and hours worked for low-income mothers by mothers' characteristics such as education, race, and marital status, and document how this has changed from 1970 to 2000, to evaluate the comparability between different waves of the survey data. This will permit evaluation of whether current weights sufficiently adjust for the nonresponse patterns for low-income families and potentially identify the sources and the magnitude of this measurement problem. Second, this research will provide aggregate measures for the employment of low-income mothers with young children (e.g., aged 3–8) by education and race, thereby providing measures of the social conditions or well-being of children in low-income families.

## TRADE FLOWS AT NARROW GEOGRAPHIC DETAIL AND THE LOCATION OF MANUFACTURING

*Thomas Holmes – University of Minnesota*
*Matthew Shapiro – University of Minnesota*
*Ethan Singer – University of Minnesota*

This research will examine the flow of goods at narrow geographic and industry detail. This will include imports, exports, as well as internal flows within the United States—such as shipment of drywall from China to Miami, or a shipment of medical equipment by a firm in Minneapolis to Boston or Toronto. This study will estimate an economic model of trade flows that will explicitly incorporate the possibility that goods may move through the wholesale sector. This project will produce industry-level parameters related to transportation cost and the use of wholesaling. It will then use these estimates to evaluate the impact of increased international trade on the regional distribution of manufactures.

## INVESTIGATING THE BIAS OF ALTERNATIVE STATISTICAL INFERENCE METHODS IN SEQUENTIAL MIXED-MODE SURVEYS

*Zeynep Suzer Gurtekin – University of Michigan*

In a sequential mixed-mode survey design, a combination of data collection modes is used sequentially to reduce nonresponse bias and control total survey costs. However, nonrandom mixtures of modes yield unknown bias properties for population estimates such as means and totals. This research project aims to develop statistical inference methods accounting for both nonresponse and nonrandom mode effects. The American Community Survey (ACS) is the most prominent survey that uses such a sequential mixed-mode survey design, and therefore is an important test bed for such empirical evaluations. This research will focus on two variables in particular, personal income and health insurance coverage, which the survey methodology literature suggests are subject to mode effects. The proposed method conceptualizes the sequential mixed-mode survey data as a special case of a missing data problem. The research outcome will be revised ACS microdata that are adjusted for nonresponse and nonrandom mode effects, and corresponding composite weights to compute population estimates from these microdata. Additionally, alternative subgroup allocations for nonresponse follow-up which aim to reduce cost or mean square error will be investigated under the ACS design.

## INDIVIDUAL AND ENVIRONMENTAL CHARACTERISTICS AND EMPLOYMENT OUTCOMES FOR PEOPLE WITH DISABILITIES

*Andrew Houtenville – Cornell University*
*John O'Neill – Hunter College*
*Purvi Sevak – Hunter College*

Despite the Americans with Disabilities Act and enormous advances in assistive technology, employment rates for people with disabilities have declined. This project will model the employment of working-age people with disabilities as a function of their individual characteristics and local environment. Using the restricted access geographic identifiers in the American Community Survey, Current Population Survey, and Survey of Income and Program Participation, this research will examine variation both across and within geographic areas to identify the effect of different individual and environmental characteristics on employment. These characteristics include health conditions, the specific nature of the disability, demographics, unearned income, human capital, family characteristics, policy variables, local infrastructure, and local economic conditions.

## INDUSTRY AND SECTORAL VARIATION IN FIRM DYNAMICS

*Benjamin Pugsley – Federal Reserve Bank of New York*
*Sara Ferreira Moreira – University of Chicago*
*Erik Hurst – University of Chicago*

This research will systematically document the industry and sectoral variation in the distribution of firms and their dynamics by estimating a set of statistical models. Some of the variation is expected to be explained by the intensity of "nonpecuniary" entrepreneurs, a hypothesis that this study will test. In addition, this research will explore whether the propensity to spend on research and development varies inversely with the intensity of nonpecuniary entrepreneurs.

## HOUSING VALUES AND EMINENT DOMAIN

*Daniel Chen – Duke University*

This study will use data from the American Community Survey (ACS), American Housing Survey (AHS), and Decennial Censuses to examine the impact of eminent domain takings decisions on housing values in geographic areas affected by those decisions. Most of the empirical work in this field focuses on the relationship between property rights and investment in developing countries. Theoretical arguments exist as to how takings decisions might, on net, either increase or decrease housing values, yet relevant empirical work using U.S. data focuses on producing area-level estimates of housing value changes. In contrast, this research will take advantage of restricted-use household-level microdata to examine changes in individual housing values, producing more accurate estimates of the effects of takings decisions on housing values. This research will also assess alternative methods of imputing missing data in the AHS and assess the impact eminent domain law has on ACS and AHS data collection.

## ASSOCIATIONS BETWEEN PUBLIC HOUSING AND LABOR MARKET OUTCOMES

*Sara Gleave – University of North Carolina at Charlotte*
*Qingfang Wang – University of North Carolina at Charlotte*

This study addresses the role that public housing developments play in labor market processes. This association will be particularly examined in the New Orleans-Metairie-Kenner, Louisiana metropolitan area before and after Hurricane Katrina for three separate outcomes: employment status, occupational concentration, and job earnings. Restricted-use Census microdata from 2000 and 2006–2009 will be utilized, together with public housing data and a raster dataset measuring the extent of Katrina flooding, to partially control for physical damage from the storm. Both individual- and neighborhood-level variables will be incorporated into a series of hierarchical linear models, allowing for these variables of different scales to be incorporated into the same model.

## CONSTRUCTING A GEOGRAPHY FOR CENSUS MICRODATA

*Nicholas Nagle – University of Tennessee*
*Kevin Krivacsy – University of Tennessee*
*Matthew Ruther – University of Minnesota*

This research uses restricted-use microdata from the 1970–2000 Decennial Censuses and 2005–2009 American Community Survey (ACS) to validate methods for estimating small area totals from public Census data and to evaluate the nature of disclosure protection present in the existing public data. The methodology developed and to be implemented by the research team generates sampling weights for allocating household records in the Public Use Microdata Samples (PUMS) to a given census tract. This methodology will allow users to combine public data in order to create population estimates with increased spatial resolution at the expense of increased statistical uncertainty. Such a tradeoff is desirable in many situations, and allowing researchers to choose between precision and uncertainty will increase the utility of publicly available Census data. In the process of the analysis, the researchers will also create a synthetic dataset from exclusively public sources, allowing them to assess the degree of disclosure protection present in existing public use samples.

## LATINO RESIDENTIAL SEGREGATION IN THE UNITED STATES: APPLYING NEW METHODS TO GAIN UNDERSTANDINGS

*Mark Fossett – Texas A&M University*
*Amber Fox – Texas A&M University*

Census Bureau data are the primary source of information for residential segregation studies in the United States, but thus far researchers have been limited to studying aggregate level outcomes without being able to trace them back to the micro level social processes that drive these aggregate level patterns. Using new segregation measures which address and rectify methodological issues that have limited past research, this research will achieve these goals by demonstrating how it is now possible to study residential segregation at the micro and macro levels and how macro-level segregation is driven by micro-level social processes. In particular, this research will investigate the residential patterns of Latinos using new methodological techniques that will increase understandings of how individual social characteristics relate to residential outcomes for individuals, and how those outcomes in turn can be aggregated to generate measures of segregation at the city level. This project will also address the uncertainty of using the smaller American Community Survey samples for conducting in-depth analyses of residential segregation—analyses that could have once been explored using the data from the (now discontinued) long-form of the decennial census.

