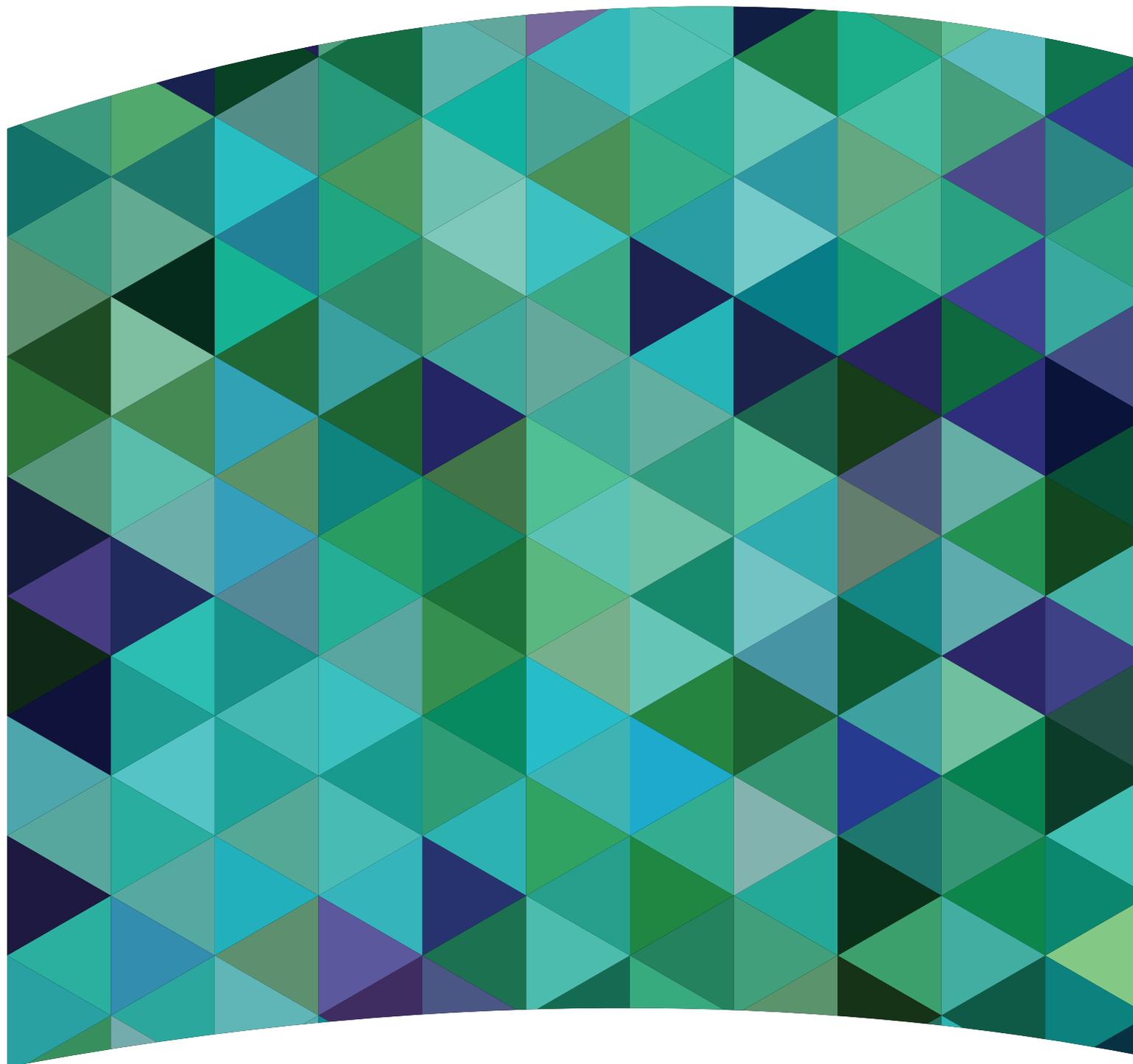


# Center for Economic Studies and Research Data Centers Research Report: 2015

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*Research and Methodology Directorate*

Issued June 2016



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## MISSION

The Center for Economic Studies partners with stakeholders within and outside the U.S. Census Bureau to improve measures of the economy and people of the United States through research and innovative data products.

## HISTORY

The Center for Economic Studies (CES) was established in 1982. CES was designed to house new longitudinal business databases, develop them further, and make them available to qualified researchers. CES built on the foundation laid by a generation of visionaries, including Census Bureau executives and outside academic researchers.

Pioneering CES staff and academic researchers visiting the Census Bureau began fulfilling that vision. Using the new data, their analyses sparked a revolution of empirical work in the economics of industrial organization.

The Federal Statistical Research Data Center (RDC) program expands researcher access to these important new data while ensuring the secure access required by the Census Bureau and other providers of data made available to RDC researchers. The first RDC opened in Boston, Massachusetts, in 1994.

## ACKNOWLEDGMENTS

Many individuals within and outside the Census Bureau contributed to this report. **Randy Becker** coordinated the production of this report and wrote, compiled, or edited its various parts. **Henry Hyatt** and **Erika McEntarfer** authored Chapter 2, and **Lucia Foster** authored Chapter 3. **Brian Holly** provided the material found in Appendix 3. Our RDC administrators and executive directors helped compile information found in Appendixes 2 and 6. Other CES staff contributed updates to the other appendixes.

**Elzie Golden** and **Donna Gillis** of the Census Bureau's Public Information Office provided publication management, graphics design and composition, and editorial review for print and electronic media. The Census Bureau's Administrative and Customer Services Division provided printing management.

## DISCLAIMER

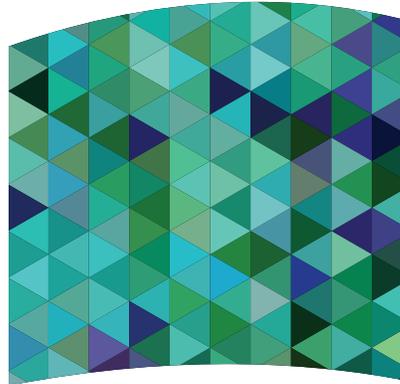
Research summaries in this report have not undergone the review accorded Census Bureau publications, and no endorsement should be inferred. Any opinions and conclusions expressed herein are those of the author(s) and do not necessarily represent the views of the Census Bureau or other organizations. All results have been reviewed to ensure that no confidential information is disclosed.

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Issued June 2016

*Research and Methodology Directorate*



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## Contents

A Message From the Chief Economist . . . . .	1
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### Chapters

1. 2015 News . . . . .	3
2. Job-to-Job Flows: Filling Gaps in Our Understanding of Labor Market Dynamics . . . . .	13
3. Entrepreneurship Research and Development Activities . . . . .	21

### Appendixes

1. Overview of the Center for Economic Studies . . . . .	35
2. Center for Economic Studies (CES) Staff and Research Data Center (RDC) Selected Publications and Working Papers: 2015 . .	37
3-A. Abstracts of Projects Started in 2015: U.S. Census Bureau Data . . . . .	49
3-B. Abstracts of Projects Started in 2015: Agency for Healthcare Research and Quality (AHRQ) Data or National Center for Health Statistics (NCHS) Data . . . . .	61
4. Center for Economic Studies (CES) Discussion Papers: 2015 . . .	79
5. New Census Data Available Through Research Data Centers (RDCs) in 2015 . . . . .	83
6. Federal Statistical Research Data Center (RDC) Partners . . . . .	89
7. Longitudinal Employer-Household Dynamics (LEHD) Partners . .	91
8. Center for Economic Studies (CES) Organizational Chart (November 2015) . . . . .	95



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## A MESSAGE FROM THE CHIEF ECONOMIST

It has been an exciting year for research and development activities at the Center for Economic Studies (CES). The mission of 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 Federal Statistical Research Data Center (FSRDC) program, as the data repository for Census researchers, and as the archivist for Census business data. These activities either directly or indirectly enhance our understanding of the U.S. economy and its people.



The three chapters in this year's annual report provide an overview of activities at CES (Chapter 1), an in-depth look at one of our new data products, Job-to-Job Flows (Chapter 2), and an overview of the many research and development activities related to entrepreneurship (Chapter 3).

Using Longitudinal Employer-Household Dynamics (LEHD) data, Job-to-Job Flows (J2J) helps fill a gap in our measurement of labor market dynamics in the United States. As described in Chapter 2, the beta release of J2J is the culmination of many years of research and development activities. The chapter describes some of what we have learned about job-to-job flows at the national, state, and industry level, and also what we have learned about these flows at new firms.

Chapter 3 builds upon the focus on new firms at the end of Chapter 2 by describing CES's multifaceted research into entrepreneurship. This research uses a wide array of micro-level data housed at CES, including data from surveys, censuses, administrative records, and business assistance programs. The chapter also describes the development of public-use data products that provide information on entrepreneurship and work on an entirely new survey, the Annual Survey of Entrepreneurs.

Over the coming year, we are looking forward to the further expansion of the FSRDC program; continuing improvements to our existing data products; and expanded research efforts to better understand the U.S. economy, improve content on new and existing surveys, and discover innovative uses of administrative data.

Thank you to everyone who contributed to this report. Randy Becker compiled and edited all of the material. Editorial review was performed by Donna Gillis and design services and cover art production by Elzie Golden, both of the Public Information Office. Other contributors are acknowledged on the inside cover.

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

*Lucia S. Foster*



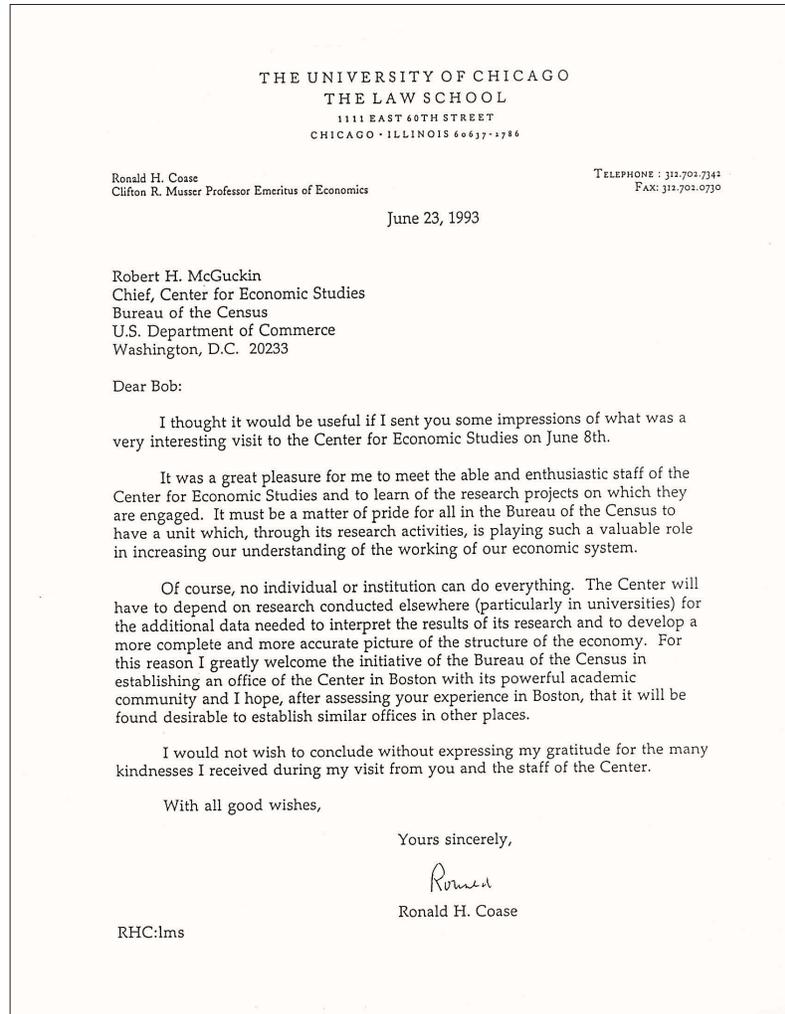
## Chapter 1. 2015 News

### FURTHER EXPANSION AND SUCCESS OF THE RDC NETWORK

In his 1991 Nobel Prize Lecture, Ronald Coase opined that “we can also hope to learn much more in the future from the studies of the activities of firms which have recently been initiated by the Center for Economic Studies of the Bureau of the Census of the United States.” Elaborating on these thoughts in a letter sent to the Center for Economic Studies (CES) following a visit there in June 1993, he states:

*Of course, no individual or institution can do everything. The Center [for Economic Studies] will have to depend on research conducted elsewhere (particularly in universities) ... to develop a more complete and more accurate picture of the structure of the economy. For this reason I greatly welcome the initiative of the Bureau of the Census in establishing an office of the Center in Boston ... and I hope, after assessing your experience in Boston, that it will be found desirable to establish similar offices in other places.*

Twenty-two years have passed since those words, and we end 2015 with a total of 22 Federal Statistical Research Data Centers (RDCs). The year saw the opening of four new RDC locations, at Yale University, University of Wisconsin–Madison, University of Nebraska–Lincoln, and University of Missouri–Columbia, with an



additional site at the Federal Reserve Bank of Kansas City scheduled to open in early 2016.

The RDCs are secure facilities that provide access to restricted-use microdata collected by the Census Bureau and other agencies. Qualified researchers with approved projects can conduct research that benefits the Census Bureau by improving measures of the economy and people of

the United States. On the occasion of the grand opening of the Wisconsin RDC, former acting Secretary of Commerce and current University of Wisconsin Chancellor Rebecca Blank remarked, “These statistical research data centers are all about providing more data and better data. To a social scientist like myself, that’s about the most exciting thing you can make happen.”



*Former acting Secretary of Commerce and current University of Wisconsin Chancellor Rebecca Blank at the opening of the Wisconsin RDC on September 21.*



*Census Bureau Director John Thompson and University of Nebraska—Lincoln officials at the grand opening of the Central Plains RDC on November 10.*

This year also saw the official rebranding of the RDCs as the Federal Statistical Research Data Centers. While the Census Bureau will continue to administer the RDCs, the rebranding acknowledges the fact that other federal

statistical agencies also make their restricted-use data available to researchers through these same facilities. In December, the Bureau of Labor Statistics joined the FSRDC partnership. The hope is that additional statistical

agencies will also join and begin making their restricted-use data available through the RDCs as well. For more information, visit [www.census.gov/fsrdc](http://www.census.gov/fsrdc).



At year's end, the RDCs currently host about 700 researchers working on about 220 different projects. In 2015, 58 new RDC projects began. Of those, 25 use Census Bureau microdata (see Appendix 3-A), while 2 use data from the Agency for Healthcare Research and Quality and 31 use data from the National Center for Health Statistics (see Appendix 3-B).

Meanwhile, RDC researchers using Census Bureau microdata continue to be tremendously prolific, with at least 64 publications and another 53 working papers in 2015 (see Appendix 2). As the accompanying table shows, RDC-based research is being published in many of the top peer-reviewed journals. Recent and forthcoming articles appeared in 9 of the top 20 journals in economics, including a number of articles in the *American Economic Review* and *Journal of Political Economy*.

RDC researchers include many graduate students working on their Ph.D. dissertations. Currently, there are about 100 such students from 30 different universities, including 80 who use Census microdata. Many of these doctoral candidates

## PUBLICATIONS BY RDC RESEARCHERS AND CES STAFF: 2015 AND FORTHCOMING

Economics journals (by rank)	RDC researchers	CES staff	Total
AAA (1–5)	5	0	5
AA (6–20)	10	3	13
A (21–102)	24	7	31
B (103–258)	9	1	10
C (259–562)	4	1	5
D (563–1202)	1	0	1
<b>Journals outside of economics</b>	7	3	10
<b>Book chapters</b>	4	18	22
<b>TOTAL</b>	64	33	97

Note: Based on known publications listed in Appendix 2. Ranking of journals in economics is taken from Combes and Linnemer (2010). In select cases, a ranking was imputed using the journal ranking from RePEc.

are eligible to apply to the CES Dissertation Mentorship Program. Program participants receive two principal benefits: mentoring by a CES staff economist who advises the student on the use of Census Bureau microdata and a visit to CES to meet with staff economists and present research in progress. In 2015, CES accepted five new participants into the program and has had 28 since the program began in 2008.

The microdata available to researchers has also expanded. Among the notable releases are data from the 2012 Economic Census, the 1950 and 1960 decennial censuses, and several years of the Current Population Survey's basic monthly files, fertility supplement, and voting supplement. See Appendix 5 for more details.

## RELEASES OF PUBLIC USE DATA

CES released five public use data products in 2015: *Business Dynamics Statistics*, *Quarterly Workforce Indicators*, *OnTheMap*, *OnTheMap for Emergency Management*, and *Job-to-Job Flows*.

In September 2015, the Census Bureau released the 2013 *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 2013, by firm (or establishment) size, age, industrial sector, state, and metropolitan area. More information about the BDS can be found at <[www.census.gov/ces/dataproducts/bds](http://www.census.gov/ces/dataproducts/bds)>.

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, industry, business characteristics (firm age and size), and worker demographics (age, sex, educational attainment, race, and ethnicity).

The QWI data are now available for all 50 states and the District of Columbia with the addition of Massachusetts in September 2015. Additionally, a beta version of the *National Quarterly Workforce Indicators* (NQWI) was released in 2015. This first national (versus state-level) release of the QWI provides a consistent reference point for users of the QWI. Also provided are rates and new variability measures that preview future enhancements to the state-level QWI. More detailed national statistics will be available in future releases, including tabulations by race, ethnicity, and NAICS3 industry. This first release contains national tabulations from 1993Q1 through 2014Q2. For more information, see <[lehd.ces.census.gov/data/qwi\\_national\\_beta.html](http://lehd.ces.census.gov/data/qwi_national_beta.html)>. These new data are also available via the newly updated *LED Extraction Tool* at <[ledextract.ces.census.gov](http://ledextract.ces.census.gov)>, which has also been improved to allow cross-state totals from a single query.

Updated versions of *QWI Explorer* were also released in 2015. First launched in beta form in 2014, *QWI Explorer* is a Web-based analysis tool that enables comprehensive access to the full

## DEVELOPMENT OF NEW BDS PRODUCTS

Extensions to *Business Dynamics Statistics* (BDS) are currently under development. One such effort is the BDS “Innovative Firm” (BDS-IF) project to examine the role innovations play in business dynamics and economic growth. In partnership with the U.S. Patent and Trademark Office, CES has been linking Census Bureau business data and Longitudinal Employer-Household Dynamics linked employer-employee data with patent data. Prototype statistics will be developed, some of which will eventually become official Census Bureau statistics. Initial results from this work are discussed in Graham et al. (CES Discussion Paper 15-19, July 2015).

To seek feedback and direction on this research, a workshop called “Innovation Data Opportunities: Linking U.S. Patent Data with U.S. Census Data on Workers and Firms” was co-organized by Ben Jones (Northwestern), Javier Miranda (CES), and Scott Stern (MIT). About 20 innovation measurement experts from around the world gathered at MIT in July, including Bronwyn Hall (UC–Berkeley), Adam Jaffe (Motu), Josh Lerner (Harvard), and Raj Chetty (Stanford). While measures of innovation may eventually include such indicators as patent counts, quality adjusted patents, trademarks, and R&D expenditures, the initial focus of the BDS-IF is on patent holding. Much of the discussion focused on measurement issues associated with using patents as an innovation indicator, including the timing of attributing a patent holding to a firm, the timing of the impact of patent holding, developing measures of networks using patent citations, and measures of patent quality. Similar meetings are planned for the future.

Other BDS-related products currently under development will incorporate measures of globalization, an indicator of firms in high-tech industries, business owner and worker characteristics, and finance.

depth and breadth of the QWI dataset. Through an easy-to-use dashboard interface, users can construct tables and charts to compare, rank, and aggregate indicators across time, geography, and/or firm and worker characteristics. Users can download their analyses to an Excel spreadsheet, a PNG/SVG chart

image, and a PDF report. With this year’s updates, thematic mapping functionality is available for users to visualize and compare workforce information for substate geographies. Additionally, users can now share data tables and visualizations via sharable URLs or through social media. The latest version also enables indicator

comparisons and data normalization on the fly. To use *QWI Explorer*, visit <qwiexplorer.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 the release of version 6.4 in 2015. *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. One can also find firm age and firm size, allowing analysis of the impacts of young/old firms or small/large firms in relation to commuting patterns and worker characteristics.

This year’s release of *OnTheMap* adds two additional years of data, extending availability from 2002 through 2013. In addition, the base geography has been updated to TIGER 2014.

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*OnTheMap* can be accessed at <onthemap.ces.census.gov>, and *OnTheMap Mobile* can be accessed at <onthemap.ces.census.gov/m/>.

In April, version 4.2 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 our 2013 annual report for a more detailed overview of OTM-EM.

Among the improvements in the latest release are updated American Community Survey data to the 2009–2013 5-year estimates, filtered search features

that make finding specific historical events easier, and a new feature that allows users to see all the events that were active on a specific date. *OnTheMap for Emergency Management* 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.

In 2015, the Census Bureau continued its launch of ***Job-to-Job Flows*** (J2J), a new set of statistics on the movements of workers between jobs. Job-to-job moves are a primary means by which workers move from lower-paying to better-paying employers and from dead-end jobs to new career ladders. Similarly, employers often seek experienced workers for jobs—workers who are often currently with other firms. These flows of workers across employers, industries, and labor markets are quite large—for example, about half of hires and separations in 2000 were job-to-job flows. Until now, this was a critical gap in the set of available statistics on employment dynamics.

The new J2J statistics include information on the job-to-job transition rate, hires and separations to and from employment, and characteristics of origin and destination jobs of workers changing jobs. These statistics

show the reallocation of workers across different sectors of the economy at both the state and national levels. Rates and counts of transitions are tabulated by industry, state, firm age and size, and demographic characteristics such as age, sex, race, ethnicity, and education. More detailed tabulations are planned in future releases.

The beta J2J data files and documentation are available for download at <lehd.ces.census.gov/data/j2j\_beta.html>.

#### **CES DATA USED IN 2015 ECONOMIC REPORT OF THE PRESIDENT**

In its chapter on the U.S. labor market, and particularly in its section on labor market fluidity, the 2015 *Economic Report of the President (EROP)* makes extensive use of CES data products, including *Job-to-Job Flows* and *Business Dynamics Statistics*, and it cites related CES research by Abowd et al. (2005), Decker et al. (2014), Fallick et al. (2012), Hyatt et al. (2014), and Hyatt and Spletzer (2013). The *EROP's* chapter on the United States in the global economy also makes use of the NBER-CES Manufacturing Industry Database (Becker, Gray, and Marvakov 2013).



*Executive directors of the FSRDCs and CES FSRDC management.*

## **RDC ANNUAL RESEARCH CONFERENCE**

The RDC Annual Research Conference brings together researchers from the Federal Statistical Research Data Centers (RDCs) and from partner agencies, including the Census Bureau, to showcase research using microdata and to share data expertise. This year, the conference was held on September 18 at Stanford University and featured 34 papers in 12 sessions, on themes that included firm organization and behavior; innovation; productivity; globalization and international trade; worker earnings and mobility; economic measurement; segregation;

immigrants and ethnicity; and health and health care.

The conference opened with professor Nicholas Bloom of Stanford discussing the Census Bureau's first-ever management survey, a successful academia-agency collaboration, as well as professor Mark Cullen of Stanford discussing the use of biomedical data in social science research and vice versa. The conference also featured a panel discussion on the future of administrative data with Kenneth Prewitt, professor of public affairs at Columbia University and former director of the Census Bureau; Henry Brady, dean of the Goldman School of Public Policy at UC-Berkeley; Mark Cullen,

director of the Stanford Center for Population Health Sciences; Daniel Goroff, vice president and program director of the Alfred P. Sloan Foundation; and Erica Groshen, commissioner of the U.S. Bureau of Labor Statistics. The next conference will be held at Texas A&M University on September 14–15, 2016.

