

# Center for Economic Studies and Research Data Centers Research Report: 2017

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*Research and Methodology Directorate*

Issued May 2018



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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. **Julia Lane, Jason Owen-Smith, Joseph Staudt, and Bruce Weinberg** authored Chapter 2. **Emek Basker, Randy Becker, Lucia Foster, Kirk White, and Alice Zawacki** authored Chapter 3. Our RDC administrators and executive directors helped compile information found in Appendixes 2 and 6. Other CES staff and Research and Methodology Directorate staff contributed updates to the other appendixes.

**Linda Chen** and **Faye Brock** of the 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 May 2018

*Research and Methodology Directorate*



**U.S. Department of Commerce**  
**Wilbur Ross,**  
Secretary

**Karen Dunn Kelley,**  
Performing the Nonexclusive Duties  
of the Deputy Secretary

**Economics and Statistics Administration**  
**Karen Dunn Kelley,**  
Under Secretary  
for Economic Affairs

**U.S. CENSUS BUREAU**  
Dr. Ron Jarmin,  
Performing the Nonexclusive Functions  
and Duties of the Director

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**Economics  
and Statistics  
Administration**

**Karen Dunn Kelley,**  
Under Secretary of  
Economic Affairs



**U.S. CENSUS BUREAU**

**Dr. Ron Jarmin,**  
Performing the Nonexclusive  
Functions and Duties of the Director

**Enrique Lamas,**  
Performing the Nonexclusive Functions  
and Duties of the Deputy Director and  
Chief Operating Officer

**John M. Abowd,**  
Associate Director  
for Research and Methodology

**John L. Eltinge,**  
Assistant Director  
for Research and Methodology

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

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## A MESSAGE FROM THE CHIEF ECONOMIST

It has been another productive year at the Center for Economic Studies (CES). The Federal Statistical Research Data Center (FSRDC) program continued its expansion with five new locations, and our recent efforts in this area were recognized with a U.S. Department of Commerce Gold Medal. CES staff and FSRDC researchers continue to publish world-class research in the most highly regarded journals in their fields, and CES's public-use data products all enjoy continued success, including our youngest addition, *Job-to-Job Flows*. Our many accomplishments over the last year are discussed herein—in Chapter 1 and in several appendixes.



The chief mission of CES is to enhance the understanding of the economy and people of the United States. Our research regularly leads to important new discoveries in economics and other social sciences, suggested improvements to existing U.S. Census Bureau data products and methodologies, and sometimes entirely new data products. Two chapters in this year's report finely illustrate this tradition.

Chapter 2 discusses the results so far of a multiyear partnership between the Census Bureau and the University of Michigan's Institute for Research on Innovation and Science (IRIS) to develop data on and insights into the impact of research funding on the economy. In particular, detailed data on research grants and projects conducted at IRIS's university members have been linked to the Census Bureau's rich data on employment and employers. Early research results have already increased our understanding of science's economic impacts on employment, earnings, and entrepreneurial activity of those once covered by university research grants. These data are now available to researchers through the FSRDCs and will be updated on a regular basis.

As I write this, the Census Bureau is mailing out the 2017 Economic Census. Conducted every 5 years, the economic census is the most comprehensive measurement of the U.S. economy that we do. In Chapter 3, we discuss four new lines of inquiry proposed by CES economists and debuting in the 2017 Economic Census. In particular, select industries will receive special inquiries to help us measure and shed light on retail health clinics, management practices in health care services, self-service in the retail and services sectors, and water use in manufacturing and mining.

Over the coming year, we will continue efforts such as these. We're also particularly excited to debut two new public-use data products. *Business Formation Statistics* will provide timely and high frequency information on new business applications and formations. *Post-Secondary Employment Outcomes* will provide earnings and employment outcomes for college graduates, by degree level, degree major, and postsecondary institution.

(Continued)

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## A MESSAGE FROM THE CHIEF ECONOMIST—Con.

Thank you to everyone who contributed to our annual report. Randy Becker compiled and edited all of the material. Editorial review was performed by Faye Brock and design services and cover art production by Linda Chen, both of the Public Information Office. Other contributors are acknowledged on the inside cover.

A handwritten signature in black ink that reads "Lucia S. Foster". The script is fluid and cursive, with the first letters of each word being capitalized and prominent.

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



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## Chapter 1. 2017 News

### THE FSRDC NETWORK CONTINUES TO GROW

The Federal Statistical Research Data Center (FSRDC) network continues to expand and thrive. We end 2017 with 29 Research Data Centers (RDCs). Five new locations were opened at Georgetown University, University of Colorado Boulder, University of Kentucky, University of Texas at Austin, and the Federal Reserve Bank of Philadelphia. Another RDC at the University of Illinois at Urbana-Champaign will be opening

soon. In addition, the National Science Foundation granted an award for the establishment of an RDC at the Federal Reserve Bank of Dallas, which is scheduled to open in 2018. For more information and updates, visit [www.census.gov/fsrdc](http://www.census.gov/fsrdc).

At year's end, the RDCs hosted nearly 700 researchers working on about 290 different projects. In 2017, 95 new RDC projects began. Of those, 44 use Census Bureau microdata (see Appendix 3-A), 12 use data from the Agency for Healthcare Research

and Quality, 38 use data from the National Center for Health Statistics, and one uses data from the Bureau of Labor Statistics (see Appendix 3-B).

Meanwhile, RDC researchers using Census Bureau microdata continue to be tremendously prolific, with at least 81 publications and 91 working papers in 2017 (see Appendix 2). As the accompanying table shows, RDC-based research is published in many of the top peer-reviewed journals. Recent and forthcoming articles appeared in



*Grand opening of the Census Bureau's 25th RDC on April 25, 2017, at Georgetown University's McCourt School of Public Policy. Pictured from left to right are: Lucia Foster, chief economist and chief of the Center for Economic Studies, U.S. Census Bureau; Georgetown Provost Robert Groves; John Thompson, director, U.S. Census Bureau; Frank H. McCourt Jr., founder, chairman and CEO of McCourt Global; Georgetown President John J. DeGioia; John Abowd, associate director for research and methodology, U.S. Census Bureau; and McCourt School of Public Policy Dean Edward Montgomery.*



Ribbon-cutting ceremony for the Rocky Mountain Research Data Center (RMRDC) on September 28. Pictured from left to right are Katie Genadek, RMRDC administrator, Center for Economic Studies, U.S. Census Bureau; John Eltinge, assistant director for research and methodology, U.S. Census Bureau; Terri Fiez, vice chancellor for research, University of Colorado; Myron Gutmann, director, Institute of Behavioral Science, University of Colorado; Barbara Downs, director, FSRDC program, U.S. Census Bureau; and Jani Little, executive director, RMRDC, University of Colorado.

#### Publications by RDC Researchers and CES Staff: 2017 and Forthcoming

Economics journals (by rank)	RDC researchers	CES staff	Total
AAA (1-5)	11	0	11
AA (6-20)	11	7	18
A (21-102)	22	18	40
B (103-258)	7	3	10
C (259-562)	5	1	6
D (563-1,202)	0	0	0
<b>Journals outside of economics</b>	16	4	20
<b>Book chapters</b>	9	12	21
<b>TOTAL</b>	81	45	126

Note: Based on known publications listed in Appendix 2. Ranking of journals in economics is taken from Combes and Linnemer (2010), with some imputation of journal ranking using RePEc.

16 of the top 22 journals in economics, including several articles in the *American Economic Review*, *Econometrica*, *Journal of Political Economy*, *Quarterly Journal of Economics*, and *The Review of Economic Studies*.

Many graduate students use the RDCs for their Ph.D. dissertation research. Currently, there are about 130 such students from 48 different universities, including 108 who use Census Bureau microdata. (This does not include the many graduate students who use the RDCs as research assistants to others.) Many of these doctoral candidates are eligible to apply to the CES Dissertation Mentorship Program. Program participants

receive two principal benefits: mentoring by a Center for Economic Studies (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 2017, CES accepted seven new participants into the program and has had 39 since the program began in 2008.

The microdata available to researchers has also expanded. Among the notable releases are UMETRICS data from the Innovation Measurement Initiative, as well as the latest from the American Community Survey. See Appendix 5 for more details.

## RELEASES OF PUBLIC-USE DATA

CES released five public-use data products in 2017: *Business Dynamics Statistics*, *Quarterly Workforce Indicators*, *OnTheMap*, *OnTheMap for Emergency Management*, and *Job-to-Job Flows*.

In September 2017, the Census Bureau released the 2015 ***Business Dynamics Statistics*** (BDS), which provides annual statistics from 1976 to 2015 on establishment openings and closings, firm startups and shutdowns, employment, job creation, and job destruction, by firm (or establishment) size, age, industrial sector, state, and metropolitan area. This year's temporary reduction in the number of tables allows the completion of work to modernize the BDS. This modernization includes an expanded set of tables that incorporate

## NOTABLE 2017 PUBLICATIONS BY CES STAFF

### **“Finance and Growth at the Firm-Level: Evidence from SBA Loans”**

**J. David Brown** and John S. Earle  
*Journal of Finance*  
Volume 72, June 2017, pp. 1039–1080.

We analyze linked databases on all SBA loans and lenders and on all U.S. employers to estimate the effects of financial access on employment growth. Estimation exploits the long panels and variation in local availability of SBA-intensive lenders. The results imply an increase of 3–3.5 jobs for each million dollars of loans, suggesting real effects of credit constraints. Estimated impacts are stronger for younger and larger firms and when local credit conditions are weak, but we find no clear evidence of cyclical variation. We estimate taxpayer costs per job created in the range of \$21,000–\$25,000.

### **“Specialization Then and Now: Marriage, Children, and the Gender Earnings Gap across Cohorts”**

Chinhui Juhn and **Kristin McCue**  
*Journal of Economic Perspectives*  
Volume 31, Winter 2017, pp. 183–204.

In this paper, we examine the evolution of the gender gap associated with marriage and parental status, comparing cohorts born between 1936 and 1985. The model of household specialization and division of labor introduced by Becker posits that when forming households, couples will exploit the gains from trade by having one spouse specialize in market work while the other specializes in household work. Given the historical advantage of men in the labor market, the model predicts specialization by gender and therefore an earnings advantage for married men and an earnings disadvantage for married women. Is this model of specialization useful for understanding the evolution of the gender gap across generations of women? And what about children? Academic papers have shown that wages of mothers are significantly lower than those of nonmothers with similar human capital characteristics. We do not attempt to build a structural model here, but rather document how changing associations between marriage and earnings, and between children and earnings, have contributed to the gender gap in an “accounting” sense.



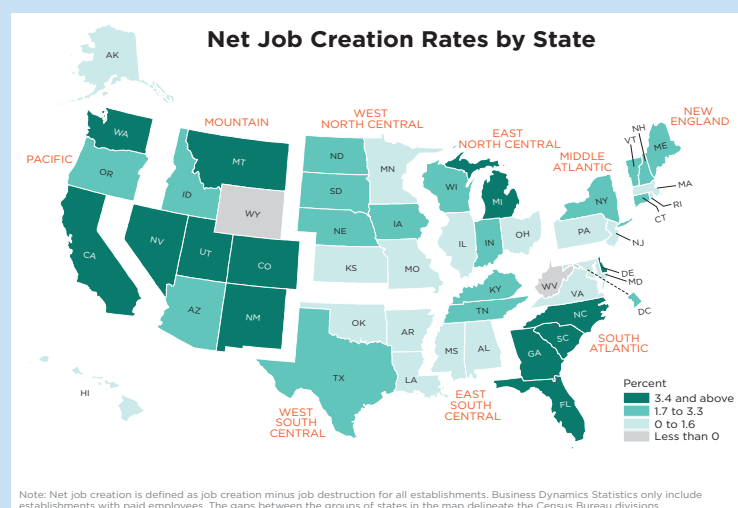
long-planned enhancements, including a switching from Standard Industrial Classification to the North American Industry Classification System (NAICS). More information about the BDS can be found at <[www.census.gov/ces/dataproducts/bds](http://www.census.gov/ces/dataproducts/bds)>.

The **Quarterly Workforce Indicators** (QWI) is 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). In 2015, the Census Bureau first introduced the *National Quarterly Workforce Indicators* that provide a consistent reference point for users of the state-level QWI. These data are available via the *LED Extraction Tool* at <<http://ledextract.ces.census.gov>>.

These data are also available through *QWI Explorer*, a Web-based analysis tool that enables comprehensive access to the full depth and breadth of the QWI data set. 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, or a PDF report, or they can share data tables and visualizations via URLs and through social media. This year's updates enable comparisons for state totals and yearly averages.

## STARTUPS' FIRMS CREATED OVER 2 MILLION JOBS IN 2015

In 2015, the nation's 414,000 startup firms created 2.5 million new jobs according to the latest release of the *Business Dynamics Statistics*. In contrast, this level of startup activity is well below the pre-Great Recession average of 524,000 startup firms and 3.3 million new jobs per year for the period 2002–2006.



Other highlights include:

- Job creation in the United States totaled 16.8 million with job destruction equaling 13.7 million. Job creation minus job destruction equaled net job creation of 3.1 million in 2015.
- Young firms (those less than 6 years old) accounted for 11 percent of employment and 27 percent of job creation.
- Old firms (those more than 25 years old) comprised 62 percent of employment and 48 percent of job creation.
- The job creation rate for young firms, excluding startups, was 20 percent in 2015. This rate is above the Great Recession low of 15 percent in 2009, and it has recovered to its average level of 20 percent during the period 2002–2006.
- The net job creation rate for establishments in metro areas was 2.7 percent. For establishments in nonmetro areas, the rate was lower at 1.2 percent.
- States with the highest net job creation rates in 2015—3.4 percent and above—are in the South Atlantic, Pacific, and Mountain divisions. There were significant differences in net job creation rates at the state level, ranging from about 5 percent to just below 0 percent.

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To use *QWI Explorer*, visit <http://qwiexplorer.ces.census.gov>.

Beginning in late 2017, *QWI* data are now available through the Census Bureau's *Census Business Builder* (CBB) tool. Through easy-to-use menus and search tools, users can quickly access data and generate reports to better understand the people, businesses, and workforces of selected geographic areas and industries. To get started with CBB, visit [www.census.gov/data/data-tools/cbb.html](http://www.census.gov/data/data-tools/cbb.html).

CES staff continued to update and improve **OnTheMap** with the release of version 6.6 in September 2017. *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 an additional year of data, extending availability from 2002 through 2015. This release also updates the base geography to TIGER 2016.

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

In May, version 4.4 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, and winter storms, and for 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.

The latest release updates the American Community Survey data to the 2011–2015 5-year estimates and updates the underlying LODES data to 2015. OTM-EM can be accessed at <http://onthemap.ces.census.gov/em>.

Both *OnTheMap* and OTM-EM 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 2014, the Census Bureau began launching **Job-to-Job Flows** (J2J), a new set of statistics on the movements of workers between jobs, including information on the job-to-job transition rate, hires and separations from and to nonemployment, and characteristics of origin and destination jobs of workers changing jobs. These first J2J 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.

The September 2017 release includes a number of new data and features. Users can now look at new earnings measures to analyze how worker reallocation affects compensation. This release also includes data at the metro area level, with counts

## J2J EXPLORER: NEW DATA TOOL TRACKS JOB FLOWS IN UNITED STATES

A new Census Bureau data tool is helping business owners, community leaders, and researchers track employment flows in the United States. The tool—*Job-to-Job Flows Explorer* (Beta) or *J2J Explorer*—highlights worker movements from one job to another. This type of job movement is often the primary means by which workers move up career ladders.

*J2J Explorer* was developed as part of the Longitudinal Employer-Household Dynamics (LEHD) program within the Census Bureau's Center for Economic Studies. The LEHD program combines administrative records from state partners with data from Census Bureau censuses and surveys to create a national frame of jobs. The employer-employee linkages within the LEHD data infrastructure can be mined to create new information on where workers go after they leave jobs.

While the unemployment rate receives a significant amount of attention, quits, hires, and job-to-job moves (generally referred to as 'churn') can also be used as alternative measures of the health of labor markets. Labor market churn indicates how fluid the labor market is, or how easily workers move from one job to another.

"There is enormous churn in U.S. labor markets," says Erika McEntarfer, lead economist with the LEHD program. "However, we've observed multiple signs of decreased labor market fluidity since 2000."

*J2J Explorer* allows these new statistics to be explored via a Web-based analysis tool that provides comprehensive access through an intuitive dashboard interface. The application's interactive visualizations allow users to construct tables and charts to compare, aggregate, and analyze flows by worker and firm characteristics.

A researcher can, for example, identify which industries are hiring manufacturing workers, determine which states have the highest rate of worker separations leading to persistent nonemployment, and develop a time-series analysis on the impacts of educational attainment on hires.

### 1. Start Here

Frame your question by selecting from the three dropdowns below; then click one of the blue links on the right to go to your customized results.