## ASSESSING COVERAGE AND RELIABILITY OF THE NCVS SAMPLE

*Marcus Berzofsky – RTI International*
*David Heller – RTI International*

This research will assess small area validity and coverage issues in the National Crime Victimization Survey (NCVS), using data from the 2008–2010 and following the model used to create the 1979–2004 public use NCVS data for metropolitan statistical areas (MSAs). The datasets to be created in this project include those of the seven largest states, the 20 largest cities, and the 20 largest MSAs. Coverage and validity will be assessed through a comparison to 2005–2010 American Community Survey (ACS) data as well as to the 2010 Decennial Census data, as appropriate. An analysis of the coverage of the weighted NCVS sample over these three datasets will determine if the current sample is representative of the population of the underlying areas. Previous reports using the MSA file have not assessed coverage and validity and have assumed the sample for each area was representative. Once the most appropriate population estimate to use as a control variable is determined, coverage will be assessed both in terms of averages of several years of data and on a yearly basis. The researchers will investigate the feasibility of creating new weights for these areas. The researchers will also use existing and/or newly created weights to produce population estimates describing the reliability and coefficients of variation for victimization estimates in the underlying areas of each of the three datasets. Further assessment of survey coverage will occur during this phase, as the researchers determine how many years of data need to be combined in order to produce reliable estimates for statistics such as the number of crimes reported to the police.

## THE DETERMINANTS AND RAMIFICATIONS OF FIRMS' GLOBAL PRODUCTION

*Teresa Fort – Dartmouth College*
*Andrew Bernard – Dartmouth College*

The world economy is becoming more integrated as different stages of a single production process are performed in multiple countries. Measuring this type of production fragmentation is essential to ensure accurate statistics about current U.S. economic activity and its future growth prospects. This project will combine multiple data sources to provide new measures of production fragmentation, with a particular emphasis on activities that U.S. firms choose to locate in foreign countries. These new measures will address: (1) how fragmentation differs across U.S. firms and geography; (2) the determinants of firms' decisions to fragment production; and (3) the domestic employment and R&D ramifications of firms' fragmentation decisions. To develop new data that measure firms' global production choices, this project will use items collected in the 2007 Economic Census to identify individual establishments that report fragmenting and offshoring production. To assess firms' globalization decisions over time, the research will improve the existing linkages currently in the Longitudinal Foreign Trade Transaction Database by developing new methodologies to link the trade transactions data to the Longitudinal Business Database, as well as by linking the trade data directly to the economic censuses, the Company Organization Survey, and to the SDC Thomson merger and acquisition data. The new datasets developed under this project will expand the scope and range of the economic activity that can be studied at the plant and firm levels, leading to improved measures of the import, export, and offshoring activity in the U.S. economy.

## ESTIMATING PRODUCTIVITY SPILLOVERS FROM MANUFACTURING EMPLOYMENT USING TRADE SHOCKS

*Daron Acemoglu – Massachusetts Institute of Technology*
*David Autor – Massachusetts Institute of Technology*
*Matthew Rognile – Massachusetts Institute of Technology*

This study will exploit trade-induced shocks to U.S. manufacturing to study productivity spillovers from de-agglomeration. Using restricted-use microdata from the Economic Census, Annual Survey of Manufactures, and Longitudinal Business Database, this project will investigate the response of productivity to local de-agglomeration shocks at a highly disaggregated level. This study intends to uncover the key features of firms' responses to these shocks, including the extent to which these responses vary with geographic and economic distance. This project provides a natural setting to evaluate how nonresponse changes following shocks to the local economy, an issue highlighted by recent Census research.

# Appendix 3-B.
## ABSTRACTS OF PROJECTS STARTED IN 2013: AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ) DATA OR NATIONAL CENTER FOR HEALTH STATISTICS (NCHS) DATA

Projects in this portion of the appendix use data provided by the Agency for Healthcare Research and Quality (AHRQ) or data provided by the National Center for Health Statistics (NCHS). Under authority of the Economy Act, the Center for Economic Studies hosts projects in Research Data Centers using data provided by AHRQ or NCHS. AHRQ or NCHS is solely responsible for selecting projects and for conducting disclosure avoidance review.

### THE EFFECT OF EXPANDED DEPENDENT INSURANCE COVERAGE ON HEALTHCARE SPENDING AND UTILIZATION (AHRQ)

*Christopher Whaley – University of California, Berkeley*

Although several studies have examined the effect of the Affordable Care Act's (ACA) dependent coverage provision, these studies have generally looked at insurance coverage and self-reported health. This project examines the effect on healthcare spending and utilization using the restricted, state-identifiable data from the Medical Expenditure Panel Survey (MEPS). However, because the state laws were in place before the ACA's policy, an analysis of the ACA's expanded dependent coverage requires controlling for existing state policies. This research examines the effects of the ACA's expansion in dependent coverage by comparing healthcare spending and utilization among young adults in states with existing policies to those without following the ACA's implementation in 2010.

### ESTIMATING THE EFFECT OF RETAIL CLINICS ON MEDICAL EXPENDITURES AND VACCINATION (AHRQ)

*Benjamin Yarnoff – RTI International*

Recent research has suggested that clinic services in retail locations (retail clinics) may reduce the cost of medical care and increase the use of preventive services such as vaccination. However, this research only provides suggestive evidence of the effect of retail clinics on expenditure and prevention, because research designs have been insufficient for causal inference. In contrast to previous research, an optimally designed causal study must examine individuals before and after a retail clinic locates nearby and compare that difference to differences in a control group of individuals not living near a new retail clinic. This project implements such a research design using the MEPS geocoded data and merging it with geographic data on the location and opening dates of all retail clinics in the United States. It examines an individual's change in medical expenditure and vaccination practice after a retail clinic locates in their census tract. It will compare this difference to differences of individuals in the same county that are not near a newly opened retail clinic. Using fixed effect regression analysis, this research design will enable the making of causal inference about the effect of retail clinics on medical expenditure and vaccination processes.

## IMMIGRANT HEALTH, CHILD HEALTH, AND GEOGRAPHIC HEALTH DISPARITIES (AHRQ)

*Julia Caldwell – University of California, Los Angeles*

Few studies examine the impact of geography on children's healthcare. This study will examine total hospital expenditures, average hospital expenditures per child, and percent of children with hospital inpatient discharges by socio-demographic characteristics including race/ethnicity, poverty, perceived health status, and health insurance coverage. Of particular interest are the region variable (Northeast, Midwest, South, West) and the nine divisions which further categorize the states to identify geographical disparities.

The analysis will also identify differences in healthcare access and utilization among immigrants groups to the United States by documentation status and acculturation factors. Of particular interest are overall and gender differences among Hispanic and Asian immigrant subgroups. A data file that links NHIS to MEPS allows us to understand immigration further by including variables related to time in the United States and citizenship status as well as allowing us to look at subgroups. Geographical disparities by region and along the rural/urban continuum will also be examined. The primary dependent variables to be analyzed are health care access (visit to doctor, usual source of care) and health care expenditures.

Reduction in health disparities requires a focus on demographic and socioeconomic factors such as race, ethnicity, and education and how these factors contribute to health differences among rural and nonrural residents. This project will also focus on issues related to health care access along the rural-urban continuum. While rural and urban American have unique geographic and quality of life characteristics, people who live in the most rural and inner-city areas have several things in common: they are more likely to live in poverty, experience higher mortality rates, and have poorer health status than suburban residents.