## **LOCAL EMPLOYMENT DYNAMICS (LED) PARTNERSHIP WORKSHOP**

The 2015 Local Employment Dynamics (LED) Partnership Workshop was held at the Department of Commerce and the Census Bureau on June 23 and 24, respectively. Now in its sixteenth year, this workshop

has been a key component in strengthening the voluntary partnership between state data agencies and the Census Bureau to leverage existing data in the development of new sources of economic and demographic information for policy makers and data users. 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 product 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 "Discerning the Dynamic Workforce." Topics addressed by invited speakers, state partners, and data users included economic development, data visualization, regional economic development and assessments, and STEM. CES staff discussed newly available data and enhancements to data applications, including Job-to-Job Flows, OnTheMap, QWI Explorer, and National Quarterly Workforce Indicators. CES staff also offered training sessions on OnTheMap/LODES, OnTheMap for Emergency Management, QWI, and QWI Explorer. Each training session offered scenario-based exercises, giving attendees hands-on experience. Presentations and materials from the 2015 workshop (and those from previous years) can

be found at [lehd.ces.census.gov/learning/#workshop](http://lehd.ces.census.gov/learning/#workshop).

Commerce Undersecretary for Economic Affairs Mark Doms and Census Bureau Director John Thompson provided opening remarks, and Betsey Stevenson, member of the President's Council of Economic Advisers, offered the workshop's opening keynote address on the challenges and opportunities in the labor market and the role of data-driven policy. Professor John Haltiwanger of the University of Maryland was the midday keynote speaker, discussing labor market fluidity and economic performance.

The 2016 LED Partnership Workshop—with the theme "National Perspective, Local Data"—will be held on March 7 and 8.



*Betsey Stevenson, member, Council of Economic Advisers.*

## STATISTICAL AGENCIES COLLABORATE ON RESEARCH WORKSHOPS

### *BLS-CENSUS RESEARCH WORKSHOP*

On June 18, the Bureau of Labor Statistics (BLS) and the Census Bureau cohosted their fifth annual workshop featuring empirical research by economists from both agencies. These annual workshops are intended to encourage and nurture collaboration between researchers at BLS and Census.

Bill Wiatrowski, deputy commissioner of BLS, and Ron Jarmin, assistant director for research and methodology at the Census Bureau, provided welcoming remarks. This year's workshop consisted of two themed sessions with two papers each—one from each agency—with discussants from the other agency. In addition, a poster session of five papers was held. Papers included:

- *Occupation Injuries and Employer Dynamics*
- *Customer-Labor Substitution: Evidence from Gasoline Stations*
- *Pension Plan Structure and Firms' Responses to the Pension Protection Act of 2006: Evidence from a National Employer-Based Survey*
- *Early Estimates of Annual Manufacturing Industry Output*

- *Macro and Micro Dynamics of Productivity: Is the Devil in the Details?*
- *Within-Industry Productivity Dispersion and Imputation for Missing Data in the Census of Manufactures*
- *Describing the Economic Outcomes of Food Safety Research: Placements, Startups, and Vendors*
- *Increased Concentration of Occupations, Outsourcing, and Growing Wage Inequality in the United States*
- *Labor Market Networks and Recovery from Mass Layoffs Before and During and After the Great Recession*

The workshop was a success thanks to the researchers from both agencies who participated and especially to Martha Stinson (Census) and Nicole Nestoriak (BLS), who organized the workshop. The sixth annual BLS-Census Research Workshop will

be held on June 6, 2016, at the Bureau of Labor Statistics.

### **BEA-CENSUS RESEARCH WORKSHOP**

On October 14, the Bureau of Economic Analysis (BEA) and the Census Bureau cohosted their second annual research workshop. Recognizing that research economists at the two agencies often work on similar topics with similar datasets, these annual workshops provide a forum to discuss topics of common interest, promote collegiality, and provide an opportunity to learn about data from the other agency.

Brian Moyer, director of BEA, and Nancy Potok, deputy director of the Census Bureau, provided opening remarks. This year's workshop consisted of two themed sessions with two papers each—one from each agency—with discussants from the other agency. In addition, a poster session of six papers was held.

Papers included:

- *The Impact of Trade on Managerial Incentives and Productivity*
- *Headquarter Services in the Global Integration of Production*
- *The Business Dynamics of Exporting Firms: Integrating Trade Transactions Data with Business Administrative Data*
- *Measuring the Effects of the Tipped Minimum Wage Using W-2 Data*
- *Electricity Market Deregulation and Electric Utilities' Energy Efficiency Activity*
- *A Consistent Data Series to Evaluate Growth and Inequality in the National Accounts*
- *Surviving a Hurricane: Urban Decline, Disaster Expectations, and the Dynamics of Local Supply Shocks*
- *New Technology Indicator for Technological Progress*
- *Subchapter S Election and Banking Operations*
- *Owner Characteristics and Firm Performance Differentials during the Great Recession—Exploring the Housing Collateral Lending Channel*

The workshop was a success thanks to the researchers from both agencies who participated and especially to Fariha Kamal (Census) and Anne Hall (BEA), who organized the workshop. The third annual BEA-Census Research Workshop will be held on November 14, 2016.



*Brian Moyer, director, Bureau of Economic Analysis.*

## CES STAFF RECEIVE RECOGNITION

In February, Emin Dinlersoz and other team members received a Bronze Medal Award for their work in support of the Economic Census and other business surveys. The group used experimental design to test the effectiveness of six response improvement strategies and found benefits from eliminating forms in follow-ups and in using certified mail and found no benefits from advance mailings.

At the same ceremony, Hubert Janicki and other team members received a Bronze Medal Award for developing, testing, and implementing innovative advances in health insurance measurement on Census Bureau surveys. This redesign will provide critical statistics on the effect of the Patient Protection and Affordable Care Act on the nation's health and economic welfare, as the new law unfolds in coming years.

In December, Randy Becker received a Bronze Medal Award for establishing and directing the CES Dissertation Mentorship Program to advise and mentor doctoral students engaged in research at the Research Data Centers, particularly on issues related to the use of Census Bureau microdata. Since its inception, the program has had 28 participants from 15 different universities.

The Bronze Medal Award for Superior Federal Service is the highest honorary recognition given by the Census Bureau.



*The Economic Census Response Improvement Strategies Team uncovered the effectiveness of various survey response strategies.*



*Randy Becker established and directs the CES Dissertation Mentorship Program to advise doctoral students engaged in research at the RDCs.*

In May, Nathan Goldschlag and other team members won the Director's Award for Innovation for their work on re-architecting the Standard Economic Processing System (StEPS). Among numerous innovations,

StEPS II positions the Economic Directorate to be more in line with the technical architectural direction of the enterprise. The team is presently migrating 22 surveys to StEPS II, including critical economic indicators.



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## Chapter 2.

# Job-to-Job Flows: Filling Gaps in Our Understanding of Labor Market Dynamics

*Henry Hyatt and Erika McEntarfer, Center for Economic Studies*

Workers in the United States change employers frequently. Many economists argue that employment reallocation—that is, workers changing employers—is a key part of productivity-enhancing growth (see, for example, Jovanovic and Moffitt 1990). This reasoning is consistent with the empirical finding that job separations are procyclical and driven by quits (Davis, Faberman, and Haltiwanger 2012). However, a full understanding of the role of worker reallocation in the U.S. economy has been hindered by a lack of readily available data on employer-to-employer transitions. New Census Bureau Job-to-Job Flow (J2J) statistics seek to fill this gap.

Job-to-job moves are also an important source of lifetime earnings growth. Topel and Ward (1992) found that one-third of the total earnings growth of men from their early twenties to late thirties can be accounted for by the earnings changes that occur when they change employers. Earnings growth at job change is also procyclical, as shown by Daly, Hobijn, and Wiles (2012). Hyatt and McEntarfer (2012b) showed that younger workers changing jobs commonly experience double-digit proportionate changes in earnings when they change employers.

Employer-to-employer transitions may also be indicative of

the bargaining power of workers relative to employers. Workers do not accept all job offers, but the threat of workers moving could boost earnings and shift the share of output toward that which is captured by workers in the form of wages. If there are fewer workers switching employers, then there may be less competitive pressure to keep earnings high. This mechanism has been highlighted in many theoretical models starting with Postel-Vinay and Robin (2002). In such models, a higher rate of job-to-job movements increases wages at the expense of firm profits.

This chapter describes how research by Census Bureau staff and others facilitated the construction of the new Job-to-Job Flow statistics. We describe the development of this product, show results from some of the data that are available for download at this time, and discuss plans for future product enhancements and releases.

### DEVELOPING PUBLIC-USE STATISTICS

Starting with Fallick and Fleischman (2004), economists have used the dependent interview component from the Current Population Survey (CPS) to measure the rate at which workers switch employers. The CPS prompts respondents with the name of the employer that they reported in the previous

month of the CPS and asks whether the worker was still employed by that employer. Although the CPS is a relatively large survey, the capability to study job-to-job moves across industries and geographies is still quite limited. The CPS also does not follow individuals who change residence during the survey, potentially producing biased estimates of economic mobility across different labor markets.

Research using Census Bureau linked employer-employee Longitudinal Employer-Household Dynamics (LEHD) data to estimate the frequency of job transitions began with Bjelland et al. (2011). In a follow-up paper, Fallick, Haltiwanger, and McEntarfer (2012) included transitions to nonemployment, documenting that employment transitions involving spells of nonemployment between jobs are associated with earnings losses. This latter study provided motivation for producing statistics on movements into and out of nonemployment as part of J2J. Work on a public-use data product from the LEHD data began in earnest with the construction of a prototype database of job-to-job flows as described in Hyatt and McEntarfer (2012a, 2012b). A larger team was assembled to address methodological issues in moving from an early prototype to the beta J2J release in 2014. The methodology for

the beta public-use J2J series is described in Hyatt et al. (2014).

The new J2J series provides measures of the frequency with which workers change employers, as well as how frequently they move into and out of employment. These statistics are provided by detailed worker characteristics (age, sex, education, race, and ethnicity), as well as by employer characteristics (industry, firm age, and firm size). A unique feature of the J2J data is the origin-destination

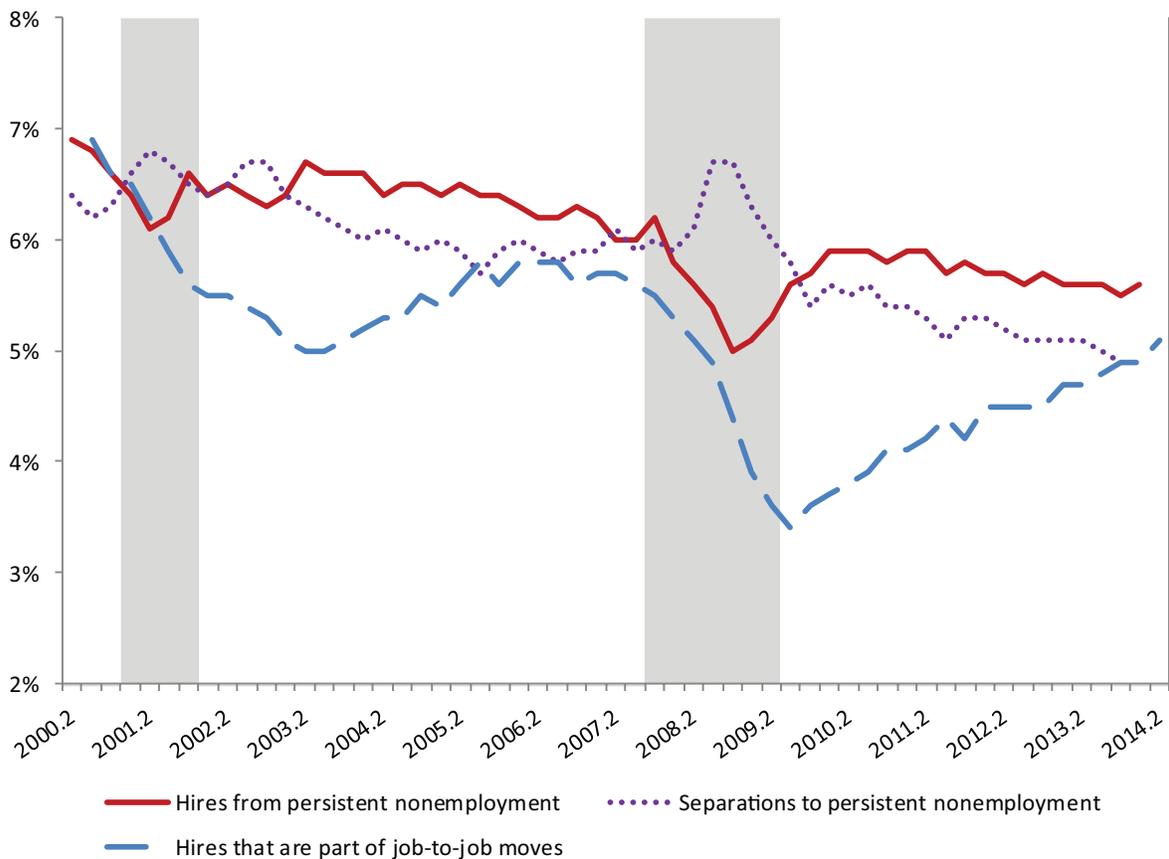
information on job-to-job flows. Information on the industry, firm age/size, and location of the origin and destination jobs is provided for all job-to-job moves. This allows data users to see, for example, the separation rate of workers from industry X to industry Y, or to examine whether a particular local industry is importing workers from other labor markets or other local industries.

## NATIONAL JOB-TO-JOB FLOWS

Figure 2-1 provides the national job-to-job and employment transition rates from the most recent beta release of J2J. The figure shows seasonally adjusted hires and separations from 2000 Q2 to 2014 Q2.

The most dramatic take-away from the national job-to-job flows series is the procyclical nature of job-to-job moves—more people transition between employers during economic

Figure 2-1.  
National Job-to-Job Flows Data, 2000 Q2 to 2014 Q2



Source: Job-to-Job Flows, national data, 2015 Q2 release. Shaded regions indicate NBER recession quarters. All data are seasonally adjusted.

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expansions than during economic contractions (blue dashed line). Declines in job-to-job transitions occur at the same time as overall job growth slows and declines during recessions (recession quarters are the shaded regions in the figure). Job-to-job transitions are about as frequent as movements into or out of employment into nonemployment at the start of the 2000s (about 6 to 7 percent), but exhibit a trend decline in a “stair-step” pattern similar to that documented by Hyatt and McEntarfer (2012b) and Hyatt and Spletzer (2013), with job-to-job separations and hires falling below 4 percent during the 2007–2009 recession.

Figure 2-1 also shows how nonemployment enters into the J2J data product. Job-to-job moves, by definition, do not add or subtract employment by themselves, as they imply the loss of an employee at the previous employer, as well as the gain of an employee by the worker’s new employer. Net changes in the number of workers who are employed come from the nonemployment margin, for which hires and separations are also included in Figure 2-1. During business cycle expansions, movements from nonemployment outnumber movements into nonemployment

as the number of employed workers increases. However, during recessions, more workers enter nonemployment than leave it. Movements out of nonemployment appear procyclical, and movements into nonemployment are clearly countercyclical. There is also a slight trend decline in both series, consistent with the findings of Hyatt and Spletzer (2013) and Hyatt et al. (2014).

### **STARTUPS AND THE JOB LADDER**

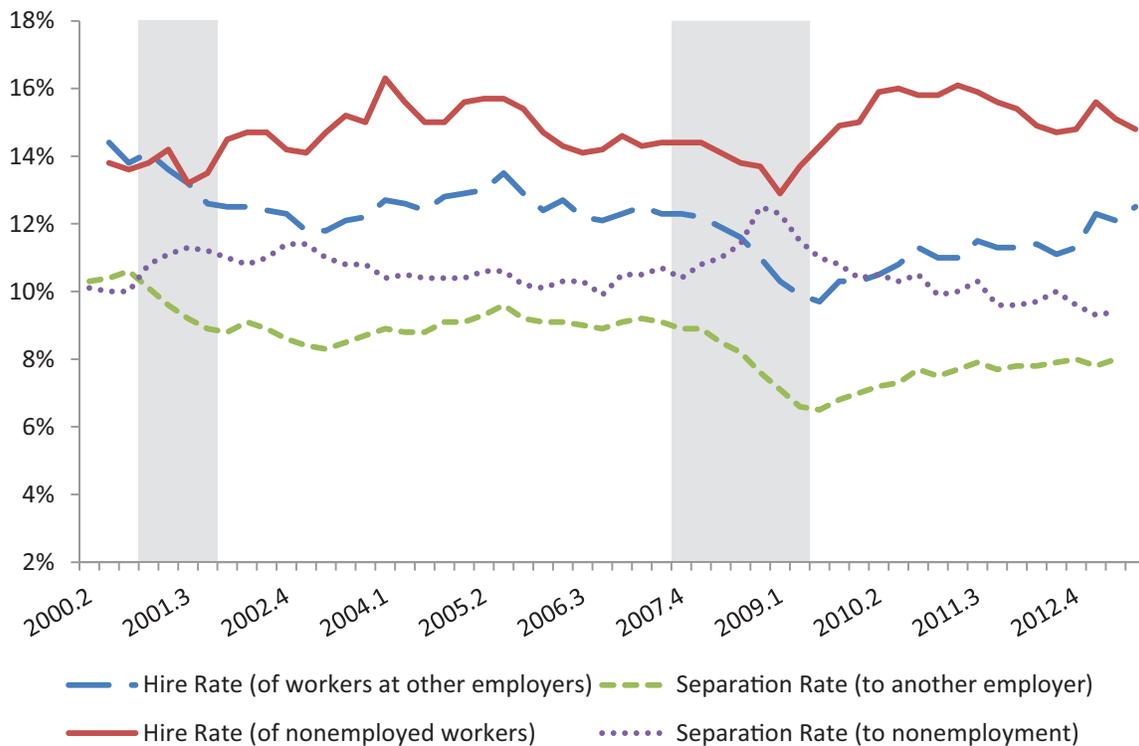
The J2J data also provide information about how employers obtain and lose their workers. Some of the evidence from J2J helps to provide empirical evidence against which to weigh the relative importance of competing forces in the economy. For example, it is well-known that workers earn, on average, less at young and small businesses (see Brown and Medoff 1989, 2003). This may suggest that startups (defined as young employer businesses) are at the bottom of the job ladder. However, it is also known that young businesses are important contributors to net job growth (see Haltiwanger, Jarmin, and Miranda 2013). Which of these effects dominates is an empirical question.

Young businesses, defined as firms in their year of entry or the next (that is, age zero or one), gain workers, on net, through poaching as shown by Haltiwanger, Hyatt, and McEntarfer (2015). Figure 2-2 from Goetz et al. (forthcoming) shows seasonally adjusted hires and separations at young firms for 2000 Q2 to 2013 Q3. Young businesses lose 7 to 11 percent of their employment to other employers each quarter, but gain more: 11 to 15 percent, and in the typical quarter obtain about 2 percent more employment on net through job-to-job flows. Young businesses also gain a substantial amount more workers from nonemployment than they lose to nonemployment, and this net gain declines substantially during recessions.

Additional interesting features of startups are apparent when comparing Figure 2-1 and Figure 2-2. The hiring and separation rates of young businesses are higher than other businesses, for example, the hiring rate from job-to-job transitions is 10 to 14 percent, while it is 4 to 7 percent for firms more generally. Firms in their first couple years hire even more workers from nonemployment: such businesses hire 13 to 16 percent of their workers through

Figure 2-2.

**Hires and Separations at Young Firms (0-1 years old) 2000-2013**



Source: Figure 3a of Goetz et al. (forthcoming). Authors' calculations from national Job-to-Job Flows data, beta 2014 Q1 release. All data are seasonally adjusted.

nonemployment compared to 5 to 7 percent for businesses more generally. These high hiring rates are related to the fact that employer businesses grow upon entry, by definition. It also is consistent with employment at startups being more volatile than in the economy more generally. Finally, it is interesting to note that the hire and separation rates associated with job-to-job transitions also has a downward trend. This is consistent with evidence in Hyatt

and Spletzer (2013), who find that declining job-to-job transitions occur within firm age categories.

**THE CONSTRUCTION INDUSTRY AND THE HOUSING BUST**

The J2J data also permit the examination of how different industries obtain their workers. Some sectors, such as Accommodation and Food Services, are relatively low on the job ladder, relying disproportionately on nonemployment

for hiring workers, while other sectors, such as Construction and Manufacturing, are higher on the job ladder.

This matters for understanding how industries grow and contract. Janicki and McEntarfer (2015) consider the growth and subsequent decline of Construction employment in the later years of the housing bubble and in the years following. Figure 2-3, taken from

Janicki and McEntarfer (2015), shows net movements into the Construction sector from a few selected sector aggregations.

The Construction sector disproportionately obtains workers from a few sectors, including Leisure and Hospitality (Arts, Entertainment and Recreation, as well as Accommodation and Food Services) and Retail Trade. Each quarter from 2002 to 2005, net moves from these two sectors are in excess of 0.3 percent

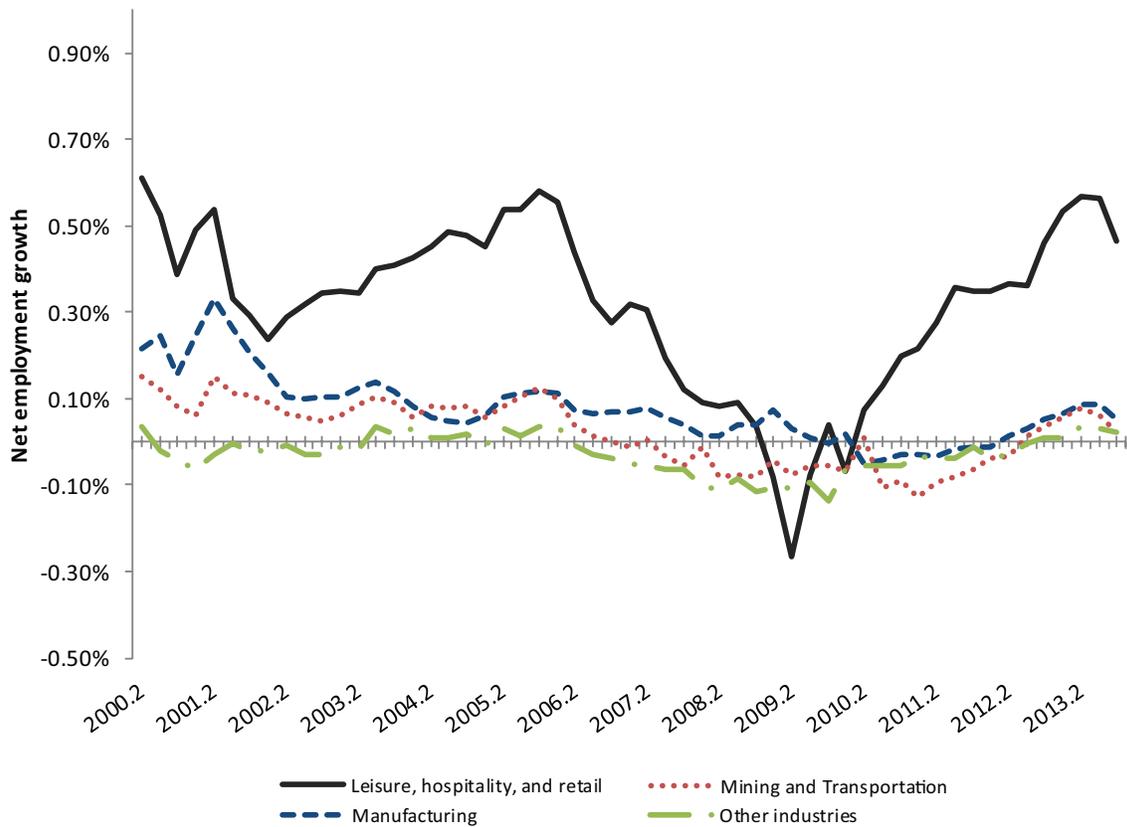
each quarter. Net moves from Manufacturing, as well as from the Mining and Transportation and Warehousing sectors, are generally positive, but smaller. The job ladder that moves workers from typically lower-paying industries to the higher-paying Construction sector slowed dramatically during the housing bust, and was actually negative for a few quarters in 2008 and 2009 when the U.S. economy was in recession.