 Separations from

 Michigan

 Manufacturing

### 2. Then Choose an Analysis

#### Analysis of Job-to-Job Flows

From (Origin Job)

✓ Michigan

✓ Manufacturing

➔

To (Destination Job)

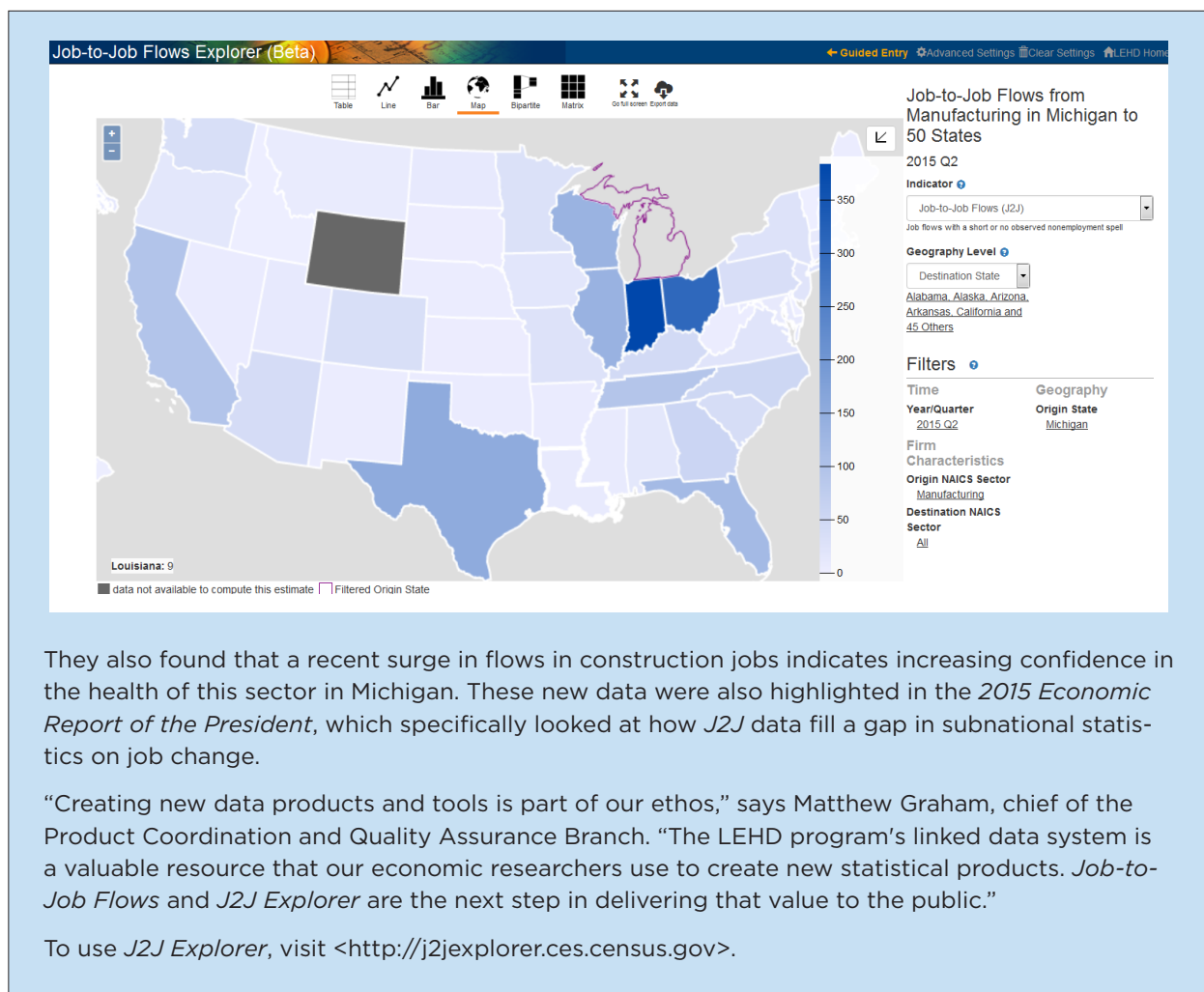
[Which States?](#)

[Which Industries?](#)

#### Analysis of Separations Over Time

[Are separations from jobs in Michigan Manufacturing leading to nonemployment or another job?](#)

For example, Michigan labor market researchers have been using *J2J* data to examine flows into manufacturing jobs. They have subsequently learned that manufacturing workers typically come from service jobs or are job-hopping within the manufacturing sector.



and rates available by NAICS sector and worker demographic characteristics. Counts of flows between metro areas, as well as between metro areas and a state or the nation, are also available by origin NAICS sector, destination NAICS sector, and demographic characteristics.

At the state and national level, more detailed tabulations crossing NAICS sector with worker and firm characteristics have been released for counts and rates. Origin-destination counts are also provided by origin NAICS sector, destination NAICS

sector, worker demographics, and origin and destination firm characteristics.

These beta *J2J* data files and documentation are available for download at <[http://lehd.ces.census.gov/data/j2j\\_beta.html](http://lehd.ces.census.gov/data/j2j_beta.html)>.

Meanwhile, 2017 also saw the release of the beta version of *J2J Explorer*. This interactive, Web-based analysis and visualization tool allows users to construct tables, maps, and charts to compare, aggregate, and analyze *J2J* statistics by worker and firm characteristics.

See the accompanying text box for a further description of this new tool.

To use *J2J Explorer*, visit <<http://j2jexplorer.ces.census.gov>>. Documentation can be found at <[http://lehd.ces.census.gov/applications/help/j2j\\_explorer.html](http://lehd.ces.census.gov/applications/help/j2j_explorer.html)>.

## FSRDC ANNUAL RESEARCH CONFERENCE

The FSRDC Annual Research Conference brings together researchers from the FSRDCs 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 14 at University of California, Los Angeles and featured 37 presentations in 13 sessions on themes that included business behavior and performance, trade, firm finance, entrepreneurship, small businesses, jobs, migration, health and healthcare, and new data. The keynote address by Julia Lane, professor at the New York University Wagner Graduate School of Public Service, was on the potential of UMETRICS data to better understand the role of science and research spending on economic activity. Additional details about the conference can be found at <<http://ccrdoc.ucla.edu/fsrdoc-conference-2017>>. The day before the research conference, the annual FSRDC business meeting brought together representatives from participating statistical agencies, the executive directors of existing FSRDCs, institutions interested in joining the FSRDC program, and officials from other countries with similar systems. Discussions centered on the program's performance, challenges, and best practices. The next conference will be held at Penn State University on September 7, 2018.

### **LED PARTNERSHIP WORKSHOP**

The 2017 Local Employment Dynamics (LED) Partnership Workshop was held at the Census Bureau on September 11 and 12. Now in its eighteenth year, this workshop has been a key component in strengthening the voluntary partnership

between state data agencies and the Census Bureau, leveraging existing data in the development of new sources of economic and demographic information for policymakers 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 users of Longitudinal Employer-Household Dynamics (LEHD) data products. They discuss the latest product enhancements, discover how their peers are using the data, and learn about the research that will shape future improvements.

Topics addressed by presentations, panel discussions, and roundtable sessions at this year's workshop included earnings in the U.S. economy, transportation planning, state and local uses of LEHD data, and making the most of published LEHD data. CES staff also discussed newly available public-use data and tools and offered training sessions on the new *J2J Explorer*, as well as *QWI Explorer*, and *OnTheMap*. Rachel Meltzer, assistant professor of urban policy at The New School, gave the workshop's keynote address on using LODES to study shocks to urban neighborhoods.

Presentations and materials from the 2017 workshop (and those from previous years) can be found at <<http://lehd.ces.census.gov/learning/#workshop>>.



*Rachel Meltzer of The New School gave the keynote address at the 2017 LED Partnership Workshop.*

### **STATISTICAL AGENCIES COLLABORATE ON RESEARCH WORKSHOPS**

#### **BLS-CENSUS Research Workshop**

On June 7, the Bureau of Labor Statistics (BLS) and the Census Bureau cohosted their seventh 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 the Census Bureau.

Kristen Monaco, Associate Commissioner for Compensation and Working Conditions of BLS, and John Eltinge, Assistant Director for Research and Methodology at the Census Bureau, provided welcoming remarks. This year's workshop consisted of three themed sessions with two papers each—one from each agency—with discussants from the other agency. In addition, a poster session of eight papers was held. Workshop papers included:



## CES STAFF RECEIVE RECOGNITION

On September 26, a team of six Census Bureau employees, including five from the Center for Economic Studies, was presented the Department of Commerce's Gold Medal Award at a ceremony held at the Herbert C. Hoover Building in Washington, DC.

Team members Barbara Downs, Lucia Foster, Cheryl Grim, Christa Jones, Shawn Klimek, and Annetta Titus were awarded the Gold Medal for Leadership for greatly expanding the use of federal statistical data for analysis, and enabling cross-agency combination of data through the creation of the Federal Statistical Research Data Centers network.

The Gold Medal, the highest honorary award given by the Department of Commerce, is granted by the Secretary of Commerce for distinguished performance characterized by extraordinary, notable, or prestigious contributions that impact the mission of the department and/or one operating unit, and that reflect favorably on the department.



*From left to right: John Abowd, associate director for research and methodology and chief scientist; Lucia Foster; Ron Jarmin, performing the nonexclusive functions and duties of the director; Cheryl Grim; Barbara Downs; Annetta Titus; Enrique Lamas, performing the nonexclusive functions and duties of the deputy director and chief operating officer.*

- *Online Labor Market Data and the Implications for the Bureau of Labor Statistics*
- *Measuring Cross-Country Differences in Misallocation*
- *The Parental Gender Earnings Gap in the United States*
- *Is Joint Custody Always Good for Children? The Role of Fathers' Economic Incentives in Promoting Shared Custody*
- *Evaluating Policies in a Dynamic Context when Agents Anticipate Policy Change: The Case of Indoor Smoking Bans*
- *Labor Market Effects of the Affordable Care Act: Evidence from Tax Notches*
- *Immigration and Labor Composition & Earnings in Local Markets: 1970–2015*

- *Competition, Productivity, and Survival of Grocery Stores in the Great Depression*
- *Increased Concentration of Occupations, Outsourcing, and Growing Wage Inequality in the United States*
- *The Career Implications of Start-up Work Experience*
- *Earnings Trajectories Around Divorce Among Women in the United States: 1951–2011*
- *Incentives Practices, Productivity, and the Great Recession*
- *Import Competition and Women's Labor Market Outcomes: The Role of the 1993 Family and Medical Leave Act*
- *Estimating Nonproduction and Supervisory Worker Hours for Productivity Measurement*

The workshop was a success thanks to the researchers from both agencies who participated, and especially to Martha Stinson (Census Bureau) and Sabrina Pabilonia (BLS), who organized the workshop. The eighth annual BLS-Census Research Workshop will be held on June 7, 2018, at BLS.

### BEA-CENSUS Research Workshop

On October 25, the Bureau of Economic Analysis (BEA) and the Census Bureau cohosted their fourth 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.

Sally Thompson, Deputy Director of BEA, and John Abowd, Director for Research and Methodology at the Census Bureau, provided opening remarks. This year's workshop consisted of three themed sessions with discussants and a poster session. Papers included:

- *Supplemental Poverty Measure: A Comparison of Geographic Adjustments with Regional Price Parities vs. Median Rents from the American Community Survey*
- *Regional Dimensions of Measuring Income Inequality*
- *Recalculating...: How Uncertainty in Local Labor Market Definitions Affects Empirical Findings*
- *Do Older Americans Have More Income Than We Think?*

- *Big Data in Housing: An Overview of Zillow Microdata and Its Potential for National Accounts*
- *Hospital Responses to the Affordable Care Act Health Insurance Expansions*
- *The Business of Health Care, Wellness, and Fitness Across the U.S. Economy*
- *Measuring a Dynamic Economy: New Content in the 2017 Economic Census*
- *Use of Markov and Nearest Neighbor Imputation Models to Estimate Missing Data for Dividends*
- *Finding an Estimator that Minimizes Revisions in a Monthly Indicator Survey*
- *Valuing 'Free' Shopping Experiences in GDP: An Experimental Approach*
- *An Anatomy of Trademarking by Firms in the United States*
- *Gross Domestic Product for Small Business*

The workshop was a success thanks to the researchers from both agencies who participated, and especially to Fariha Kamal (Census Bureau) and Marina Gindelsky (BEA), who organized the workshop. Planning for the fifth annual BEA-Census Research Workshop is currently underway.

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## Chapter 2.

### New Measurement of Innovation

*Julia Lane, New York University; Jason Owen-Smith, University of Michigan; Joseph Staudt, Center for Economic Studies; Bruce Weinberg, Ohio State University.*

Developing better measures of innovation is arguably one of the core challenges facing the federal statistical system. The rise of the five largest companies in the United States, ranked by market capitalization—Apple, Alphabet (Google), Microsoft, Amazon, and Facebook—is stunning. These massive companies, driven by data, are creating economic activity in ways that are transformational. They are doing this not by producing physical things, like the largest companies of the twentieth century which produced cars and steel, but by creating value in new ways. That includes less reliance on physical capital and more reliance on intangible assets, like human capital and research and development (R&D) (Galloway, 2017).

This change in the structure of the economy leads to important questions about how to measure twenty-first century economic activity. If capitalism is now being driven by intangibles rather than physical capital, then inputs like R&D and training need to be measured, but how should such data be captured? While there are many possible approaches, analysis at the *project* level is very attractive for all the reasons identified in the accompanying text box. The challenge has been to generate such data from firms. The Innovation Measurement Initiative (IMI) has begun to do this using a particular type of

#### STUDYING INNOVATION

*What is the most fruitful unit of analysis for new scientific research on innovation? One approach is to have a project-based unit of analysis within a given business organization (or proto-organization where innovation occurs). The project is the basic unit of production in many services firms and the basic “unit of innovation” in many others. Although data on innovation projects may be obtained from company records for certain organizations, determining and developing the “unit of innovation” itself is an important subject of research for many others. Characteristics of this unit of innovation include the following:*

- *The unit should capture the entire lifecycle of an innovation (or the expected lifecycle).*
- *Depending on the precise research question, the unit should be scalable upwards (firms, groups, or networks of firms) or downwards (teams, social networks, entrepreneurs).*
- *The unit must be associated with an outcome that determines the degree of success of the research project/initiative/idea.*

*A project-level unit of analysis provides natural “scope advantages.” In particular, conducting innovation research at the project-level captures the development of customized services and creative solutions to general problems, areas beyond the scope of existing studies whose focus is scientific R&D yet especially relevant to business strategists (understanding the complete value chain) and economic analysts (understanding the service economy in the United States). The project-based unit of analysis is especially relevant for cutting across the multiple organizations (alliances, universities) that play important roles in innovations with long lifecycles and whose processes are complex (e.g., “open” innovation processes).*

Source: Corrado and Lane, 2009.

R&D-intensive “firm”—research universities.

The IMI builds on almost a decade of effort, starting with the White House Science of Science Policy Roadmap and

the American Recovery and Reinvestment Act (ARRA) of 2009 (see Largent and Lane, 2012) to measure the links between investment in federally-funded R&D and innovation. Spurred by the

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ARRA imperative to report on the effect of research funding on job creation and retention, the White House Science of Science Policy Interagency Group was successful in acquiring funding for a pilot project called STAR METRICS (Science and Technology for America's Reinvestment Measuring the EffectTs of Research on Innovation, Competitiveness and Science). This pilot was designed to draw data from university human resource and finance records to inform ARRA reporting, with the ultimate goal of linking to U.S. Census Bureau data such as the Longitudinal Employer-Household Dynamics (LEHD) data. Importantly, the project had the support of industry groups like the Federal Demonstration Partnership (FDP) and was adopted as an FDP program. The project came to full fruition with the establishment of the Institute for Research on Innovation and Science (IRIS) (see <<http://iris.isr.umich.edu>>), supported by the Alfred P. Sloan Foundation and the Ewing Marion Kauffman Foundation.

After a decade of work, it is now possible to examine R&D activities at the project level. The data have been developed, linked, and made available through the Federal Statistical Research Data Centers (FSRDC). The subsequent sections discuss this progress in more detail.