## POLICY ISSUES AROUND MENTAL HEALTH, MEDICAID, AND HEALTH REFORM (AHRQ)

*Ezra Golberstein – University of Minnesota*
*Gilbert Gonzales – University of Minnesota*

This research will investigate several related issues at the intersection of mental health services and policy, health reform, and Medicaid. This research will use restricted MEPS-HC data to conduct a series of studies that all share the theme of policy issues around behavioral health (mental health and substance abuse) services. Several recent and major policy changes have the potential to significantly affect behavioral health services in the United States, and the use of the restricted MEPS data will allow and investigation of the effects and various implications of these policy changes.

## UNDERSTANDING MECHANISMS OF MENTAL HEALTH CARE DISPARITIES (AHRQ)

*Benjamin Cook – Harvard Medical School*

This project will identify mechanisms underlying disparities in mental health care services, assessing racial/ethnic disparities in episodes of care. It will assess the contribution of geographic disparities to racial/ethnic disparities in mental health care and develop a mental health care disparities index that allows state-by-state comparisons of mental health care disparities. The specific aims are to assess disparities in initiation, intensity, duration, and quality of mental health care episodes, assess the role of geography in disparities, identify area-level correlates of mental health service use, and develop indices of disparities in states' mental health care expenditure and quality.

## EFFECTS OF GEOGRAPHIC DESIGNATIONS ON DIABETES SELF-MANAGEMENT PATTERNS: HOW DO THESE COMPARE TO A NATIONALLY REPRESENTATIVE SAMPLE (NCHS)

*Omolola Adepoju – Texas A&M University*
*Darcy Moudouni – Texas A&M University*
*Eric Proctor – Texas A&M University*

Despite concerted federal and state attempts to reduce health disparities over the past decades, substantial disparities in reported rates of chronic disease for minorities still exist. In particular, African Americans and Hispanics experience higher rates of Type 2 diabetes (T2DM), and cardiovascular disease (CVD) than do other segments of the U.S. population. This research compares rates of controlled versus uncontrolled diabetes among patients enrolled in a large multisite randomized, controlled trial (RCT) in Central Texas with nationally representative rates contained in the NHANES 2009–2010. Based on physical address, RCT records are designated: rural or urban using Rural-Urban Commuting Area (RUCA) codes and Urban Influence Codes (UIC); and medically vulnerable using Medically Underserved Area (MUA) and Health Care Provider Shortage Area (HPSA) codes. Results are stratified by patient demographics and characteristics.

## THE CAUSAL EFFECT OF SMOKING ON OBESITY (NCHS)

*Samuel Brown – Brown University*
*Mark Dean – Princeton University*

This project attempts to understand whether there is a causal link between smoking cessation and obesity. This requires a source of exogenous variation in smoking. The researchers will use differences in the date of introduction of smoking bans across different states and counties to provide this variation. The aim is to use county-level data on smoking and obesity from the National Health Interview Survey (NHIS), in combination with county-level data on when smoking bans came into effect to take an instrumental variable approach to measuring the effect of smoking on obesity. The research also looks for differential effects by gender.

## INVESTIGATING CONTEXTUAL COMPONENTS OF UNITED STATES' MORTALITY (NCHS)

*Claire Altman – Rice University*
*Justin Denney – Rice University*
*Jeff Dennis – University of Texas, Permian Basin*
*Jarron Saint Onge – University of Kansas*

This project will study the contextual contributors to emerging racial and ethnic minority health and mortality epidemics. First, it will match National Health Interview Survey (NHIS) respondents to restricted-use mortality matches through the National Death Index (NDI), which will result in NHIS demographic, and health data linked to prospective respondent mortality status, including detailed cause and timing of death and key characteristics at death. Second, using geographic identifying information available in the restricted-use NHIS files, it will merge area-level characteristics at the tract and county level from 1990 and 2000 decennial census files to survey respondents. The result will be the largest contextual mortality database assembled to date to study racial and ethnic minority mortality risk. This project will build on both restricted-use data experiences and health disparities expertise of the research team to facilitate a multi-university research collaboration through a project using nationally representative restricted-use survey data that will provide insights into minority health disparities.

## FOOD ALLERGEN LABELING MANDATES: OPTIMAL DESIGN OF RISK INFORMATION POLICIES (NCHS)

*Maria Aslam – Emory University*
*David Frisvold – University of Iowa*

This project analyzes the provision of risk information programs on consumers, and investigates consumers' response to the hazard information. Efficacy of risk information campaigns is assessed using examples of industry, federal, and state-level food allergen labeling regulation. Industry guidelines stress the need for voluntary disclosure of product's risk characteristics. Federal legislation sets uniform criteria for determining how to display risk information, while the state-level regulation varies in the soundness of their warning messages. In contrast to the previous literature, this project focuses on nonaddictive goods, which allow consumers to be less constrained in their reaction to product hazardous characteristics. The policy outcome of this study is to suggest guidelines for designing information provision policies that ensure the optimal mode of expressing risk information. The research evaluates efficacy of the regulation by focusing on indirect cost of consumers' exposure to hazardous food ingredients and assesses if the legislation changes incidence of different allergy intensity types including acute recent allergies, exacerbating chronic cases, and chronic follow up visits. The project compares the number of patients having each of these allergy intensity types in the pre- and post-law period. The legislation could be considered efficient if it reduces the incidence of acute allergies or the need for medication/prescription renewals.

## PM2.5–CARDIOVASCULAR DISEASE ASSOCIATIONS: EXPLORATION OF BIOMARKERS OF EFFECT (NCHS)

*John Balmes – University of California, San Francisco*
*Jennifer Mann – University of California, Berkeley*
*Kathleen Navarro – University of California, Berkeley*

Exposure to fine particulate matter (PM2.5) generated from fossil fuel combustion has been consistently shown in epidemiological studies to be associated with a variety of cardiovascular disease (CVD) outcomes. National studies have demonstrated that there is considerable heterogeneity in the PM2.5-CVD mortality exposure-response relationship across locations. This research studies the associations of PM2.5 with hospital admissions for myocardial infarction, congestive heart failure, and stroke. The U.S. EPA's Hierarchical Bayesian (HB) model and PM2.5 ambient monitoring data will provide PM2.5 estimates for the entire country. This project will be used to evaluate the potential application of biomarkers of cardiovascular effects in the CDC Environmental Public Health Tracking Network (EPHT). The goal of this project is to explore the association between several biomarkers of cardiovascular effects and PM 2.5 exposure levels obtained from the EPA's HB model within the NHANES population.

## UTILIZATION AND HEALTH AT THE INTRODUCTION OF MEDICAID (NCHS)

*Michel Boudreaux – University of Minnesota*
*Ezra Golberstein – University of Minnesota*

This project will assess the impact of the original introduction of Medicaid on health and health services utilization among children and recently pregnant women using NHIS data from 1963–1986. Medicaid was gradually introduced in the states between 1966 and 1981. The wide span of NHIS data being requested in this application will allow for an ample pre and post period. The analysis will be based on a difference-in-differences design implemented with regression fixed effects. In order to control for other potentially confounding policy changes, a rich set of contextual variables will be merged on to the NHIS at the state, county, and SMSA level. These data, along with the socio-demographic variables in the NHIS, will also be used to examine the effect of Medicaid in groups that were more or less likely to be affected by the program. This project will add to the literature that has evaluated expansions in the Medicaid program. While previous literature has provided a wealth of evidence on Medicaid's expansions, very little is known about the effect of the program at its introduction. The project will benefit public health by examining the effect of one of the country's most important health programs on the most disadvantaged families.