### NORTH DAKOTA DURING THE SHALE OIL BOOM

The J2J data also offer a new source of geographic data on cross-state job-to-job flows. This can be useful for tracking how regions that are growing obtain their workers.

In the early 2010s, a considerable amount of attention was given to shale oil extraction, and the influx of workers to North Dakota was an item of popular

Figure 2-3.  
**Net Employment Change in Construction from Workers Changing Industries: 2000 Q2 to 2013 Q4**



Source: Figure 2 of Janicki and McEntarfer (2015). Authors' calculations from beta Job-to-Job Flows (J2J) data, beta 2015 Q2 release, set of 32 states with complete data from 2000 Q2 to 2013 Q4. All data are seasonally adjusted.

media attention. Figure 2-4, taken from McEntarfer and Hahn (2015), uses J2J data to shed light on this influx of workers to North Dakota. In particular, it shows the relative frequency with which workers come from different states into North Dakota's mining sector during the years 2010 to 2014, with darker shaded states contributing more workers.

A number of interesting patterns are apparent in this figure. First, states that are closer to North Dakota contributed more to its mining sector. Montana and Wyoming each contributed more than 1000 workers, while

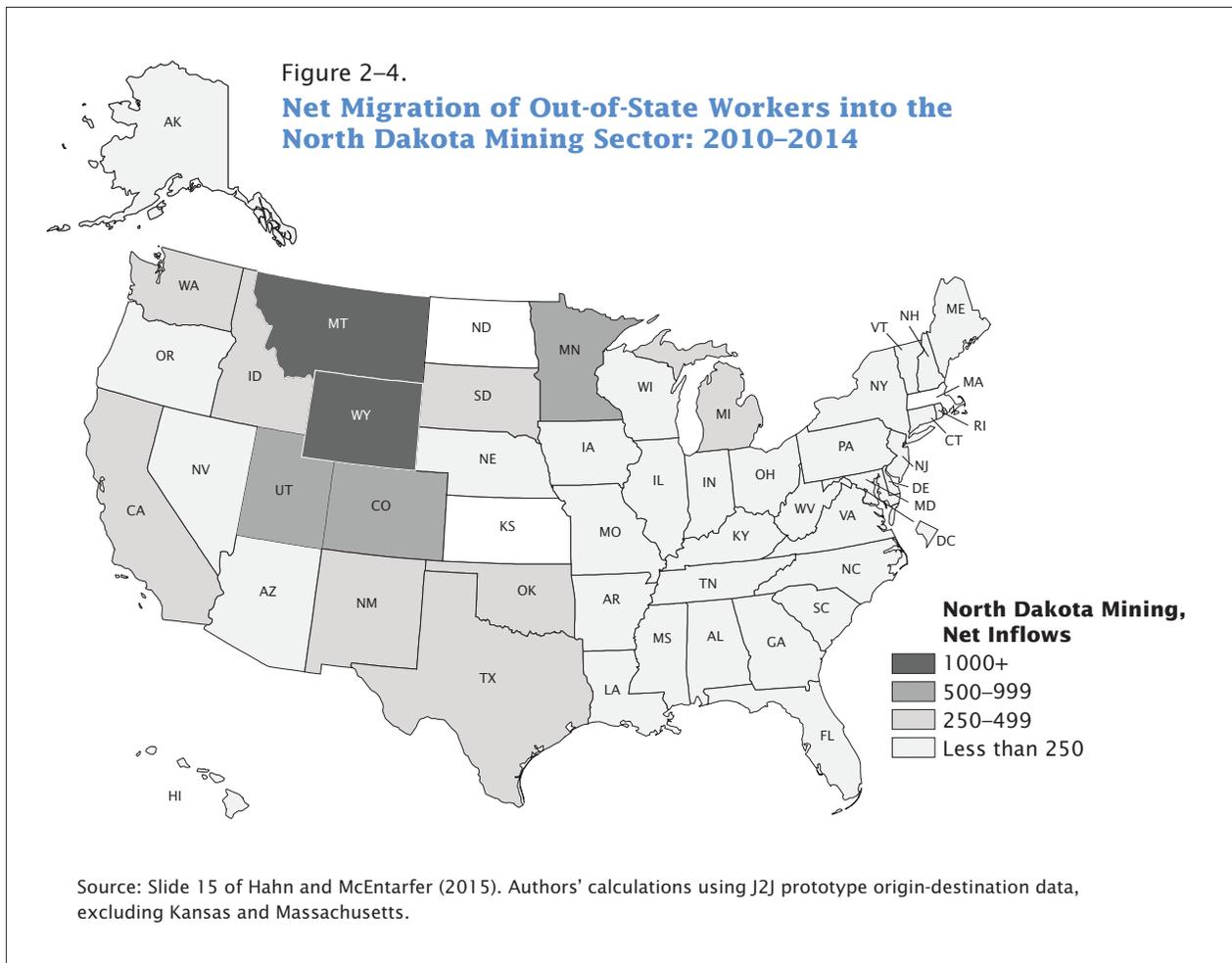
Minnesota, Utah, and Colorado each contributed between 500 and 999 workers. The populous states of California and Texas also contributed hundreds of workers.

### LABOR MARKET LIQUIDITY

Recently, Census Bureau researchers have sought to better understand how job-to-job flows translate into enhanced productivity and earnings gains, and how these patterns vary over the business cycle. Economic theories of on-the-job search suggest workers will move up the job ladder from lower-paying, less productive

firms towards higher-paying, more productive firms. Theory also suggests these job-to-job flows should intensify during booms, implying that one of the costs of recessions is the slowdown of workers moving up the job ladder (Moscarini and Postel-Vinay 2012, 2016).

Haltiwanger, Hyatt, and McEntarfer (2015) use an early prototype of the J2J data to quantify the nature and extent of these flows by firm productivity, wages, and size. Consistent with economic theory, they find strong evidence that job-to-job flows move workers away from low productivity, lower paying



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employers to high productivity, higher paying employers. They also find that this reallocation is strongly procyclical. During the Great Recession, the job ladder to better employers essentially collapsed, with net relocation falling to zero in late 2008.

The decline in labor market fluidity overall has also been noted by several researchers. By many measures, worker reallocation has dropped sharply in recent decades (Hyatt and McEntarfer 2012a; Hyatt and Spletzer 2013; Davis and Haltiwanger 2014). This declining dynamism could be the result of improved matching between workers and firms or an aging workforce. However, neither of these relatively benign explanations finds much support in the data. Indeed, the sharpest declines in worker reallocation rates have been among younger workers. Given the role of labor market liquidity in reallocating workers to better performing employers, the decline in worker reallocation has potentially worrisome implications for productivity growth.

Job-to-Job Flows data may also help inform the debate about stagnant wage growth in the United States. Hahn, Hyatt, and Janicki (2015) decompose earnings growth into the components that come from staying in the same job, switching jobs, and undergoing a job-to-job transition. A similar approach was taken in a paper by Daly, Hobijn, and Wiles (2012) using CPS data. Both studies show that earnings growth from job change and earnings growth on the job are both procyclical, but that the changing composition of workers

has depressed wage growth in recent years. Workers exiting the labor market earn more than new entrants, and this change in the composition of workers has dominated earnings trends since the Great Recession.

## FUTURE WORK

The release of J2J data is the latest in a number of public-use data products produced using LEHD data, which include the Quarterly Workforce Indicators and the LEHD Origin-Destination Employment Statistics (commonly accessed through the OnTheMap web application). In the coming years it will move from a beta release into regular production. Additional planned data releases include more detailed industry and geography, as well as the earnings measures. Work has also begun on a web tool to facilitate access to the underlying microdata. The beta J2J data files and documentation are available for download at [lehd.ces.census.gov/data/j2j\\_beta.html](http://lehd.ces.census.gov/data/j2j_beta.html).

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## Chapter 3.

# Entrepreneurship Research and Development Activities

Lucia Foster, Center for Economic Studies

Entrepreneurs are critical to the dynamic U.S. economy. The businesses that they start and grow introduce innovation, create jobs, and impact the economic well-being of millions of people. Economists at the Center for Economic Studies (CES) conduct research on entrepreneurship, create data infrastructure to support such research, develop new public-use data products on entrepreneurship, and are helping to develop a new survey devoted to entrepreneurship. New data products created at CES, and the research based upon them, have been used by key policy makers including Federal Reserve Board Chair Janet Yellen.

*“One reason to be concerned about the apparent decline in new business formation is that it may serve to depress the pace of productivity, real wage growth, and employment. Another reason is that a slowdown in business formation may threaten what I believe likely has been a significant source of economic opportunity for many families below the very top in income and wealth.”*

Janet Yellen, October 17, 2014

With so many activities related to entrepreneurship ongoing at CES, this chapter is intended to provide an overview and citations to more information for those interested in further reading. Some of the activities described in this chapter have been recently completed, some are ongoing, some have just barely begun, and others are upcoming. In the interest of brevity, this chapter focuses on more recent research. There are also many qualified researchers on approved projects looking at related questions using Census microdata through the Federal Statistical Research Data Center (FSRDC) program, which CES administers. While these FSRDC research activities are not described in this chapter, recent examples are shown in Text Box 3-1.

The activities described here use micro-level data housed at CES including data from surveys, censuses, administrative records, and business assistance programs. The Census Bureau's microdata are especially well-suited for measuring entrepreneurship since it is possible to examine characteristics at the firm and establishment levels, both of which are critical to understanding firm formation and growth. In all cases, these activities are in support of the Census Bureau's mission to provide information about the U.S. economy and its people.

### DEVELOPING INFRASTRUCTURE FOR MEASURING ENTREPRENEURSHIP

An important contribution of CES staff to measuring entrepreneurship has been developing the data infrastructure needed for research and the creation of public-use data products. This infrastructure enables CES and FSRDC-based researchers to use high quality microdata to understand firm and worker dynamics more generally, and thus to also understand entrepreneurship. Public-use versions of the data allow a broad class of users, including policymakers and those in the media, to glean new insights on the role of entrepreneurship in the U.S. economy.

CES is continuing its work on three major data infrastructure efforts to help better understand entrepreneurship. The first major effort involves linking businesses over time to create the Longitudinal Business Database (LBD) and the Integrated Longitudinal Business Database (ILBD). The Longitudinal Employer-Household Dynamics (LEHD) program is another large data infrastructure effort in CES. Finally, CES is involved in the collection of data on entrepreneurship through a new survey collection effort, the Annual Survey of Entrepreneurs (ASE).

Text Box 3-1.

### RECENT ENTREPRENEURSHIP RESEARCH IN THE FSRDCS

Agarwal, Rajshree, Benjamin Campbell, April Franco, and Martin Ganco. Forthcoming. "What Do I Take With Me? The Mediating Effect of Spin-Out Team Size and Tenure on the Founder-Firm Performance Relationship." *Academy of Management Journal*.

Balasubramanian, Natarajan, and Mariko Sakakibara. 2015. "Human Capital of Spinouts." Center for Economic Studies Discussion Paper 15-06.

Balasubramanian, Natarajan, and Mariko Sakakibara. 2015. "Spinout Formation: Do Opportunities and Constraints Benefit High Capital Founders?" Center for Economic Studies Discussion Paper 15-07.

Fairlie, Robert W., and Alicia Robb. 2009. "Gender Differences in Business Performance: Evidence from the Characteristics of Business Owners Survey." *Small Business Economics* 33: 375-395.

Glaeser, Edward L., and William R. Kerr. 2009. "Local Industrial Conditions and Entrepreneurship: How Much of the Spatial Distribution Can We Explain?" *Journal of Economics and Management Strategy* 18: 623-663.

Glaeser, Edward L., Sari Pekkala Kerr, and William R. Kerr. 2015. "Entrepreneurship and Urban Growth: An Empirical Assessment with Historical Mines." *Review of Economics and Statistics* 97: 498-520.

Hurst, Erik G., and Benjamin Pugsley. 2015. "Wealth, Tastes, and Entrepreneurial Choice." Center for Economic Studies Discussion Paper 15-34; NBER Working Paper No. 21644.

Kerr, Sari Pekkala, and William R. Kerr. Forthcoming. "Immigrant Entrepreneurship." In *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges*, edited by John Haltiwanger, Erik Hurst, Javier Miranda, and Antoinette Schoar, University of Chicago Press.

Krishnan, Karthik, Debarshi K. Nandy, and Manju Puri. 2015. "Does Financing Spur Small Business Productivity? Evidence from a Natural Experiment." *Review of Financial Studies* 28: 1768-1809.

Ouimet, Paige, and Rebecca Zarutskie. 2014. "Who Works for Startups? The Relation between Firm Age, Employee Age, and Growth." *Journal of Financial Economics* 112: 386-407.

The LBD links the Census Bureau's register of non-farm, employer businesses over time (see Jarmin and Miranda 2002), while the ILBD includes the nonemployer business universe (see Davis et al. 2009). These longitudinal links are made at both the establishment and firm levels. Thus, the LBD provides the high-quality links over time and over the entities needed to understand the behavior of firms (see Haltiwanger, Jarmin, and Miranda 2013). From the ILBD we know that the U.S. economy has about 26 million non-farm, private businesses. Of these, about one-quarter are businesses with employees and three-quarters are nonemployer businesses (Garcia-Perez et al. 2013).

With an initiative to increase information on entrepreneurship, there are now multiple teams of CES researchers working on enhancements to the LBD. In each case, the teams are producing data infrastructure for researchers and, where possible, a related public-use product. The Innovative Firms team, led by Javier Miranda, is initially focusing on patenting behavior but will eventually consider other indicators of innovation such as trademarks. While earlier research in the RDCs had linked patent information to the LBD, Graham et al. (2015) is unique in leveraging a second source of Census Bureau data—data on the inventors from the LEHD databases—to increase patent-to-firm match rates. The project benefited from a summer 2015

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workshop at MIT, which brought together experts on innovation from around the world. A related team led by Nathan Goldschlag is developing statistics on innovative activity by focusing on the business dynamics of “High Tech” firms, and will eventually expand into creating statistics on implied innovative activity by creating measures of high-growth firms.

The Human Capital team, led by Kristin McCue, is developing measures of the demographics of both business owners and workers. The Export Firms team, led by Fariha Kamal, is linking together export information from the Foreign Trade Exports data and the Business Register. Building on the interest in the importance of financial constraints for businesses, David Brown is leading the team on the Finance project. The goal of this project is to explore the feasibility of creating separate firm statistics by different finance categories (e.g., public versus private firms) and by type of financing (e.g., private capital, bank loans, or crowd funding). This project is in its very early stages, as the team acquires data and learns more about the features of the finance data and the feasibility of linking them to Census microdata.

The second major data infrastructure effort at CES is the Longitudinal Employer-Household Dynamics (LEHD) program. The LEHD program

brings together state data on workers and establishments and Census Bureau microdata on people and businesses to create a comprehensive longitudinally-linked database of jobs (see Abowd et al. 2009) for a detailed description). The LEHD database contains information on over 95 percent of U.S. private sector jobs. The LEHD database now also incorporates firm characteristics from the LBD, facilitating new research that will broaden our understanding of entrepreneurship and workforce composition.

These two data infrastructure efforts leverage existing Census datasets. A third infrastructure activity involves data collection through a new survey, the Annual Survey of Entrepreneurs (ASE). The Census Bureau, in partnership with the Kauffman Foundation and the Minority Business Development Agency, has developed the ASE to provide annual data similar to those collected by the Survey of Business Owners (SBO). Both surveys are designed to collect information on the demographics of these business owners (sex, age, U.S. citizenship, ethnicity, race, and veteran status).

The need for an annual version of the SBO became increasingly clear during the Great Recession when it was not possible to determine the recession’s impact on business owners by demographic groups. The ASE surveys 290,000 employer firms across the U.S. economy. CES

economists worked on the team developing the base survey and the rotating annual modules on selected topics. The ASE 2014 collection was sent out in late fall of 2015 with innovation as the topical module. The ASE 2015 collection will be sent out in summer 2016 with management practices as the topical module. Foster and Norman (2015) provide an introduction to the survey.

### The Annual Survey of Entrepreneurs (ASE)

is the result of “a public-private partnership between the Census Bureau, the Ewing Marion Kauffman Foundation, and the Minority Business Development Agency (MBDA). The ASE is a supplement to the U.S. Census Bureau’s Survey of Business Owners (SBO), which is conducted every five years as part of the Economic Census. The ASE introduces a new module each year to capture information on relevant business components. For the 2014 ASE, the selected module asks questions about business innovation and research and development activity.”

Source: <[www.census.gov/econ/ase](http://www.census.gov/econ/ase)>.

## CREATING PUBLIC-USE PRODUCTS

The Business Dynamics Statistics (BDS) provides annual measures of business dynamics (job creation and destruction, establishment births and deaths, and firm startups and shutdowns) for the U.S. economy and aggregated by firm and establishment characteristics. These characteristics include age and size of firms and establishments and some geographic and industry detail. The BDS currently has annual statistics for 1976–2013. The BDS team led by Javier Miranda produces annual updates to data tables and

visualizations. For example, Figure 3-1 shows startups' contribution to employment by state for 2013. The BDS was developed at CES with support from the Ewing Marion Kauffman Foundation, and a number of BDS briefs have been produced highlighting recent findings from the BDS. See Text Box 3-2.

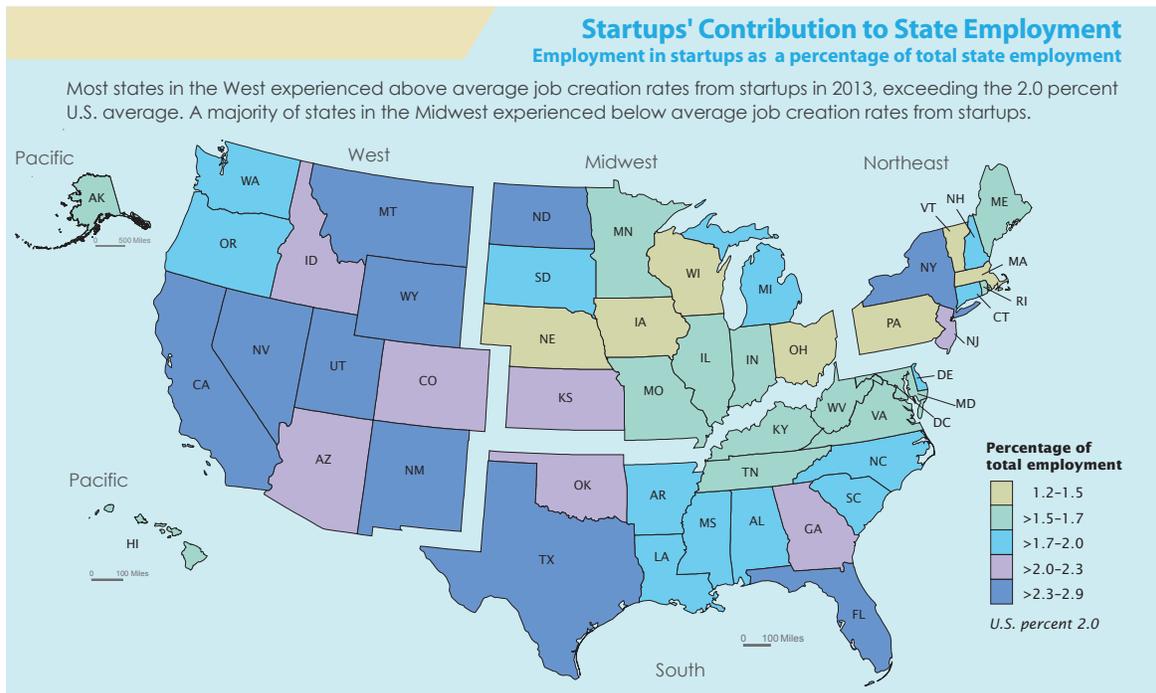
There are three public-use data products from LEHD that can be used to help understand entrepreneurship: Quarterly Workforce Indicators (QWI), LEHD Origin-Destination Employment Statistics (LODES), and Job-to-Job Flows (J2J). Goetz et al. (2015)

describe how LEHD data can be used to examine many characteristics of entrepreneurship; the examples below come from their paper.

The QWI has 32 labor market indicators, including time series on employment, hires and separations, earnings, and business expansion and contraction, separately by worker and firm characteristics. The demographic composition of workers at startups could be examined using the QWI. For example, Figure 3-2 shows the female workers at startups as compared

Figure 3-1.

### Using BDS: Startups' Contribution to State Employment



Source: <[www.census.gov/library/infographics/job\\_creation\\_in\\_the\\_us.html](http://www.census.gov/library/infographics/job_creation_in_the_us.html)>

Text Box 3–2.

### **BUSINESS DYNAMICS STATISTICS (BDS) BRIEFS**

*Jobs Created from Business Startups in the United States*

John Haltiwanger, Ron Jarmin, and Javier Miranda. 2008.

*Entrepreneurship Across States*

John Haltiwanger, Ron Jarmin, and Javier Miranda. 2009.

*High Growth and Failure of Young Firms*

John Haltiwanger, Ron Jarmin, and Javier Miranda. 2009.

*What Matters More: Business Exit Rates or Business Survival Rates?*

Brian Headd, Alfred Nucci, and Richard Boden. 2010.

*Historically Large Decline in Job Creation from Startup and Existing Firms in the 2008–2009 Recession*

John Haltiwanger, Ron Jarmin, and Javier Miranda. 2011.

*Where Have All the Young Firms Gone?*

John Haltiwanger, Ron Jarmin, and Javier Miranda. 2012.

*Job Creation, Worker Churning, and Wages at Young Businesses*

John Haltiwanger, Henry Hyatt, Erika McEntarfer, and Liliana Sousa. 2012.

*Anemic Job Creation and Growth in the Aftermath of the Great Recession: Are Home Prices to Blame?*

John Haltiwanger, Ron Jarmin, and Javier Miranda. 2013.

Available at <[www.census.gov/ces/dataproducts/bds/publications.html](http://www.census.gov/ces/dataproducts/bds/publications.html)>.

to young and old firms. For a geographic view, employment data by residence and workplace is available from the LODES. For example, Figure 3-3 shows employment at startups (i.e., firms less than two years old) near Palo Alto, California. J2J is described in detail in Chapter 2 of this report; but note it has the flows of workers from one job to another, and to and from non-employment. The J2J data can be used to study the movement of multiple workers from an existing employer to a startup (e.g., a spinoff).