## WHAT IS IN THE DATA?

As noted above, the IMI project represents the culmination of well over a decade of work

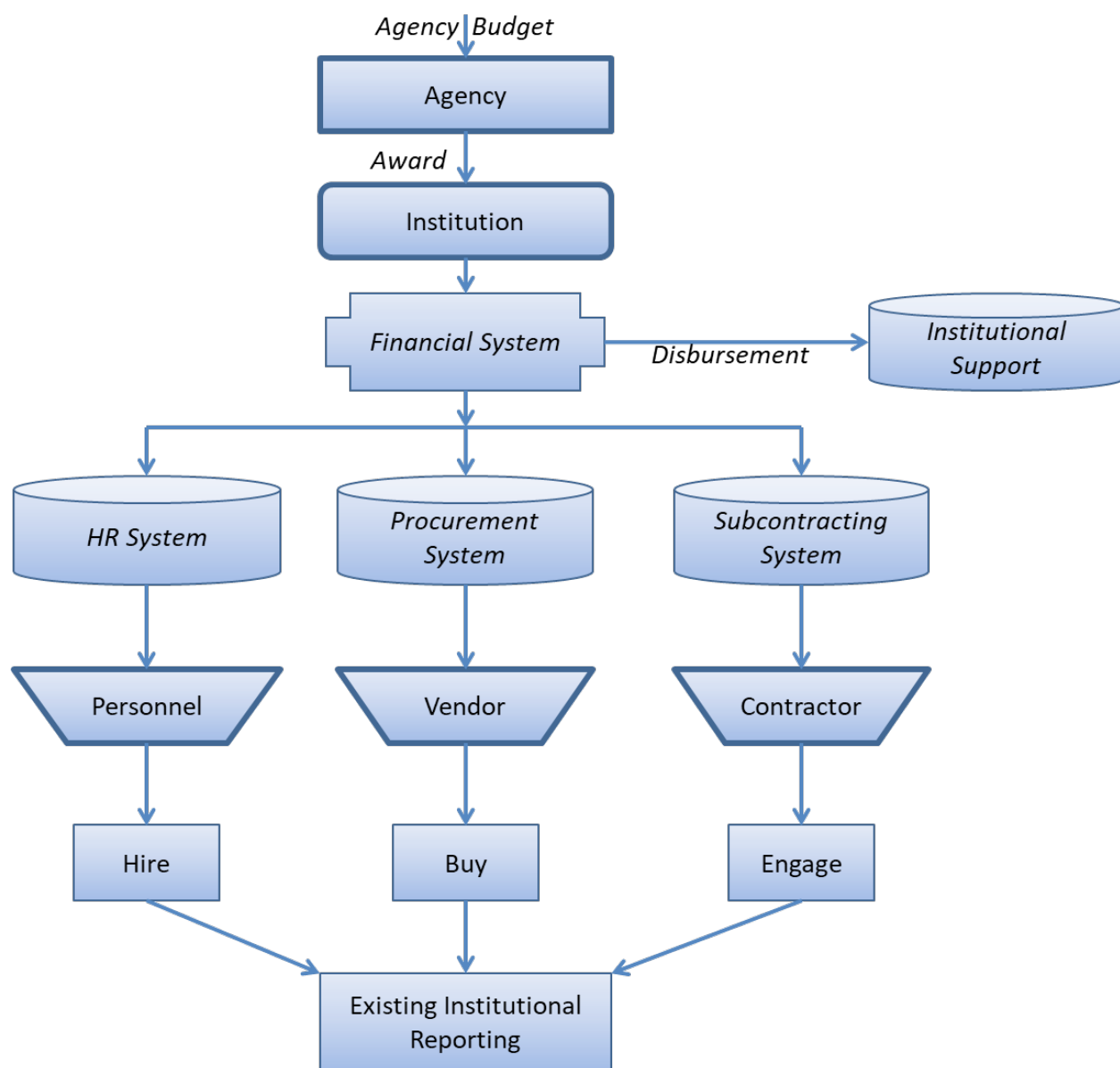
by many people, institutions, and government agencies. The impetus for this initiative dates back to Jack Marburger's call in *Science* to establish a Science of Science Policy to rigorously understand, benchmark, and optimize investments in science (Marburger, 2005).

Science policy discussions often point to a small number of now-tired stories—e.g., that the National Science Foundation (NSF) supported Larry Page and Sergey Brin before they started Google. Marburger made the fundamental point that “data is the plural of anecdote” and that it is particularly jarring (and ill-advised) for scientists to emphasize anecdotes over rigorous analysis. Also central was the importance of measuring the intangible capital generated by science and embodied in scientists, including trainees. Marburger's call led to the formation of the White House Science of Science Policy Interagency Group and its guiding roadmap (National Science and Technology Council 2008).

The ARRA provided the impetus to take this work to the next stage. Specifically, institutions receiving ARRA funding were required to document the number of jobs created and saved by that funding. This provided a natural opportunity for the federal STAR METRICS project, which used existing project-level data on transactions from federally sponsored research, to trace the impact of federal science expenditures via purchases of materials and supplies from vendors; support services, including financial, IT,

and physical space; research services subcontracted to other institutions; and employment of people—the full range of inputs into the production of research. Moreover, people are one of, if not, the most important and hardest to measure “products” of the research enterprise, and links to Census Bureau data make it possible to begin to quantify the value of the specialized training people obtain conducting research.

Each of these activities creates a financial transaction that can be used to calculate the amount spent on the associated activities (see Lane and Schwarz 2012). The accompanying figure provides a stylized description of the flow of these project-centered financial transactions in a typical administrative system. Specifically, when payments are made on a project, information about the transaction is recorded by the institution and charged against the appropriate research project. There are three sets of transactions of interest. First, if payments are made to internal personnel, for every pay period, the amount and the period is captured in the human resources (HR) system, which also includes each individual's job title. Second, if payments are made to an outside vendor, information is captured about the type of transaction (object codes), the vendor name and location, and the date and dollar amount of the transaction. Finally, subaward information—mostly to other academic institutions—are included, with information about the name



### *The Flow of Administrative Transactions Associated With Federal Funding to a Research Institution*

and location of the subcontracting institution and the amount of the subcontract.

The result is rich information about the structure of research projects on a monthly basis. These data can be used to identify all people employed on projects, as well as their roles

on those projects. The myriad of purchases on sponsored projects provide information on complementary inputs. They have been classified into 43 objects ranging from capital equipment to in- and out-of-state travel to laboratory animals to computers and software.

The STAR METRICS program moved to a university-led initiative in 2013 and was dubbed UMETRICS (Universities MEasuring the ImpactTs of Research on Innovation, Competitiveness, and Science). The universities comprising the Committee on Institutional



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Cooperation (now the Big 10 Academic Alliance) provided their data to pilot a partnership between the Census Bureau, universities, and researchers. UMETRICS builds on the same basic logic as STAR METRICS, but includes a number of important enhancements. Perhaps the most significant enhancement is the inclusion of the names of people paid on sponsored research projects and information on their year and month of birth, which after appropriate deidentification, can be used to assign people Census Protected Identification Keys (PIKs). In this way, people employed on projects can be linked to the Census Bureau's rich data on employment and employers, providing a way of examining the people touched by research and quantifying the value of their knowledge through their employment outcomes and the nature and performance of the businesses that hire them. In addition, name data can be merged to data on dissertations (for graduate students), publications, patents, and other public research data.

The initial project has now expanded and is now housed at IRIS at the University of Michigan. IRIS has over 30 member institutions that conduct over 30 percent of federally funded academic research and development; over 60 more institutions are in various stages of commitment.

The current 2017 data release includes data for 19 universities. The dataset includes information about more than 162,000 federally and nonfederally

sponsored research projects. Those grants paid wages to more than 333,000 individuals, and vendor transactions involving more than 80,000 organizations totaled more than \$18 billion. The 2017 data release also includes more than \$6 billion dollars of subcontract transactions. The 2018 data release will include data from 26 research universities.

IRIS collects the record-level administrative data described above from each one of these member institutions and uses those data to produce secondary deidentified datasets that can support research and reporting. The data have also been linked to data on scientific outputs, including publications, patents, and dissertations, as well as information about the scientific content of federal grants. The result is an extensible dataset that can be studied at the individual, principal investigator, program, university, and grant levels.

There are currently four core files (Award Transaction, Employee Transaction, Vendor Transaction, and Subaward Transaction), five auxiliary files (Suborganization Unit, Object Code, Vendor Lookup, Institution FastFacts, and Comprehensive Award List), and seven linkage files (UMETRICS-Federal Agency Award Crosswalk, UMETRICS-Proquest Crosswalk, UMETRICS-Patent Crosswalk, NIH Award Details, NSF Award Details, USDA Award Details, and Patent Data). More files are being added as the infrastructure expands.

Taken together, this infrastructure constitutes an important step toward realizing Marburger's vision of a rigorous science of science and innovation policy—one that can be used to quantify how knowledge is produced and measure the impact on individuals and businesses that are involved in the research enterprise.

## EXAMPLES OF WHAT CAN BE DONE

Thus far, the IMI project has increased our understanding of how science is produced and how science impacts economic outcomes, such as employment, earnings, and business startup success through several important papers. We highlight four papers here.

Weinberg et al. (2014), a paper published in *Science*, uses UMETRICS data to characterize inputs to the scientific enterprise. Prior to this work, information on these inputs was typically obtained through surveys that provided “a rough estimate, frequently based on unexamined assumptions that originated years earlier” (National Research Council, 2010). In contrast, the transaction-level data in UMETRICS allow direct and detailed measurement of all labor and capital inputs into science. The paper finds that people in the training pipeline (undergraduates, graduates, and postdocs) constitute a plurality of individuals supported by federal funds, suggesting that important investments are being made in intangible capital. The paper also finds that a third of

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grant purchases flow to vendors located in a university's home state, indicating that a large portion of funding is used to support local business. The paper then makes the case that linking UMETRICS to Census Bureau data is a promising route to tracing how the complicated mix of intangible human and physical capital combine to produce both scientific and economic output.

Three subsequent papers fulfill this promise by linking UMETRICS to the Census Bureau's 2010 Census, Business Register (BR), Longitudinal Business Database (LBD), Business Research & Development and Innovation Survey, and administrative earnings records.

Buffington et al. (2016) uses this linked data to examine the training environments and early labor market outcomes of male and female Ph.D. students participating in STEM research. They show marked differences by gender. Women tend to work on teams that are smaller, have a higher proportion of female faculty members, and have a greater share of faculty per student. In terms of early labor market outcomes, the paper finds that women are much less likely to enter industry and have substantially lower wages. However, these wage differences are largely accounted for by field of study, marital status, and the presence of children.

Zolas et al. (2015) uses this data to examine the earnings of federally funded Ph.D. recipients, as well as the characteristics of

the establishments that employ them. This is the first work directly tracing how a crucial output of the scientific enterprise—highly skilled, research-trained individuals—interact with the broader economy. The paper establishes that approximately 40 percent of Ph.D. recipients take industry jobs and are much more likely than the general population to work at high-wage and high-tech establishments. This is consistent with Ph.D. recipients serving as vectors that channel knowledge from universities to the marketplace, supporting J. Robert Oppenheimer's assertion that "the best way to send information is to wrap it up in a person." Zolas et al. (2015) suggest that an important unanswered question is how startups associated with research-funded individuals compare to other startups.

A fourth paper (Goldschlag et al., forthcoming) addresses this question using UMETRICS linked to the Census Bureau's BR, LBD, W-2 wage records, and LEHD data. This paper constructs four new measures of human capital and relates the human capital composition of startups to the success of those startups. The first three measures of human capital are constructed from W-2 and LEHD data and identify whether each worker has been employed at a R&D-performing firm, a high-tech firm, or a university. These are *indirect* measures of worker-level human capital because they impute the characteristics of a firm to all employees, regardless of occupation. For instance, a new assistant professor and a

new graduate student would have the same measured work-related human capital. Crucially, UMETRICS provides a way to construct a *direct* measure of human capital by identifying individuals who were trained on research grants.

This paper demonstrates that hiring research-trained individuals increases a startup's chance of failure, but conditional on success, increases employment growth, revenue growth, and the likelihood of patenting and trademarking. Impressively, these results hold even conditional on the other three indirect measures of startup human capital composition. These results suggest that research-trained individuals are critical inputs for high-risk startups that exhibit "up or out" dynamics—either exiting or growing quickly.

## ACCESS

IRIS built and maintains a Virtual Data Enclave (VDE) that is a deidentified data repository at the University of Michigan's Institute for Social Research, with the security protections afforded by the University of Michigan, the Institutes for Social Research, as well as additional protections established by the VDE. The data are restricted, and users must apply to IRIS for access, provide evidence of an Institutional Review Board determination, execute a data-use agreement, and complete required training. Once approved, users connect to this system using a custom-configured Remote Desktop Protocol link. This encrypted connection runs through a

dedicated server, allowing authenticated users to access virtual machines that can connect to the file server housing the sensitive data. All work with the data is performed within the VDE via an encrypted connection. Users must first obtain permission from IRIS staff to transfer files into the VDE, and they must submit output for disclosure review when their work is completed. For more details, including public documentation, see <<http://iris.isr.umich.edu/research-data>>.

The research datasets in the IRIS VDE do not contain any Census Bureau data. Instead, an identical copy of the UMETRICS dataset is also made available through the FSRDC system to qualified researchers on approved projects who have obtained Special Sworn Status. This dataset contains additional crosswalks to restricted-use Census Bureau data resources along with associated documentation. Data in both the IRIS VDE and the FSRDC system will be updated annually. For additional information, see <[www.census.gov/ces/dataproducts/UMetricsData.html](http://www.census.gov/ces/dataproducts/UMetricsData.html)>.

## CONCLUSION

The IMI has already provided important insights into intangibles and, especially, the knowledge embodied in university researchers and its economic value. This initiative has the potential to be a scalable model for the Census

Bureau to partner with businesses of all types. IMI employs “big data” methods to access administrative data and combine them with a wide range of other types of data, including information on patents, publications, and grants, as well as the Census Bureau’s restricted-use data. It applies new data science methods, such as network theory to study project-level interactions, text analysis to identify R&D fields, and machine learning to characterize occupations. A major feature is that it is a partnership between university administrations, university researchers, and the Census Bureau, in which each stakeholder community derives benefits while benefiting others. Thus, universities provide data and financial support in exchange for reports documenting the outcomes of their trainees. Researchers build-out important aspects of the data and develop cutting-edge analyses while providing expertise to the Census Bureau and analyses for universities. The Census Bureau itself benefits by obtaining data on important aspects of economic activity that it would not otherwise be able to access, while also supporting researchers and partner universities. Subject, of course, to the requisite privacy and security issues, this partnership has the potential to allow the Census Bureau to access administrative data from across the economy, enhancing national statistics as well as informing businesses.

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## Chapter 3.

# Four Enhancements to the Economic Census: How Research Led to New Content

*Emek Basker, Randy A. Becker, Lucia Foster, T. Kirk White, and Alice Zawacki, Center for Economic Studies*

The U.S. Census Bureau continually updates and improves its measures of the ever-changing U.S. economy. The Center for Economic Studies (CES) helps in this process by undertaking research using the confidential business microdata collected by the Census Bureau. In addition to leading to important discoveries in economics, this research yields insights into the quality of the data produced by the Census Bureau, leading to suggestions for new content on existing surveys, enhancements to survey methodology, and sometimes entirely new survey instruments.

In this chapter, we discuss four new lines of inquiry proposed by CES economists and debuting in the 2017 Economic Census:

- Retail health clinics.
- Management practices in health care services.
- Self-service in the retail and services sectors.
- Water use in manufacturing and mining.

In each case, we discuss the specific data gaps being addressed and present the new questions along with their instructions, as well as the list of industries in scope to each inquiry. Further discussion is found in Basker et al. (forthcoming). This chapter is not intended to summarize all of

the many improvements to the economic census. Instead, the focus is on how CES research informed changes in these four areas. Further information on the 2017 Economic Census is found at [www.census.gov/programs-surveys/economic-census.html](http://www.census.gov/programs-surveys/economic-census.html).

## THE ECONOMIC CENSUS

Conducted every 5 years—for years ending in “2” and “7”—the economic census compiles statistics on approximately 7 million employer business establishments from all sectors of the economy, except agriculture and public administration. The 2017 Economic Census utilizes about 800 unique survey forms, covering over 950 detailed industries, to collect 2017 year-end data from approximately 4 million business locations. (Administrative records are used to compile statistics on cases that are not sent survey forms.) Data collection will run February 2018 through February 2019, with data releases beginning in September 2019 and scheduled to be completed by December 2021. For the first time ever, data collection will be completely via the Internet.

The economic census is the foundation of the nation’s system of economic statistics and the primary source of information about the structure and functioning of the nation’s economy. Statistics from each

economic census are an important part of the framework for the national income and product accounts, input-output tables, and various economic indices, including gross domestic product and the producer price index. The economic census also provides the sampling frames and benchmarks for a number of business surveys that track short-term economic trends. In addition, statistics from the economic census are used by federal, state, and local governments in policymaking, planning, and public administration; by businesses, trade associations, and chambers of commerce for development and business decisions; and by academia and the general public in countless ways.

The economic census produces basic statistics on the number of establishments, revenue, payroll, and employment, as well as details on materials, fuels, and electricity consumed, depreciable assets, selected purchased services, inventories, capital expenditures, and revenue by product line. Statistics are published for over 950 detailed industries; for 7,900 goods and services; for the United States, each state, and for nearly 21,000 smaller geographic areas, including the U.S. territories; as well as by type of operation, business size, and other measures.

In addition, the economic census collects special industry-specific

data. Below, we highlight some new special inquiries.

## RETAIL HEALTH CLINICS

Over the last decade, there has been a large increase in health care clinics located in and associated with certain retail establishments, particularly pharmacies, supermarkets, and general merchandise stores, including warehouse clubs and supercenters. These “retail health clinics” (RHCs)—defined here as “an in-store clinic with a health care professional who provides medical care (e.g., vaccines, health screenings, treatment of minor injuries and illnesses, or management of medications and treatments)” —first appeared in 2000. The early RHCs opened with the support of venture capitalists, and their customers paid fully for

their services out-of-pocket. By 2006, there were an estimated 200 RHCs, and another 1,000 were added in the next 2 years. The Great Recession brought a decline in investor-owned clinics, and low profitability and low consumer demand slowed RHC growth. However, their numbers began to rise again as hospital systems began to partner with or own RHCs. It is believed that there may be some 2,800 RHCs at present.

Health care is a large and growing component of our nation’s economy, with health expenditures totaling \$3.2 trillion in 2015, according to the National Center for Health Statistics. Historically, the Census Bureau has collected and published data on health care providers, such as physicians’ offices, clinics, and hospitals, in the services

sector. RHCs are a new delivery model within the retail sector. Given their potential for changing the health care industry and reducing health care costs, understanding the number and location of RHCs, their operational structure, and the extent of their activity and services offered is important. Yet limited data currently exist on this relatively new type of activity.

To address this gap, the 2017 Economic Census asks establishments in the retail industries listed in Text Box 3-1 whether they operate or lease space to such a clinic. Those that do are then asked about the nature of their involvement in the RHC. Retailers that own or jointly operate a RHC are asked three remaining questions: total revenues from patient care services, the types of services offered,

### Text Box 3-1.

#### QUESTIONS ON RETAIL HEALTH CLINICS

- 445110 Supermarkets and Other Grocery (except Convenience) Stores
- 446110 Pharmacies and Drug Stores
- 452210 Department Stores
- 452311 Warehouse Clubs and Supercenters

1. Did this establishment operate or lease space to a retail health clinic in 2017?

*A retail health clinic is an in-store clinic with a health care professional who provides medical care (e.g., vaccines, health screenings, treatment of minor injuries and illnesses, or management of medications and treatments).*

- ☐ Yes
- ☐ No

2. [If YES in 1] Which ONE of the following best describes who operated this retail health clinic in 2017?