## MEASURING THE PUBLIC HEALTH IMPACT OF JUDICIAL DECISIONS (NCHS)

*Daniel Chen – Duke University*

Legal scholars and judges have long made arguments about laws and regulations, and have justified their arguments with theories about the effects of these legal rules. The proposed research empirically evaluates these claims. A particularly challenging dimension of studying the effects of laws and regulations, particularly court-made law, is the fact that many other aspects of society, be they social trends or other legal developments, are changing at the same time. Persuasive empirical evidence on the consequences of judge-made law has been limited due to the difficulty of identifying variation to legal rules that

are exogenous. Yet judges on both the left and right think the empirical consequences of judicial decisions are important. The specific aims of this project are to: (1) obtain causal estimates of the impact of judicial decisions either upholding or limiting the rights of individuals and/or businesses to produce or distribute obscene material on behaviors that put people at risk of STDs, unwanted pregnancy, sexual abuse, and other associated public health concerns; (2) obtain causal estimates of the impact of these same judicial decisions on mediating factors that influence population health, specifically, employment,

income, and marital status; and (3) determine what association, if any, exists between judicial decisions within a specific jurisdiction that uphold the rights of individuals and business to produce and distribute obscene materials and the sexual and economic health of the surrounding population. The research hypothesis is that those jurisdictions in which permissive rulings dominate will have local populations with the greatest incidences of unwanted pregnancy, sexual abuse, and higher measures of related public health problems.

## EXPANDING COVERAGE TO LOW-INCOME CHILDLESS ADULTS IN MASSACHUSETTS: IMPLICATIONS FOR NATIONAL HEALTH REFORM (NCHS)

*Heather Dahlen – University of Minnesota*
*Sharon Long – The Urban Institute*

In March 2010, the United States enacted the Patient Protection and Affordable Care Act (ACA), which is intended to make significant changes in health insurance coverage and health care systems across the United States. Under the ACA nearly all adults with family income up to 138 percent of the federal poverty level (FPL) will be eligible for Medicaid by 2014. Prior to this legislation, only a handful of states made Medicaid or Medicaid-like coverage available to low-income childless adults. Massachusetts is one of those states, having provided

fully-subsidized coverage for low-income childless adults under the Commonwealth Care program as part of its 2006 reform initiative. As part of a project with the Office of the Assistant Secretary for Policy and Evaluation (ASPE), this research uses state-level data from the National Health Interview Survey (NHIS) to evaluate the impacts of the Massachusetts reforms on insurance coverage, access to and use of health care and health care affordability on low-income childless adults in the state. This work will compare changes

over time in those outcomes for low-income childless adults in Massachusetts prior to and following the implementation of the state's 2006 health reform initiative to changes over the same time period for similar adults in other states using a difference-in-differences framework. The findings from this work will provide an early assessment of the potential effects of the ACA for this important population in other states, helping ASPE and the states prepare for the Medicaid coverage expansion under the ACA.

## OBSTETRIC INTERVENTIONS DURING U.S. HOLIDAYS (NCHS)

*Gustave Falciglia – Northwestern University*
*Karna Murthy – Northwestern University*

Rates of late preterm induction of labor (LPI), early-term induction of labor (ETI), and primary cesarean delivery (PCD) have increased in recent years. These obstetric interventions occur because women require delivery due to medical reasons; however, nonmedical factors such as race/ethnicity and medico-legal pressures have been associated with the recent rise in the frequency of these practices. These findings suggest that the potential benefits to either maternal or child health may not represent the exclusive set of factors that may contribute toward initiating these obstetrical interventions for gravid women. Holidays and weekends can be times that healthcare professionals use to recuperate from the rigors from providing medical, and specifically obstetric, services. However, these holidays and weekends still may be times that gravid women will require delivery in order to optimize the health status of their pregnancy. Within the United States, variation of labor induction on different days of the week has been demonstrated among gravid women. However, these analyses included women prior to the existence of established guidelines endorsing elective labor induction. Thus, the aims of this study are to describe the patterns of LPI, ETI, and PCD for gravid women in the United States as a function of the day that women deliver and to estimate the association between these three obstetric interventions and the U.S. holiday schedule over a recent 3-year period.

## VARIATION IN CONTRACEPTIVE USE: DO ABORTION LAWS MATTER? (NCHS)

*Amanda Felkey – Lake Forest College*

This project uses state-level data to determine if there is a significant link between abortion availability and contraceptive use. It examines the period after 1973 when the U.S. Supreme Court ruled that a woman has a constitutional right to an abortion to the present, drawing on census data from 1980, 1990, 2000, and 2010. The data include an array of state level demographics (poverty, fertility rates, religion, race, marriage rates, urban population, etc.), as well as data describing particular characteristics of state-level abortion legislation. The findings have broader implications for economists' understanding of individual decision making—the significance of this link sheds light on how forward-thinking individuals are when making decisions. In many instances, public health policy aims to incentivize individuals to make decisions or adopt behaviors with longer term health consequences (prenatal care, smoking cessation, weight loss programs). As such, this is particularly relevant in the context of public health policymaking.

## UNAWARENESS OF DIABETIC RETINOPATHY AND AGE-RELATED MACULAR DEGENERATION IN THE UNITED STATES: CONTEXTUAL PREDICTORS AND PUBLIC HEALTH IMPLICATIONS (NCHS)

*Diane Gibson – Baruch College CUNY*

Previous research found that 73 percent of individuals with diabetic retinopathy and 84 percent of individuals with age-related macular degeneration (AMD) were unaware of their condition. This proposed study will examine whether contextual variables such as the local availability of ophthalmologists and optometrists are associated with the likelihood of unawareness of these conditions. The project uses restricted-access geocoded data from the 2005–2008 National Health and Nutrition Examination Survey (NHANES) combined with county-level information from the 2005–2009 Area Resource File on the number of ophthalmologists and optometrists in a respondent's county of residence and tract-level information from the 2005–2009 American Community Survey on the poverty rate, population density, racial and ethnic concentration, and percent of the population that is urban in a respondent's census tract of residence. The 2005–2008 NHANES collected digital retinal images of survey participants aged 40 years and older that were graded for diabetic retinopathy and AMD using standard protocols. A sample of individuals with diabetic retinopathy will be created as will be a separate sample of individuals with AMD. Individuals will be categorized as unaware of their condition if they did not report they had the condition. Separate logistic regression models of unawareness of diabetic retinopathy and AMD will be estimated. These models will control for contextual characteristics as well as a large set of individual demographic and socioeconomic characteristics.

## POLICY ISSUES AROUND MENTAL HEALTH, MEDICAID, AND HEALTH REFORM (NCHS)

*Ezra Golberstein – University of Minnesota*
*Gilbert Gonzales – University of Minnesota*

This research investigates a series of related issues at the intersection of mental health services and policy, health reform, and Medicaid. It uses restricted NHIS data to address six specific research questions. (1) What are the effects of the 2008 Mental Health Parity and Addiction Equity Act on use of mental health services and unmet need for mental health services? The researchers will compare outcomes before and after the law went into effect in 2010, across states that had stronger or weaker parity laws from before 2010, and by employer size. (2) How does mental health status affect the take-up of Medicaid, conditional on being eligible for Medicaid? It is known that many people who are Medicaid-eligible do not enroll, but it is unknown whether the key population with mental health problems is more or less likely to enroll. (3) What are the effects of expanding Medicaid eligibility for non-disabled adults on the use of mental health services? (4) What will be the size of the insured population with mental health problems at the state level after the implementation of the ACA, and how does that compare with the existing supply of mental health services at the state level? (5) What are the effects of health insurance expansions on mental health services, using the 2006 Massachusetts health reforms as a case study? (6) What are the effects of economic downturns on mental health status and mental health services use?