### **RESEARCHING THE MANY DIMENSIONS OF ENTREPRENEURSHIP**

#### **Socio-Economic Mobility**

As noted in the Janet Yellen quote above, entrepreneurship offers a mechanism for socio-economic mobility. Thus many studies focus on entrepreneurship for demographic groups that are less economically advantaged including minorities, women, veterans, and immigrants. By drawing members of these groups

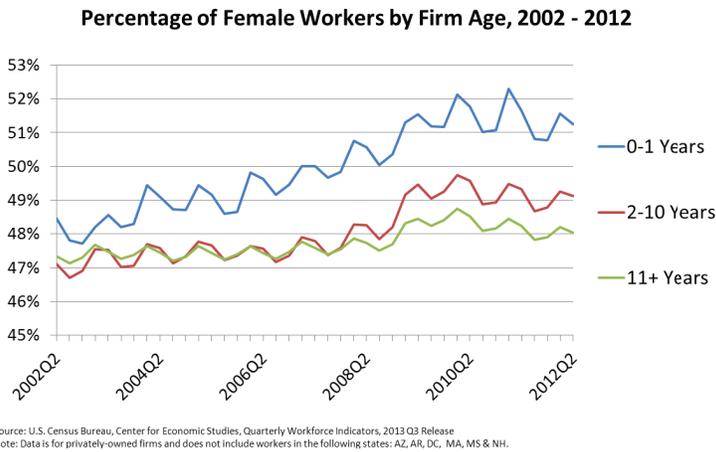
into the business community, entrepreneurship helps to enrich the U.S. economy by increasing diversity.

In a series of papers using the predecessors to the SBO, researchers examined the demographics of business owners and differences in outcomes for owners from different demographic groups (more recent examples include Fairlie and Robb 2009, see Text Box 3-1). Jarmin and Krizan (2010) build upon this earlier work and add in additional datasets to provide a richer set of owner characteristic and business outcomes. One of these characteristics is the past experiences of business owners which they interpret as a means for developing human capital. They find that women and most minority-group owners (with the exception of Asian owners) are more likely than White owners to start with a nonemployer business.

In addition to providing socio-economic mobility for their owners, new businesses provide socio-economic mobility for their workers and may have a long-term impact on the careers of their workers. Combining the BDS and QWI data, Haltiwanger et al. (2012) find significantly higher worker churning at young firms and that the wage gap between young and mature firms has increased over time mostly due to declining earnings per worker at startups. For the manufacturing sector, Dinlersoz, Hyatt, and Nguyen (2013) find that new establishments provide lower average wages than do older establishments. Since revenue per employee rises more quickly than wages, they show

Figure 3–2.

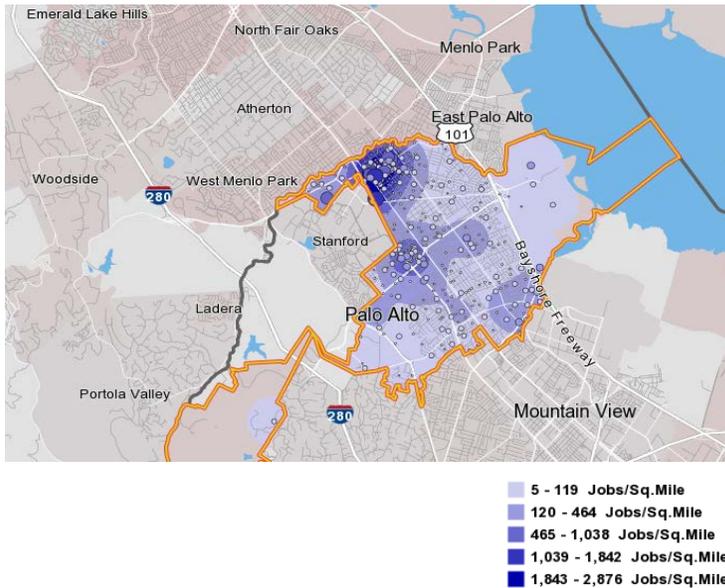
### Using QWI: Percentage of Female Workers at Startups versus Other Firms



Source: Foster (2013).

Figure 3–3.

### Using LODES: Mapping Startup Employment Near Stanford University and Palo Alto, CA



Source: Goetz et al. (2015).

that new entrants and young firms pay a smaller wage bill, for a given amount of revenue, relative to older plants.

Dinlersoz, Hyatt, and Janicki (2016) develop a model to provide insights into worker sorting evidenced in U.S. labor markets whereby young firms, relative to older firms, hire disproportionately younger and nonemployed people and at lower earnings. Their model suggests that workers with fewer assets are more inclined to accept an offer from young firms at lower wages because they do not have the luxury of time to wait for an offer from a mature firm, since they do not have assets that provide a cushion of resources.

Miranda, Sandusky, and Stinson have started examining the impact of working at startups on workers' careers. They follow workers over time (starting in their twenties and ending in their forties) to see if there are long-term benefits from working at startups when young. Their preliminary evidence suggests that working at a young firm does provide a long-term benefit (relative to working at a mature firm) but only if the firm is in an industry with a high average level of skill.

### Life Cycle of Businesses

Given the importance of entrepreneurship, there is a lot of interest in understanding the entrepreneurial process. At CES, much of this research concerns the transition from when an application is made to become a business, to when that business opens, to when and if the business hires its first employees,

and finally to the growth of employer firms.

Examining the first stage of the process has been difficult, since the potential pool of entrepreneurs is vast. However, a research team that includes economists from CES, the Federal Reserve Board, and the Atlanta Federal Reserve Bank is tackling this task. Emin Dinlersoz is leading the Business Formations Statistics (BFS) project using applications for an Employer Identification Number to measure business applications. This information will then be used to model the transition from business application to business formation.

The transition from nonemployer to employer is examined in Davis et al. (2009). They note that while it may be tempting to think of the nonemployer world as a “nursery” for the employer world, most nonemployers in their study either stay nonemployers or close shop entirely; less than 10 percent of nonemployer businesses move into employer status. Those that do make this transition, however, make up an important part of young employers, accounting for about one-third of young employers. The work of Abraham, Haltiwanger, Sandusky, and Spletzer measuring the “gig” economy, may eventually provide an estimate of the share of nonemployer jobs that are substantial, primary jobs.

Pulling together administrative datasets linking workers to nonemployer and employer businesses, Garcia-Perez et al. (2013) examine whether business owner retention of their “day job” (that is, their wage and salary

employment) has differential outcomes for nonemployer and employer businesses. They find that having had a “day job” in the prior year has a positive impact on business survival for both employer and nonemployer businesses. Interestingly, having had a “day job” in the prior year makes it more likely that an employer business will remain an employer business (rather than shedding employees to become a nonemployer business) but less likely that a nonemployer will transition into becoming an employer business. The authors suggest that this may be because the motivation for having a nonemployer business may differ from employer businesses; nonemployer businesses may exist for quality of life reasons or may serve as a source of secondary income.

Delving deeper into the employer world, Haltiwanger, Jarmin, and Miranda (2013) show that young employer firms exhibit a strong “up or out” dynamic. The “up” part is that young surviving firms grow more rapidly than older firms; the “out” part is that young firms also have a much higher likelihood of exit than older firms. The typical young plant does not exhibit much growth, but some young plants do exhibit very strong growth. Figure 3-4 provides a graphical representation of this “up or out” phenomenon.

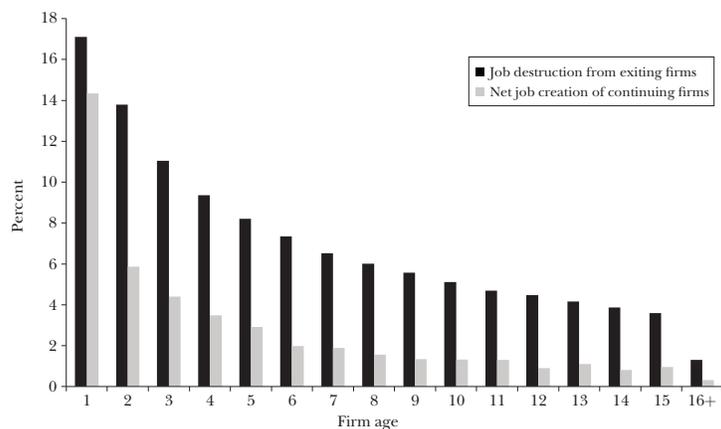
Foster, Haltiwanger, and Syverson (2016) find the slow growth that is evident in new manufacturing plants comes from the demand side rather than the supply side. That is, new plants have relatively high productivity as compared to

Figure 3-4.

### Life Cycle of Businesses: The “Up or Out” Dynamics of Startups

Figure 1

Up or Out Dynamics for Young Firms



Source: Annual averages of statistics computed from the Longitudinal Business Database from 1992–2011. Notes: Figure 1 shows patterns of net employment growth of continuing firms and job destruction from firm exit for firms age 1 and older. Startups have firm age equal to zero, so this figure reports on the post-entry dynamics of firms. (See footnotes 2 and 3 and online Appendix for details.)

Source: Decker et al. (2014).

incumbents, but new plants face relatively low demand. Thus new plants attempt to build market share over time by setting their output prices low. The interaction between plant and firm adds complexity to this demand pattern. New plants of new firms face especially low demand (this is less true of new firms starting with multiple plants). New plants of firms with experience in the same industry have significantly higher initial demand, but being in the same geographical area does not seem to provide the same benefit.

Brown, Earle, and Morgulis (forthcoming) examine the impact of financial constraints on small and young businesses by linking Small Business Administration (SBA) loan program data to the LBD. They find that SBA recipients tend to be not only small but also young and on a higher growth trajectory prior to receiving the loan, relative to other firms in their age-size category. They find that the impacts of SBA loans on both employment growth and survival are biggest for startups. They conclude that the loans help startups overcome financial constraints that impede the potentially fastest firms from growing and those startups that would not have made it through the “valley of death” period early in their existence when many firms fail.

### Impact on the U.S. Economy

The impact of entrepreneurship on the economy is especially important for job creation, innovation, and productivity growth. When examining the impact on

job creation, the focus is on the employer world since businesses in the nonemployer world are not necessarily job creators even for their owners. Davis et al. (2009) note “it is misleading to think of all records in the nonemployer universe as businesses in the usual sense. Many nonemployer records reflect side jobs, hobby businesses, or occasional consulting engagements that generate extra income for households that depend primarily on wages.” (p. 365)

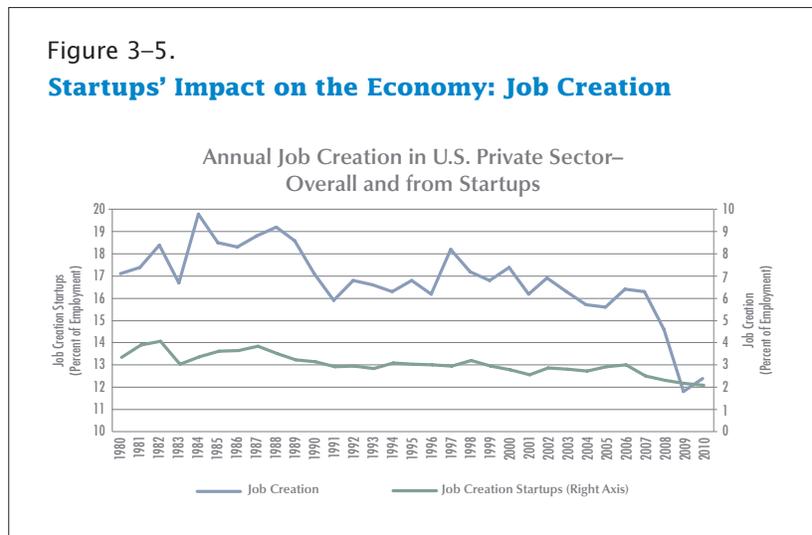
Haltiwanger, Jarmin, and Miranda (2012, 2013) document the importance of startups and young firms in job creation and employment growth using the LBD. In terms of magnitudes, they find that the approximately 394,000 startups created 2.3 million jobs in 2010. Figure 3–5 shows the job creation rates for startups and all firms. More generally, they find that roughly 3 percent of U.S. total employment in any given year is from business startups. Building on this work, Decker

et al. (2014) find that over the thirty year period ending in 2010, the average gross number of jobs created per year was about 16.3 million; of this, about 20 percent of these came from new firms. Moreover, high growth firms (which are disproportionately young firms) accounted for about 50 percent of gross job creation. Haltiwanger, Jarmin, Kulick, and Miranda (forthcoming) expand the study of high growth firms to include analysis of their output and labor productivity. The patterns of high output growth firms are similar to high employment growth firms. It is this set of rare, disproportionately young firms that drive much of employment, output, and labor productivity growth.

Foster, Grim, and Haltiwanger (2016) expand the work of Foster, Haltiwanger, and Krizan (2001) to examine firm effects. The earlier work found that much of aggregate productivity growth in manufacturing results from the reallocation of economic activity

Figure 3–5.

### Startups’ Impact on the Economy: Job Creation



Source: Haltiwanger, Jarmin, and Miranda (2012). Courtesy of Kauffman Foundation.

from less productive to more productive plants, rather than from existing plants becoming more productive. New plants play an important role in this reallocation. Foster, Grim, and Haltiwanger (2016) find that the differences in growth rates between high-productivity and low-productivity manufacturing establishments are much larger for establishments of young as opposed to older firms. Thus, young firms play an important role in the reallocation of activity from lower to higher productivity businesses.

### Secular Trends and Cyclical Patterns

A number of research papers focus on a secular trend in the dynamics of U.S. businesses. Haltiwanger, Jarmin, and Miranda (2011, 2012) use the BDS to document the secular decline in the rate of business startups over the past few decades and the acceleration in this decline after 2000. Decker et al. (2014) summarizes the evidence on the importance of startups, the decline in business dynamism, and discusses the possible causes (and consequences) for the decline in entrepreneurial activity. Haltiwanger, Hathaway, and Miranda (2014) focus on the “High Tech Sector” (industries with very high shares of workers in STEM occupations) and find the decline in dynamism is relatively more recent and pronounced in that sector.

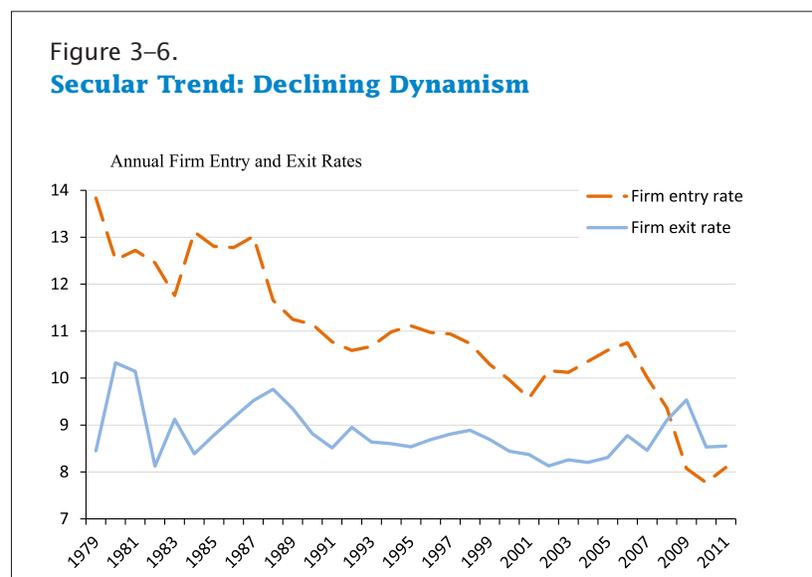
Building on the importance of young firms for growth, Decker et al. (2016) examine the secular trend for young firms that are also high growth firms. Consistent with the earlier work

of Haltiwanger, Jarmin, and Miranda, they find a dramatic shift around 2000. Looking at the employment-weighted firm growth distribution they find that after 2000, the declining dispersion in growth rates is accompanied by a marked decline in skewness. That is, not only is the number of startups falling but those that do enter are less likely to be high growth firms. There are fewer startups to be “up or out” and of those that do exist, far fewer are going to be “up.” Figure 3-6 shows the annual firm entry and exit rates from their paper, where it is clear that there is a secular decline in firm startups.

In a related paper, Decker et al. (2015) examine whether declining dynamism is due to less volatility of shocks and/or less responsiveness to shocks. Using the High Tech Sector for their study, they find that the volatility of shocks has in fact increased over time, thus the story is in the responses to shocks. Young firms are more

responsive than mature firms; however, the responsiveness of both young and mature firms has declined over time. Comparing the 1990s to the post-2000 period, they find that dynamism in High Tech declined for two complementary reasons: the relative decline in the share of young firms and the decline in responsiveness of firms in general (both young and mature).

Dinlersoz, Hyatt, and Janicki (2016) develop a model to provide information about the underlying causes of the recent decline in dynamism through a series of experiments. In particular, they examine three potential causes: increasing labor market frictions, increasing financial frictions, and declining entrepreneurial ability and efficient scale. These model experiments suggest that increasing financial frictions and declining entrepreneurial ability and efficient scale are consistent with the decline in entrepreneurship, but that labor market frictions are not.



Source: Decker et al. (2016).

Not surprisingly, there is significant interest in cyclical patterns of business activity following the Great Recession. Some of the papers that examined the declining secular trend also noted a decline in cyclical responsiveness. Haltiwanger, Jarmin, and Miranda (2012) found that together these resulted in the lowest rates of job creation from startups in the past three decades. Examining this question more closely, Fort et al. (2013) examine whether young firms (which are usually also small firms) have different cyclical dynamics than older firms (which can be large or small). They find that young firms are more sensitive to the business cycle than older firms. Building on this, they focus attention on the Great Recession, when young firms were especially hard hit. They find that the impact of the collapse in housing prices on credit constraints is an important part of the decline in young businesses over the Great Recession. Jarmin, Krizan, and Luque have begun to examine whether this connection between housing prices and business outcomes differs by demographic groups. Early results suggest that the employment growth rates of women and minority-owned firms were more sensitive to changes in house prices relative to their male and non-minority-owned counterparts.

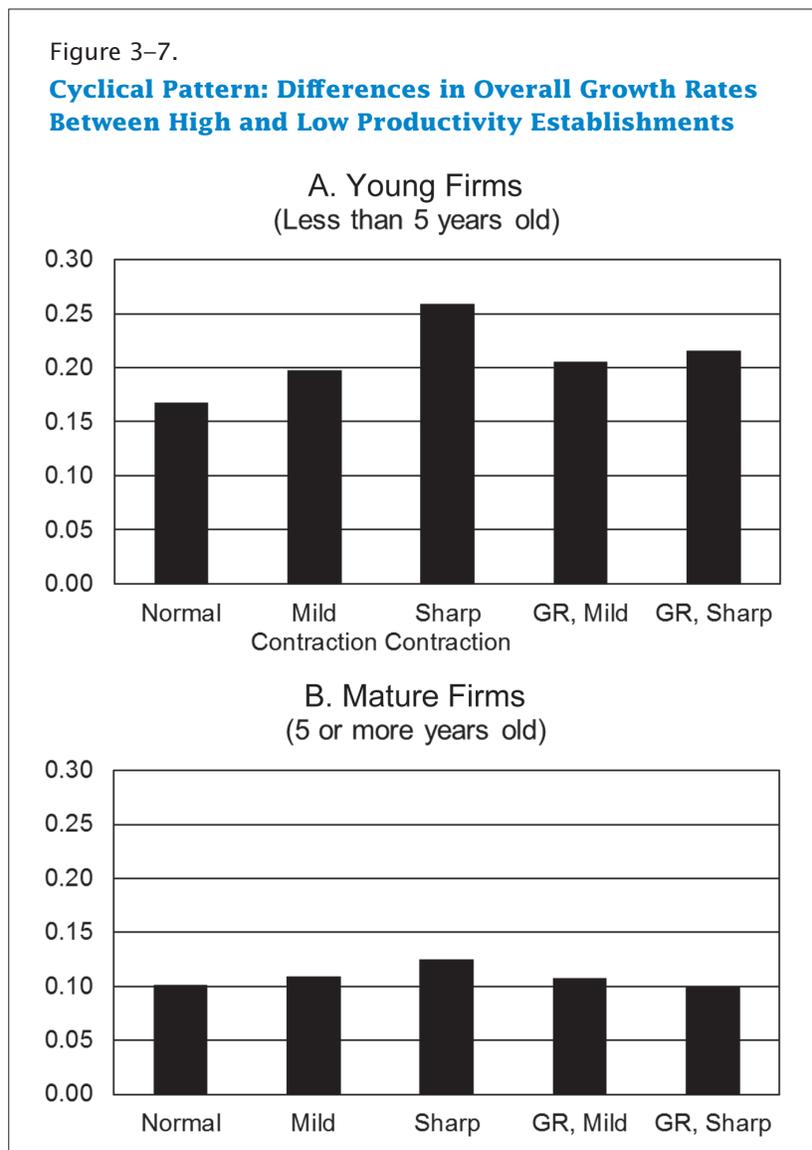
Foster, Haltiwanger, and Grim (2016) examine whether the productivity-enhancing reallocation usually associated with a cyclical downturn was suppressed during the Great Recession. Their evidence suggests that this reallocation was in fact diminished in the Great Recession and

moreover that this appears to be due to changes in young plants. Figure 3-7 compares the sensitivity of young and mature plants to productivity differences over business cycles. Prior to the Great Recession, the “cleansing effect” of recessions (where less productive plants exit) was especially pronounced for young plants and became more intense the worse the downturn. However, in the Great Recession,

this “cleansing effect” for young plants was attenuated.

### LOOKING FORWARD

Many of the activities described in this chapter are ongoing. CES hopes to release new BDS and LEHD products based on these research activities over the next few years. These products will include more information about firms and workers to help us understand entrepreneurship. The results



Source: Foster, Grim, and Haltiwanger (2016).

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of many of these activities will appear in the CES Working Paper Series. In addition, some of the research papers will be published in the NBER-CRIW volume *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges* which is edited by John Haltiwanger, Erik Hurst, Javier Miranda, and Antoinette Schoar.

Reflecting the transition from prototype to official product, Shawn Klimek is leading the team to transition LBD/BDS production from CES to the Census Bureau's Economic Directorate. Research activities to enhance and improve the LBD and BDS will continue as part of CES's mission. This partnership between CES and the Economic Directorate will allow us to leverage existing Census Bureau production and dissemination expertise so that CES can focus on research and development activities. This model of transitioning prototypes to production will eventually be applied to all data products that CES produces.

When the ASE microdata are made available to researchers (both in CES and to qualified researchers on approved projects in the FSRDC), new research directions may be proposed such as understanding the motivations and aspirations of entrepreneurs. Moreover, as our related datasets (LEHD, LBD, and ILBD) are integrated with the ASE, we could track the career paths of entrepreneurs and, using special modules of the ASE, better understand how key challenges impact these career paths and the success rates of entrepreneurs.

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## 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.
- 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.
- *Job-to-Job Flows (J2J)*. Beta version of statistics on worker reallocation, distinguishing hires and separations associated with job change from hires and separations from and to nonemployment.
- *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.

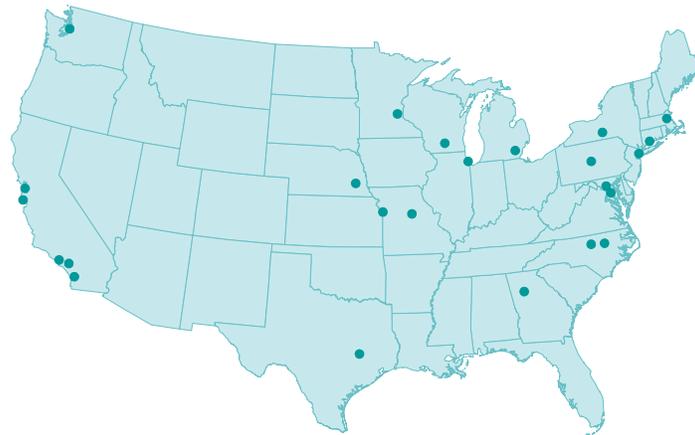
### FEDERAL STATISTICAL RESEARCH DATA CENTERS (RDCs)

CES administers the Federal Statistical 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 22 Research Data Centers, which are located in Ann Arbor, Atlanta, Berkeley, Cambridge, Chicago, College Station (TX), Columbia (MO), Durham, Irvine, Ithaca (NY), Lincoln, Los Angeles, Madison, Minneapolis, New Haven, New York, Research Triangle Park (NC), Seattle, Stanford (CA), University Park (PA), and the Washington DC area, with more being planned.