- ☐ Operate own retail health clinic
- ☐ Lease space to other business or health system that operates the retail health clinic
- ☐ Partner or jointly operate the retail health clinic with another business or health system

3. [If OPERATE or PARTNER in 2] What was the total revenue from patient care services in 2017? (Report this figure net of any negotiated discounts and write-downs for bad debt.)

\$ \_\_\_\_\_, \_\_\_\_\_,000.00

*Include:*

- The value of total patient care operating receipts collected for providing medical services, such as flu shots, immunizations, diagnosis and treatment of sore throats, and chronic disease screening
- Revenues from government payers (Medicare, Medicaid, private insurance – group, employer-sponsored, and all out-of-pocket costs including deductibles and co-insurance from private and public (Medicare/Medicaid) paid by the beneficiary or the family of the beneficiary)

*Exclude:*

- Non-patient care revenues from items such as food, clothing, and entertainment
- Revenues from the sale of durable medical equipment, prosthetics, and orthotics

4. [If OPERATE or PARTNER in 2] Which of the following patient-care services did this retail health clinic offer in 2017? *Select ALL that apply.*

- ☐ Flu shots
- ☐ Immunizations other than flu shots, such as travel immunizations
- ☐ Other preventive health care services, including biometric screenings or lab tests
- ☐ Mild acute care, for example diagnosis and treatment of sore throats or minor skin conditions
- ☐ Chronic disease screening, monitoring, and/or management for conditions such as hypertension, diabetes, high cholesterol, or asthma
- ☐ Behavioral health screenings to help identify common mental health conditions
- ☐ Weight management programs
- ☐ Pharmacotherapy management program, which may include delivery of medications and consultation to hospital patients

- ☐ Information on health insurance options
- ☐ Other patient services—Describe {write-in box}

5. [If OPERATE or PARTNER in 2] Which of the following were used by the retail health clinic in 2017? *Select ALL that apply.*

- ☐ Electronic health records  
*An electronic health record is an electronic version of a patient's medical history and may include their date of birth/gender, medical history, medications, immunizations, etc.*
- ☐ ePrescribing  
*With ePrescribing or electronic prescribing, a physician enters information about drugs a patient needs into a computer, and sends this electronic prescription to the patient's pharmacy for filling.*
- ☐ Telemedicine  
*Telemedicine refers to the remote diagnosis, monitoring, and/or treatment of patients by means of telecommunications technology.*
- ☐ Mobile coaching apps  
*Health care providers use mobile coaching apps to help remotely track their patients' compliance and progress with treatment.*
- ☐ Interactive patient-interview software  
*This software allows patients to use questionnaires to provide their medical information electronically to the health care provider prior to a visit.*

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6211 Offices of Physicians  
6213 Offices of Other Health Practitioners  
6214 Outpatient Care Centers

1. Was this establishment involved in the operation of a retail health clinic in 2017?

- ☐ Yes
- ☐ No

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and the technologies used at the clinic. See Text Box 3-1 for the actual questions and their instructions.

To help address the possibility of double-counting revenues from retail health clinics by both the retailers and the health care providers providing the services, establishments in the ambulatory health care services industries (NAICS 621) are asked whether they were involved in the operation of a RHC in 2017. (See the question at the bottom of Text Box 3-1.)

These new data will provide increased understanding of RHCs' prevalence, location, services provided, technology used, and organizational structure. When combined with demographic data, together with data on the location of 'traditional' health care providers, as well as insurance claims data, these new data could be used to evaluate RHCs' potential for improving access to affordable health care. The recent use of RHCs has been driven by their convenience and by increased insurance coverage, which decreased out-of-pocket expenses. However, populations may not benefit equally, as RHCs have generally been located in nonrural areas with higher concentrations of high-income and white residents. Understanding access, utilization, and cost issues will be improved by these new data, which potentially will support expanded measurement of health care consumption expenditures by the Bureau for Economic Analysis and the Centers for Medicare and Medicaid. The results from this data collection will also

inform future discussions on the proper industrial classification of establishments.

### **MANAGEMENT PRACTICES IN HEALTH CARE SERVICES**

With national health expenditures that are almost 18 percent of U.S. gross domestic product, there is much concern and interest in the performance of the health care sector. Research has shown that certain management practices in the health care sector are associated with both better business outcomes and health outcomes. For example, Bloom et al. (2010, 2014) have shown that hospitals with higher management-practice scores have significantly lower mortality rates, as well as better financial performance. Moreover, better management appears related to both hospital size and more clinically-trained managers.

The 2017 Economic Census will shed new light on these issues by asking establishments in several health care industries about one dimension of management practices: performance monitoring. These new questions have been adapted from the Management and Organizational Practices Survey (MOPS), an ongoing Census Bureau survey of the manufacturing sector (see Buffington et al., 2016), as well as the World Management Survey. The surveyed industries and three new questions appear in Text Box 3-2. Doctors and other health practitioners, hospitals, and nursing and residential care facilities are asked who sees the organization's measures of clinical performance (managers, employees, patients, and/or

the public), who chooses their performance measures (managers at the facility, managers elsewhere, insurance providers, government regulators, and/or board of directors), and how frequently senior management reviews them (yearly/quarterly, monthly/weekly, daily, or never).

Here, clinical performance measures include counts, incidence rates, and other measures of specific clinical processes and outcomes, which may vary by industry. For example, physicians may track the rate of patients accessing services in an emergency department for conditions that would generally be treated in an office setting. Home health care providers might monitor the rate of unplanned acute care hospitalizations, while ambulance services might examine response times to emergencies. Hospitals may focus on medication errors or survival from heart attacks, and nursing homes may monitor the percentage of long-stay residents with pressure sores.

These new data will help measure production inputs beyond those already collected on labor and materials, and will support analysis on their impact on productivity and financial performance. Given the similarity of these questions to those in the MOPS, on the manufacturing sector, these data lend themselves to intersectoral comparisons.

In addition, these new data, combined with those on provider-level health outcomes and quality indicators from other sources (e.g., publicly available

Text Box 3-2.

**QUESTIONS ON MANAGEMENT PRACTICES IN  
HEALTH CARE SERVICES**

- 6211 Offices of Physicians
- 6212 Offices of Dentists
- 6213 Offices of Other Health Practitioners
- 6214 Outpatient Care Centers
- 6215 Medical and Diagnostic Laboratories
- 6216 Home Health Care Services
- 6219 Other Ambulatory Health Care Services
- 6221 General Medical and Surgical Hospitals
- 6222 Psychiatric and Substance Abuse Hospitals
- 6223 Specialty Hospitals
- 6231 Nursing Care Facilities
- 6232 Residential Mental Retardation, Mental Health  
and Substance Abuse Facilities
- 6233 Community Care Facilities for the Elderly
- 6239 Other Residential Care Facilities

1. Who sees your organization's measures of clinical performance? Select *ALL* that apply.

Measures of clinical performance include counts, incidence rates, and other measures of specific clinical processes and outcomes.

- ☐ Managers
- ☐ Employees (non-managers)
- ☐ Patients and their responsible parties
- ☐ On public display

2. Who chooses which measures of clinical performance to collect? Select *ALL* that apply.

- ☐ Managers at this establishment
- ☐ Managers at other establishments and/or headquarters
- ☐ Insurance providers
- ☐ Government regulators or agencies
- ☐ Board of Directors

3. How frequently did senior management at this organization review the measures of clinical performance?

- ☐ Yearly or quarterly
- ☐ Monthly or weekly
- ☐ Daily or more often
- ☐ Never

Medicare Compare), will enable research that will improve our understanding of how managerial practices relate to clinical performance. These new data hold potential for enriching analyses and increasing knowledge of a health care system coping with the increased demands of an aging population under rising health care costs and quality-improving objectives.

**SELF-SERVICE AND EXTRA  
SERVICES IN THE RETAIL  
AND SERVICES SECTORS**

Correctly measuring inputs into production—labor, capital, materials, energy, and services—is crucial for understanding production processes and measuring productivity. In a period of technological change, capturing changes in production processes can also be crucial for understanding changes in labor demand. For example, in the past several decades, many retail- and service-industry innovations have replaced *paid* labor (employees) with some combination of technology and *customer* labor. In the retail sector, the most prominent examples are self-service gas stations and self-checkout at supermarkets and drug stores. Examples in other sectors include automated teller machines (banks), self-check-in (airlines), and self-checkout (hotels, libraries).

Although much has been written about the impact of automation on employment, particularly in the manufacturing sector, very little is known about the prevalence and impact of self-service,



Text Box 3.3.

**QUESTIONS ON SELF-SERVICE AND EXTRA SERVICES  
IN THE RETAIL AND SERVICES SECTORS**

- 444110 Home Centers
- 445110 Supermarkets and Other Grocery (except Convenience) Stores
- 445120 Convenience Stores
- 446110 Pharmacies and Drug Stores
- 452210 Department Stores
- 452311 Warehouse Clubs and Supercenters
- 452319 All Other General Merchandise Stores

1. As of December 31, 2017, did this establishment offer a dedicated self-checkout lane for customers?

- ☐ Yes
- ☐ No

- 
- 722511 Full-Service Restaurants
  - 722513 Limited-Service Restaurants
  - 722514 Cafeterias, Grill Buffets, and Buffets
  - 722515 Snack and Nonalcoholic Beverage Bars

1. As of December 31, 2017, did this establishment use electronic devices for self-service table orders and/or payment (for example, through the use of a restaurant provided electronic device at the table)?

- ☐ Yes
- ☐ No

- 
- 445110 Supermarkets and Other Grocery (except Convenience) Stores

1. As of December 31, 2017, did this establishment offer pre-ordering or delivery services by website, app, fax, phone, or other means?

- ☐ Yes
- ☐ No

also known as customer-employee substitution, in retail trade and services. The impact of these innovations is potentially quite large, as employment in retail trade and services

accounts for over 30 percent of total U.S. employment in 2017.

Self-service has been around for many years, in various settings, and in some cases, the Census Bureau has attempted

to measure its adoption and diffusion. In 1916, Piggly Wiggly introduced the first self-service grocery store. Prior to this innovation, clerks behind counters served customers the goods that they requested. The first Census of Distribution, conducted in 1929, included a yes/no question for self-service on both the grocery store form and the general long form.

More recently, the Census of Retail Trade (CRT) measured the introduction of self-service pumps at gas stations from 1972 to 1992. Over this period, the share of gas stations providing some self-service sales of gasoline increased from 8 percent to 80 percent. Basker et al. (2017) use the CRT microdata from 1977 to 1992 to estimate the extent to which customer labor substituted for paid labor in the production of retail gasoline, and find that approximately one-quarter of the work previously done by station attendants shifted to customers when stations converted from full- to self-service pumps. This conversion was associated with a price decrease of approximately 5 percent, compensating customers for their effort. The authors also find a positive correlation between gas stations' conversion to self-service and the introduction and expansion of on-site convenience stores—a service made possible through paid employees.

Self-checkout in retail trade first appeared in grocery stores in the early 1990s. Restaurants are also increasingly embracing customer-employee substitution, particularly with



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self-ordering and self-payment in limited-service restaurants. At present, there is no reliable estimate of the extent of these phenomena or their growth.

To fill this gap, the 2017 Economic Census will ask three yes/no questions of select industries, as presented in Text Box 3-3. One question asks about dedicated self-checkout lanes and is directed to home centers, supermarkets, convenience stores, health and personal care stores (including pharmacies and drug stores), department stores, and general-merchandise stores, including warehouse clubs and supercenters. Another question is directed to restaurants and similar establishments, including limited-service restaurants, on whether they use electronic devices for self-service table orders and/or payment. Finally, supermarkets are asked whether they offer preordering or delivery services by Web site, app, fax, phone, or other means, addressing the possibility raised by Basker et al. (2017) that self-service technology may free up labor that can be used for new, additional services.

With these new data, it will be possible to measure the impact of these new technologies on employment and on the organization of these industries. A full accounting of whose labor is being displaced requires first understanding how the production function works. Grocery stores are answering questions on self-service and extra services, allowing for a better understanding of the potential trade-off here and in other similar contexts.

## **WATER USE IN MANUFACTURING AND MINING**

With recurring droughts and concern that precipitation patterns may be shifting away from historical norms, understanding water use and conservation efforts can help ensure that supply meets the demand of a growing population and economy. Most public attention is paid to agricultural and residential water use, however, there are some significant water-using sectors beyond these, including manufacturing and mining. Yet, data on who and where these large water-using businesses are; the characteristics and patterns of their water intake, (re)use, and discharge; and their water-related costs and investments are limited or outdated.

For decades, the Census Bureau collected such data quinquennially. Specifically, all but one Census of Manufactures (CM) from 1954–1987 asked every manufacturing establishment its range of water intake and, occasionally, related questions. Those establishments reporting at least 20 million gallons of annual water intake received the Survey of Water Use in Manufacturing (SWUM) the following year (i.e., 1954, 1959, 1964, 1968, 1973, 1978, and 1983) and the aggregate statistics were published in the respective CM volumes.

Until its discontinuation after 1983, the SWUM produced detailed statistics by industry, state, and water-use region. The SWUM collected total water intake from five different water sources and by three different

types. Respondents were also asked to report their gross water use, which is water intake *plus* water recirculated. Other statistics included intake and use by seven purposes, the treatment of water by specific method, water discharged into seven different points, and on some surveys, water-related expenditures, including details on water treatment assets, investments, and operating costs. A more detailed discussion of these surveys can be found in Becker (2016).

What is known these days about water use in manufacturing and mining does not come from such systematic and comprehensive data collection. Some states do compile some water withdrawal data for large mining and manufacturing operations, but in many cases, the U.S. Geological Survey (USGS) must impute such water withdrawal using estimates of annual industrial production along with water-use coefficients that are often based on decades-old Census Bureau statistics from the SWUM. Besides being outdated, water use is highly variable, depending on many facility- and region-specific factors. Both the USGS and the Environmental Protection Agency have said that they would benefit tremendously from our new data collection.

Despite a clear need for better industrial water-use data, the resumption of a detailed survey like the SWUM is not possible at this point. We instead focused on (re)introducing a few key questions into the 2017 Economic Census. Five questions were decided upon, the wording

and structure of which were developed after careful study of the Census Bureau's previous water-use inquiries, consideration of Statistics Canada's current biennial Industrial Water

Survey, close consultation with USGS hydrologists, and feedback from cognitive and usability testing. See Text Box 3-4.

The first question here is the most fundamental: gallons of water intake, or the quantity of new water introduced into the establishment for the first time, regardless of source or quality.

#### Text Box 3-4.

### QUESTIONS ON WATER USE IN MANUFACTURING AND MINING

Manufacturing industries: 311221, 311224, 311314, 311411, 311421, 311422, 311511, 311611, 311615, 312112, 312120, 321113, 321912, 322110, 322121, 322122, 322130, 322299, 324110, 325110, 325120, 325130, 325180, 325193, 325194, 325199, 325211, 325212, 325220, 325311, 325312, 325320, 325411, 325998, 326199, 327310, 331110, 331210, 331313, 331315, 331511

Mining industries: 211111, 211112, 212111, 212112, 212113, 212210, 212234, 212312, 212321, 212322, 212392, 213111

1. What was this establishment's water intake in 2017, that is, the quantity of new water introduced into the establishment for the first time, regardless of source or quality?

*Include water used in the production process and auxiliary operations (such as cooling and condensing, boiler feed, sanitary and domestic use). Report to the nearest thousand.*

—, —, —, —,000 gallons

2. Did this establishment recirculate or reuse any water during 2017?

- ☐ Yes
- ☐ No

3. [If YES in 2] What was this establishment's gross water use in 2017, that is, the quantity of water that would have been required if no water had been recirculated or reused?

*For example, if total water intake was 500 million gallons and, of these 500 million gallons, 100 million gallons were used twice for cooling purposes and once for washing products or materials, the total water required would be 300 million gallons, plus the 400 million gallons not*

*recirculated, for a total of 700 million gallons of gross water use (less consumption and evaporation loss). Report to the nearest thousand.*

—, —, —, —,000 gallons

4. What was this establishment's main source of new water in 2017? *Select only ONE.*

Public water system includes water supplied by a water utility (whether municipally- or privately-owned) whose primary purpose is the supply of water to the general public and/or industrial users. Self-supplied water systems include water obtained by this establishment through its own system of pumps, pipes, hoses, etc. Also include here water obtained from another company that is not primarily a water utility.

- ☐ Public water system (municipally- or privately-owned utility)
- ☐ Self-supplied surface water system (rivers, streams, lakes)
- ☐ Self-supplied ground water system (wells, deep springs)
- ☐ Self-supplied tide water system (estuaries, bays, oceans)
- ☐ Self-supplied mine water (underground mines, quarries, open pits, water produced with oil)
- ☐ Other sources (e.g., rainwater, truck deliveries)

5. [If PUBLIC WATER SYSTEM in 4] Which of the following types of water was mainly supplied by the public water system? *Select only ONE.*

- ☐ Potable
- ☐ Reclaimed wastewater

The subject of the second and third questions is gross water use. Though it may seem a more modern phenomenon, gross water use, which is the sum of water intake plus water recirculated/reused, was collected on the very first SWUM in 1954. (At that time, each gallon of water taken in by the manufacturing sector was used 1.82 times on average.) The fourth question asks about the main source of an establishment's water. When last asked (on the 1983 SWUM), about 87 percent of the water taken in by the manufacturing sector was self-supplied from surface waters, ground water, tide waters, or mine water. Finally, the fifth question is posed only to those establishments that designate public water system as their main source and asks whether that water is mainly potable or reclaimed (i.e., treated wastewater that can be used for certain purposes). This question was added in consultation with the USGS.