## ANALYSIS OF THE NATIONAL SURVEY OF RESIDENTIAL CARE FACILITIES (NCHS)

*Ruby Johnson – RTI International*
*Joshua Wiener – RTI International*

This project will conduct secondary data analyses using the merged facility and resident files of the National Survey of Residential Care Facilities (NSRCF). A limited amount of data from the Area Resource File (ARF) will also be used. The study will analyze the match between services in residential care facilities (RCFs) and the needs of residents, the characteristics of facilities serving Medicaid beneficiaries compared to those that do not serve Medicaid beneficiaries, the characteristics of Medicaid and non-Medicaid beneficiaries, and the potential impact on access to residential care services of the Centers for Medicare & Medicaid Services' proposed rule on Medicaid home and community-based services waivers. Descriptive and multivariate analyses will be conducted to answer research questions for each topic.

## THE GREAT RECESSION'S EFFECT ON NONMARITAL AND MULTIPARTNER FERTILITY (NCHS)

*Rachel Kimbro – Rice University*
*Christine Percheski – Northwestern University*

Scholars are just beginning to examine the effects of the recent recession on family life in the United States. Data from the National Vital Statistics System show that the fertility rate declined from a recent high of 69.5 in 2007 to 64.4 as of June 2011. Fertility declines within the recession vary across geographic contexts; states where the unemployment situation was the worst, fertility declined the most. Both theory and evidence from previous recessions suggest that declines in fertility may be caused by poor economic conditions. This project has three main research aims: (1) to identify the association between local economic conditions and the likelihood of a pregnancy among women in the United States during 2006–2010. (2) To assess whether these associations vary by education, race/ethnicity, or age. (3) To investigate whether changes in partnership status, frequency of sexual activity, or contraceptive practices mediate any observed relationship between economic conditions and pregnancy. The researchers will examine these questions with a particular focus on understanding effects on nonmarital and multipartner fertility. These two phenomena are particularly important to study because of their increasing prevalence in the United States and their associations with family complexity, child wellbeing, and family poverty risk. The researchers will merge the restricted access version of the 2006–2010 National Survey of Family Growth with data on unemployment from the Bureau of Labor Statistics, mortgage foreclosures from the Mortgage Bankers Association's National Delinquency Survey, and poverty from the Census Bureau. With the resulting merged data, the researchers will model the probability that NSFG participants became pregnant in the year prior to the NSFG interview, utilizing a rich set of covariates.

## TRIANGULATING THE LIKELIHOOD OF BENEFIT OF COLORECTAL CANCER SCREENING IN RESIDENTIAL CARE FACILITIES (NCHS)

*Christine Kistler – University of North Carolina, Chapel Hill*
*David Reed – University of North Carolina, Chapel Hill*

Colorectal cancer (CRC) screening can extend lives but can also cause significant harm. CRC screening guidelines for older adults recommend individualizing recommendations based on patient values and life expectancy. For healthy and younger older adults the benefits of colorectal cancer screening are likely to outweigh the harms and risks of screening. For others in poor health with limited life expectancy, the harms are likely to outweigh the benefits. Those most likely to benefit have the best health and longest predicted life expectancies. The long-term goal of this research is to improve the quality of cancer screening in older adults residing in residential care facilities (RCF). The central hypothesis is that using the NSRCF, we can obtain estimates of the proportion of older adults in RCFs who are likely to benefit, who might or might not benefit, and who are not likely to benefit from colorectal cancer screening. The rationale for this project is that once the rates and quality of cancer screening are known, interventions can be developed to encourage guideline-concordant use. Therefore, we propose to examine the predicted life expectancies in older adults in RCFs using three well-validated tools for estimating mortality: the Charlson Comorbidity Index (CCI), the four-year mortality index developed by Lee et al. (Lee Index), and the nine-year mortality index developed by Schonberg et al. (Schonberg Index).

## IMPACT OF 100 PERCENT SMOKE-FREE LAWS ON THE HEALTH OF CHILDREN (NCHS)

*Kerry McGeary – Ball State University*

As evidence of the negative effects of environmental tobacco smoke (ETS) has mounted, an increasingly popular public policy response has been to impose restrictions on smoking through 100 percent smoke-free bans. It is not known whether and to what extent smoking bans at the state and local levels impact the health of children. This study aims to address this critical gap in the literature and provide the first estimates of how 100 percent Smoke Free Laws (SFLs) impact the venue of smoking among smokers (who reside in households with children present) and how they impact the health of children. It will match information on all local and state-level 100 percent smoke-free legislation by type (workplace, restaurant, and freestanding bar) and other tobacco-control policies to parent and child records from the National Health Interview Surveys (NHIS). The NHIS includes information on ETS-related measures of adverse respiratory health which has been found to be impacted by own smoking and ETS exposure.

## PM2.5–CARDIOVASCULAR DISEASE ASSOCIATIONS: EXPLORATION OF EXPOSURE (NCHS)

*Thomas McKone – University of California, Berkeley*
*Kathleen Navarro – University of California, Berkeley*

Exposure to fine particulate matter (PM2.5) generated from fossil fuel combustion has been consistently associated in epidemiological studies with a variety of cardiovascular disease (CVD) outcomes. National studies have demonstrated that there is considerable heterogeneity in the PM2.5-CVD mortality exposure-response relationship across locations. This research is a linkage project to study the associations of PM2.5 with hospital admissions for myocardial infarction, congestive heart failure, and strong. It uses the U.S. EPA's hierarchical Bayesian (HB) model and PM2.5 ambient monitoring data to provide PM2.5 estimates for the entire country at the census tract-level resolution. This project will compare an individual's urinary PAH-metabolite concentration from the 2001–2006 NHANES survey with several routes of PAH exposure including food intake, indoor sources, and outdoor emissions. Food intake and indoor sources are estimated through each individual's questionnaire responses. Outdoor emissions of PAH are estimated from daily PM2.5 exposure estimates and air toxic emission data provided by the U.S. EPA National Air Toxic Assessment (NATA). The Hierarchical-Bayesian estimates of PM2.5 developed by the EPA are augmented to estimate daily outdoor concentrations of PAH at the census tract level. Multivariate linear regression models (MLRM) are used to track the direct relationship between an individual's urinary PAH biomarkers and the various exposure pathways. This effort demonstrates the power of combining air emissions data and NHANES results together with spatially detailed models to elucidate exposure routes that could not otherwise be quantified.

## COMMUNITY HEALTH CENTER EXPANSION: ROLES OF PHYSICIAN ASSISTANTS, NURSE PRACTITIONERS, AND NURSE MIDWIVES (NCHS)

*Perri Morgan – Duke University*

Since their creation as part of the War on Poverty in the 1960s, Community Health Centers (CHCs) have filled an important role in providing health care to underserved populations. Recent infusions of federal support have expanded this role. Nonphysician clinicians have been used extensively in CHCs for decades, but their use has accelerated along with recent CHC expansion. This study will analyze survey data from the 2006–2009 National Ambulatory Medical Care Survey (NAMCS) Community Health Center stratum. Data from the survey induction interview and from the survey itself will be analyzed to describe provider mix in relation to clinic size, type, location and major sources of financial support, to estimate clinical productivity by provider type, and to compare each of the three types of nonphysicians with physicians with regard to patient characteristics and patient care attributes, and examine trends in skill mix use in CHCs. Restricted data from induction interviews will be used to describe the variation in provider use across facilities. Restricted data from the NAMCS survey will be used to evaluate types of care provided by provider type.