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## RESEARCH DATA CENTERS—Con.



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.
- 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:
  - 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).
  - Expert knowledge of the methodologies underlying the microdata.
  - Occasional reviews of RDC research proposals.
- The universities, research organizations, and federal agencies that support the Federal Statistical 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 Longitudinal Employer-Household Dynamics (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.

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## Appendix 2.

# CENTER FOR ECONOMIC STUDIES (CES) STAFF AND RESEARCH DATA CENTER (RDC) SELECTED PUBLICATIONS AND WORKING PAPERS: 2015

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

### PUBLICATIONS

- Abowd, John M., and Kevin L. McKinney. Forthcoming. "Noise Infusion as a Confidentiality Protection Measure for Graph-Based Statistics." *Journal of the International Association for Official Statistics*. [CES]
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## Appendix 3-A.

# ABSTRACTS OF PROJECTS STARTED IN 2015: U.S. CENSUS BUREAU DATA

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

### OFFSHORING AND INNOVATION

*Wolfgang Keller – University of Colorado at Boulder*

*Stephen Yeaple – Penn State University*

*Nikolas Zolas – U.S. Census Bureau*

This project will quantify the relationship between offshoring activities and the rate of innovation of U.S. firms. To analyze this, the researchers will compare the innovation rates of firms that offshore with those that do not, using China's accession to the World Trade Organization (WTO) in 2001 as an external shock that generates a quasi-random sample of firms. The key challenge is to ensure that firms who do offshore are not too different

from firms that do not offshore in terms of their determinants of innovation, which will require an appropriate comparison group that only Census Bureau microdata can provide. Building upon two previous studies that point to evidence of R&D spillovers to domestic firms from foreign-owned production and the potential knowledge costs from separating production facilities and firm headquarters, this empirical study will attempt to disentangle these opposing

effects and quantify the influence of offshoring on different measures of innovation, including R&D expenditures, patenting, and trademarks. This project will provide a better understanding of how plant characteristics relate to offshoring and of the international scope of R&D for many firms and improve accuracy by comparing locational outcomes and activities of innovation.

### HOW DESTRUCTIVE IS INNOVATION?

*Chang-Tai Hsieh – University of Chicago*

*Peter Klenow – Stanford University*

*Huiyu Li – Stanford University*

*Cian Ruane – Stanford University*

This project will use the Census of Manufactures, Annual Survey of Manufacturers, and Longitudinal Business Database to shed light on the underlying sources of innovation, where innovation potentially comes from three sources. In particular, firms grow when they improve on products made by other firms

(creative destruction), when they innovate on products that they currently produce (own innovation), and when they invent brand new products (new varieties). Each mechanism will leave specific telltale signs in the microdata. In particular, they will generate different patterns of firm exit with respect to the size

of the firm, for the number of products made by the firm, the volatility of firm growth, the size distribution of firms, and how the size distribution evolves with firm age. The researchers will use these moments from the microdata to estimate the magnitude of each of the three growth mechanisms.

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## SHOULD MY CAR MOVE OR SHOULD I? A MODEL OF RESIDENTIAL AND COMMUTING CHOICES

*Christopher Clapp – Florida State University*

Communities across the country are implementing policies to address their increasing commuter congestion. These policies are relatively new and vary from city to city, so not much is known about their full effects. To evaluate different congestion reduction policies, this project will develop a discrete choice structural model of the joint decision of individual residence and commuting mode, given the characteristics of the housing market and commuting

options. The model is estimated for the Washington, D.C. metropolitan area using individual-level, restricted-access data from the 1996–2013 American Community Surveys (ACS), which includes information on where individuals live and work, together with data on the structure of the transportation network, to map each individual's optimal commute for each option in the individual's choice set. The mappings will create a dataset of commute options

and characteristics that will be used to estimate the trade-offs that individuals make among consumption, housing amenities, and leisure when choosing a home and commuting mode pair. The model estimates will be used to simulate the effects of transportation policies that alter the financial and time costs of commuting. These policies include congestion pricing schemes, fuel or carbon taxes, and increased parking fees.

## PRODUCTIVITY SHOCKS

*John Asker – University of California, Los Angeles*

*Allan Collard-Wexler – Duke University*

*Jan De Loecker – Princeton University*

*Matthias Kehrig – University of Texas at Austin*

This project will investigate mechanisms underlying TFP shocks and, more precisely, differences in the magnitude of TFP shocks. The research will look at several potential mechanisms, including (but not limited to) weather, demand shocks, measurement error, and other mechanisms. The project will use the Annual Survey of Manufactures and its supplemental Management and Organizational Practices

Survey, as well as data from the Census of Manufactures, Census of Services, Commodity Flow Survey, Exporter Database, Export Foreign Trade Data, Longitudinal Business Database, Longitudinal Foreign Trade Transactions Database, Ownership Change Database, Quarterly Survey of Plant Capacity Utilization, and the Business Register. This project will address issues in output measurement, including how

inventories of finished goods and intermediate materials alter the measurement of outputs and inputs and spill over into the measurement of productivity. In addition, the project will produce measures of productivity for the service sector, a sector for which issues of measurement of inputs and outputs differs considerably from that in manufacturing, from where most experience in measuring productivity is drawn.

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## FIRM DYNAMICS ACROSS SECTORS AND COUNTRIES

*Enrico Berkes – Northwestern University*

*Lorenz Kueng – Northwestern University*

*Mu-Jeung Yang – University of Washington*

In the aftermath of the recent financial crisis of 2008, employment growth in the U.S. economy was unusually sluggish compared to other postwar recessions of similar magnitude. In standard models in economics, the speed of firms' adjustment to shocks is presumed to have significant influence on the aggregate rate of employment growth. However, there has been surprisingly little empirical work investigating the determinants of flexibility firms have in responding to shocks. In the wake of the recent recession there have been controversial debates about the power of

announcements to stimulate current investment activity and employment: Under which conditions will firms react swiftly to news about the economy? Along which margins are establishments adjusting: do they change prices, employment, investment, or product variety and technology, or do they simply enter or exit altogether? And how important for a speedy adjustment are determinants which are internal to the firm, such as technology or forecasting ability, as opposed to market distortions which are external to firms? This project will produce estimates that characterize dynamic

business responses to forecastable shocks and will evaluate whether measures of dynamic adjustment responses forecast exit patterns especially of small employer and non-employer businesses. Based on these new estimates, the researchers will make recommendations about extending the set of variables to include establishment-level adjustment speed to forecasted shocks, which might help to predict current size and the likelihood of transition from a single-establishment to a multi-establishment firm.

## IDENTIFYING AGGLOMERATION SPILLOVERS: NEW EVIDENCE FROM LARGE PLANT OPENINGS

*Mark Partridge – Ohio State University*

*Carlianne Patrick – Georgia State University*

The economic justification for local industrial strategies relies critically on the size and nonlinearity of agglomeration externalities as well as multiple equilibria. This project uses confidential Census micro data to test the economic justification for local industrial programs by examining the effect of "winning" the competition for a new large plant on incumbent plant productivity, testing for nonlinearity of the agglomeration function, and testing for evidence of multiple equilibria in county manufacturing shares. The first

objective will be accomplished by the use of multiple sets of large plant openings to test spillover estimates for sensitivity to identification strategy. The project will investigate the sensitivity of productivity estimates to changes in the definition of output as well as sensitivity to inclusion of purchased services and to plant sample selection. The researchers will also assess aggregate efficacy by nonparametric estimation of the effect of local plant density on plant output in a partially linear regression model. Finally,

the researchers will test whether the "winning" counties' share of manufacturing and manufacturing industry output is best characterized by a single steady state spatial distribution, whereby counties' return to their "pre-shock" levels, or multiple equilibria, whereby the shock permanently moves the distribution from its initial steady state to a new one. The proposed multiple equilibria analysis will be the first to use microdata, consider positive shocks to local industrial structure, and to do so within the United States.

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## ORGANIZATIONAL CAPITAL AND FIRM VALUE

*Vojislav Maksimovic – University of Maryland*

*Yue Wang – University of Minnesota*

*Liu Yang – University of Maryland*

This project studies the role of organizational capital using data from the newly available Management and Organization Practices Survey (MOPS). It examines the investment and distribution of organizational capital across firms and industries, how these investments interact with investments in physical capital, and ultimately how they are related to firm value and risk. The first set of questions is to understand how firms invest in organizational capital. How do managerial practices form and evolve over time in a firm? Do firms have similar practices in different units across industries

and capital vintage? How does organizational capital interact with investments in physical capital? Do managerial practices and organizational structure influence financial decisions such as leverage and cash holdings? None of these questions have yet been thoroughly explored, and most of the existing evidence on managerial and organizational practices are anecdotal and difficult to compare across firms. The unique features of MOPS allow for addressing these questions. The second question is how organizational capital is related to firm risk. Part of the productive knowledge in the firm is

accumulated in its employees, particularly managers and key talents. The organizational capital that is embedded in key employees (i.e., firm-specific human capital) is portable. The ultimate question is how organizational capital is related to firm value. Other research shows that good managerial practices correlate positively with firm productivity. However, identifying a causal effect of managerial practices on firm value can be very challenging. The problem will be addressed through two important corporate events – takeovers/acquisitions and shareholder activism.

## SOCIAL INDICATORS FOR RURAL ALASKA COMMUNITIES

*Matthew Berman – University of Alaska Anchorage*

*E. Lance Howe – University of Alaska Anchorage*

*Ruoqing Wang-Cendejas – University of Southern California*

As arctic residents confront accelerating global forces of change, researchers and decision makers face a huge loss of information on adaptation and social outcomes. For instance, have social and economic conditions for Alaska Natives living in a given community changed since 2000? Do current conditions differ from one community or small region to another? During the past several decades, such questions could be answered by using the published Census Bureau statistics derived from the decennial Census long

form survey. Unfortunately, the first American Community Survey (ACS) results published in late 2010 for rural Alaska communities exhibit a large downgrade in reliability compared to decennial Census data. Margins of error for many indicators are so high that conditions in one rural Alaska Census Area, let alone community, often cannot be distinguished statistically from those in another. This project meets this critical emerging information need by developing a set of statistically more robust social indicators for rural Alaska

communities from the ACS and other sources. It takes advantage of the increased statistical power of the new indicators to test hypotheses about spatial differences and recent change in arctic social conditions that cannot be tested reliably with the published figures. The project will provide estimates and analysis to improve ACS estimates, reproducible methods for updating the indicator set periodically as new data became available over time, and recommendations for highest priority collection of new observations.

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## THE SOCIAL AND ORGANIZATIONAL DETERMINANTS OF EMPLOYMENT-BASED INSURANCE, 1997–2014

*Samuel Bondurant – Texas A&M University*

*Jessica Coe – University of Texas*

*Ken-Hou Lin – University of Texas*

This project will develop a more complete understanding of the organizational characteristics and processes that predict the provision of employer-sponsored health insurance plans and level of employer contribution to the insurance premium. The researchers will use data from the 1996–2014 survey years of the Medical Expenditure Panel Survey–Insurance Component (MEPS-IC) combined with data

from the Longitudinal Business Data, EEO-1 reports from the Equal Employment Opportunity Commission, S&P's Compustat, RiskMetrics, and Corporate Library datasets. This project will investigate two trends that potentially contribute to the decline in the percentage of U.S. workers covered by health insurance plans. The first is the rise of the new conception of employment, a shift in the

employment contract between employers and employees that emphasizes market flexibility, short-term commitments, and focuses on increasing shareholder value. The second is the decline in labor unions, decreasing the bargaining power of workers and potentially decreasing labor's ability to argue that health insurance is a vital component of compensation.

## HISPANIC HEALTH CARE ACCESS AND UTILIZATION IN DIFFERENT GEOGRAPHIC LOCATIONS

*Shannon Monnat – Penn State University*

*Raeven Chandler – Penn State University*

Using the Survey of Income and Program Participation (SIPP) merged with publicly-available county- and state-level demographic and socioeconomic data, this project will document differences in health care access and utilization patterns among Hispanic adults (aged 18 and older) living in new (i.e., high growth) versus established (i.e., traditional) destination counties. The research will focus on the moderating roles of

nonmetropolitan status. It will assess the impacts of individual-level human capital and resource characteristics, such as household income, educational attainment, English language proficiency, as well as county- and state-level contextual characteristics, such as county economic disadvantage, racial composition, foreign born composition, and health care supply, on explaining differences in health care access and utilization

between Hispanics living in metropolitan and nonmetropolitan new versus established destination counties. This project will provide estimates of health insurance coverage, type of coverage, gaps in coverage, average insurance and unreimbursed medical care costs, frequency of routine health provider visits, and frequency of emergency room visits for Hispanics living in distinct destination types.

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## THE CAUSES AND CONSEQUENCES OF INTERNATIONAL TRADE

*Aaron Flaaen – Federal Reserve Board of Governors*

*Andrei A. Levchenko – University of Michigan*

*William Lincoln – Claremont McKenna College*

*Andrew McCallum – Federal Reserve Board of Governors*

*Ryan Monarch – Federal Reserve Board of Governors*

This project will study the causes and consequences of international trade. The researchers will examine how shocks pass between exporters and importers, the interaction between trade and innovation, and the determinants of the origin and destination of firms' exports and imports. This project will also

include data improvements to the Longitudinal Foreign Trade Transactions Database (LFTTD) and construction of sub-national indexes of U.S. imports. Firm-level export patterns to Canada, relative to patterns in the aggregate data at the industry level, will also be evaluated in the LFTTD. The project will also manually match

patents to the Census Bureau's Business Register for some of the most important firms in the U.S. economy. Finally, a link between directories of international corporate structure and Census Bureau data will allow the researchers to evaluate the reliability of the intra-firm trade indicators on the LFTTD.

## THE LONG-RUN DETERMINANTS OF SOCIAL, DEMOGRAPHIC, AND ECONOMIC CHARACTERISTICS AND PROCESSES

*Martha J. Bailey – University of Michigan*

*H. Spencer Banzhaf – Georgia State University*

*Melissa Ruby Banzhaf – U.S. Census Bureau*

*Janet M. Currie – Princeton University*

This project will link location of birth to the 2000 Decennial Census long form and the American Community Survey (ACS) to create and validate a new variable, location of birth, for each ACS or long-form respondent. This project will then prepare estimates of the

long run determinants of social, demographic, and economic characteristics and processes, including migration, education, labor-force outcomes, wages, poverty rates, disability status, public assistance receipt, childbearing, marriage and divorce, long-term mobility, and

household composition. The researchers will use various policy and natural experiments that occurred between 1964 and 1980 on individuals born during that period and who are observed as adults in the 2000 Census and the 1996–2011 ACS.

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## EMPLOYMENT RESPONSES TO FEDERAL AND STATE CHANGES IN ACCESS TO PRIVATE AND PUBLIC HEALTH INSURANCE

*Jean Abraham – University of Minnesota  
Coleman Drake – University of Minnesota  
Anne Royalty – Indiana University*

In the United States, almost 60 percent of non-elderly individuals have traditionally obtained their health insurance through an employer. Provision of health insurance through the employer creates links between insurance provision and wages, decisions

about labor force participation and hours of work, firm demand for labor, and job turnover. This project will use the recent years of the Medical Expenditure Panel Survey–Insurance Component (MEPS-IC) augmented with other federal and non-federal data

sources to analyze how provision of employer health insurance and employment outcomes are changing in response to new options for obtaining insurance outside of the employer-based system.

## ON THE MARGINS OF FIRM GROWTH

*Lucas Husted – Federal Reserve Board of Governors  
Illenin Kondo – Federal Reserve Board of Governors  
Logan Lewis – Federal Reserve Board of Governors  
Andrea Stella – Federal Reserve Board of Governors*

This project will investigate economic growth at the establishment- and firm-level and seeks to dissect the evolution of the firm size distribution across locations, industries, and time. In doing so, the researchers will investigate the hypothesis of a structural change in the size distributions of firms and establishments and test existing theories of firm growth,

providing much-needed empirical evidence that will form the basis for future theoretical work. The researchers will also extend their analysis to the establishment margin of firm growth and characterize the joint size distribution of firms and establishments. To the extent that the distributions of firm size and establishment size systematically co-move across industries

and time, this research will document the properties of their joint distribution. Furthermore, since the distribution of establishment size and growth varies across locations, the researchers propose to study the geography of economic production and hope to shed light on the determinants and the effects of agglomeration on firm growth and the firm size distribution.

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## CHILD SUPPORT LAW AND THE MARITAL AND FERTILITY DECISIONS OF COUPLES

*Daniel Tannenbaum – University of Chicago*

This project will assess the social and economic landscape of single-parent households and their relationship with the non-resident parent, a subject of great importance given the large fraction of children born into out-of-wedlock households. The project also proposes to analyze the quality of marriage and fertility data contained in the Census Bureau's internal-use Survey of Income and Program

Participation (SIPP). Specifically, the researcher will analyze the quality of aggregate marriage and fertility statistics in SIPP as compared to those based on natality data from birth certificates published in the National Vital Statistics System; study the reliability of identifying "shot-gun" marriages in the public-use SIPP, without knowledge of the month of marriage or the month of birth as is available in the

internal-use SIPP; analyze the aggregate social and economic behavior of non-resident fathers, including their labor force participation, and their time and child support expenditures on their children; and analyze the aggregated reports by mothers of child support receipt compared to aggregated reports by fathers of child support expenditures.

## ENERGY AND THE ENVIRONMENT: EXPLORING PLANT-LEVEL PRODUCTION DECISIONS

*Sharat Ganapati – Yale University*

*Jonathan Kadish – University of California, Berkeley*

*Joseph Shapiro – Yale University*

*W. Reed Walker – University of California, Berkeley*

This project will determine the extent to which environmental, energy, and other types of regulation regimes influence firm-level production. Much economic research on environmental regulation and environmental goods compares how "clean" versus "dirty" industries respond to different regulatory or economic

forces. However, using firm- and plant-level data, this project recognizes that even within a narrowly defined industry, firms differ enormously in the quantity and mix of pollutants that they emit, in the stringency of regulations they face, in productivity, trade exposure, market power, product quality, input mix, and

product mix. Some of these differences may reflect measurement error and/or idiosyncratic productivity shocks, but others reflect fundamental economic forces. This project will investigate the relationship between firms and environmental regulatory regimes over the past 40 years.

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## MEASURING THE IMPACT OF AFFIRMATIVE ACTION LAW ON ESTABLISHMENT PRODUCTIVITY

*Conrad Miller – University of California, Berkeley*

This project will estimate the effects of affirmative action regulation and equal employment opportunity law—what are referred to as anti-discrimination laws—have on establishment productivity. To measure these effects, the researcher will measure total factor productivity and labor productivity using Economic Census data, and

exploit variation across establishments and over time in exposure to anti-discrimination law to identify its causal effect. In addition, the researcher will estimate how these effects vary with the demographic background of the establishment's ownership. Data from the EEO-1 form include self-reported employment totals at the establishment level from

1971 to 2011 and are unique in that they include employment breakdowns by race, ethnicity, sex, and occupation. The researcher will benchmark these data with establishment employment totals by race and sex in the 1987 and 1992 Characteristics of Business Owners data.

## THE ROLE OF FIRM SIZE AND AGE ON EMPLOYMENT AND HOURS ADJUSTMENTS

*David Frisvold – University of Iowa*

*Martin Gervais – University of Iowa*

*Lawrence Warren – University of Iowa*

*Nicolas Ziebarth – University of Iowa*

This project will examine and compare the establishment-level responses of labor demand to productivity and business cycle fluctuations using the Annual Survey of Manufactures (ASM), Census of Manufactures (CM), and the Quarterly Survey of Plant Capacity Utilization (QPC). The growth rates of production hours per worker, revenue, and employment by establishment size and age classification will

be calculated for both the QPC and ASM/CM. The research will document the correlation of these establishment-class growth rates in hours, productivity, and employment with aggregate and regional business conditions. Using multiple econometric techniques, the project will document the differences in volatility, correlation, and magnitudes of the hours and employment adjustments

of establishments by age and size categories. The study will also provide estimates for the revenue productivity of establishments in the ASM/CM data, controlling for the endogeneity of productivity and intermediate input demand. In addition, this project will examine the quality of voluntary responses in the QPC relative to the mandatory ASM/CM in several ways.

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## **EXPLORING HOW TRANSPORTATION INFRASTRUCTURE AFFECTS COMMUTING BEHAVIORS OF INDIVIDUALS AND LOCALITY DECISIONS OF BUSINESS ESTABLISHMENTS**

*Marlon Boarnet – University of Southern California*

*Phillip Lasley – Texas A&M University*

*Wei Li – Texas A&M University*

*Timothy Lomax – Texas Transportation Institute*

*Walter Peacock – Texas A&M University*

*Nathanael Rosenheim – Texas A&M University*

*Yu Xiao – Texas A&M University*

Many U.S. cities are making substantial investments in expanding their public transit systems and promoting transit-oriented developments in hopes of reducing vehicle miles driven and make neighborhoods more compact, economically vibrant, and transit accessible. This project will examine how light rail infrastructure impacts the commuting behaviors of individuals and the locality decisions of business

establishments. The researchers will perform before-after, experimental or quasi-experimental analyses that will illuminate the causal impact of transportation infrastructure investments on the economy and society. In particular, the research will construct an innovative longitudinal quasi-experimental setting that enables the measurement of treatment effects of transportation infrastructure

on individuals' travel and firms' locational behaviors. The methods and results from this research will contribute importantly to transforming transportation infrastructure planning and geography from almost exclusive reliance on models calibrated with cross-sectional analysis to more robust use of longitudinal estimates of behavioral change.

## **THE IMPACT OF ONLINE RETAIL ON THE MARKET STRUCTURE OF RETAIL AND SERVICE INDUSTRIES**

*Panle Barwick – Cornell University*

*Allan Collard-Wexler – Duke University*

*Xiaohua Wu – Duke University*

*Yi (Daniel) Xu – Duke University*

This project will examine the effects of electronic commerce (e-commerce) on particular retail and services industries. The researchers will investigate the diverse impact of e-commerce on the different types of

traditional establishments that operate within an industry. In particular, the project will look at how the rise of the online channel has influenced entry and exit decisions for individual establishments. The project

will also trace the impact of e-commerce on aggregate productivity growth at the industry-geographic market level, and link aggregate growth to establishment-level productivity changes.

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## LIFECOURSE EFFECTS OF AGE-ELIGIBILITY IN VOTING BEHAVIORS

*Evan Crawford – University of Wisconsin  
Jason Fletcher – University of Wisconsin  
Julianna Pacheco – University of Michigan*

This project will use Current Population Survey (CPS) November Voting and Registration Supplements, covering 1994–2014 biennially, to estimate the impacts of age-eligibility around age 18 on short- and long-term voting

behaviors using a regression discontinuity (RD) research design to estimate causal effects. Second, the researchers will examine interactions between age eligibility and other state characteristics that lower/raise the “costs” of voting. This

design will allow a fuller account of the factors that distinguish the initiation into voting and the inertia of voting behaviors and whether these patterns differ across cohorts or elections.

## THE EFFECTS OF ADJUSTMENT COSTS ON MARKET COMPETITION

*Germán Bet – Northwestern University  
Igal Hendel – Northwestern University*

This project will examine the effects of labor and capital adjustment costs on market competition and market structure. This question is of particular interest since capacity addition and withdrawal decisions are important strategic decisions that can have a significant impact on price and profitability in the short run. Moreover, given

that investment is long-lived, it is a critical determinant of how the competitive environment evolves in the long-run. Although the empirical literature in industrial organization has widely explored the connection between market structure and the competitiveness of market outcomes, the literature connecting labor and capital adjustment

costs and market competition is scarce. This project will attempt to fill this gap in the literature by conducting a detailed microeconomic analysis using plant-level data. The relationship between four main topics and adjustment costs will be studied: entry and exit, investment, market power, and technology adoption.