These water-use questions are being administered to the 53 industries listed in Text Box 3-4. These include 41 manufacturing industries—mostly in the food, paper, chemicals/petroleum, and primary metal sectors—and 12 mining industries. If the older data provide a good approximation, these industries collectively account for about 90 percent of total water intake in mining and manufacturing. Basker et al. (forthcoming) offer further

discussion on how these particular industries were selected.

Though much more limited in scope than the bygone SWUM, these new data will allow the construction of updated water-use coefficients and significantly increase our understanding of who and where are large water-using businesses, their main sources of water, and the factors underling their relative water efficiency, especially when combined with other data collected in the economic census on these same facilities (e.g., Becker, 2016).

## CONCLUSION

The establishment-level microdata from the special inquiries discussed here will be housed at CES, whose economists will work with stakeholders and other interested parties to evaluate the quality of these new data. If possible, and if suitable edit and imputation procedures can be developed, certain tabulations of these data may be released. We also expect projects using these new microdata, examining some of the research questions discussed above, will be initiated by both CES staff as well as researchers using the Federal Statistical Research Data Centers.

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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 U.S. 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.
- Enhancements to microlevel datasets for Federal Statistical Research Data Centers researchers.
- 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)*. Statistics on worker reallocation, including job change, hires and separations from and to nonemployment, and characteristics of origin and destination jobs.
- *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

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 the RDCs that benefit the Census Bureau (when using Census Bureau microdata) 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 and other federal statistical agencies (see Appendix 6), CES currently operates 29 Research Data Centers, which are located in Ann Arbor, Atlanta, Austin, Berkeley, Boulder, Cambridge, Chicago, College Park (MD), College Station (TX), Columbia (MO), Durham, Irvine, Ithaca (NY), Kansas City (MO), Lexington, Lincoln, Los Angeles, Madison,

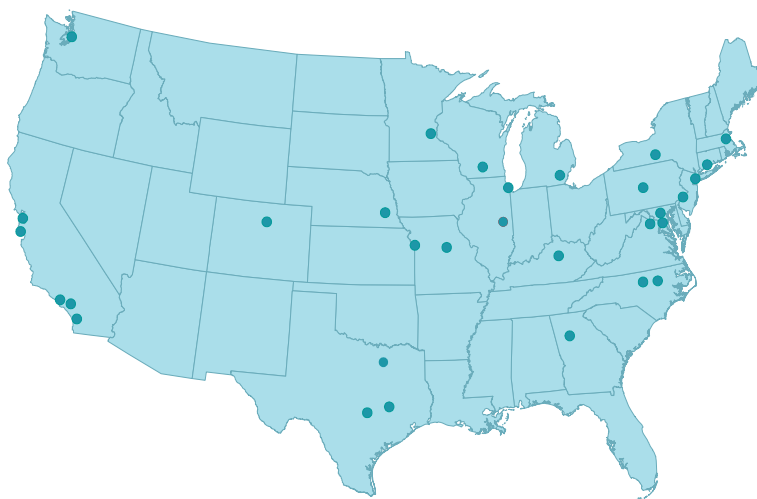
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## FEDERAL STATISTICAL RESEARCH DATA CENTERS—Con.

Minneapolis, New Haven, New York, Philadelphia, Research Triangle Park (NC), Seattle, Stanford (CA), Suitland (MD), University Park (PA), and Washington (DC), with two being planned for Dallas-Fort Worth and Urbana (IL).

Research proposals submitted to CES to use Census Bureau microdata are evaluated for:

- Potential benefits to Census Bureau programs.
- Scientific merit.
- Clear need for nonpublic data.
- Feasibility given the data.
- Risk of disclosure.



Proposals meeting these standards are further reviewed by the Census Bureau's Policy Coordination Office. 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), Bureau of Labor Statistics (BLS), and 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, NCHS, and BLS 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 statistical 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 *Job-to-Job Flows*, *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: 2017

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

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## Appendix 3-A.

### ABSTRACTS OF PROJECTS STARTED IN 2017: U.S. CENSUS BUREAU DATA

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

#### EFFECTS OF THE FAMILY AND MEDICAL LEAVE ACT ON FIRMS AND WORKERS: EVIDENCE FROM THE LEHD

*Douglas Almond—Columbia University*

*Xuan Li—Columbia University*

This project primarily uses Longitudinal Employer-Household Dynamics (LEHD) data to analyze the transitional dynamics of workers and adjustment of firms to the Family and Medical Leave Act (FMLA) of 1993. FMLA mandated large employers to provide job-protected unpaid leave for specified family and medical reasons. Little is known about how firms and workers

have responded to this mandate. This project investigates whether the firms that qualify for FMLA have changed the employment composition of their workforce, if earnings and promotions of workers in those firms have adjusted to reflect the cost of the FMLA mandate, the impacts of the law on leave taking, hours of work, fertility, and employer based health insurance of the workforce,

and if firms themselves have changed their size in response to FMLA, since only firms with 50 or more employees are subject to the law. This project also employs data from the Longitudinal Business Database, American Community Survey (for information on fertility and health insurance), and Current Population Surveys (for information on leave taking and hours of work).

#### UNDERSTANDING THE GROWTH DYNAMICS OF FIRMS AND REGIONS: CLUSTERS, ENTREPRENEURIAL QUALITY, AND REGIONAL PROSPERITY OVER THE BUSINESS CYCLE

*Mercedes Delgado—Massachusetts Institute of Technology*

*Jorge Guzman—Massachusetts Institute of Technology*

This project examines the resilience of regions and firms in the context of the recent Great Recession and prior economic recessions. When faced with a negative economic shock, the presence of clusters—geographic concentrations of related industries, firms, and supporting institutions—in a region could mitigate the effects of the negative shock. Agglomeration economies arise in regional clusters of related economic activity, and the interconnection of industries (and associated firms) could facilitate a faster recovery from

a recession. Using data from the U.S. Cluster Mapping Project (USCMP) and the Longitudinal Business Database, this projects examines whether industries in strong clusters experience faster growth (as measured by employment, wage, entrepreneurship, innovation or productivity) before, during, and/or after the recession period than industries located in weak clusters. A related aspect of regional (and firm) resilience is the ability of a region or firm to diversify and re-invent itself. This project examines the role of related economic

diversifications on the recovery of regions and firms. Further, the distribution of economic success within regions is often uneven, and pockets of concentrated poverty and high unemployment rates persist in American cities. Using data from the Initiative for a Competitive Inner City, the USCMP, and the Census Bureau, this project explores whether clusters matter for the performance of inner cities, investigating if integrating inner cities into the cluster composition of their regions would lead to more effective employment outcomes.

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## HALF A CENTURY OF RACE-RELATED POPULATION DYNAMICS

*Carolyn Liebler—University of Minnesota*

This project seeks to improve our understanding of the demographic and social processes that may affect responses to Census Bureau surveys. In particular, this project will examine responses to the race and Hispanic origin questions in the decennial censuses of 1960-2020 and the American Community Survey (ACS) of 2000-2023. The researcher will investigate demographic and social processes leading to longer-term changes in race and Hispanic origin responses

(using non-linked decennial census files from 1960 to 2020, with supplementary data from the ACS and public data sources). The results will include estimates of populations who have changed race and/or Hispanic responses over the period. This project will also examine social and demographic processes leading to the choice of a race/Hispanic response for a child of an interracial marriage over the same period, generating estimates of characteristics of mixed-heritage populations

giving each particular race/Hispanic response. Finally, this project will examine the demographic and social processes related to non-response among American Indians and Alaska Natives to the tribal affiliation question (within the race question) on the 1970-2020 decennial censuses and the 2000-2023 ACS. This research will utilize multiple multivariate regression approaches, as well as life table techniques, to estimate expected population sizes.

## COMMON OWNERSHIP AND FIRM DYNAMICS: MEASURING EMPLOYMENT, WAGE, AND FIRM PERFORMANCE OUTCOMES

*Kyle Handley—University of Michigan*

*Benjamin Lipsius—University of Michigan*

This research examines the effect of concentrated ownership on employment, wages, productivity, and firm dynamics. The project will create a new bridge linking Compustat, the Thomson Reuters Mutual Fund and Institutional Owners database, and the Levenstein and Suslow (2016) data on interfirm

cooperation to the Census Bureau's Business Register. These databases provide detailed information on the shareholders of firms and the controlling financial interest that links firms. Combining these data with market share information from Census Bureau data allows the construction of generalized HHI market

concentration measures. The researchers will analyze employment and productivity-related outcomes by comparing highly concentrated markets to less concentrated markets and will estimate the effects of their market concentration measure on the outcomes noted above.

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## DOMESTIC AND EXPORT SUPPLY CHAINS IN U.S. AGRICULTURE

*Sharat Ganapati—Dartmouth College*

*Amit Khandelwal—Columbia University*

This project aims to gain a better understanding of the market structure of supply chains and the impacts of globalization with a focus on the agricultural sector. Agriculture supply chains involve four stages

of production: farming, wholesaling, manufacturing, and retailing. Using a combination of data from the Census Bureau and USDA, this project constructs and analyzes the economic outcomes—market concentration, exports, prices,

entry and exit, output and revenue, and the extent of vertical integration—at each stage of the supply chain. The project also examines how these outcomes respond at each stage of production in response to international shocks.

## PATTERNS OF LOCATIONAL ATTAINMENT

*Lance Freeman—Columbia University*

This research examines locational attainment, and in particular, the changing ability of households to translate individual traits into access to high-quality neighborhoods and whether existing rental and mortgage subsidies facilitate or hinder access to such neighborhoods for their recipients. With few exceptions the extant literature on locational attainment has not considered temporal trends

nor how housing assistance might facilitate or retard access to different types of neighborhoods. For poorer individuals, housing assistance is likely to be an important determinant of the type of neighborhood they are able to reside in. Housing assistance allows the recipients to live in housing they could otherwise not afford. Conversely, project based housing assistance and especially public housing has

a long history of confining its clientele to the poorest and least desirable neighborhoods. This project uses decades of restricted-use American Housing Survey (AHS) data, which allows for ideal neighborhood definitions at the census tract level. This research yields important insights into socioeconomic conditions and the effects of housing programs and subsidies.

## THE SHORT AND LONG TERM EFFECTS OF PUBLIC HEALTH INTERVENTIONS

*Sarah Miller—University of Michigan*

*Laura Wherry—University of California, Los Angeles*

This project examines the effects of public health programs, particularly those that improved access to prenatal care and early life health care. Outcome variables are from the 2000-2018

American Community Survey, linked with state and county of birth by year of birth measures of exposure to public health programs. This study will shed new light on the population who experienced these

programs, the effectiveness of these programs, and the suitability of public-use data for measuring exposure to public health programs relative to the restricted-use data.

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## ACCOUNTING FOR PRODUCTIVITY DISPERSION OVER THE BUSINESS CYCLE

*Robert Kurtzman—Federal Reserve Board of Governors*

*David Zeke—University of Southern California*

In this research, we present accounting decompositions of changes in aggregate labor and capital productivity. Such decompositions are a useful tool for researchers looking to assess the role of distortions to the distribution of labor or capital across firms in driving the dynamics of productivity and other aggregates over the business cycle. These decompositions can be used to test whether firm-level behavior in models with frictions is consistent with firm-level behavior in data, or

to help guide model selection. Our simplest decomposition breaks changes in an aggregate factor productivity ratio into two components: a mean component, which captures common changes to firm factor productivity ratios, and a dispersion component, which captures changes in the higher order moments of the distribution of firm factor productivity ratios. We demonstrate analytically, in a model of frictions to firm labor and capital choices, that the dispersion component

reflects changes in the extent of distortions to firm factor input allocations across firms. We then present results on our decomposition using data on non-financial public firms from the United States and Japan. For aggregate labor productivity, we find the dispersion component is relatively constant over the business cycle, but the mean component moves closely with movements in aggregate labor productivity.

## THE IMPACT OF ACCOUNTING FRAUDS ON LABOR MARKETS

*Jung Ho Choi—Stanford University*

Prior studies have investigated the effect of accounting fraud on various parties, including investors, top managers, consumers, and peer firms. However, the impact of accounting fraud on employees has received little attention, likely because of data limitations. Using Longitudinal Employer-Household Dynamics (LEHD) data, together with

SEC Accounting and Auditing Enforcement Releases (AAERs), as well as other Census Bureau data, this research investigates how accounting fraud influences labor markets, including attrition rates, wages, and job switches, over time. Fraudulent accounting can affect both supply and demand in the labor market. This study hypothesizes that the attrition

rate of workers in accounting-fraud firms during post-fraud periods is higher than the rate for firms with comparable economic fundamentals but without fraudulent accounting. Furthermore, the study hypothesizes that these switching workers experience a wage drop.

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## PROPAGATION IN PRODUCTION NETWORKS

*Jean-Noel Barrot—Massachusetts Institute of Technology*

This project aims at (i) measuring the reaction of production networks to various firm-specific or sector-specific shocks, and (ii) understanding how firms adjust their network position in anticipation of these shocks. This research relates to a growing body of work assessing whether significant aggregate fluctuations may originate from microeconomic shocks. While earlier work has focused on the linkages across sectors, with mixed

results, the objective here is to estimate linkages within networks of firms. The Commodity Flow Survey, which is the main source of supply chain information produced by the Census Bureau, will be merged and compared with two publicly available sources of information on supply chain relationships: Compustat and the Federal Procurement Data System. A variety of sources of shocks will be considered, including natural disasters,

power outages, trade shocks, government spending shocks, and credit-supply shocks. This project also builds on earlier work that considers the importance of switching costs for the propagation of firm-level shocks. The study of the degree of interdependencies between firms in production network is a key parameter to assess the vulnerability of the real economy to microeconomic shocks.

## WAGE RIGIDITY AND CROSS-SECTIONAL STOCK RETURNS

*Lei Fang—Federal Reserve Bank of Atlanta*

*Zichong Qu—Georgia State University*

*Bin Wei—Federal Reserve Bank of Atlanta*

*Zhanwei Yue—Emory University*

This project introduces wage rigidity into a standard production-based asset pricing model and studies, both theoretically and empirically, how wage rigidity affects the time series and cross-section of stock returns. Theoretically, the presence of wage rigidity makes dividends more procyclical and therefore riskier.

The extended model predicts a positive relationship between wage rigidity and stock returns. In the time series, this implies that stock market returns are expected to be higher at times when the aggregate wage is more rigid. In the cross-section, this implies that, all else equal, firms with a larger degree of wage rigidity

should have higher expected stock returns. Empirically, this model's prediction is tested by matching external data on stock prices to measures of wage rigidity constructed from the Longitudinal Business Database, the Longitudinal Employer Household Dynamic files, and the Annual Survey and Census of Manufactures.



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## MIGRATION TRAJECTORIES OF INTERNATIONAL STUDENTS IN THE UNITED STATES

*Trang Ha—University of Minnesota*

This project examines the migration trajectories of international students in the United States, using a combination of restricted-use data from the National Survey of College Graduates, the American Community Survey, and the Decennial Census long form. The research addresses two sets of questions. First, what are the patterns of international students' spatial mobility within the United

States, and what explains these patterns? Second, what are the patterns of migration status trajectories for international students in the United States, and what are the consequences of these patterns? The project will generate estimates for the likelihood that international students would move out of the location where they get the first U.S. degrees, and will examine how different contextual characteristics are

associated with the likelihood of moving. Additionally, the research will examine the types of educational, spatial, and visa type trajectories that international students experienced while in the United States. These findings will help answer several important lingering questions concerning the retention of international students in places as well as the duration and steps involved in their migration experiences.

## LABOR FORCE RESTRUCTURING AND MERGER AND ACQUISITION GAINS

*Kateryna Holland—Purdue University*

Mergers and acquisitions (M&A) are key investment and restructuring activities through which an economy reallocates resources across industries and over time, generating enormous wealth for investors and society as a whole. Despite decades of research, however, the question of where do the gains from mergers come from is still largely open. In fact, while academics and practitioners concur that a major source of

gains is synergies, particularly cost savings, a precise quantification of these remains elusive. The primary objective of this project is to estimate the size of cost savings associated with employment restructuring in M&A. To do so, this research proposes a novel methodology of estimating the present value of cash flows from employment restructuring in M&A ("cost synergies"). This methodology carefully accounts for wage

changes for employees present in the acquiring and target firms prior to and post M&A, and for wage changes associated with M&A-related layoffs, plant sales, and plant closures. This research takes into account the perpetual nature of the savings associated with labor restructuring and aims to examine the proportion of the contribution of perpetual labor savings to the change in the firm values surrounding M&A.

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## AN ASSESSMENT OF THE IMPACT OF PRODUCT AND PROCESS INNOVATIONS ON FIRM PERFORMANCE

*Matthew Doolin—Duke University*

*Mahour Mellat-Parast—North Carolina A&T State University*

This study uses microdata from the Business R&D and Innovation Survey and other Census Bureau surveys to investigate the impact of research and development (R&D) activity, and specifically process and product innovations, on firm performance, including sales,

shipments, and/or receipts. The research will also examine the relationship between innovation and firm performance by quantifying similarities and differences in the relationship across firms and especially industries. In particular, the researcher will identify industries where process and,

separately, product innovations are important determinants of variability in firm performance. The research will also identify industries where the conditional processes under which process innovation and/or product innovation occur are important determinants of variability in firm performance.