## CONTEXTUAL FACTORS AND POPULATION DIET AND OBESITY (NCHS)

*Lisa Powell – University of Illinois at Chicago*
*Roy Wada – University of Illinois at Chicago*

The public health challenge that stems from obesity is a critical national concern. The influence of contextual factors such as pricing, availability and promotion on people's lifestyles such as eating and physical activity behaviors and, in turn, how these factors may influence obesity has not been adequately studied and deserves further investigation. To examine the relationship between these variables, this research proposes to augment National Health and Nutrition Examination Survey (NHANES) for child, youth, and adult populations with external information on food, beverage and restaurant state-level sales taxes, food prices, local area grocery store, eating places, physical activity-related outlet density measures, local area socioeconomic census data, and media market-level advertising ratings data.

## COTININE LEVEL DISPARITIES BY INCOME (NCHS)

*Kyle Rozema – Cornell University*

Increases in cigarette prices (and taxes) may not only lead to lower consumption of cigarettes, but also to compensating behavior of consumers such as smoking cigarettes with more nicotine. From a cigarette tax policy standpoint, compensating behavior are unintended consequences that may limit the effectiveness of cigarette tax increases in reducing smoking. This study seeks to determine whether cigarette taxes increases actually increase Cotinine levels (for smokers and nonsmokers, and cotinine per cigarette for smokers) differently by income. The purpose of the study is to determine whether Cotinine levels are higher in low-income groups in states with higher cigarette taxes. The primary hypothesis is that low-income smokers in high cigarette tax states have higher Cotinine levels and smoking intensity (cotinine per cigarette) than Cotinine levels and smoking intensity in low tax states. A second hypothesis is that the difference in smoking intensity between low-income smokers and high-income smokers in high tax states is higher than in low tax states.

## THE CAUSAL EFFECT OF SMOKING ON OBESITY-NHANES (NCHS)

*Samuel Brown – Brown University*
*Mark Dean – Princeton University*

The prevalence of smoking has declined markedly in the United States over the last 50 years. At the same time, there has been an unprecedented rise in obesity rates, with an estimated medical cost of $190.2 billion annually. The aim of this research is to understand whether there is a causal link between these two phenomena: Have policy measures aimed at reducing smoking contributed to the rise in obesity? To understand whether there is a causal link between smoking cessation and obesity, the project requires a source of exogenous variation in smoking. It aims to use differences in the date of introduction of smoking bans across different states and counties to provide this variation. Previous research has shown these bans to have a strong and significant effect on the level of smoking in the area that they cover.

## TV AND SMOKING (NCHS)

*Michael Thomas – University of Chicago*

While a causal effect of advertising on smoking has long been suspected and provides the justification for restrictions on cigarette advertising, formal studies have struggled to demonstrate much, if any, such effect. This study proposes using an econometric identification strategy based on relatively weak assumptions to estimate the impact of TV's introduction on tobacco consumption. Due to technical difficulties with the new technology, there were significant differences in the date TV was introduced across the United States, especially among mid-sized cities. This provides the variation that can be used to identify the effect of television on smoking using a difference-in-differences approach. Using this approach on state-level tax-revenue data, the researcher has demonstrated a significant response in tobacco consumption to TV exposure. Using data from the NHIS, the research would investigate which demographic groups were most impacted by the introduction of television. The NHIS data would make it feasible to test the relative responses of different age cohorts, genders, races and socioeconomic backgrounds. The 1974 and 1976-1980 surveys, taken after the 1971 ban on TV-cigarette ads, make it possible to separate the effect of advertising from other ways TV affected smoking, such as viewing famous actors smoke on television shows. If such tests have sufficient power, it may also be possible to test whether the populations induced to smoke by TV had different smoking behaviors (e.g. brands, cigarette sizes, filters, attempts to quit, trouble quitting) than the general population of smokers.

## EXTERNALITIES AND TAXATION OF SUPPLEMENTAL INSURANCE: A STUDY OF MEDICARE AND MEDIGAP (NCHS)

*Neale Mahoney – University of Chicago*

Private and public health insurance typically has cost sharing. However, public insurance often allows beneficiaries to cover out-of-pocket costs with top-up insurance. This supplemental insurance blunts cost sharing and can cause beneficiaries to use more care, increasing the costs of the public insurance program. This project studies the interaction of public Medicare insurance and a form of private supplemental insurance called Medigap. The primary objective is to estimate the externality Medigap imposes on the Medicare system and to estimate how a corrective tax on Medigap would impact Medicare spending and utilization. The research design uses Medigap premium discontinuities within Hospital Service Areas (HSA) that straddle state borders. HSAs are hospital catchment areas, defined by sets of zip codes where individuals go to the same hospital for medical care. Approximately 250 of the 3,436 HSA cross state lines, accounting for 11 percent of the individuals the sample. Individuals who live on different sides of these cross-border HSAs are demographically identical and see the same doctors for medical care. Because Medigap premiums vary at the state level, individuals on different sides of these HSA can face vastly different Medigap premiums, and this research will show that they enroll in Medigap at sharply different rates. The project aims to demonstrate how this differential Medigap enrollment translates to differences in Medicare utilization and spending. The estimates will be used to analyze the financial impact of taxing Medigap premiums on the spending of the public Medicare system.

# Appendix 4.
## CENTER FOR ECONOMIC STUDIES (CES) DISCUSSION PAPERS: 2013

CES Discussion Papers are available at <www.census.gov/ces>.

13-01 "Management in America," by Nicholas Bloom, Erik Brynjolfsson, Lucia Foster, Ron Jarmin, Itay Saporta-Eksten, and John Van Reenen, January 2013.

13-02 "More Than a Million New American Indians in 2000: Who Are They?" by Carolyn A. Liebler and Timothy Ortyl, March 2013.

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13-05 "Evolving Property Rights and Shifting Organizational Forms: Evidence from Joint-Venture Buyouts Following China's WTO Accession," by Fariha Kamal and Mary E. Lovely, March 2013.

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13-14 "Do Housing Prices Reflect Environmental Health Risks? Evidence from More Than 1600 Toxic Plant Openings and Closings," by Janet Currie, Lucas Davis, Michael Greenstone, and Reed Walker, April 2013.

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13-17 "What Do I Take with Me? The Mediating Effect of Spin-Out Team Size and Tenure on the Founder-Firm Performance Relationship," by Rajshree Agarwal, Benjamin A. Campbell, April M. Franco, and Martin Ganco, April 2013.

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13-32 "Why Immigrants Leave New Destinations and Where Do They Go?" by Mary M. Kritz, Douglas T. Gurak, and Min-Ah Lee, June 2013.

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13-60  "Antidumping Duties and Plant-Level Restructuring," by Justin R. Pierce, December 2013.

13-61  "Income Packaging and Economic Disconnection: Do Sources of Support Differ from Other Low-Income Women?" by Andrea Helting, Jinwoo Kwon, and Elizabeth Mahn, December 2013.