## THE EFFECT OF SHIPMENT TIME AND RELIABILITY ON THE SHIPPER MODE CHOICE

*Daniel Brown – MITRE  
Katherine Harback – MITRE  
Shane Martin – MITRE*

This project will assess the impact of factors that affect shipping costs, time, and reliability of the nation’s freight rail system. By modeling the choice of shipment mode, the researchers seek to understand how

those shipment choices would vary with improved shipment time and reliability. Econometric analysis will estimate anticipated shifts in cargo carried for given changes in costs, shipment time, and reliability. Ultimately, these

estimates will be inputs into a model of the national economy that will translate shipment time and reliability improvements into changes in economic well-being (welfare).

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## WHEN OPPORTUNITY MOVES TO OR AWAY FROM YOU: MECHANISMS LINKING GEOGRAPHIC, ECONOMIC, INSTITUTIONAL, AND SOCIAL SPACE WITH ENTREPRENEURSHIP, INNOVATION, AND BUSINESS PERFORMANCE

*Brittany Bond – Massachusetts Institute of Technology*

*Jason Greenberg – New York University*

*Matthew Marx – Massachusetts Institute of Technology*

*Daniel Sands – New York University*

This project will use various Census Bureau datasets to examine how social and technological change in geographic space have a bearing on the performance of businesses – particularly startups. For example, how have changes in

neighborhood characteristics impacted distributional outcomes for minority and female owned businesses, and how have these businesses impact minority and female employment. This project will also investigate the quality, accuracy,

and comprehensiveness of Census Bureau data on firm age and minority and female firm ownership of U.S. companies by making statistical comparisons to Dunn and Bradstreet (D&B) data.

## EXAMINING THE EFFECTS OF FIRM AND COMMUNITY CHARACTERISTICS ON THE ENVIRONMENT

*Dadao Hou – Texas A&M University*

*Alesha Istvan – Texas A&M University*

*Harland Prechel – Texas A&M University*

*Katherine Calle Willyard – Texas A&M University*

This project will examine two interrelated research questions. One is how organizational characteristics at the plant, subsidiary, and parent company levels of publicly-traded firms affect plant emissions. The second is how organizational (i.e., plant, subsidiary, parent company) characteristics and community characteristics interact to affect plant emissions. This research will integrate local community and organizational characteristics into the same analysis and use multilevel modeling to examine the effects of these levels of the social structure on plant emissions. The overall objective is to provide fundamental

knowledge on the underlying causes of plant emissions. The central hypothesis is that pollution rates are associated with community characteristics and organizational characteristics such as the ownership structure, management practices, and financial characteristics of the firm. This research will analyze whether the structured management score, previously developed to determine the effects of management practices on organizational performance and other characteristics, explains emissions levels of establishments. Also, by using restricted-use block level community data, this research will utilize precise measurements of population

characteristics surrounding production facilities to analyze whether the social vulnerability score, primarily used in hazard research, explains emissions levels of establishments. A social vulnerability score incorporates measures of race, income level, gender, education, age, and other community level characteristics. Finally, this project will investigate whether pollution abatement operating costs intensity, previously developed to determine the effects of environmental regulation on pollution abatement expenditures, explains emissions levels of production facilities.

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## Appendix 3-B.

### **ABSTRACTS OF PROJECTS STARTED IN 2015: 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 REGULATING MEALS AND GIFTS TO PRESCRIBERS (AHRQ)**

*Josef Tracy – Georgia State University*

From 2009 to 2012, Massachusetts banned pharmaceutical representatives from providing meals to doctors. This project investigates what effect the ban had on physician prescription patterns. Using the Medical Expenditure Panel Survey (MEPS), the research compares Massachusetts to other states to examine whether or not the policy decelerated pharmaceutical spending in general, as well as for specific medications. Interest centers on the effect on

medications that are still on-patent but are “copycats” of medications that have gone off-patent and have generic versions. Given that these copycat medications were likely the focus of aggressive marketing prior to this policy change, the research will test whether the policy causes substitution toward the generics. The project also examines the extent to which changes in practice patterns and prescription spending levels impact health outcomes. The

project employs a difference-in-differences identification strategy. The composition of the control group hinges upon whether or not pretreatment trends in Massachusetts match those in the control states. If the pretreatment trends match, then the control group will consist of individuals from other states clustered by their family identifier. If not, then the Synthetic Control Method (SCM) will be used to create a “synthetic” comparison state.

#### **HEALTH CARE REFORM AND LABOR MARKETS: STATE BY STATE ANALYSES (AHRQ)**

*Naoki Aizawa – University of Minnesota*

This project develops equilibrium labor market models with health and health insurance, and uses counterfactual simulations to study how health care reform will affect the health insurance and labor markets. In particular, the research evaluates how those impacts differ by states, given that some of the most important components of health insurance reforms such as the Affordable Care Act are

explicitly state based: Medicaid expansion is determined by the state’s own decision, and roughly a half of states’ expanded health insurance exchanges are private insurance markets, so that the market is defined in each state. Most existing studies evaluating health care reform assume that labor or health insurance markets are single-national labor markets, which are unsuitable to evaluate the state based policies.

This project uses the Medical Expenditure Survey-Household Component (MEPS-HC) with state and county FIPS codes to estimate state based models of health, health insurance, and labor market equilibrium. The models will be used to evaluate demand for health insurance and uninsured rate as well as labor market impacts (changes in full time workers and part time workers, and in labor productivity).

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## COMPARING DIET QUALITY, PHYSICAL ACTIVITY, AND SEDENTARY BEHAVIOR IN YOUTH WITH AND WITHOUT ADHD (NCHS)

*Carol Curtin – University of Massachusetts Medical School*

Over the past decade, growing evidence associates attention deficit/hyperactivity disorder (ADHD) with obesity in both children and adults. However, little research has focused on the dietary and physical activity factors that may underlie weight status in this population. Moreover, irrespective of the association with weight status, these factors have important implications for health overall.

This project utilizes data collected in NHANES 2001–2004 to compare dietary and physical activity behaviors between youth with and without ADHD ages 8 to 15 years. The advantage of NHANES is that the data are nationally representative. Unlike most surveys that include children with ADHD, NHANES data are available on anthropometric, dietary, and activity measures. Additionally, in the

2001–2004 waves of NHANES, ADHD and other behavioral health conditions were assessed using a gold standard diagnostic methodology, an advantage over other datasets that typically use a single question to query the presence of these conditions. This project will contribute to the literature by describing dietary and physical activity behaviors in a significant proportion of the nation's youth.

## IMMIGRATION POLICY ENVIRONMENT AND HEALTH OF MEXICAN IMMIGRANT FAMILIES IN THE U.S. (NCHS)

*Neeraj Kaushal – Columbia University*

*Julia Wang – Columbia University*

This project studies the effects of state policies that help the integration of immigrants as well as state and local policies that increase their risk of deportation on the health behaviors, health, and mental health outcomes of Mexican immigrant families in the United States. The effects of two policies that have influenced the lives of low-income immigrant families form the focus: (1) State-Dream Acts that allow undocumented students to obtain subsidized college education in 15 states across the

country, and (2) local and state level immigration enforcement that has escalated fear and risk of deportation among the undocumented. The research design is based on the natural experiments that come with state and local variations of the two policies. Empirical analyses will use the National Health Interview Survey from 1997–2012. No scientific research exists on how immigration policy environment affects immigrant health, in general, and how state- and local-activism on immigration

enforcement and State Dream Act, in particular, have influenced the health behaviors, health, and mental health of immigrant families. Given the far-reaching impacts of these policies on the undocumented and their families, their health consequences are likely to be high. Any discussion that ignores these effects is unlikely to account for the full range of costs and benefits of these policies. This research attempts to bridge this critical knowledge gap.

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## COMPLEX FAMILIES, STATE FAMILY POLICY, AND CHILD HEALTH DISPARITIES (NCHS)

*Justin Denney – Rice University*

*Rachel Kimbro – Rice University*

*Christine Percheski – Northwestern University*

*Maria Perez-Patron – Texas A&M University*

For the last two decades, researchers have documented health and wellbeing differences for children in families with married and unmarried parents, even after accounting for factors such as socioeconomic status. The dichotomy of “married vs. unmarried,” however, is far too simplistic for today’s complex families. This project will utilize the restricted National Survey of Children’s Health (NSCH) 2011–2012 wave to assess child health disparities by detailed

family structure categories including those for married and cohabiting step families, single parent families, and extended kin families. With the detailed child health assessments available in the data, the researchers will be able to document a wide variety of these health disparities among children of all ages and carefully account for a variety of mechanisms, which might link family structure to child health. The project links the data to state measures of family and

welfare policy, which might also be associated both with family structure and with child health outcomes. The restricted NSCH data contain the detailed family structure and household roster variables needed to construct needed family structure measures. The public version of the data includes the state identifiers required for merging in the state family and welfare policy variables.

## EFFECTS OF STATE PRESCRIPTION DRUG MONITORING PROGRAMS ON OPIOID PRESCRIBING: EVIDENCE FROM THE NATIONAL AMBULATORY MEDICAL CARE SURVEY (NCHS)

*Yuhua Bao – Cornell University*

*Yijun Pan – Cornell University*

Misuse and abuse of prescription opioids is a rapidly growing and deadly epidemic in the United States. State Prescription Drug Monitoring Programs (PDMPs) are a prominent tool in monitoring and curtailing this epidemic. One important pathway through which PDMPs operate is to change the prescribing behaviors of physicians. They do so by assisting physicians in identifying patients at high risk of abusing or diverting opioids and by deterring aberrant prescribing behaviors. This study aims to evaluate the effect of State Prescription Drug Monitoring Programs on physician prescribing of opioids in ambulatory settings. It makes

use of data from the 2001–2011 National Ambulatory Medical Care Surveys (NAMCSs) to identify patient visits to physician offices for pain-related reasons. It links information on state PDMP implementation dates and measures of PDMP program strength with the multi-year NAMCS data (based on State ID in the restricted NAMCS data). The outcome variable is the dichotomous variable of opioid prescribing at a pain-related visit and the key variable of interest is the policy variable if a state had implemented PDMP by the time of the office visit. It estimates the effect of the state PDMPs on physician prescribing of opioids using logistic regression, controlling for

patient and physician characteristics, clinical diagnoses, and state and time fixed effects. This study also examines whether the effect of state PDMP implementation on physician prescribing of opioid varied by the location of a county. Counties located in different parts of a state might see different effects of state PDMP implementation because of the possible cross-state “doctor shopping” behavior. The cross-state “doctor shopping” behavior might happen if there existed a difference in the PDMP implementation among adjacent states. Counties adjacent to other states might have more cross-state “doctor shoppers” than inland counties.

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## MEDICAID EXPANSIONS AND INTERGENERATIONAL TRANSMISSION OF ASTHMA (NCHS)

*Owen Thompson-Ferguson – University of Wisconsin–Milwaukee*

Using data from the 1998–2012 waves of the National Health Interview Survey (NHIS), the researcher has assembled a data set containing information on a variety of asthma outcomes in a sample of approximately 120,000 parent-child pairs, and found that there are very strong intergenerational associations

in asthma. Using state level geocodes, this project assesses the impact of children's access to public medical care on asthma transmission by exploiting differences in the generosity of public health insurance programs for children, primarily Medicaid and CHIP, across states and over time. These programs

expanded rapidly during the study period, but did so with a great deal of state-level heterogeneity, producing an unusually rich natural experiment that has not been used heretofore to study intergenerational health linkages.

## EXTENT OF PCMH ADOPTION AND MEDICATION USE QUALITY (NCHS)

*Karen Farris – University of Michigan*

*Chi-Mei Liu – University of Michigan*

One in five prescriptions in primary care is inappropriate and adverse drug events are common. Medication prescribing and use can be improved, and quality indicators have been developed to examine and ameliorate the problems. The Patient Centered Medical Home (PCMH) is an important model of primary care, emphasizing continuous coordinated patient care. A 2012 review article showed that PCMH provides consistent positive results in improving patient quality of care measures like receipt of HbA1c or preventive care, but mixed results were shown among outcomes of care. What is not known is the extent to which medication-related

measures may be impacted and the extent to which adverse drug events may be prevented by practices with varying levels of PCMH adoption. This study aims to (1) quantify the level of adoption of PCMH and identify the factors that affect the extent to which primary care practices have adopted PCMH principles, and (2) understand the impact of this model on processes and outcomes of care related to medication quality indicators. The research uses the National Committee for Quality Assurance (NCQA) accreditation standards to define the level of PMCH implementation and quality indicators from HEDIS and PQA to quantify medication use quality.

The 2009–2010 NAMCS will be used. The first analysis will use multinomial logistic regression, with the dependent variable as the level of PCMH recognition. In the second analysis, level of PCMH will be employed to predict medication-related quality indicators developed using HEDIS and PQA approaches to quantify medication use quality. This exploration is important because the results will provide insightful information for future health policy researchers in identifying factors that affect the percentage of practices transforming from traditional practice to the reformed ones and the subsequent impact on medication use quality.

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## INTERRACIAL CONTACT AND HEALTH BEHAVIORS (NCHS)

*Jenifer Bratter – Rice University*

*Mary Campbell – Texas A&M University*

*Jarron Saint Onge – University of Kansas*

The growth of interracial contact in the United States has the potential to create major shifts in our understanding of racial health disparities in the United States. This research calls for the creation of a multi-level database, with data on individuals' socio-demographic background, psychological well-being and health behaviors, the race and Hispanic origin of respondents and co-residents (i.e. spouses/partners), and information on neighborhood characteristics. It first identifies the specific racial backgrounds of self-identified multiracial respondents among all respondents in

the person and sample adult file in the National Health Interview Survey (NHIS) by employing full (un-imputed) racial/ethnic information from the NHIS ethnicity and race questions for the years 2001 to 2011. Second, it explores multiracial neighborhood and family contexts and parses the influence of these contexts on health behaviors and health status, controlling for social and economic composition. Information on neighborhood context requires a merge of tract level geographic information from the decennial Census, merging the variables of racial and social

class composition (e.g., counts of major racial/ethnic groups in the tract, percent of the tract in poverty, and percent of the tract unemployed) with the restricted Census tract identifiers from the NHIS. This project has the potential to expand our understanding of racial health disparities and how they are changing in an era of growing interracial contact. It should challenge our thinking about the way that individuals experience racial difference when their experiences are not in homogenous family and neighborhood contexts.

## ACCOUNTABLE CARE ORGANIZATION AND NON-ACCOUNTABLE CARE ORGANIZATION ACCEPTANCE OF MEDICAID PATIENTS (NCHS)

*Sonali Saluja – Cambridge Health Alliance, Harvard Medical School*

Little is known about the nature of ambulatory medical practices that are joining Accountable Care Organizations (ACOs). This research aims to determine if an association exists between the percentage of Medicaid patients in a medical practice and that practice's ACO status. That is, it examines whether medical practices that participate in an ACO are less likely to care for patients with Medicaid. A secondary goal is to characterize the nature of

ACO practices and the resources that are available to them compared to non-ACO practices. The project uses the 2012 National Ambulatory Medical Care Survey (NAMCS)–National Physician Workflow Supplement for EHR adopters and for non-adopters to identify a sample of ACO and non-ACO practices. Use of the 2011 NAMCS–Electronic Medical Record Survey will permit a determination of the percentage of Medicaid or CHIP

patients in practices and the payer mix of these practices. Also included is other information about the practices' size, scope, and available resources. Logistic regression is employed to determine if there is a relationship between ACO status and percent of Medicaid/CHIP patients. Additionally, there will be a descriptive analysis of the characteristics of ACO and non-ACO practices.

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## RACIAL DISPARITIES IN EXPOSURE TO TOXIC HEAVY METALS (NCHS)

*Justin Colacino – University of Michigan*

*Kelly Ferguson – University of Michigan*

*Shama Virani – University of Michigan*

Most studies of racial/ethnic disparities to heavy metal exposures have focused on identifying differences in exposure to individual compounds. Since exposure to a range of heavy metals can induce similar toxicologic outcomes, characterizing exposures to mixtures of heavy metals may provide more physiologically relevant estimations of environmentally induced disease. This project proposes to quantify racial and ethnic disparities in exposure to combination of toxic heavy metals with similar mechanisms of action:

lead, cadmium, arsenic, and mercury. Utilizing data from the National Health and Nutrition Examination Survey (NHANES) from 2003–2010, the researchers generated a “heavy metals score” (HMS) that incorporates measured concentrations of blood cadmium, blood lead, blood mercury, and urinary total arsenic into a single score. They identified that non-Hispanic black individuals were significantly more likely to be highly exposed to heavy metals compared to non-Hispanic whites, across all age groups studied. To

better characterize these differences, the project incorporates information about the urban/rural residential status of the NHANES study participants. The addition of these data will generate finer scale estimates of risk of heavy metal exposure based on both race/ethnicity and residential status. Additionally, it will permit identification of whether the racial/ethnic disparities described above are actually reflecting risk differences in heavy metal exposure in urban/rural individuals.

## ESTIMATING REGIONAL VARIATION IN SUGAR-SWEETENED BEVERAGE CONSUMPTION FROM 1999 TO 2012 (NCHS)

*Yun-Hsin Wang – Columbia University*

Reducing consumption of sugar-sweetened beverages (SSB) is a national public health priority. From 1999 to 2010, consumption of SSBs has declined by 30 percent among youth aged 2 to 19 and 23 percent among adults. However, reductions in SSB consumption over the period varied substantially across age, race/ethnicity, and sex. Although industry sales data documents significant variation in SSB consumption across regions in the United States, little is known about regional variation in SSB consumption

within demographic subgroups over time. This project evaluates the secular trends in regional SSB consumption patterns by demographic subgroups since 1999. Total energy intake and beverage intake (kcal and oz), including SSBs, diet beverages, juice, milk, coffee, tea, alcohol, and water, are estimated based on public data from youth and adult participants in NHANES from 1999 to 2012. Mean intake, proportion consuming any beverages, and dichotomized high consumption ( $\geq 500$  kcal/day) will be estimated for each

beverage category by Census region (Northeast, Midwest, South, West) for subpopulations based on sex, age, race/ethnicity, BMI category, and household income. Regional variation in beverage intake will be evaluated in univariate comparisons, controlling for demographic composition in multivariable linear regression models adjusting for complex survey sampling methods. Regional variation in SSB consumption trends will be evaluated using time by region interaction terms in multivariable models.

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## **OBESITY, RACE, AND MORTALITY: THE ROLE OF COMPETING RISK (NCHS)**

*Sarah Chiodi – Harvard Medical School Beth Israel Deaconess Medical Center  
Christina Wee – Harvard Medical School*

While obesity is more prevalent in racial minorities, much of our understanding of obesity's influence and the basis of related public health policy comes from studies in Caucasian populations under age 65. The impact of obesity in racial minorities and older adults, however, is complex and uncertain. Prior work suggests that mortality associated with obesity in the general U.S. adult population is reduced substantially in African Americans relative to Caucasians. Observed racial differences in the obesity-mortality relationship may be due in part to methodological limitations of

prior studies. Traditional analytic modeling techniques used in prior studies do not adequately account for competing mortality risks. By ignoring competing mortality risks, these studies likely underestimate the adverse effect of higher BMI on obesity-specific mortality generally and to a larger degree in African Americans than in Caucasians, because competing mortality risks such as homicide and HIV continue to be more important leading causes of death in African Americans relative to Caucasians. Using data from a nationally generalizable sample of over 300,000 U.S. adults

aged 35 to 75, this project will examine the role of competing mortality risks more directly by applying a novel statistical modeling methodology designed to address this very issue. In clarifying the risk of obesity in African Americans, this research will provide critical data to enable development of cogent public health messages, shaping of public perception, and development of evidence-based clinical guidelines relevant and credible to African American populations.

## **THE CONTRIBUTION OF CARDIOVASCULAR RISK FACTORS TO HEALTH EXPECTANCIES AND MEDICARE COSTS AMONG U.S. ADULTS (NCHS)**

*David Frisvold – University of Iowa  
Neil Mehta – Emory University*

Younger adults smoke less and exhibit higher levels of obesity than their predecessors, but the combined prevalence of smoking and obesity has remained roughly constant. Simultaneously, the prevalence of diabetes is increasing while enhanced treatments have improved cholesterol levels at the population-level. This project compares the health and cost implications of the changing behavioral pattern of U.S. adults.

Recent evidence suggests that smoking's association with high mortality results in a compression of morbidity at older ages (i.e., smokers die relatively quickly after becoming sick at younger ages). The opposite may be true for obesity and diabetes. Obesity and diabetes may lead to an expansion of morbidity as they may lead to sickness/disablement early in life with moderate effects on mortality risks. This project compares the

role of leading cardiovascular risk factors on mortality, health expectancies (e.g., time spent in unhealthy and healthy states,) and Medicare costs among U.S. adults. It examines trends in the relative risks for each of the risk factors. A byproduct of this research will be to provide explanations for the observed trends in the mortality of risks of obesity and smoking. Multiple NHANES surveys are used.

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## TUSKEGEE AND DISPARITIES IN HEALTHCARE AND HEALTH OUTCOMES (NCHS)

*Marcella Alsan – Stanford University*

*Marianne Wanamaker – University of Tennessee*

Numerous studies have documented health disparities between blacks and whites in the United States. This research seeks to understand the role of mistrust in the healthcare system as a potential cause of historical and contemporaneous disparities. Because mistrust is difficult to observe, the research uses an historic episode as a proxy. The Tuskegee (Alabama) Study of Untreated Syphilis in the Negro Male passively followed black males with syphilis between 1932 and 1972 and failed to provide treatment

despite the fact that the men in the study believed they were receiving free medical care. The deception was disclosed in 1972. Data from the National Health Interview Survey (NHIS) between 1968 and 1983 indicate that a key measure of health seeking behavior, log of the number of days to see a physician, plateaued and even slightly increased for black males in the years immediately following disclosure. This suggestive evidence leads to a hypothesis that the Tuskegee incident led to increases in mistrust among

blacks and, in turn, racial disparities in both health seeking behavior and ultimate health outcomes. The hypothesis is tested by measuring whether black men who were more likely to be exposed to the news of the study, either due to spatial proximity to Tuskegee or to the distribution of media coverage of the story, had a larger change in their health seeking behavior following the 1972 disclosure. Both of these treatment measures are contingent on the location of the NHIS respondent.

## COMMUNITY CARE FOR ALL? HEALTH CENTERS' IMPACT ON ACCESS TO CARE (NCHS)

*Martha Bailey – University of Michigan*

*Lindsay Baker – University of Michigan*

*Morgan Henderson – University of Michigan*

*Anna Wentz – University of Michigan*

Since 1965, Community Health Centers (CHCs) have delivered primary and preventive health care at free or reduced cost to disadvantaged and uninsured Americans. Recently, both Republicans and Democrats have championed CHCs' expansion and they are integral to the Affordable Care Act (ACA). This project will attempt to fill gaps in knowledge about CHCs. The research aims to quantify the shorter- and longer-term impact of CHCs on health and economic outcomes by age and race and to examine how CHCs achieved these effects by quantifying their impacts

on health care utilization. The project uses restricted information from the National Health Interview Surveys (NHIS) from 1973 to 2012 and the National Vital Statistics System (NVSS) on natality and mortality rates from 1959 to 2011 to achieve these aims. The NHIS geographic identifiers allow for linking the presence of CHCs in an area, and detailed earnings and date of birth information allow for estimating individuals' potential eligibility to use CHCs. The NVSS geographic identifiers and information on the date of birth and death permit estimating eligibility for CHCs at critical ages.