## NATURAL DISASTERS, RECESSIONS, AND ADAPTIVE CAPACITY

*Jose Maria Barrero Sanclemente—Stanford University*

*Nicholas Bloom—Stanford University*

*Brian Lucking—Stanford University*

*Ishuwar Seetharam—Stanford University*

What factors determine the adaptive capacity of organizations or the economy, when faced with unanticipated disruptive events? This research examines how the performance of establishments, firms, and the economy is affected by unanticipated shocks, including natural disasters and business cycle movements. This research aims to discern the characteristics of plants, firms, and local economies that determine their capacity to effectively respond—through adjustments in behavior,

resource utilization, and technologies—to disruptions. Furthermore, this research will examine how responses to disruptions differ depending on the frequency and intensity of the disruption. For example, economic disasters such as recessions are infrequent, affect everyone, and are costly to the economy. There have only been five since the 1970s, but they have been widely studied and documented to be highly damaging. In contrast, natural disasters are more frequent in occurrence, local to certain

geographies, and exhibit large variation in the extent of damage. While the economy-wide impact of natural disasters has also been studied, there exists limited plant- and firm-level evidence on the consequences of such frequent, unpredictable disasters; on the extent to which their impact differs from the repercussions of economic disasters; and the various characteristics that may determine the capacity to respond and adapt to uncertain and disruptive events.

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## EXPLORING INNOVATION, GEOGRAPHY, AND JOBS IN MANUFACTURING

*Marc Doussard—University of Illinois at Urbana-Champaign*

*William Lester—University of North Carolina at Chapel Hill*

This research uses the Business R&D and Innovation Survey, Survey of Industrial Research and Development, and Census of Manufactures to examine the relationship between innovation activities and employment outcomes, in order to determine how innovation affects

places, industries, and firms. This project will examine the extent to which manufacturing firms co-locate research and development activities and the impact of innovation activity on job growth and other industry-, regional-, firm-, and establishment-level outcomes.

Additionally, the research will investigate how innovation's impacts vary by industry and type of activity, and will measure the distribution of innovation activity across firms within given manufacturing industries.

## LABOR MARKET IMPACTS OF STATE AND LOCAL MINIMUM WAGES

*Heather Hill—University of Washington*

*Mark Long—University of Washington*

*Jennifer Otten—University of Washington*

*Ekaterina Roshchina—University of Washington*

*Jacob Vigdor—University of Washington*

This research investigates labor market and household income impacts of state and local minimum wage policies using Longitudinal Employer-Household Dynamics (LEHD) data from the years 1990 to 2014. This project will study

effect heterogeneity to examine positive and negative impacts on different income-level households, as well as consider contextual determinants of various geographic scales and how they affect outcomes. Using LEHD data permits the

use of difference-in-difference methods to infer impact of an increased minimum wage on aggregate employment and establishment-level outcomes, as well as individual worker-level outcomes.

## CAPITAL MARKETS, INCENTIVES, AND MANAGERIAL DECISIONS

*Eva Labro—University of North Carolina at Chapel Hill*

*Mark Lang—University of North Carolina at Chapel Hill*

*James Omartian—University of North Carolina at Chapel Hill*

This study examines how capital market forces affect incentive design and influence managerial decisions within firms. This project investigates differences in information provision and related incentives between public and private firms,

examines the management practices and incentive structures within companies, and details the degree to which firm-level incentives translate into establishment-level outcomes. To that end, this project employs data from

several Census Bureau surveys, as well as financial accounting information publicly disclosed by firms on U.S. Securities and Exchange Commission forms 10-K and 10-Q.

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## THE CONSEQUENCES OF FIRM-LEVEL WAGE COMPRESSION

Colin Gray—Massachusetts Institute of Technology

Christina Patterson—Massachusetts Institute of Technology

Using the LEHD and ACS data, this project explores firm-level wage compression, a practice in which lower productivity workers are paid more while higher productivity workers are paid less. This research will document how prevalent wage compression is in the U.S. economy, as well as the relationship between wage compression and the cyclical properties of nominal wages and the recent trends in earnings inequality. For example, wage compression within the firm may be related

to the cyclical properties of the labor market if firms with more wage compression are more attune to fairness concerns and, therefore, are less likely to drop their wages in response to negative economic shocks. Furthermore, if there are differences in wage compression across firms, high ability workers will likely want to sort into the firms with less wage compression, and lower ability individuals will want to sort into higher wage compression firms where they are paid more. These incentives

will lead to an increase in the sorting of workers across firms over time. Additionally, it may be that firms share their profits with workers, and that, because of fairness concerns, the firm shares the economic profits with all of its workers. Wage compression within the firm, therefore, affects how much differences in profits across firms can explain the rise in between-firm wage variability, even for people at the bottom of the skill distribution.

## LABOR TURNOVER AND OPERATIONAL PERFORMANCE OF U.S. RETAILERS

Rongqing Han—University of Southern California

Managers adjust labor turnover based on firm internal operational performance metrics while employees voluntarily leave or switch jobs, which in turn affects firm performance. It has been a challenge to link labor turnover to firm performance because the benefits and costs of labor turnover are hard to quantify. Besides, firm performance is very hard to measure in general because it is affected both by financial factors outside firms and operational efficiencies inside firms. This research

empirically determines the sign and magnitude of the correlation between labor turnover and firm operational performance. First, the project examines inventory turnover, a financial and operational metric indicating how fast a retailer is generating value compared to its average inventory level. By controlling for its correlation with related financial metrics, adjusted inventory turnover (AIT) is estimated to measure firm operational performance. AIT has been shown to predict future financial performance,

including sales, earnings, and stock return. Second, this relationship varies across retailers of different labor intensity. By controlling for retailer characteristics, the correlation of labor turnover and firm performance is estimated, and the exacerbating or mitigating effect of labor intensity is investigated. Moreover, this research tests the hypothesis that such a relation is non-linear. This project uses various Census Bureau datasets with U.S. retailers from 1999 to 2012.

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## THE EFFECTS OF SOCIAL INSURANCE FINANCING ON FIRM BEHAVIOR

*Mark Duggan—Stanford University*

*Audrey Guo—Stanford University*

*Brian Lucking—Stanford University*

The U.S. unemployment insurance (UI) program provides temporary monetary benefits to laid off workers, a program that millions of Americans utilize annually. Each state independently administers and finances their own UI

program, determining funding schemes, rates, and program generosity within general federal guidelines. This project uses state-level variation in the financing of UI and other social insurance programs, such as workers' compensation, to

analyze the effect of social insurance financing on firm behavior and outcomes. How do firms respond to the funding mechanisms in their state and how does that feed back into the economy as a whole?

## COLLUSION ENFORCEMENT AND COMPETITION: EXPLORING FIRM DECISIONS

*Hyoseok Kang—University of California, Berkeley*

This project examines the extent to which collusion breakup influences firm-level decisions (on price, quantity, entry, exit, input usage, output, investment, and innovation) and market structure. This has important implications both for aggregate economic welfare and also for certain sets of consumers and

producers. Cartel breakups provide a unique opportunity to estimate the causal relationship between competition and innovation, as cartel breakup is generally unexpected and brings abrupt changes in the level of competition in the relevant market. There have been more than five hundred

cartel breakups over the past few decades, making it possible to run large sample quantitative analysis and make causal inferences. The availability of Census microdata enables the researchers to examine various aspects of investments and innovations in response to increased competition.

## EMPLOYERS IN THE U.S. NONPROFIT SECTOR

*Yuci Chen—University of Illinois*

*Benjamin Marx—University of Illinois*

The Urban Institute has estimated that nonprofit workers account for more than 8 percent of all income in the United States. This labor share has grown over time, as have estimates of the income and expenses of nonprofits as a share of national income. This project merges Census Bureau

data on nearly all firms and establishments in participating states with IRS data on those firms that are nonprofits to describe the scope and growth of the nonprofit sector in the United States. This research examines the reasons for the growth of the nonprofit sector, the ways in which taxes

and other policies affect the nonprofit sector, the nature of competition between for-profits and nonprofits, and the effects of nonprofits on their communities.

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## CIVIL SERVICE REFORMS: EVIDENCE FROM U.S. MUNICIPALITIES

*Arianna Ornaghi—Massachusetts Institute of Technology*

This research examines the effects of civil service reforms on municipal bureaucracies and their performance. Historically, public administration in the United States was characterized by a spoils system in which elected politicians had the power to hire and fire bureaucrats. Provisions aimed at professionalizing the bureaucracy were first introduced at the federal level and slowly diffused to lower levels of government. These reforms were characterized by both meritocratic hiring

and political protections for public employees. These reforms may select in better workers through competitive entrance requirements but reduce performance incentives through tenure. This projects examines those states that mandated cities to institute civil service boards for police and fire departments based on population thresholds. This research exploits these thresholds in a regression discontinuity design to estimate the causal effect of introducing the merit system. First, using

data from the decennial censuses of 1960 to 2000, this projects looks at the effect on the demographic composition of police and fire departments and, in particular, the gender, age, and racial composition of these department, together with the educational level of policemen and firemen. Second, this research studies whether the reforms had effects on the performance of these departments, including crime rates.

## WAGES, PRODUCTION, AND PASS-THROUGH

*Yuci Chen—University of Illinois*

*Benjamin Marx—University of Illinois*

This research explores the effect of a change in input price, in particular, the wage cost, on firms' input ratios, profitability, and pricing strategy. Economic theory predicts that when the wage costs decrease, firms will substitute away from capital to hire more labor. Moreover, depending on the

competitiveness of the market, a change in the input price can affect the output price and the profitability of firms. This project will produce empirical estimates of these effects. In particular: How does the change in wage cost affect the capital-labor ratio in production? Do firms benefit (profit) from a

reduction in wage cost? Or do profits decrease and wages rise? Do firms respond to the increase or decrease in wages in a symmetrical way? Does the change in wages pass-through to the output prices?



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## THE EFFECT OF DISABILITY RECEIPT ON COMMUNITY OUTCOMES: EVIDENCE FROM SOCIAL SECURITY FIELD OFFICES

*Michele Carter—University of Chicago*

*Manasi Deshpande—University of Chicago*

Disability programs in the United States are large and expanding rapidly. While there has been substantial research on how these programs affect the labor supply of individual recipients, there is less evidence on how they affect outcomes beyond labor supply, or how they affect communities as a whole, in addition to individual

recipients. This project uses all years of the American Community Survey (starting from 1996), as well as the 1990, 2000, and 2010 decennial Censuses, along with quasi-experimental variation from the closings of Social Security field offices, to estimate the effect of disability receipt on the economic and social outcomes

of communities, including demographics, employment, housing stability, program participation, health, and crime, at the census tract level. The effect of disability receipt on individuals may differ from the effect on communities because of peer effects or spillovers.

## EXACT DATE OF BIRTH, EDUCATION, AND VOTER TURNOUT

*Ethan Kaplan—University of Maryland*

*Jorg Spenkuch—Northwestern University*

This research examines the causal effect of education on civic participation, as measured by voter turnout. In order to do so, this project implements a fuzzy regression discontinuity design that relies on exact date of birth relative to school entry cutoff dates. Data from the long form of the 2000 Decennial Census and the ACS (2002-2014) contain respondents' exact date of birth, which allows the researchers to estimate whether individuals born just

before the applicable school entry cutoff date in their state of residence are, on average, slightly more educated than those born just after the cutoff. This research will rely on voter registration and turnout data for all fifty states and the District of Columbia to estimate whether individuals born just before the cutoff date are more likely to vote; and by relating population estimates based on the 2010 Decennial Census to counts of registered voters

in the user-supplied data, estimate whether there exists a discontinuity in the propensity to register to vote in the first place. Finding a discontinuity around school entry cutoff dates in educational attainment as well as voter turnout and/or registration would be evidence that education exerts a causal effect on civic participation. This research will also utilize the CPS Voting and Registration Supplement (2006-2014).

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## MEASURING THE END-USE OF U.S. TRADED GOODS

*Elizabeth Johnson—Federal Reserve Bank of Kansas City*

*Nicholas Sly—Federal Reserve Bank of Kansas City*

Global trading activity has shifted modalities steadily from the exchange of goods used for final consumption towards globally integrated production networks that exchange goods used as intermediate inputs. Currently, evidence and analysis regarding the end-use of traded goods relies on characterizations that are available only for broad product categories, ad hoc in their characterization of goods, out of date, and not specific to U.S. economic activities. This research implements a new classification of end-use

categories for traded goods that (i) characterizes end-use according to observed economic activity among U.S. firms, and (ii) measures the shares of import activity across sub-populations of different end-users for a wide variety of products. This project will identify firms in retail versus production sectors of the economy from the Longitudinal Business Database, and then classify imports by firms in retail sectors (production sectors) as having an end-use as consumption goods (intermediate goods). This

strategy accounts for the fact that two different types of firms may import the same product for different end-uses. Measuring differences in end-uses of traded goods is key to identifying the determinants of import demand, and subsequently to understanding how exchange rate shocks pass-through to consumer prices, how aggregate import demand characteristics have changed over time, and how U.S. consumers and firms engage with the global economy.

## THE PRICE OF A SAFE HOME: LEAD-ABATEMENT MANDATES AND THE HOUSING MARKET

*Ludovica Gasse—University of Chicago*

Lead poisoning can have long-lasting consequences, especially on children's health and IQ; therefore, the Consumer Product Safety Commission effectively banned the use of lead in paint in 1978. State and federal laws regulate the disclosure of information concerning lead presence in homes built prior to 1978, as well as abatement. According

to the Environmental Protection Agency, professional lead-based paint removal costs between \$8 to \$15 per square foot, with the average removal project costing about \$10,000. This project assesses how the costs imposed by the regulations affect housing prices and home-ownership, while quantifying the health benefits of the regulation.

Indeed, the adverse effects of lead-based paint on children's health are likely to be mediated by households' responses to the information regarding lead hazards. This research employs a triple differences approach to estimate the effects of state-level lead-safe housing regulations on the housing market and blood lead levels.

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## VALIDATING ESTIMATES OF MIGRATION STATUS AMONG ASIAN IMMIGRANTS IN REPRESENTATIVE DATA SOURCES

*Biblia Cha—University of California, Irvine*

*Annie Ro—University of California, Irvine*

The overall goal of this research is to effectively categorize and describe the Asian immigration population by migration status in the Survey of Income and Program Participation (SIPP), to compare across their demographic characteristics, economic status, and employment patterns. No

study to date has exclusively studied and described the detailed migration status of Asian immigrants in representative data sources. First, this project will compare imputation methods in the restricted-use SIPP dataset to identify an optimal approach to estimate migration status (legal

permanent residents, legal non-immigrants, and remaining other non-LPRs within non-citizens). Second, this project will describe the demographic, economic, and health insurance characteristics of the Asian immigration population by migration status, both nationally and in California.

## THE SNOWBALL EFFECT OF TOP-INCOME INEQUALITY

*Jeffrey Clemens—University of Texas*

This research project expands current statistics by developing series that describe inequality at the level of occupations and geographic areas. While the evolution of inequality is often measured and analyzed as a

macroeconomic phenomenon, this project uses geographic and occupational variations to attempt to gain insight into its underlying causes. The theories examined emphasize economic channels through

which inequality driven by “superstar” effects can spill over into occupations in which the superstar phenomenon is not directly applicable.

## THE IMPACT OF TRADE ADJUSTMENT ASSISTANCE (TAA) BENEFITS ON WORKERS

*Ben Hyman—University of Pennsylvania*

This research analyzes the effects of federal Trade Adjustment Assistance (TAA) benefits on worker-level outcomes, specifically educational attainment, cumulative earnings (wages), labor force participation, time-to-rehire, and sectoral reallocation (i.e., whether re-trained workers move to firms and industry of higher or lower relative productivity

with respect to the firms from which they separated). TAA benefits—typically cash transfers for worker enrollment in (re)training programs—are awarded to workers that successfully demonstrate to the Department of Labor that their firm’s layoffs were caused by import competition with foreign competitors. This project also explores how the effects of TAA may differ from standard effects

of unemployment insurance benefits by using workers laid off due to bankruptcy as a control group. Finally, the project assesses the costs and benefits of awarding TAA allowances, and also considers how regions with higher TAA “generosity” may vary in their support for trade measures with respect to lower generosity regions.

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## TOP-CODED EARNINGS

*Zhiqi Zhao—Clemson University*

This project examines the implications of top-coded earnings in the American Community Survey (ACS), March Current Population Survey (CPS), and decennial census. Research that relies on censored wage and salary earnings can yield potentially

misleading results. For example, the measurement of income inequality may be distorted. Some researchers have addressed the top-coding issue by using non-public data to develop various alternative multipliers. This research improves this approach by

developing multipliers that are demographic and region specific, since it is reasonable to expect that the earnings distribution varies across racial, gender, and education dimensions, and even across geographies. Comparisons to other approaches will be made.

## THE EFFECT OF AFFIRMATIVE ACTION ON WORKERS' OUTCOMES

*Noriko Amano—Yale University*

This research estimates (i) the effect of Affirmative Action regulation on the probability that a new hire in private sector firms meeting the size requirements is a minority, (ii) the effect of legal charges filed citing sex, race, color or national origin discrimination on the

probability that a new hire is a minority, and (iii) the effect of working in an Affirmative Action regulated firm on current and future wages. This project will impute federal contractor status and racial composition reported in the Equal Employment Opportunity Employer

Information Reports, to private sector firms in the LEHD database meeting the size requirements to fill these forms under the Civil Rights Act of 1964. In addition, it will assign a count of discrimination charges filed with the EEOC against federally contracted firms.