13-62  "When It Rains, It Pours: Under What Circumstances Does Job Loss Lead to Divorce," by Melissa Ruby Banzhaf, December 2013.

# Appendix 5.
# NEW DATA AVAILABLE THROUGH CENSUS RESEARCH DATA CENTERS (RDCs) IN 2013[1]

## BUSINESS DATA

| Data product | Description | New or updated years |
|---|---|---|
| Current Industrial Reports | The Current Industrial Report (CIR) program consists of a number of surveys that provide monthly, quarterly, and annual measures of industrial activity for selected manufactured products. The CIR surveys primarily collect data on production and shipments, but data on inventories, orders, and consumption are also included in a number of surveys. Currently, the CIR surveys include about 40,000 manufacturing establishments. | 2009–2011 |
| Economic Census of Island Areas | The Economic Census of Island Areas contains data on businesses located in American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, Puerto Rico, and the U.S. Virgin Islands. It is conducted every five years as part of the Census Bureau's Economic Census program and covers virtually every sector of the economy. Data collected are similar or identical to those found in the Census of Manufactures, Census of Retail Trade, Census of Services, and so forth. | 2002, 2007 |
| Foreign Trade— Exporter Database | The Exporter Database is a set of files used to create the Profile of U.S. Exporting Companies. The files are created by matching yearly export transaction records to the company information from the Business Register. | 2010 |
| Integrated Longitudinal Business Database | The Integrated Longitudinal Business Database (ILBD) is a research dataset constructed at the Center for Economic Studies that contains the roughly 20 million businesses in the U.S. economy (per year) *without* paid employees from 1977 to 2010. The ILBD contains a firm identifier that allows the linkage of these nonemployers across time and to businesses with *paid* employees found in other Census Bureau surveys and databases. The ILBD can be used to investigate nonemployer entry and exit, gross revenue flows, and transitions between nonemployer and employer status. | 2006–2010 |
| Longitudinal Business Database | The Longitudinal Business Database (LBD) is a research dataset constructed at the Center for Economic Studies that contains basic information on the universe of all U.S. business establishments with *paid* employees from 1976 to 2011. The LBD can be used to examine entry and exit, gross job flows, and changes in the structure of the U.S. economy. The LBD can be linked to other Census Bureau surveys at the establishment and firm level. | 2011 |

[1] These tables do not include custom extract data made available to approved projects from the U.S. Census Bureau, the National Center for Health Statistics, and the Agency for Healthcare Research and Quality.

| Data product | Description | New or updated years |
|---|---|---|
| Longitudinal Firm Trade Transactions Database | The Longitudinal Firm Trade Transactions Database (LFTTD) links individual trade transactions to the firms that undertake them. It links export transactions to the U.S. exporter and import transactions to the U.S. importer. The firm identifier in the LFTTD allows linkages to other Census Bureau surveys and databases. | 2010–2011 |
| Medical Expenditure Panel Survey (MEPS)—Insurance Component (IC) | The Medical Expenditure Panel Survey-Insurance Component (MEPS-IC) collects data on health insurance plans obtained through employers. Data collected include the number and type of private insurance plans offered, benefits associated with these plans, premiums, contributions by employers and employees, eligibility requirements, and out-of-pocket costs. Data also include both employer (e.g., size, industry) and workforce (e.g., percent of workers female, earn low/medium/high wage) characteristics. | 2012 |
| Services Annual Survey | The Services Annual Survey (SAS) provides estimates of revenue and other measures for most traditional service industries. Collected data include operating revenue for both taxable and tax-exempt firms and organizations; sources of revenue and expenses by type for selected industries; operating expenses for tax-exempt firms; and selected industry-specific items. Starting with the 1999 survey, e-commerce data are collected for all industries, and export and inventory data are collected for selected industries. | 1991–1998 |
| Survey of Business Owners | The Survey of Business Owners (SBO) includes data on sales and receipts, annual payroll, employment, and demographic characteristics of the business owner, including gender, ethnicity, race, and veteran status. The SBO includes all nonfarm businesses filing tax forms as individual proprietorships, partnerships, or any type of corporation, with or without paid employees, and with receipts of $1,000 or more. | 2007 |
| Standard Statistical Establishment List | The Standard Statistical Establishment List (SSEL) files maintained at CES are created from the old Standard Statistical Establishment List (prior to 2002) and the new Business Register (2002 and forward). | 2011–2012 |

## HOUSEHOLD DATA[1]

| Data product | Description | New or updated years |
|---|---|---|
| American Community Survey | The American Community Survey (ACS) is an ongoing nationwide household survey that collects information traditionally collected on the long-form of the Decennial Census, including age, sex, race, family, ancestry, languages, place of birth, disability, education, veteran status, income, employment, health insurance, commuting, and housing characteristics. | 2012<br><br>2009–2011 (Master Address File crosswalks) |
| American Housing Survey | The American Housing Survey (AHS) collects data on the nation's housing, including apartments, single-family homes, mobile homes, vacant housing units, household characteristics, income, housing and neighborhood quality, housing costs, equipment and fuels, size of housing unit, and recent movers. The national survey has a sample spread throughout the United States, while the metropolitan survey focuses on housing units in specific metropolitan areas. National data are collected in odd-numbered years and data for each of 47 selected metropolitan areas are collected about every 4 years, with an average of 12 metropolitan areas included each year. | 2011 (National) |
| Decennial Census | The Decennial Census collected data on the age, sex, race, Hispanic ethnicity, and the relationship of individuals in the household, and whether the housing unit was owned (with or without a mortgage) or rented. In 2010, no long form was used; this information is now collected by the American Community Survey. | 2010 |
| Current Population Survey | The Current Population Survey (CPS) is the primary source of labor force statistics for the population of the United States. The Annual Social and Economic (ASEC, or "March") supplement of CPS collects data on work experience, several sources of income, migration, household composition, health insurance coverage, and receipt of noncash benefits. The Food Security ("December") supplement of the CPS collects data on food security, food expenditures, and use of food and nutrition assistance programs. | 2012 (ASEC/ March)<br><br>2001–2012 (Food Security/ December) |
| National Crime Victimization Survey | The National Crime Victimization Survey (NCVS) collects data from respondents who are 12 years of age or older regarding the amount and kinds of crime committed against them during a specific 6-month reference period preceding the month of interview. The NCVS also collects detailed information about specific incidents of criminal victimization that the respondent reports for the 6-month reference period. The NCVS is also periodically used as the vehicle for fielding a number of supplements to provide additional information about crime and victimization. | 2006, 2007, 2011 |

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[1] These demographic or decennial files maintained at the Center for Economic Studies and for the RDCs are the internal versions, and they provide researchers with variables and detailed information that are not available in the corresponding public-use files.

| Data product | Description | New or updated years |
|---|---|---|
| Survey of Income and Program Participation | The Survey of Income and Program Participation (SIPP) collects data on the source and amount of income, labor force information, program participation and eligibility, and general demographic characteristics. The data are used to measure the effectiveness of existing federal, state, and local programs, to estimate future costs and coverage for government programs, and to provide improved statistics on the distribution of income in the United States. | 2008 Panel: Wave 11 and PIK crosswalks<br><br>1984–2008 Panels: Merged Master Earnings File data |

# Appendix 6.
# CENSUS RESEARCH DATA CENTER (RDC) PARTNERS

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Federal Reserve Bank of Atlanta
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RTI International
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# Appendix 7.
# LONGITUDINAL EMPLOYER–HOUSEHOLD DYNAMICS (LEHD) PARTNERS

Under the Local Employment Dynamics (LED) partnership, the Longitudinal Employer-Household Dynamics (LEHD) program at the Center for Economic Studies produces new, cost-effective, public-use information combining federal, state, and Census Bureau data on employers and employees. The LED partnership works to fill critical data gaps and provide indicators increasingly needed by state and local authorities to make informed decisions about their economies.