Individuals in these data will not be linked, but instead are used to generate covariates from one dataset as a control variable in the other dataset. This study makes a substantial and policy relevant contribution to knowledge about CHCs' effects across places, time, and demographic groups. It also provides new evidence on CHCs' longer-term effects. The combination of historical studies with more contemporary evidence will significantly improve an understanding of CHCs and lay the foundation for future research.

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## THE EFFECT OF THE U.S. WORKPLACE LACTATION SUPPORT LAWS ON BREASTFEEDING AND FEMALE LABOR SUPPLY (NCHS)

*Lindsay Baker – University of Michigan*

The American Academy of Pediatrics (AAP) recommends feeding breast milk or formula to infants for the first year of life. The AAP and other organizations promote breast milk as the better option of the two, citing the numerous health benefits correlated with breastfeeding. Increasing the breastfeeding rate has been the focus of many national and international public health campaigns, yet the effort still has fallen short of official targets, especially among disadvantaged populations. The decision of what to feed an infant is very personal, and many factors can influence it. In particular, a woman's employment status may significantly

affect breastfeeding decisions. In recent years, breastfeeding support in the workplace has been a legislative focus in a number of states. Workplace lactation support laws vary among states in terms of existence and timing. The Patient Protection and Affordable Care Act of 2010 established a new national standard of breastfeeding support. One would expect that extremely supportive laws concerning better support of breastfeeding employees would lead to higher breastfeeding rates. These issues are crucial, especially for lower-income working-women who are likely to be most affected by unpaid leave and lack of employer

support for breastfeeding. Using a difference-in-difference methodology, this project will exploit the variation in state laws to identify whether and by how much these laws impact breastfeeding behavior (initiation and duration) and labor force participation of mothers with children under the age of one. Access to restricted NIS data is necessary to identify the timing and location of the child's birth in relation to the laws. Additionally, access to raw demographic and breastfeeding data, as opposed to recoded data, is important to insure consistency in the statistical analyses.

## THE IMPACT OF MASSACHUSETTS HEALTH REFORM ON INSURANCE COVERAGE, HEALTH SPENDING, AND PREMIUMS (NCHS)

*Amanda Kowalski – Yale University*  
*Rebecca McKibbin – Yale University*

In April 2006, the state of Massachusetts passed legislation aimed at achieving near-universal health insurance coverage. This project will estimate the impact of this legislation on insurance coverage, health care spending, and health plan premiums using the National Health Interview Survey (NHIS) of 2004–2010 and complementary

data sources. Based on the findings, the researchers aim to investigate the welfare implications of the legislation. The welfare effects may be positive if the reform managed to correct for adverse selection in the Massachusetts pre-reform health insurance market. Adverse selection is a common concern in health insurance markets, which

typically leads to inefficiently low levels of insurance coverage and extremely high premiums. In theory, mandating health insurance, as done in Massachusetts, will reduce adverse selection and may yield welfare gains. The researchers test this hypothesis empirically using the evidence from the Massachusetts health reform legislation.

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## TRENDS IN CHILDHOOD OBESITY (NCHS)

*Michel Boudreaux – University of Maryland  
Jason Fletcher – University of Wisconsin*

Overweight and obesity is a large problem among children in the United States, affecting 32 percent of all those under the age of nineteen. Recent evidence from the National Health and Nutrition Examination Survey (NHANES) suggests that, between 2003 and 2012, the obesity rate for two to five year olds declined by 5.5 percent, but remained unchanged for other age groups. This finding is encouraging, but the research behind this finding had important limitations. The research examined several age groups (nine in total), but did not adjust statistical significance levels for multiple-comparisons and thus may have understated the uncertainty in

the estimates. Additionally, the NHANES is based on a small sample (roughly 4,000 child observations) which prevented the authors from examining trends in sub-groups of children. This project addresses these limitations using data from the National Study of Children's Health (NSCH). The NSCH has been conducted every four years since 2003 and contains data on roughly 100,000 children in each wave. The NSCH is uniquely suited to studying trends in overweight and obesity prevalence among the total population and in sub-groups. The project will make use of height and weight variables for pre-school and elementary school age children that are suppressed

from the public use files due to concerns over measurement quality. While the measurement quality of the NSCH parent-reported height and weight variables will prevent estimating unbiased prevalence estimates for a given time period, there is little reason to suspect that the measurement error is correlated with the year of interview. Therefore, estimates of change over time should accurately reflect the experience of the population.

## STATE-LEVEL ESTIMATES OF HEALTH INSURANCE COVERAGE, HEALTH CARE ACCESS, AND HEALTH STATUS (NCHS)

*Heather Dahlen – University of Minnesota  
Brett Fried – University of Minnesota  
Xuyang Tang – University of Minnesota  
Joanna Turner – University of Minnesota  
Karen Turner – University of Minnesota*

The recently enacted federal health reform legislation, the Patient Protection and Affordable Care Act of 2010 (ACA), is making significant changes to health insurance coverage and health care systems across the United States, with states responsible for many of the key elements of

reform. This project analyzes the National Health Interview Survey (NHIS) to help states monitor the impacts of health reform. The research includes descriptive analyses that examine: (1) insurance coverage and lack of coverage, (2) access to and use of health care, (3) the affordability

of care, and (4) health status. Analyses cover the overall population, by state or region, as well as for key population subgroups, such as subgroups defined by age, income, and health status.

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## COVERAGE, ACCESS, AND HEALTH EFFECTS OF THE ACA MEDICAID EXPANSION (NCHS)

*Michael Dworsky – RAND Corporation*

*Christine Eibner – RAND Corporation*

As of January 1, 2014, twenty-five states had chosen not to implement the Affordable Care Act's (ACA's) expansion of Medicaid eligibility. The resulting interstate policy variation creates a valuable opportunity to estimate how the Medicaid expansion has affected its target population of low income adults not previously eligible for Medicaid. Using preliminary microdata files from the 2014 National Health Interview Survey (NHIS) and final release data from earlier years (2009 to 2013), this project conducts an evaluation of the effects of state Medicaid expansion decisions

on insurance coverage, access to care, patterns of care seeking, health status, and mental health. The research design uses a difference-in-difference framework to distinguish changes in regression-adjusted outcomes associated with the Medicaid expansion from permanent differences between states and from nationwide changes associated with ACA implementation. A challenge for this approach is that the early-release NHIS does not contain sufficiently detailed income data to determine Medicaid eligibility for much of the expansion's target population in states not moving

forward with the expansion. The researchers use an auxiliary public-use dataset to impute Medicaid eligibility as a function of characteristics observable in the early-release NHIS. NCHS use state geocodes to merge Medicaid expansion status and imputed Medicaid eligibility onto the 2009–2013 final release files, permitting leverage of additional cross-state variation in Medicaid income limits prior to the ACA expansion while measuring the impact of the Medicaid expansion on the entire population of adults in families below the federal poverty level.

## ECONOMIC INEQUALITY AND POPULATION HEALTH (NCHS)

*Timothy Johnson – University of Illinois at Chicago*

*Marina Stavrakantonaki – University of Illinois at Chicago*

There is growing recognition that unequal economic opportunities are associated with negative population outcomes. Previous research has documented national- and state-level associations between measures of economic inequality and multiple indicators of population health status and health risks. This project investigates associations between more proximate community-level measures

of economic inequality and the health status of individuals. It employs data from the 2012 National Health Interview Survey (NHIS) and census tract and county data to investigate relationships between local income inequality indices (i.e., the Gini coefficient) and a set of self-reported health status indicators. Health status measures examined include those available in the public-use version of

the 2012 NHIS, including global health ratings, health care visits and hospitalizations, and the presence of several chronic and acute health conditions. Using multivariate hierarchical models, the research controls for potential confounding variables at the individual level (i.e., age, gender, race/ethnicity, education, income).

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## EXAMINING THE IMPACT OF SEGREGATION ON RACIAL/ETHNIC AND EDUCATION DIFFERENCES IN ALLOSTATIC LOAD LEVELS AND MORTALITY RISKS (NCHS)

*Jeffrey Howard – Brooks Army Medical Base  
Patrice Sparks – University of Texas at San Antonio*

Allostatic load (AL) is a composite measure of the overall wear and tear, or degree of biological dysregulation, which accumulates over time as one is exposed repeatedly to stressful environments. The current state of knowledge suggests that allostatic load levels are higher for racial/ethnic minorities, individuals with low incomes or living in poverty, and individuals with low educational attainment, and that these relationships persist in multivariate regression models even when adjusting for many covariates. What remains unclear is the specific pathways linking race/ethnicity to higher stress burdens and mortality chances, and whether or not other socioeconomic and structural factors modify how these pathways operate. Initial

analyses by the researchers using four waves the National Health and Nutrition Survey (NHANES) gathered between 2003 and 2010, suggest that AL differs significantly by age, race/ethnicity, and educational attainment, specifically completion of a college degree or more. Separate education stratified models suggest that AL levels do not differ by race/ethnicity for individuals with less than a high school level education, but instead the largest AL differentials appear at higher levels of educational attainment, specifically for individuals with a college degree or more. Additional results suggest AL is significantly associated with increased mortality risks for all causes of mortality and for specific causes of death, independent of other

factors. This project examines the roles of education and residential segregation in modifying the relationship between race/ethnicity and stress levels, as measured by allostatic load and ultimate mortality risks, using the four waves of the NHANES 2003–2010 combined with different measures of segregation (dissimilarity, isolation, normalized exposure index, and multi-group segregation (Theil's H)) taken from U.S. Census data merged at the census tract. This will permit an assessment of how segregation may modify the education-AL relationship and its impact on mortality chances.

## UNIVERSAL HEALTH INSURANCE AND THE ADEQUACY AND EFFICIENCY OF HEALTH CARE (NCHS)

*Adrienne Sabety – Harvard University  
Kevin Todd – University of California, Berkeley*

This project examines how the availability of Medicare at age 65 affects an individual's use of medical services at the doctor's office, at outpatient clinics, and at emergency departments, specifically for the treatment of

chronic conditions. The project will also examine changes in treatment intensity for patients admitted to hospital for acute myocardial infarction. The results of this project will be directly policy-relevant as they

will help to quantify the effects of insurance coverage (or lack of coverage) on the efficiency and efficacy of the health care delivery system for older adults as well as the effect of expanding health insurance coverage.

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## EARLY EVIDENCE OF THE EFFECTS OF THE 2014 ACA EXPANSIONS (NCHS)

*Sharon Glied – New York University*

*Stephanie Ma – New York University*

*Claudia Solis-Roman – New York University*

The goal of this study is to provide early estimates of the effects of the Affordable Care Act's first period of open enrollment using the first and second quarter 2014 early release National Health Interview Survey (NHIS) data and prior full year samples. Research will identify trends in type of coverage (high deductible, Medicaid, and others), health characteristics of insured and uninsured groups (e.g., chronic conditions), and patterns of healthcare utilization in this population to see who has been affected by changes in

access to coverage. The project will compare data from states that used a federally-facilitated marketplace (FFM) or operated a state-based marketplace (SBM; 17 states) and states which expanded or did not expand Medicaid as of October 31, 2013. Use of the early release NHIS data will allow for estimates following the effects of the first enrollment period. Emphasis will be on the effects of the expansion by linking data on the date of interview and state exchange/Medicaid status and by type of exchange with

data from previous years that includes state identifiers to analyze changes in utilization and insurance rates. This analysis is particularly important because of its timeliness and because the Current Population Survey, a principal source of this information, recently changed questionnaires, complicating historical inferences. Restricted data from the NHIS has asked similar questions consistently over time and has an early release program, which provides the information necessary for this timely study.

## EARLY LIFE MORTALITY IN THE UNITED STATES (NCHS)

*Elizabeth Lawrence – University of North Carolina at Chapel Hill*

*Richard Rogers – University of Colorado*

Although U.S. early life mortality rates are magnitudes lower than later life mortality rates and have continued to decline, they remain unacceptably high, particularly for some population subgroups. Nonetheless, social demographic and epidemiological research on early life mortality, especially beyond infancy, has been scarce over the past several decades. This scarcity is most likely because research attention has focused on other stages of the life

course given that deaths are highly concentrated at older ages, and because there are very few large, nationally representative U.S. data sets that facilitate research on early life mortality. However, U.S. infants, children, adolescents, and young adults are growing up in a context of widening socioeconomic inequality and rapidly changing family structures. Overall, such social and economic changes may differentially affect early life mortality risks, with particularly

harmful consequences for the most vulnerable population subgroups. But, very little recent research has examined early life mortality disparities and trends in the context of these broad social and economic changes. The researchers use the recently released National Health Interview Survey Linked Mortality Files, using multivariate logistic regression analyses, to examine patterns and trends in early life mortality within the United States.

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## THE DETERMINANTS OF AVOIDANCE BEHAVIOR (NCHS)

*Daniel Phaneuf – North Carolina State University  
Austin Williams – University of Wisconsin–Madison*

This project explores how individual characteristics influence how a person interacts with the environment. A person with asthma likely will value air quality in a different way than someone without the condition. Alternatively, an obese person might allocate less time to active leisure choices such as outdoor recreation and therefore be less hesitant to substitute away from outdoor activities on poor air quality days. Establishing these types of relationships is important because personal characteristics may motivate decisions

that could in turn feedback to affect future health outcomes. When exploring how environmental pollution impacts human health, researchers often try to connect pollution exposure to health outcomes, essentially deriving a dose-response function. The analytical challenge is straightforward; when trying to establish how ambient levels of pollution influence negative health outcomes, failing to account for individual behavior aimed at avoiding exposure will lead to a downward bias in the marginal effect of pollution

on health. In the context of air pollution, avoidance behavior can take on many forms, including wearing a mask or spending less time outdoors on poor air quality days. In addition to being an important factor in estimating the marginal effect of pollution, avoidance behavior can be costly to an individual. This project investigates how individual characteristics impact time preferences and values for environmental quality, and how these values influence if and how an individual responds to warnings about poor air quality.

## MEDICAID COVERAGE OF SMOKING CESSATION TREATMENT: EFFECTS ON SMOKING BEHAVIOR AND HEALTH (NCHS)

*Allison Witman – RTI International*

The project involves a comprehensive analysis of the effects of Medicaid coverage of smoking cessation therapies (SCTs) on adult smoking and child health. SCTs include products such as the nicotine patch, inhaler, and gum and pharmaceuticals. In previous work, the researcher has shown that Medicaid coverage of SCTs reduces smoking

among low-income parents who are likely to be eligible for Medicaid. This reduction in smoking is concentrated among women who have very young children, suggesting the mothers quit smoking during pregnancy or shortly after birth. Consequently, Medicaid coverage of SCTs may have the benefit of reducing secondhand

smoke exposure among children in utero and during childhood. The researcher will test whether reductions in parental smoking resulting from the benefit cause improvements in child health as measured by birth weight, asthma attacks, ear infections, sickness, days of school missed, and other indicators.

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## EFFECTS OF HAZARD EXPOSURE ON HEALTH CARE UTILIZATION AND COSTS (NCHS)

*Jennifer Horney – Texas A&M University*

*Nathanael Rosenheim – Texas A&M University*

The challenges of building a more resilient future include a number of threats: an aging population who increasingly live in areas highly vulnerable to natural hazards at a time when the number and severity of large-scale natural disasters impacting the U.S. is increasing (National Research Council 2006). Prior research demonstrates that the elderly suffer disproportionately from disasters, and are more likely to experience morbidity, mortality, or other health impacts as the result of disasters than are younger people. However, these findings are based largely on disaster specific case studies with relatively

small sample sizes, rather than national-level evaluations using standard variables that can be compared across disasters, over time, and in different geographic locations. Because of the focus on a single event, case study research limits our capacity to enhance the resilience of the elderly to future disasters of a different type, scale, or location. The contribution of the proposed research is expected to be a large-scale evaluation of the effects of disasters on the health system utilization of the elderly using confidential data to estimate the impacts of disasters on health and health systems and to examine trends related

to health system utilization over time. To determine the association between hazard exposure and health system utilization and control for time-invariant confounders the researchers propose a fixed effects regression model to conduct within person comparisons from 1999 to 2007 across the United States. The results of the proposed project will support improved planning, preparedness, and the development of early interventions that will contribute to enhanced disaster resilience among individual elderly and the Medicare system overall.

## ENFORCEMENT AND MENTAL HEALTH (NCHS)

*Catalina Amuedo-Dorantes – San Diego State University*

*Mehmet Yaya – Eastern Michigan University*

Immigration enforcement in the United States has climbed to extraordinary levels since the passage of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996. Apprehensions and deportations of unauthorized immigrants have reached an unprecedented level in U.S. history. Not surprisingly, immigrants are reporting increased fear of profiling and deportation. Some researchers have pointed out the negative consequences that living under increased fear of deportation has on children with unauthorized

parents—a group consisting of an estimated 5.5 million children and, of whom, three-fourths are U.S. citizens. Fear, isolation, and economic hardship endured by parents translate into depression, separation anxiety disorders, post-traumatic stress disorders, and suicidal thoughts among children. This project examines the impact of enhanced local and state immigration enforcement on the mental and physical health of native children with non-citizen parents. It combines micro-level data from the 2006 through 2013 Household, Person, Family,

and Sample Adult public and restricted files of the National Health Interview Survey (NHIS) and local- and state-level data on the implementation of more stringent immigration enforcement measures. The research compares changes in the mental health of native children with at least one non-citizen parent to changes experienced by their counterparts residing in households with two native and/or naturalized parents before and after the implementation of stringent immigration enforcement measures.

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## ISCHEMIC HEART DISEASE AND LUNG CANCER MORTALITY IN RELATION TO RESPIRABLE PARTICULATE MATTER AND DIESEL EXHAUST IN NON-METAL MINERS (NCHS)

*Sadie Costello – University of California, Berkeley*

*Andreas Neophytou – University of California, Berkeley*

*Sally Picciotto – University of California, Berkeley*

Miners are exposed to far higher levels of respirable particulate matter (PM) and diesel exhaust than are found in urban ambient environments in the United States. The U.S. Environmental Protection Agency standard for PM<sub>2.5</sub> is 0.035 mg/m<sup>3</sup>—two orders of magnitude lower than the MSHA standard for respirable dust. Yet PM in traffic-related air pollution is recognized as an important risk factor for ischemic heart disease (IHD) based on a vast epidemiologic literature, and heart disease has rarely been studied in working populations. This project addresses the gap in the occupational health literature by studying miners who are heavily exposed to diesel, as measured

by respirable elemental carbon (REC), and respirable particulate matter (RPM), mostly from crustal sources. If respirable dust exposure also contributes to the risk of heart disease in miners, then the total disease burden would be far greater. The current MSHA exposure limit for diesel exhaust of 160 μm/m<sup>3</sup> total carbon (TC) may also be too high to protect miners against excess risk of heart disease. The challenge in this research is to estimate the exposure-response relationships between respirable PM, diesel exhaust, and IHD mortality in a cohort of miners without bias due to the healthy worker survivor effect (HWSE) or confounded by cigarette smoking. DEMS,

originally designed to study lung cancer, offers an opportunity to examine IHD mortality in relation to both respirable PM and diesel exhaust (measured as elemental carbon (REC)) with a focus on bias reduction and causal inference. There are already two excellent publications on lung cancer mortality in DEMS, including a cohort study and a nested case-control study adjusted for smoking. The results of both, however, could have been attenuated due to HWSE. In order to make sure the published relative risks were not underestimates, this project applies the same focus on bias reduction in a reanalysis of lung cancer as in a new study of IHD.

## UNEMPLOYMENT AND UNINTENDED FERTILITY (NCHS)

*Jessica Su – SUNY Buffalo*

Extant research links periods of economic crisis with net declines in fertility, yet it does not explore changes in intended and unintended fertility that underlie this demographic shift. As a result, important variation in fertility intentions (whether a birth was planned or unintended at the time of conception) might be obscured. For example, it is possible that periods of economic crisis are linked with increased unintended childbearing and decreased planned

childbearing while still yielding a net decline in fertility overall. This shift may have important implications for public health, as empirical research has established that unintended fertility is associated with poor parental and child well-being. This research addresses this gap in the literature with an explicit focus on the relationship between county-level unemployment and individual-level fertility intentions. This project will extend existing literature

that links unemployment and joblessness with increases in non-marital fertility. Although prior research focuses on union formation and non-marital fertility, fertility intentions are an increasingly salient concept for family research given the weakening link between marriage and childbearing. This study therefore reflects contemporary demographic trends in family formation and economic contexts.

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## PROVIDING PRIMARY CARE IN A CHANGING HEALTHCARE ENVIRONMENT: ARE FEDERALLY QUALIFIED HEALTH CENTERS UP TO THE CHALLENGE? (NCHS)

*Jenefer Jedele – University of Michigan*

In many communities, access to primary care is absent, unaffordable, or otherwise inaccessible despite ever increasing demand. Sixty-two million people in the United States were without adequate or any access to primary care in 2014. Those lacking access to primary care are also disproportionately low-income, uninsured, and racial/ethnic minorities. Since 1965, Federally Qualified Health Centers (FQHC) have acted as principal providers of primary care for those living in communities lacking adequate access. As of 2013, there were 1,202 FQHCs serving 21.7 million patients, of whom 93 percent were below 200 percent of the Federal Poverty Level, 35 percent were uninsured,

62 percent were racial/ethnic minorities, 4 percent were migrants, and 23 percent were best served in a non-English language. These populations are also those that experience the greatest disparities in health. By directly affecting access, FQHCs have also reduced disparities in health. Recently FQHCs received substantial financial support through the American Relief and Recovery Act of 2009 (ARRA), and the Patient Protection and Affordable Care Act of 2010 (ACA). ARRA provided more than \$2 billion and ACA provides \$11 billion directly to FQHCs for ongoing operations, new sites, and expanded services. Several additional ACA provisions are expected to bolster the ability

of FQHCs to accommodate new demand, while adding and expanding still needed services. Immediately playing the pivotal role expected of them in accommodating the anticipated increase in demand for primary healthcare will be challenging for FQHCs as they also adapt to new organizational structures and payment systems. This project examines the impact of the recession, ARRA, and ACA on the capacity of FQHCs to provide primary care services, the ability to accommodate the expected increase in demand, and the perception of access to care in and demographic and health composition of the communities that FQHCs serve.



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## Appendix 4.

### CENTER FOR ECONOMIC STUDIES (CES) DISCUSSION PAPERS: 2015

CES Discussion Papers are available at <[www.census.gov/ces](http://www.census.gov/ces)>.