## ESTIMATING TWO-SIDED ASSIGNMENT MODELS USING LEHD DATA

*Richard Mansfield—University of Colorado Boulder*

*Terra Mckinnish-Harlee—University of Colorado Boulder*

This research employs recently developed methodology for estimating two-sided assignment models for producing forecasts or simulations about a range of labor market phenomena. For such models to generate accurate and useful forecasts, one needs to be able to observe the key characteristics that capture the heterogeneity on both sides of the market that leads certain agents on one side to be disproportionately likely to match with certain agents or units on the opposite side. LEHD data provide a very rich set of characteristics

that describe agents or units on both sides of the market (workers and firms). This research will produce forecasts about (i) which workers in which locations would be most affected by alternative forms of local labor demand shocks (plant relocations, stimulus packages, natural disasters), (ii) the degree to which differential access to jobs with strong career paths, differential promotions, and differential frequency and quality of outside offers (conditional on job type) contribute to gender and racial income disparities at different points in the life

cycle, (iii) how the earnings distributions by race and gender are likely to evolve in the next decade, given the differences in the racial, gender, and educational attainment composition of entering vs. exiting cohorts in the U.S labor market, and (iv) how assortative matching patterns along various dimensions might change as the occupational and industry composition of the labor demand changes, given the degree to which occupation and industry affect search costs in the marriage market.

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## VOLUNTEERING AND COMMUNITY CONTEXT

*Rebecca Nesbit—University of Georgia*  
*Laurie Paarlberg—Texas A&M University*

This research uses data from the Current Population Survey supplement on volunteering to explore how community cohesion affects volunteering behavior and how the effects of community cohesion (racial diversity, income inequality and mobility) differ across individual-level racial characteristics. A growing

body of empirical research on civic engagement suggests that the effects of community cohesion differ across people of different racial backgrounds. However, there are limited studies specifically in the context of volunteering. The restricted-use data enables the researchers to merge in community characteristics at

the smallest level of geography possible, which is important for individual volunteering behavior. It also enables researchers to include respondents from rural communities, reducing the bias in the results, and improving our understanding of volunteering in rural communities.

## ESTIMATING AREA-LEVEL ECONOMIC AND DEMOGRAPHIC PROCESSES USING MARCH CPS DATA

*Martha Bailey—University of Michigan*  
*Bryan Stuart—University of Michigan*

This research uses 1960 Census and the March CPS supplement to create state and county level fertility rates across a number of decades and compares these with administrative records

data from the National Center for Health Statistics. This will provide a better understanding of population trends and promote more accurate CPS-based population projections.

This project will examine the economic, social, and demographic impacts of various policy and natural experiments.

## HOW DOES THE MORTGAGE LIABILITY AFFECT CAREER DECISION? EVIDENCE OF CASH FLOW HEDGING IN HOUSEHOLD FINANCIAL PLANNING

*Xiao Cen—Columbia University*  
*Wei Jiang—Columbia University*

This study provides insights on the effect of the monthly housing liabilities on borrowers' employment decisions especially risk taking in career. Going beyond the prior research examining the relation between housing markets and employment at the aggregate level, this research delves into individuals' decision making by merging mortgage data

with LEHD data. This project investigates the association between the monthly mortgage payment and borrowers' employment decisions, using various identification strategies, including regression discontinuity approaches and an instrumental variable for the mortgage payment, stemming from the financial index choice and lookback period in ARM.

This research will examine the decision to change jobs, the riskiness of the new jobs vs. old jobs, and the propensity to found or work for start-ups. Furthermore, this project will investigate the impact of mortgage liability on innovation activities and the spillover effect from labor markets into mortgage performance.

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## DEVELOPING AN INNOVATIVE METHODOLOGY TO MEASURE THE RURAL-URBAN CONTINUUM AS APPLIED TO TOBACCO CONTROL

*Devi Chelluri—NORC*  
*Erin Tanenbaum—NORC*

This research (i) assesses the differential utility of several commonly-used definitions and a new definition of the urban-rural continuum for explaining variation in tobacco-related outcomes, and (ii) determines the similarities or differences that exist across two rural populations (Appalachia and

Delta) regarding factors that contribute to high prevalence of tobacco use. The project will yield a new, comprehensive custom urban-rural classification (isolation score measure) to assess rurality, and will analyze whether limited resources are appropriately targeting subgroups most at risk for

smoking-related morbidity and mortality. This research employs restricted-use data from the Tobacco Use supplement of the Current Population Survey, as well as from the Computer and Internet Usage and the Veterans supplements.

## RISK EXPOSURE, MANAGERIAL CHARACTERISTICS, AND FIRMS' REAL ACTIONS

*Jianqiu Bai—Northeastern University*  
*Wang Jin—Massachusetts Institute of Technology*

This research examines how firms interact with their legal, political, and geographical environments—both how firms choose their location as well as how firms respond when there is a sudden, unanticipated change in local factors. This project also examines how managerial and board member

characteristics influence firms' decisions both generally as well as in certain contexts, such as political uncertainty and other political “shocks.” The project will estimate the impact on firms' real and financing actions, including employment, capital investment, and R&D activities. The data used measures various

characteristics of the firms—at the establishment level, production and productivity measures, and at the firm level, financial constraints, fundamental accounting information, investment, capital expenditure, R&D and innovative activity, and managerial and board characteristics.

## TRADE EXPOSURE AND FIRM DYNAMICS

*Ishan Ghosh—Drexel University*  
*Philip Luck—University of Colorado Denver*

This project examines the role of increased trade exposure in the decline of entrepreneurship and the consequences for aggregate employment and productivity growth. This research is motivated by the burgeoning recent literature documenting that the rise in import competition from China and other low wage countries in the early 2000s has exerted important negative effects on employment, while

simultaneously leading to increased technical change within firms and reallocation of employment towards more productive firms. This project addresses a set of important questions that have so far been left unexplored: What are the effects of increased trade exposure on startup rates and the post-entry dynamics of firms in terms of survival and employment growth? What is the role of offshoring in

explaining these employment effects? How do firms react to increased trade exposure in terms of capital intensity, technical change, organization, and management practices? To what extent can increased trade exposure, through its impact on firm dynamics, account for the slowdown in aggregate employment and productivity growth observed in U.S. data?



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## SEARCHING, MATCHING, AND THE TRANSFER OF INFORMATION IN INTERNATIONAL TRADE RELATIONSHIPS

*Seung Hoon Lee—Georgia Institute of Technology*  
*Tongyang Yang—Georgia Institute of Technology*

This study examines the establishment and evolution of firms' international trading relationships at the transaction level using a novel "two-sided" firm trade transactions dataset which, for the period 1992 through 2011, links U.S. importers from the Census Bureau's Longitudinal Firm Trade Transactions Database to exporters from Korean firm-level data provided by a Korean credit agency. This research exploits the unique ownership

structure of Korean firms, the majority of which operate under the control of a business group. Specifically, this study tests for evidence of export spillovers for firms within the same ownership structure and estimates the degree of information transfer. The researchers hypothesize that firms with more information about a foreign market face lower costs in building new trade relationships abroad. Thus, with the transfer of information and market-specific knowledge,

firms should benefit from being in business groups where member companies have more trade relationships. Furthermore, this impact may be even stronger if a Korean company has a foreign affiliate in the United States. The project also examines whether the sharing of information was helpful during the recent global financial crisis in avoiding the loss of exports at the intensive margin and the loss of trading relationships at the extensive margin.

## CAN FINANCIAL FACTORS EXPLAIN AGGREGATE PRODUCTIVITY? EVIDENCE FROM U.S. ESTABLISHMENTS

*Nathaniel Pancost—University of Chicago*

This research examines whether financial factors can explain the allocation of employment and capital across firms, and how that allocation affects aggregate productivity growth. Recent research has shown that differences in the allocation of resources across firms can explain differences in aggregate

productivity across countries. Comparatively little research has focused on changes in the allocation of resources within a country, over time, or on the forces that affect this re-allocation. This project seeks to answer three main questions. First, what determines a firm's debt-to-asset ratio (leverage)?

Second, what is the relationship between leverage and growth in the size of the firm? Third, what is the role of firm financial structure in aggregate productivity growth?

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## TRADE-INDUCED SPILLOVERS AND REALLOCATION ACROSS FIRMS

*David Autor—Massachusetts Institute of Technology*  
*Christina Patterson—Massachusetts Institute of Technology*  
*Brendan Price—University of California, Davis*  
*John Van Reenen—Massachusetts Institute of Technology*  
*Samuel Young—Massachusetts Institute of Technology*

This research investigates the adverse effects of import competition on exposed workers, firms, and local labor markets, both on firms that compete directly with foreign producers, as well as through several indirect channels whose relative importance is not yet known. This project poses three questions. First, what are the predominant mechanisms through which trade shocks impact aggregate employment

and output? Alongside direct effects, we evaluate two leading explanations for trade-induced job losses: aggregate demand effects and propagation through input-output linkages. Second, how do trade shocks affect the allocation of economic activity across firms? Theoretical models of firm-level dynamics suggest that the effects of both direct and indirect import exposure on entry, exit, and factor demands

should vary systematically with a firm's initial productivity, exporting status, size, and age. These heterogeneous treatment effects, if present, could give rise to economically important reallocation in response to trade shocks. Finally, what are the effects of negative shocks, such as import exposure, on firm and establishment survey non-response in Census Bureau surveys and censuses?

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## Appendix 3-B.

### **ABSTRACTS OF PROJECTS STARTED IN 2017: BUREAU OF LABOR STATISTICS (BLS) DATA AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ) DATA NATIONAL CENTER FOR HEALTH STATISTICS (NCHS) DATA**

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

#### **HOW DO SPECIFIC OSHA STANDARDS AFFECT WORKPLACE INJURIES? (BLS)**

*Wayne Gray—Clark University*

This research extends previous work, which examined the impact of OSHA inspections on injuries in manufacturing, using data from the BLS Survey of Occupational Injuries and Illnesses (SOII) from 1992 to 2012, linked to OSHA inspection data for those plants, using name-address matching. The specific focus of this research is the impact of compliance with different OSHA standards on injuries at inspected facilities, including connecting specific standards to specific types

of injuries. We calculate the annual change in the number of injuries at a workplace, and then relate those changes in injuries to whether the workplace has been cited for a specific OSHA standard, controlling for other characteristics of the establishment and the inspection. We use SOII information on injury type to see whether any observed impacts on injuries are associated with the hazards addressed by the standard (e.g., standards requiring personal

protective equipment being effective at preventing eye injuries). We also consider impacts on the severity as well as frequency of injuries. Earlier work was restricted to 1992–1998 data from manufacturing plants and only considered five OSHA standards. This new work more than doubles the years covered, extends the coverage to general industry (except construction), and examines the impact of 50–100 commonly cited OSHA standards.

#### **THE AFFORDABLE CARE ACT AND HEALTH CARE AND OUTCOMES AMONG CANCER PATIENTS AND SURVIVORS (AHRQ)**

*Xuesong Han—American Cancer Society and Emory University*

The Affordable Care Act has helped 25 million Americans gain access to health insurance through Medicaid expansions in more than half of the states, subsidized private coverage in the marketplace, and other provisions. This project seeks

to examine the impact of the ACA on access to care, health care utilization, and outcomes for cancer patients and survivors. For our analyses, we will use data from the Medical Expenditure Panel Survey. Pre-post analyses will be conducted

to assess the effects of the ACA on insurance coverage, access to health care, health care utilization, employment, self-reported health, and financial well-being, while controlling for demographic, socioeconomic, and cancer-specific factors.

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## IMPACTS OF THE AFFORDABLE CARE ACT ON HEALTH CARE UTILIZATION (AHRQ)

*Charles Courtemanche—Georgia State University*

*Pelin Ozluk—Georgia State University*

*James Marton—Georgia State University*

*Benjamin Ukert—University of Pennsylvania*

The goal of the Affordable Care Act (ACA) was to achieve nearly universal health insurance coverage in the United States through a combination of insurance market reforms, mandates, subsidies, health insurance marketplaces, and Medicaid expansions. A growing literature has evaluated the impact of these reforms on insurance coverage. The natural next step is to examine the impact of these public and

private coverage gains on health care utilization and spending. Examining changes in utilization allows for a more direct measurement of changes in access than studying subjective survey responses about, for instance, cost being a barrier to care. By employing the identification strategy we developed in Courtemanche et al. (2017) to identify the effects of both the Medicaid expansion and the private portion of the

ACA, along with two years of post-treatment data from the Medical Expenditure Panel Survey, our project will examine how coverage gains translate into changes in utilization and spending. This contribution is significant because early studies focusing on the ACA's Medicaid expansion cannot assess the impact of the private portion of the ACA, while studies focusing on the first post-reform year capture only immediate effects.

## THE EFFECT OF MEDICAID COVERAGE IN THE POSTPARTUM PERIOD (AHRQ)

*Jamie Daw—Harvard University*

Access to health insurance in the postpartum period is important to reduce financial barriers to needed care. Women covered by Medicaid for pregnancy retain eligibility until sixty days after delivery and then must either qualify for Medicaid as parents or obtain private insurance. This forced churning off of Medicaid is likely to result in many women becoming uninsured in the postpartum period. The objective of this study is to

evaluate the effect of Medicaid coverage on maternal health care use and spending in the extended postpartum period. Using pooled panels of the Medical Expenditure Panel Survey-Household Component, we will construct a sample of women with an in-patient record of delivery who reported Medicaid coverage in the calendar month of delivery and who are in-scope for the survey until six months postpartum. We will use an instrumental variable

approach to estimate the effect of Medicaid enrollment in the postpartum period using a standardized measure of state parental eligibility for Medicaid as an instrument for Medicaid enrollment after delivery. Outcomes will include total health expenditures, out-of-pocket health spending, number of outpatient visits, number of ER visits, and number of hospitalizations in the period from one to six months postpartum.

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## UNDERSTANDING MEDICAID COVERAGE DISCONTINUITY (AHRQ)

*Xu Ji—Emory University*

*Zichong Qu—Georgia State University*

The overarching goal of the study is to assess the impact of Medicaid churning on access to health care among adults with mental illness, using econometric methods that can provide plausibly causal estimates of churning effects. More specifically, the discontinuity of Medicaid coverage is potentially endogenous with respect to access to care due to reverse causality and omitted variable bias, potentially resulting in biased estimates. To address these concerns, I will rely on the exogenous variation in

state-level policy measures to identify causal estimates as well as control for county-level sociodemographic characteristics and health care resources that may be correlated with both health insurance status and access to care. I hypothesize that, compared to those who are continuously enrolled in Medicaid, patients who become uninsured following Medicaid disenrollment are less likely to access health services after losing Medicaid and that patients who transition from Medicaid to private insurance

are less likely to access health services after discontinuing Medicaid. I also hypothesize that the reduction in access to care due to a transition from Medicaid to private plans is smaller than the reduction resulting from loss of Medicaid with no alternative sources of coverage. As the health reform continues in the coming years, findings of this study may provide useful evidence of the potential consequences of churning among those who are newly eligible for Medicaid through the ACA.

## THE IMPACT OF THE AFFORDABLE CARE ACT'S MEDICAID EXPANSION ON MEDICAL SPENDING, UTILIZATION, ACCESS, HEALTH, DIAGNOSIS, PREVENTIVE CARE, COVERAGE, AND CHURNING (AHRQ)

*Anna Goldman—Harvard University*

The expansion of Medicaid to cover childless adults up to 138% of the Federal Poverty Level was made possible by the Affordable Care Act (ACA). About two-thirds of states had opted to expand as of 2017. Most of the expansion states implemented the new, expanded Medicaid programs on January 1, 2014. However, several states expanded partial

or full Medicaid coverage prior to 2014, using Section 1115 waivers, and others expanded after January of 2014. Many of the states that expanded later than January of 2014 chose to expand with “alternative” plans that departed from the policies laid out in the ACA. Therefore, our analysis will compare a range of outcomes between states with partial

pre-ACA expansion of Medicaid vs. full pre-ACA expansion vs. 2014 ACA-based expansion vs. post-ACA expansion vs. no expansion. A second analysis will explore the effect of post-ACA Medicaid alternative expansion vs. traditional Medicaid. Our outcomes will include a variety of health, insurance coverage, and health-spending outcomes.



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## CONSUMER ASSISTANCE FUNDING AS A PREDICTOR OF HEALTH INSURANCE UPTAKE, HEALTH INSURANCE CHURN, AND HEALTH CARE UTILIZATION (AHRQ)

*Rebecca Myerson—University of Southern California*

Prior to the Affordable Care Act, a majority of uninsured people in the United States struggled with one or more key health insurance terms. Helping newly insured people select and understand terms may be important not only to increase insurance uptake, but also to reduce “churn” out of insurance and ensure that access to insurance translates to access to care. Funding for consumer assistance programs in the U.S. has declined since

2014 and funds were distributed unevenly across states during 2013-2015, the years with highest gains in coverage among previously uninsured people. This research will study how increases and decreases in state-level consumer assistance funding over 2010-2014 were associated with uptake of insurance coverage, churn of insurance coverage, health care use, and prescription fills. Due to discrepancies in federal funding mechanisms

available to each state, funds per eligible uninsured and the timing of distribution varied substantially across states over 2013-2015. We will estimate panel data models where health insurance uptake, “churn” out of health insurance, and health care utilization are a function of prior and current funding for consumer assistance. We will also separately examine populations with chronic conditions and health disparities populations.