## LOCAL EMPLOYMENT DYNAMICS (LED) STEERING COMMITTEE

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Labor Market Information
New Jersey Department of Labor and Workforce Development

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Center for Workforce Information and Analysis
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Labor Market Statistics Center
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Research and Analysis Bureau
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U.S. Department of the Interior
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Alaska Department of Labor and Workforce
 Development

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Budget and Resource Planning
Arizona Department of Administration

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Employment and Training Program Operations
Arkansas Department of Workforce Services

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Labor Market Information Division
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Colorado Department of Labor and Employment

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District of Columbia Department of Employment
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Workforce Statistics and Economic Research
Georgia Department of Labor

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Bureau of Labor Statistics
Guam Department of Labor

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Research and Statistics Office
Hawaii Department of Labor and Industrial
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**Idaho**
Bob Uhlenkott, Bureau Chief
Research and Analysis
Idaho Department of Labor

**Illinois**
Evelina Tainer Loescher, Ph.D., Division Manager
Economic Information and Analysis
Illinois Department of Employment Security

**Indiana**
Timothy Zimmer, Ph.D., Director
Research and Analysis
Indiana Department of Workforce Development

**Iowa**
Kerry Koonce, Division Administrator
Labor Market and Workforce Information Division
Iowa Department of Workforce Development

**Kansas**
Justin McFarland, Director
Labor Market Information Services
Kansas Department of Labor

**Kentucky**
Lori Collins, Director
Division of Workforce and Employment Services
Kentucky Office of Employment and Training

**Louisiana**
Raj Jindal, Director
Information Technology
Louisiana Workforce Commission

**Maine**
Chris Boudreau, Director
Center for Workforce Research and Information
Maine Department of Labor

**Maryland**
Carolyn J. Mitchell, Director
Office of Workforce Information and Performance
Maryland Department of Labor, Licensing
  and Regulation

**Massachusetts**
Rena Kottcamp, Director
Economic Research
Massachusetts Division of Unemployment
  Assistance

**Michigan**
Jason Palmer, Director
Labor Market Information and Strategic Initiatives
Michigan Department of Technology, Management,
  and Budget

**Minnesota**
Steve Hine, Ph.D., Research Director
Minnesota Department of Employment and
  Economic Development

**Mississippi**
Mary Willoughby, Bureau Director
Mississippi Department of Employment Security

**Missouri**
William C. Niblack, Labor Market Information
  Manager
Missouri Economic Research and Information
  Center
Missouri Department of Economic Development

**Montana**
Todd Younkin, Chief
Research and Analysis Bureau
Montana Department of Labor and Industry

**Nebraska**
Phil Baker, Labor Market Information
  Administrator
Nebraska Department of Labor

**Nevada**
Bill Anderson, Chief Economist
Research and Analysis Bureau
Nevada Department of Employment, Training,
  and Rehabilitation

**New Hampshire**
Bruce DeMay, Director
Economic and Labor Market Information Bureau
New Hampshire Department of Employment
  Security

**New Jersey**
Chester S. Chinsky, Labor Market Information
  Director
Labor Market and Demographic Research
New Jersey Department of Labor and Workforce
  Development

**New Mexico**
Joy J. Forehand, Acting Director
Economic Research and Analysis Bureau
New Mexico Department of Workforce Solutions

**New York**
Bohdan Wynnyk, Deputy Director
Research and Statistics Division
New York State Department of Labor

**North Carolina**
Jacqueline Keener, Interim Director
Labor and Economic Analysis Division
North Carolina Department of Commerce

**North Dakota**
Michael Ziesch, Labor Market Information Contact
Labor Market Information Center
Job Service North Dakota

**Ohio**
Coretta Pettway, Chief
Bureau of Labor Market Information
Ohio Department of Job and Family Services

**Oklahoma**
Lynn Gray, Director
Economic Research and Analysis
Oklahoma Employment Security Commission

**Oregon**
Graham Slater, Administrator for Research
Oregon Employment Department

**Pennsylvania**
Sue Mukherjee, Director
Center for Workforce Information and Analysis
Pennsylvania Department of Labor and Industry

**Puerto Rico**
Juan Lopez, Acting Director
Labor Market Information/Bureau of Labor
  Statistics
Puerto Rico Department of Labor

**Rhode Island**
Donna Murray, Director
Labor Market Information
Rhode Island Department of Labor and Training

**South Carolina**
Brenda Lisbon, Director
Labor Market Information
South Carolina Department of Employment
  and Workforce

**South Dakota**
Bernie Moran, Director
Labor Market Information Center
South Dakota Department of Labor and Regulation

**Tennessee**
Mattie S. Miller, Director
Labor Market Information
Tennessee Department of Labor and Workforce
  Development

**Texas**
Richard Froeschle, Director
Labor Market Information
Texas Workforce Commission

**Utah**
Carrie Mayne, Director
Workforce Analysis and Research
Utah Department of Workforce Services

**Vermont**
Mathew J. Barewicz, Labor Market Information
  Director
Economic and Labor Market Information Section
Vermont Department of Employment and Training

**Virgin Islands**
Gary Halyard, Director of Survey and Systems
Bureau of Labor Statistics
U.S. Virgin Islands Department of Labor

**Virginia**
Donald P. Lillywhite, Director
Economic Information Services
Virginia Employment Commission

**Washington**
Cynthia L. Forland, Director
Labor Market and Economic Analysis
Washington Employment Security Department

**West Virginia**
Jeffrey A. Green, Director
Research, Information and Analysis Division
Workforce West Virginia

**Wisconsin**
A. Nelse Grundvig, Director
Bureau of Workforce Training
Wisconsin Department of Workforce Development

**Wyoming**
Thomas N. Gallagher, Manager
Research and Planning
Wyoming Department of Workforce Services

# Appendix 8.
## CENTER FOR ECONOMIC STUDIES (CES) ORGANIZATIONAL CHART (December 2013)

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Lucia S. Foster
Rebecca Turner, Secretary

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Jim Spletzer

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Lisa Harris, Secretary

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Evan Buntrock
Richard J Fairbanks
Henry Hyatt
Mark Kutzbach
Kevin Liu
Kevin McKinney
Giordano Palloni
Kristin Sandusky
Stephen Tibbets
Ken Ueda
Alexandria Zhang
Nellie Zhao

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Danielle Sandler

**James Davis,** *Team Lead*
Angela Andrus
Michael Babb
Bert Grider

**Jonathan Fisher,** *Team Lead*
Bethany Desalvo
Andrew Green
Rachelle Hill

**Frank Limehouse,** *Team Lead*
Melissa Banzhaf
J. Clint Carter
Abigail Cooke

**Business Economics Research Group**

J. David Brown
Emin Dinlersoz
C.J. Krizan
Kristin McCue
Alice Zawacki

**Cheryl Grim,** *Lead*
Brittany Bond
Leland Crane
Ron Davis
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Robert Kulick
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Cathy Buffington
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Cheaka Burise
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Shy Degrace
Todd Gardner
Daniel Orellana
David Ryan
Anurag Singal
Ya-jiun Tsai
Michele Yates