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|-------|---|-------|--|
| 15-01 | “Intra-Firm Spillovers? The Stock and Flow Effects of Collocation,” by Evan Rawley and Robert Seamans, January 2015.  | 15-09 | “Evaluating the Long-Term Effect of NIST MEP Services on Establishment Performance,” by Clifford A. Lipscomb, Jan Youtie, Sanjay Arora, Andy Krause, and Philip Shapira, March 2015. |
| 15-02 | “Slow to Hire, Quick to Fire: Employment Dynamics with Asymmetric Responses to News,” by Cosmin Ilut, Matthias Kehrig, and Martin Schneider, January 2015.                            | 15-10 | “The Evolution of National Retail Chains: How We Got Here,” by Lucia Foster, John Haltiwanger, Shawn Klimek, C.J. Krizan, and Scott Ohlmacher, March 2015.                           |
| 15-03 | “Why is Pollution from U.S. Manufacturing Declining? The Roles of Trade, Regulation, Productivity, and Preferences,” by Joseph S. Shapiro and Reed Walker, January 2015.              | 15-11 | “Identifying Foreign Suppliers in U.S. Merchandise Import Transactions,” by Fariha Kamal, C.J. Krizan, and Ryan Monarch, April 2015.   |
| 15-04 | “Trends in Earnings Inequality and Earnings Instability among U.S. Couples: How Important is Assortative Matching?” by Dmytro Hryshko, Chinhui Juhn, and Kristin McCue, January 2015. | 15-12 | “The Impact of Heterogeneous NOx Regulations on Distributed Electricity Generation in U.S. Manufacturing,” by Jonathan M. Lee, April 2015.   |
| 15-05 | “The Recent Decline of Single Quarter Jobs,” by Henry R. Hyatt and James R. Spletzer, January 2015.   | 15-13 | “Cyclical Reallocation of Workers across Employers by Firm Size and Firm Wage,” by John Haltiwanger, Henry Hyatt, and Erika McEntarfer, June 2015.                                   |
| 15-06 | “Human Capital of Spinouts,” by Natarajan Balasubramanian and Mariko Sakakibara, January 2015.  | 15-14 | “Labor Market Networks and Recovery from Mass Layoffs Before, During, and After the Great Recession,” by Judith K. Hellerstein, Mark J. Kutzbach, and David Neumark, June 2015.      |
| 15-07 | “Spinout Formation: Do Opportunities and Constraints Benefit High Capital Founders?” by Natarajan Balasubramanian and Mariko Sakakibara, January 2015.                                | 15-15 | “The Determinants of Quality Specialization,” by Jonathan I. Dingel, June 2015.  |
| 15-08 | “Who Works for Whom? Worker Sorting in a Model of Entrepreneurship with Heterogeneous Labor Markets,” by Emin M. Dinlersoz, Henry R. Hyatt, and Hubert P. Janicki, February 2015.     | 15-16 | “Water Use and Conservation in Manufacturing: Evidence from U.S. Microdata,” by Randy A. Becker, June 2015.  |

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15-17	“Statistics on the International Trade Administration’s Global Markets Program,” by C.J. Krizan, June 2015.	15-26	“The Role of Establishments and the Concentration of Occupations in Wage Inequality,” by Elizabeth Weber Handwerker and James R. Spletzer, September 2015.
15-18	“Modeling Endogenous Mobility in Wage Determination,” by John M. Abowd, Kevin McKinney, and Ian M. Schmutte, June 2015.	15-27	“Is There an Advantage to Working? The Relationship between Maternal Employment and Intergenerational Mobility,” by Martha H. Stinson and Peter Gottschalk, September 2015.
15-19	“Business Dynamics of Innovating Firms: Linking U.S. Patents with Administrative Data on Workers and Firms,” by Stuart Graham, Cheryl Grim, Tariqul Islam, Alan Marco, and Javier Miranda, July 2015.	15-28	“Input Linkages and the Transmission of Shocks: Firm-Level Evidence from the 2011 Tohoku Earthquake,” by Christoph E. Boehm, Aaron Flaaen, and Nitya Pandalai-Nayar, September 2015.
15-20	“The Effects of Productivity and Demand-Specific Factors on Plant Survival and Ownership Change in the U.S. Poultry Industry,” by Tengying Weng, Tomislav Vukina, and Xiaoyong Zheng, July 2015.	15-29	“The Promise and Potential of Linked Employer-Employee Data for Entrepreneurship Research,” by Christopher Goetz, Henry Hyatt, Erika McEntarfer, and Kristin Sandusky, September 2015.
15-21	“Storms and Jobs: The Effect of Hurricanes on Individuals’ Employment and Earnings over the Long Term,” by Jeffrey A. Groen, Mark J. Kutzbach, and Anne E. Polivka, August 2015.	15-30	“Collateral Values and Corporate Employment,” by Nuri Ersahin and Rustom M. Irani, September 2015.
15-22	“Multiregional Firms and Region Switching in the US Manufacturing Sector,” by Antoine Gervais, August 2015.	15-31	“The Human Factor in Acquisitions: Cross-Industry Labor Mobility and Corporate Diversification,” by Geoffrey Tate and Liu Yang, September 2015.
15-23	“Co-Working Couples and the Similar Jobs of Dual-Earner Households,” by Henry R. Hyatt, September 2015.	15-32	“Associations between Public Housing and Individual Earnings in New Orleans,” by Sara Gleave, October 2015.
15-24	“Job Creation, Small vs. Large vs. Young, and the SBA,” by J. David Brown, John S. Earle, and Yana Morgulis, September 2015.	15-33	“Grown-Up Business Cycles,” by Benjamin W. Pugsley and Aysegül Sahin, October 2015.
15-25	“Locate Your Nearest Exit: Mass Layoffs and Local Labor Market Response,” by Andrew Foote, Michel Grosz, and Ann Stevens, September 2015.	15-34	“Wealth, Tastes, and Entrepreneurial Choice,” by Erik G. Hurst and Benjamin W. Pugsley, October 2015.

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|-------|--|-------|---|
| 15-35 | “Using Linked Survey and Administrative Data to Better Measure Income: Implications for Poverty, Program Effectiveness and Holes in the Safety Net,” by Bruce D. Meyer and Nikolas Mittag, October 2015. | 15-41 | “Dutch Disease or Agglomeration? The Local Economic Effects of Natural Resource Booms in Modern America,” by Hunt Allcott and Daniel Keniston, November 2015.                   |
| 15-36 | “Selection and Specialization in the Evolution of Marriage Earnings Gaps,” by Chinhui Juhn and Kristin McCue, October 2015.  | 15-42 | “Allocation of Company Research and Development Expenditures to Industries Using a Tobit Model,” by Christian Awuku-Budu and Leo Sveikauskas, November 2015.                    |
| 15-37 | “Spillovers from Immigrant Diversity in Cities,” by Thomas Kemeny and Abigail Cooke, November 2015.  | 15-43 | “Where Has All the Skewness Gone? The Decline in High-Growth (Young) Firms in the U.S.,” by Ryan A. Decker, John Haltiwanger, Ron S. Jarmin, and Javier Miranda, November 2015. |
| 15-38 | “How Does Labor Market Size Affect Firm Capital Structure? Evidence from Large Plant Openings,” by Hyunseob Kim, November 2015.  | 15-44 | “Simultaneous Edit-Imputation for Continuous Microdata,” by Hang J. Kim, Lawrence H. Cox, Alan F. Karr, Jerome P. Reiter, and Quanli Wang, December 2015.                       |
| 15-39 | “Creditor Control Rights and Resource Allocation within Firms,” by Nuri Ersahin, Rustom M. Irani, and Hanh Le, November 2015.  | 15-45 | “Customer-Labor Substitution: Evidence from Gasoline Stations,” by Emek Basker, Lucia Foster, and Shawn Klimek, December 2015.  |
| 15-40 | “The Annual Survey of Entrepreneurs: An Introduction,” by Lucia Foster and Patrice Norman, November 2015.  |       |   |



## Appendix 5.

# NEW CENSUS DATA AVAILABLE THROUGH RESEARCH DATA CENTERS (RDCs) IN 2015<sup>1</sup>

## BUSINESS DATA

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
Annual Survey of Manufactures	The Annual Survey of Manufactures (ASM) provides data on manufacturers including employment, payroll, workers' hours, payroll supplements, value of shipments, cost of materials, value added, capital expenditures, inventories, and energy consumption. It also provides data on the value of shipments by product class and materials consumed by material code.	2013
Census of Construction Industries	The Census of Construction Industries (CCI) is conducted every five years as part of the Census Bureau's Economic Census program. Data collected in the CCI include employment (construction worker and other), hours, payroll and benefits, value of construction work, cost of materials, supplies and fuels, cost of work subcontracted out, capital expenditures, assets, types of construction activities, and special inquiries.	2012
Census of Mineral Industries	The Census of Mineral Industries (CMI) is conducted every five years as part of the Census Bureau's Economic Census program. The CMI provides data on mining establishments including employment (mining workers and other), payroll and benefits, hours, value of shipments, cost of materials and supplies, value added, capital expenditures, inventories, energy consumption, and special inquiries. It also provides data on the value of shipments by product class and supplies consumed by material code.	2012
Census of Retail Trade	The Census of Retail Trade (CRT) is conducted every five years as part of the Census Bureau's Economic Census program. In 2012, the CRT includes NAICS sectors 44-45 (retail trade) and 72 (accommodation and food services). Data collected include employment, payroll, sales, kind of business, class of customer, method of selling, the amount of revenue by detailed source, and special inquiries.	2012
Census of Services	The Census of Services (CSR) is conducted every five years as part of the Census Bureau's Economic Census program. In 2012, the CSR includes NAICS sectors 51 (information), 54 (professional, scientific, and technical services), 55 (management of companies and enterprises), 56 (administrative & support and waste management & remediation services), 61 (educational services), 62 (health care and social assistance), 71 (arts, entertainment, and recreation) and 81 (other services, except public administration). Data collected include employment, payroll, revenue, kind of business, the amount of revenue by detailed source, and special inquiries.	2012

<sup>1</sup>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.

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
Census of Transportation, Communications, and Utilities	The Census of Transportation, Communications, and Utilities (CTCU) is conducted every five years as part of the Census Bureau's Economic Census program. In 2012, the CTCU includes NAICS sectors 22 (utilities) and 48-49 (transportation and warehousing). Data collected include employment, payroll, revenue, kind of business, class of customer, the amount of revenue by detailed source, and special inquiries.	2012
Census of Wholesale Trade	The Census of Wholesale Trade (CWT) is conducted every five years as part of the Census Bureau's Economic Census program. In 2012, the CWT includes NAICS sector 42. Data collected include employment, payroll, sales, inventories, selected expenses, kind of business, type of operation (e.g., importer, exporter), class of customer, method of selling, the amount of revenue by detailed source, and special inquiries.	2012
Commodity Flow Survey	The Commodity Flow Survey (CFS) provides information on the movement of goods in the United States. Data collected in the CFS include commodities shipped, their value, weight, and mode of transportation, as well as the origin and destination of shipments from U.S. establishments in mining, manufacturing, wholesale, auxiliaries, and selected retail and service industries. The CFS is conducted every five years as part of the Census Bureau's Economic Census program and is undertaken through a partnership with the Bureau of Transportation Statistics.	2012
Form 5500 Bridge File	The Form 5500 Bridge File is a link between Census Bureau data on businesses and public data on employee benefit plans filed with the Department of Labor on Form 5500. This latest update provides links through 2012.	1992–2012
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 <i>paid</i> employees from 1976 to 2013. 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.	2013
Manufacturing Energy Consumption Survey	The Manufacturing Energy Consumption Survey (MECS) collects detailed data on the consumption of electricity and other types of fuel by the manufacturing sector. Data is also collected on end uses, fuel-switching capability, energy technologies, and energy-management activities. The survey is conducted approximately every four years.	2010

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
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.	2014
Quarterly Services Survey	The Quarterly Services Survey (QSS) provides quarterly estimates of revenue and expenses for selected service industries. Data collected include quarterly revenue and sometimes sources of revenue, class of customer, operating expenses, and industry-specific items (e.g., the number of inpatient days and discharges).	2003–2014
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.	2013
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).	2013

## HOUSEHOLD DATA<sup>2</sup>

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.	2014 (1-year and 5-year files)  2008 (Master Address File crosswalks)
Current Population Survey	The Current Population Survey (CPS) is a monthly survey of households cosponsored by the Census Bureau and the Bureau of Labor Statistics. The CPS is the primary source of labor force statistics, including employment status, earnings, hours of work, occupation, industry, full- or part-time status, reasons for working part-time, multiple jobholding, labor force participation, unemployment, duration of unemployment, reason for unemployment, occupation and industry of last job, methods used to find employment, work experience, occupational mobility, job tenure, educational attainment, and school enrollment of workers. The CPS also collects demographic data, including age, sex, race, Hispanic origin, marital status, family relationship, and veteran status. The CPS is also used to collect data on a wide variety of topics through supplemental questions to the basic monthly CPS questions. These supplemental inquiries vary month to month and are usually conducted annually or biennially, depending on the needs of the supplement's sponsor. The Fertility supplement of the CPS, conducted biennially in June, collects data from women aged 15–50 on the total number of children born, the year of their first birth, whether the respondent was married or cohabiting at the time of that first birth, and children's characteristics. The Voting and Registration supplement of the CPS, conducted biennially in November, collects data on the voting behavior of citizens aged 18 and up.	1999–2015 (Basic Monthly)  1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012 (Fertility)  2006, 2008, 2010, 2012 (Voting and Registration)

<sup>2</sup>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.

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
Decennial Census	The 1950 decennial census collected certain information on all respondents, including age, sex, race, marital status, relationship to the head of household, birthplace, naturalization, employment status, hours worked, occupation, industry, and class of worker. In addition, a sample of individuals were asked additional questions covering income, migration, education, marital history, fertility, and other topics. A 1950 Public Use Microdata Sample (PUMS) of 1% of the population was produced in the 1980s in a collaboration between the Wisconsin Center for Demography and Ecology and the Census Bureau. This internal version of the 1950 PUMS combines three files into one: 1) the original 1950 PUMS released to the public, 2) the IPUMS version of this dataset with its harmonized coding, and 3) the original data entry files recently recovered from computer tape, which contain detailed geography and the original alpha string entries for fields like birthplace and occupation. While respondents' surnames have been excluded, this file does contain information on the similarity of surnames within a household and whether the respondent had a Hispanic surname.	1950
Decennial Census	The 1960 decennial census collected certain information on all respondents, including age, sex, race, marital status, and relationship to the head of household. In addition, a 25% sample of households were asked additional questions on birthplace, language spoken, ancestry, education, marital history, fertility, employment status, hours worked, occupation, industry, class of worker, commuting, and veteran status. When these data were first recovered from the Census Bureau's mainframe, about 250,000 person records were missing from the file. Through a collaborative effort between the Census Bureau, the National Archives and Records Administration, and the Minnesota Population Center, and with funding from the National Institutes of Health and the National Science Foundation, the missing information was recovered by digitizing the microfilmed FOSDIC-encoded enumeration forms. For more details, see our 2014 annual report.	1960
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. For example, the Police-Public Contact Survey (PPCS) collects detailed information on the characteristics of persons who had some type of contact with police during the year, including those who contacted the police to report a crime or were pulled over in a traffic stop. The survey examines the perceptions of police behavior and response during these encounters. The PPCS interviews a nationally representative sample of residents age 16 or older drawn from those in the NCVS sample.	2011 (Police-Public Contact Survey)

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
National Longitudinal Mortality Study	The National Longitudinal Mortality Study (NLMS) is a database developed for the purpose of studying the effects of demographic and socio-economic characteristics on differentials in U.S. mortality rates. The NLMS consists of data from Current Population Surveys, Annual Social and Economic Supplements, and a subset of the 1980 Census combined with death certificate information to identify mortality status and cause of death.	Through 2011

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## Appendix 6.

# FEDERAL STATISTICAL RESEARCH DATA CENTER (RDC) PARTNERS

### **Atlanta RDC**

Julie Hotchkiss, Executive Director

Clemson University  
Emory University  
Federal Reserve Bank of Atlanta  
Florida State University  
Georgia Institute of Technology  
Georgia State University  
University of Georgia  
University of Tennessee, Knoxville

### **Boston RDC**

Wayne Gray, Executive Director

National Bureau of Economic Research

### **California RDC (Berkeley)**

Jon Stiles, Executive Director

University of California, Berkeley  
University of California, Davis  
Social Sciences Data Laboratory

### **California RDC (Irvine)**

Antonio Rodriguez-Lopez, Executive Director

University of California, Irvine

### **California RDC (Stanford)**

Matthew Snipp, Executive Director

Stanford University  
Institute for Research in the Social Sciences

### **California RDC (UCLA)**

Gary Gates, Executive Director

University of California, Los Angeles

### **California RDC (USC)**

Gordon Phillips, Executive Director

University of Southern California

### **Census Bureau Headquarters RDC (CES)**

Shawn Klimek, Director of Research, CES

Agency for Healthcare Research and Quality  
Board of Governors of the Federal Reserve System  
Bureau of Economic Analysis

### **Central Plains RDC (Lincoln)**

John Anderson, Executive Director

University of Nebraska – Lincoln  
University of Nebraska Medical Center  
University of Iowa  
Iowa State University  
University of South Dakota

### **Chicago RDC**

Bhash Mazumder, Executive Director

Federal Reserve Bank of Chicago  
Northwestern University  
University of Chicago  
University of Illinois  
University of Notre Dame

### **Kansas City RDC**

Edith Gummer, Co-Executive Director

Jon Willis, Co-Executive Director

Federal Reserve Bank of Kansas City  
Kauffman Foundation  
University of Kansas  
University of Kansas Medical Center  
University of Missouri  
University of Missouri – Kansas City

### **Maryland RDC (College Park)**

Liu Yang, Executive Director

University of Maryland  
Robert H. Smith School of Business

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**Michigan RDC (Ann Arbor)**

Margaret Levenstein, Executive Director

University of Michigan  
Institute for Social Research  
Michigan State University

**Minnesota RDC (Minneapolis)**

Catherine Fitch, Co-Executive Director  
J. Michael Oakes, Co-Executive Director

University of Minnesota  
Minnesota Population Center

**Missouri RDC (Columbia)**

Colleen Heflin, Co-Executive Director  
Peter Mueser, Co-Executive Director

University of Missouri  
Washington University in St. Louis

**New York RDC (Baruch)**

Diane Gibson, Executive Director

Baruch College  
City University of New York  
Columbia University  
Cornell University  
Federal Reserve Bank of New York  
National Bureau of Economic Research  
New York University  
Princeton University  
Russell Sage Foundation  
Syracuse University  
University at Albany, State University of New York  
Yale University

**New York RDC (Cornell)**

William Block, Executive Director

Baruch College  
City University of New York  
Columbia University  
Cornell University  
Federal Reserve Bank of New York  
National Bureau of Economic Research  
New York University  
Princeton University  
Russell Sage Foundation  
Syracuse University  
University at Albany, State University of New York  
Yale University

**Northwest RDC (Seattle)**

Mark Ellis, Executive Director

University of Washington  
State of Washington, Office of Financial  
Management  
Center for Studies in Demography and Ecology

**Pennsylvania State University RDC**

Mark Roberts, Executive Director

The Pennsylvania State University

**Texas RDC (College Station)**

Mark Fossett, Executive Director

Texas A&M University  
Texas A&M University System  
Baylor University  
Rice University  
University of Texas at Austin  
University of Texas at San Antonio

**Triangle RDC (Duke and RTI)**

Gale Boyd, Executive Director

Duke University  
North Carolina State University  
RTI International  
University of North Carolina at Chapel Hill

**Wisconsin RDC (Madison)**

Brent Heuth, Executive Director

University of Wisconsin—Madison

**Yale RDC**

Peter Schott, Executive Director

Cowles Foundation at Yale University

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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

As of January 2016.

**New England** (*Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont*)  
Bruce DeMay, Director  
Economic and Labor Market Information Bureau  
New Hampshire Employment Security

#### **New York/New Jersey**

Leonard Preston, Chief  
Labor Market Information  
New Jersey Department of Labor and Workforce  
Development

**Mid-Atlantic** (*Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia*)  
Sue Mukherjee, Director  
Center for Workforce Information and Analysis  
Pennsylvania Department of Labor and Industry

**Southeast** (*Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee*)  
Adrienne Johnston, Director  
Bureau of Labor Market Statistics  
Florida Department of Economic Opportunity

**Midwest** (*Illinois, Indiana, Iowa, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin*)  
Coretta Pettway, Chief  
Labor Market Information Bureau  
Ohio Department of Job and Family Services

**Mountain-Plains** (*Colorado, Kansas, Missouri, Utah, Wyoming*)  
Carrie Mayne, Director  
Research and Analysis  
Utah Department of Workforce Services

**Southwest** (*Arkansas, Louisiana, New Mexico, Oklahoma, Texas*)  
Raj Jindal, Director  
Information Technology  
Louisiana Workforce Commission

**Western** (*Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington*)  
Bill Anderson, Chief Economist  
Research and Analysis Bureau  
Nevada Department of Employment, Training,  
and Rehabilitation

### FEDERAL PARTNERS

U.S. Department of Agriculture  
U.S. Department of Commerce, National Oceanic  
and Atmospheric Administration  
U.S. Department of Homeland Security, Federal  
Emergency Management Agency  
U.S. Department of the Interior  
U.S. Office of Personnel Management

### STATE PARTNERS

As of December 2015.

**Alabama**  
Jim Henry, Director  
Labor Market Information Division  
Alabama Department of Labor

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**Alaska**

Dan Robinson, Director  
Research and Analysis Section  
Alaska Department of Labor and Workforce  
Development

**Arizona**

Paul Shannon, Associate Director  
Budget and Resource Planning  
Arizona Department of Administration

**Arkansas**

Robert S. Marek, Administrative Services Manager  
Employment and Training Program Operations  
Arkansas Department of Workforce Services

**California**

Spencer Wong, Chief  
Labor Market Information Division  
California Employment Development Department

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Colorado Department of Labor and Employment

**Connecticut**

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Office of Research  
Connecticut Department of Labor

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George Sharpley, Ph.D., Economist and Chief  
Office of Occupational and Labor Market  
Information  
Delaware Department of Labor

**District of Columbia**

Saikou Diallo, Associate Director  
Office of Labor Market Research and Information  
District of Columbia Department of Employment  
Services

**Florida**

Adrienne Johnston, Director  
Bureau of Labor Market Statistics  
Florida Department of Economic Opportunity

**Georgia**

Mark Watson, Director  
Workforce Statistics and Economic Research  
Georgia Department of Labor

**Guam**

Gary Hiles, Chief Economist  
Government of Guam  
Department of Labor

**Hawaii**

Phyllis A. Dayao, Chief  
Research and Statistics Office  
Hawaii Department of Labor and Industrial  
Relations

**Idaho**

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Research and Analysis Bureau  
Idaho Department of Labor

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

**Indiana**

Allison Leeuw, Acting Director  
Research and Analysis  
Indiana Department of Workforce Development

**Iowa**

Edward Wallace, Acting Director  
Labor Market Information Division  
Iowa Department of Workforce Development

**Kansas**

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

**Kentucky**

Lori Collins, Director  
Workforce Intelligence Branch  
Kentucky Office of Employment and Training

**Louisiana**

Raj Jindal, Director  
Information Technology  
Louisiana Workforce Commission

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**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., Director  
Labor Market Information Office  
Minnesota Department of Employment and  
Economic Development

**Mississippi**

Mary Willoughby, Bureau Director  
Labor Market Information  
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**

Annette Miller, 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 Employment Security

**New Jersey**

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

**New Mexico**

Rachel Moskowitz, Chief  
Economic Research and Analysis Bureau  
New Mexico Department of Workforce Solutions

**New York**

Bohdan Wynnyk, Deputy Director  
Division of Research and Statistics  
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, Director  
Research and Statistics  
Job Service North Dakota

**Ohio**

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

**Oklahoma**

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

**Oregon**

Graham Slater, Administrator  
Workforce and Economic Research  
Oregon Employment Department

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***Pennsylvania***

Keith Bailey, Director  
Center for Workforce Information and Analysis  
Pennsylvania Department of Labor and Industry

***Puerto Rico***

Fernando Sulsona, Director  
Labor Market Information/Bureau of Labor  
Statistics  
Puerto Rico Department of Labor

***Rhode Island***

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

***South Carolina***

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Labor Market Information Division  
South Carolina Department of Employment  
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***South Dakota***

Bernie Moran, Administrator  
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South Dakota Department of Labor and Regulation

***Tennessee***

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Labor Market Information  
Tennessee Department of Labor and Workforce  
Development

***Texas***

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Texas Workforce Commission

***Utah***

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***Virgin Islands***

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***Washington***

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Washington Employment Security Department

***West Virginia***

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

***Wisconsin***

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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 (November 2015)