## CYCLICAL CHANGES IN PATIENT SATISFACTION AND PRESCRIPTION DRUG DEMAND (AHRQ)

*Kimberly Groover—University of Georgia*

The objectives in this project are twofold. First, do local unemployment rates impact quality of care? During periods of high unemployment, individuals who become unemployed not only expect lower earnings, but may also lose employer-based health insurance. The decrease in demand among the newly unemployed frees up space for those seeking medical services, improving their access to care. My research adds to the literature by explicitly tying quality of care, as measured by patient reported levels of patient satisfaction, to local

unemployment rates rather than relying on national economic measures. Second, do price elasticities change during periods of economic decline for elderly patients with hypertension? Here, I employ a discrete choice model with patient demographics, medical utilization and expenditures as well as drug characteristics to estimate changes in demand for prescription drugs with fluctuations in unemployment rates. Data is drawn from the Medical Expenditures Panel Survey for the years 2000 to 2013 and includes individual’s sociodemographic

characteristics as well as their medical utilization and expenditures, including out-of-pocket costs and drug characteristics for prescriptions filled. Using variables from the National Health Interview Survey, I account for the impact of individual’s health insurance costs, such as premiums and deductibles, on patient demand and patient satisfaction. Additionally, using the Area Health Resource Files, I can control for local supply-side factors influencing demand and patient satisfaction, such as health care facilities and labor supply.

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## THE QUALITY OF OUTPATIENT CARE DELIVERED TO ADULTS UNDER THE AFFORDABLE CARE ACT (AHRQ)

*David Levine—Harvard University*

This project will use the MEPS-HC to explore, in its first year of insurance provision, the extent to which the Affordable Care Act's principal insurance mechanisms provided higher, lower, or the same quality of outpatient care to Medicaid and

exchange-based commercial insurance beneficiaries. State identifiers in the restricted-use MEPS will be used to describe the quality of outpatient care obtained by ACA beneficiaries in expansion states compared to non-expansion states,

and to describe the quality of outpatient care obtained by commercial insurance beneficiaries of exchange-based compared to employer-based products.

## THE POLITICAL ECONOMY OF MEDICAID: IDEOLOGY, ELIGIBILITY, AND THE CONSEQUENCES OF COST-SAVING MEASURES (AHRQ)

*Jee-Hun Choi—Cornell University*  
*Seon Hye Lim—Cornell University*

We explore the linkages between government ideology in U.S. states and geographic variation in Medicaid program design and operations. Medicaid eligibility criteria tend to be more generous in liberal states. Simultaneously, fee-for-service reimbursement rates for physician services have been notably lower in liberal states. To what extent does the partisan composition of the government drive

eligibility and reimbursement over time? If cost-saving measures accompany eligibility expansion, then what are their consequences for resource allocation? We explore long-run linkages among partisan composition of the government, eligibility, cost-saving measures, and expenditures for the Medicaid expansion from the mid-1990s to 2010. First, we analyze how much the partisan composition of the state

government drives eligibility expansion. Second, we explore the tradeoff between breadth of eligibility and fee-for-service reimbursement rates. Third, we investigate driving forces behind the evolution of the delivery systems, i.e., Medicaid managed care diffusion. Fourth, we analyze the resulting patterns of per-enrollee spending.

## A CONTRACTARIAN CPI (AHRQ)

*Rebecca Diamond—Stanford University*  
*Stephanie Cheng—Harvard University*

There is a contractarian tradition that asserts that one right that a society grants to those of its members that have satisfied its duties, is a right to a minimal level of goods and services. The goal of our research is to provide a price and cost index for those goods and services. We provide several

alternative definitions of what that minimal level of goods and services consists of—definitions that largely result from current and past decisions of elected bodies. We then proceed to construct three indices for each definition. One price index measures the change in the cost to the consumer of purchasing

the minimal level over time accounting for government subsidies, and another does the same thing but does not account for those subsidies. The third index is a cost index which measures the cost to society of insuring that minimal level for its citizens.

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## IS THE LENGTH OF TIME UNINSURED PRIOR TO GAINING COVERAGE ASSOCIATED WITH CHANGES IN RELATIVE UTILIZATION OF ED AND PRIMARY CARE? (AHRQ)

*Paul Shafer—University of North Carolina at Chapel Hill*

Utilization of hospital emergency departments (ED) as a safety net provider for non-emergent care by the uninsured is a problem often cited by hospitals, providers, and public health researchers. This research will quantify changes in allocation of health care utilization between primary and emergency care settings by following the same individuals over time, using a linkage between the Medical Expenditure Panel Survey and the National Health Interview

Survey. The research will assess the extent to which previously uninsured individuals may change their usual setting for care based on their post-ACA insurance status. If familiarity with the health care system and connection with a primary care provider are important moderators of the relationship between insurance coverage and relative utilization, those with longer spells of being uninsured prior to gaining coverage in 2014 would be less likely to shift their relative

utilization of services towards primary care. Comparing changes in overall utilization among the newly insured by the type of insurance gained will provide a useful secondary finding. To the extent possible, changes in non-emergent ED utilization specifically will also be assessed by identifying ED visits that have ICD-9 diagnosis codes associated with ambulatory-care sensitive conditions.

## AFFORDABLE CARE ACT AND THE DEMAND FOR PRIMARY CARE AND EMERGENCY DEPARTMENT VISITS IN LOW-INCOME POPULATIONS (AHRQ)

*Joelle Abramowitz—University of Michigan*

The overarching goal of the Affordable Care Act was to reduce the uninsured rate in the United States. It included a number of provisions aimed at increasing coverage, the most significant of which, and the subject of much controversy, was the expansion of Medicaid eligibility to all adults with family income less than or equal to 138% of the Federal Poverty Level. While proponent states supported such increased health care access, opponent states cited the negative impacts of

Medicaid expansion on states' limited budgets, regardless of federal subsidies. A federal court ruling allowed states to decide on their own Medicaid expansion plans. In the end, 32 states expanded Medicaid while 19 did not, providing a valuable natural experiment to study the impact of the ACA state Medicaid expansions on health care utilization and health status in the low-income population. In theory, increased coverage can lead to improved access to primary care and reduce unnecessary emergency

department (ED) use. However, national estimates of the demand for primary care and ED visits have not previously been estimated, and evidence on the association between improved coverage and ED use is mixed. Knowing the current demand and its trend over time, before and after the ACA state Medicaid expansions, will be useful for decision making and planning purposes in the rapidly changing U.S. healthcare policy environment.

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## THE HEALTH EFFECTS OF CALIFORNIA'S PAID FAMILY LEAVE LAW (NCHS)

*Jane Waldfogel—Columbia University*

*Ann Bartel—Columbia University*

*Jessica Pac—Columbia University*

*Elizabeth Doran—Columbia University*

Although it is well-established that early life experiences have important and lasting effects on health, the U.S. is the only developed country that does not guarantee a period of paid and job-protected leave for new parents. As a result, coverage is both limited and highly unequal. The situation is slowly starting to change, as four states—California, New Jersey, New York and Rhode Island—have paid family leave (PFL) programs in place or scheduled to go into effect that provide a period of paid leave

to new parents. California's program has been extensively researched, but while we know a fair bit about the labor market and employer effects, its impact on infant or maternal health has been much less studied. In this project, we propose to carry out new analyses of the effects of the California law on an important health behavior and outcome: maternal mental health. Our basic identification strategy will be to estimate differences-in-differences models, where changes in the outcomes in California, before

and after enactment of the PFL program, will be compared to corresponding changes over time in control states. We will study both average effects of the law, and the effects in mitigating (or aggravating) disparities by maternal education, marital status, age at birth, and race/ethnicity as well as income. We will employ the restricted-use version of the 2000-2015 National Health Interview Survey, which contains child's birth date, allowing us to calculate the child's exact age.

## THE IMPACTS OF EDUCATIONAL ATTAINMENT ON HEALTH: AN INSTRUMENTAL VARIABLES ANALYSIS (NCHS)

*Rita Hamad—Stanford University*

*David Rehkopf—Stanford University*

The introduction of compulsory schooling laws (CSLs) increased high school enrollment and graduation rates nationwide, which we hypothesize improves health outcomes. Previous studies of education and health are largely correlational, resulting in an inability to determine causal effects. We will employ

an increasingly popular method of causal inference known as instrumental variables analysis, taking advantage of quasi-random variation in the implementation of CSLs across states during 1906-1978. We use the number of years of compulsory schooling required of an individual in the year and state of their birth as an

instrument for educational attainment, in order to examine the its impact on mortality and biomarkers collected by NHANES, including blood pressure, height, weight, and blood tests for inflammatory and cardiovascular conditions such as C-reactive protein and hemoglobin A1c.

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## RACIAL/ETHNIC DIFFERENCES IN TRENDS IN SOCIOECONOMIC AND NOVEL BIOLOGICAL RISK FACTORS IN STROKE AND CARDIOMETABOLIC DISEASE (NCHS)

*Arleen Brown—University of California, Los Angeles*  
*Stefanie Vassar—University of California, Los Angeles*

African Americans and Mexican Americans have higher rates of stroke and poorer outcomes after stroke, all at an earlier age than whites, but the underlying mechanisms are poorly characterized. Traditional biologic risk factors for stroke (such as hypertension, diabetes, cigarette smoking, CHD history, atrial fibrillation, LVH, and use of hypertensive medications) and

established social risk factors (such as income and education) explain only a portion of stroke risk, suggesting that additional, unaccounted for biological factors or social determinants may contribute to stroke. These include novel biomarkers, genetic factors, socioeconomic status, and exposures related to the environment in which people live. Understanding

temporal variation in racial/ethnic differences in the relationships between these novel risk factors and stroke risk may be important in understanding changes in stroke disparities over time and tailoring interventions that more effectively prevent strokes in African Americans and Mexican Americans.

## ASSESSING THE EFFECT OF INDOOR TANNING ON MELANOMA (NCHS)

*Yang Liu—Emory University*

UV radiation derived from sun exposure is well-known to be the most important cause of melanoma. In recent years, indoor tanning became increasingly popular, making it a non-trivial effect modifier to the association between ambient UV exposure and melanoma risk. We plan to use National Health Interview Survey (NHIS) data from

2005, 2008, 2010, and 2013, to estimate the prevalence of indoor tanning in state unit level of the continental United States. We also want to describe the trend of indoor tanning from 2005 to 2013, and how indoor tanning modifies the association between melanoma incidence and UV radiation. NHIS provides data of indoor tanning and cancer, however, the public data

release lacks state unit level information, which could be a potential effect modifier in later analysis. By combining indoor tanning information into our epidemiologic model, we aim to evaluate how this risk factor modifies or confounds the association between ambient UV exposure and melanoma risk.

## EXPANDED PUBLIC HEALTH INSURANCE COVERAGE, HEALTH, AND HEALTH CARE UTILIZATION OVER THE LIFESPAN (NCHS)

*Laura Wherry—University of California, Los Angeles*  
*Sarah Miller—University of Michigan*  
*Chloe East—University of Colorado Denver*

An emerging literature examines how eligibility for public health insurance affects long-term health and healthcare utilization, in

addition to short-term changes in health and utilization. This project continues our previous work in examining how early life Medicaid coverage and

exposure to the Medicaid program at different ages affects an individual's health and healthcare utilization both in the short- and long-term.

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## CAUSES OF THE GENDER GAP IN ADHD DIAGNOSIS (NCHS)

*Allison Witman—RTI International*

This research will investigate factors that differentially impact the cognitive development of boys and girls with a focus on Attention-Deficit/Hyperactivity Disorder (ADHD) diagnosis. Preliminary analyses suggest that non-traditional family effects are magnified for boys who are young relative to their school peers. The researchers will use the state of residence variable from the restricted NHIS to match children with their state's age at kindergarten entry cutoff to determine

relative age-for-grade. They will also use date of birth to discern whether children who live in states with a mid-month cutoff would be old-for-grade or young-for-grade. For example, if children must be five years old by August 15th in order to enter kindergarten and a particular child was born on August 18th, the child in question does not meet the cutoff. Supposing this child followed the entry rule, the child would enter school the following year and be relatively old-for-grade.

Once the researchers assign students to the appropriate side of the school entry cutoff for their state, the researchers will investigate the role of relative age in school in explaining the gender gap in ADHD diagnosis. As a robustness check, the researchers will also use state of birth (instead of state of residence) when assigning relative age-for-grade in order to show that the results are materially unchanged.

## THE IMPACT OF INFORMATIONAL INTERVENTIONS ON HEALTH AND WELL-BEING (NCHS)

*Amanda Kowalski—Yale University*

*Edward Kong—Harvard University*

*Matthew Tauzer—Yale University*

*Ljubica Ristovska—Harvard University*

*Jose-Antonio Espin-Sanchez—Yale University*

The relationship between maternal mortality—death of women due to complications during childbirth—and neonatal mortality—the death of a baby hours or days after being born—is currently poorly understood. Complications during childbirth mean that doctors sometimes have to make a tradeoff between the health of the mother and the health of the baby. In this project, I propose to examine the trends of maternal and infant mortality in the U.S. with consideration

of the medical procedures conducted at childbirth. I will attempt to elucidate the mechanisms responsible for these changes by using restricted-use National Hospital Discharge Survey data, focusing on changes in the types of care given to infants, such as ventilation, as well as changes in care given to mothers, such as C-sections. One example of how we will approach this task takes the form of an informational intervention, the APGAR score, which led doctors to

favor infants over the mothers, whose health is not measured by any metrics that receive as much attention. The restricted-use NHDS data will allow us to evaluate this hypothesis by exploiting the exogenous variation in the timing of when states started recording the APGAR, and move toward a better understanding of how other interventions at birth have long-term impacts on infant and maternal health.



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## KNOWLEDGE OF HEALTH STATUS AND THE TIMING OF RETIREMENT AND DISABILITY CLAIMS (NCHS)

*Perry Singleton—Syracuse University*

The fiscal imbalance of the Social Security system has prompted many policy proposals to address it. One such policy is to expand preventative healthcare services, including the early detection and treatment of disease. Preventative care, as the argument goes, improves health and lengthens life expectancy and, as a result, decreases the demand for retirement and disability benefits. However, the early detection of medical conditions

may actually increase program expenditures, especially if the condition is left untreated. The reason is that knowledge of a health condition may instead shorten life expectancy and, as a result, hasten claims for retirement and disability benefits. Thus, to design effective policy, it is necessary to understand how knowledge of one's health status affects the timing of benefit claims. This study examines whether the early detection of diabetes or high LDL cholesterol affects

the timing of retirement and disability claims. The effect is identified by a particular feature of the National Health and Nutritional Examination Survey, which effectively yields random assignment of new health knowledge. I propose further analysis using the NHANES matched to administrative data, maintained by the NCHS. Further analysis is necessary to examine the precise timing of claims, the type of benefit claimed, as well as other economic outcomes of interest.

## THE ANALYSIS OF CHANGES IN WIC FOOD PACKAGES ON WIC CHILDREN (NCHS)

*Ariun Ishdorj—Texas A&M University*

*Seungyeon Cho—Texas A&M University*

In 2014, the Federal Government spent over \$100 billion on 18 domestic food assistance programs. The third largest of these is the Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC) that targets low-income pregnant, breastfeeding and postpartum women, infants, and children up to age five. In addition to nutrition education and healthcare referrals, the program provides vouchers for foods in certain amounts depending on the age and breastfeeding status of the

child. In 2009, the program introduced new food packages that included the addition of fruits, vegetables, and whole grains, reduced the amount of milk and juices, and removed whole milk, along with other changes. Although the WIC program has been studied extensively, limited research is available on the potential impacts of changes in WIC. Additionally, the majority of the existing research used regional-level data and/or considered only few food items. Using data from the National Health and Nutrition

Examination Survey (NHANES), a nationally representative survey, we propose to examine the effect of the programmatic changes in WIC on participants' food consumption. Moreover, although the WIC program is primarily devised with the intent of improving nutritional well-being of "targeted" women and children, it is possible that WIC may also change the consumption of foods by non-targeted individuals within the household. This research will address the sharing/spillover of WIC program benefits as well.

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## MINIMUM WAGE POLICIES, HEALTH, AND WELL-BEING (NCHS)

*Heather Hill—University of Washington*  
*James Buszkiewicz—University of Washington*  
*Jennifer Otten—University of Washington*  
*Ekaterina Roshchina—University of Washington*  
*Jacob Vigdor—University of Washington*  
*Mark Long—University of Washington*

Minimum wage rates in the United States are established by federal policy, but can exceed the federal law through state, county, or city legislative action. Many studies have examined the effects of federal and state minimum wages on employment and earnings, but there has been relatively little research on how these, in turn, impact individual and household well-being. Our research team

seeks to examine the effects of state minimum wages on health care access and health status and material hardship. To achieve this overarching aim, we use the National Health Interview Survey, merged to a dataset of state minimum wage policies, to examine how variation in the minimum wage across and within states from 2006-2013 relate to access to preventive health care,

diet-related health outcomes, and measures of household material hardship (e.g. food insecurity). The proposed analyses are one part of a larger study at the University of Washington, which aims to evaluate the impact of state and local minimum wage policies on businesses, households, and the overall economy.

## EDUCATION, GEOGRAPHY, AND U.S. ADULT MORTALITY RISK (NCHS)

*Jennifer Montez—Syracuse University*

Since the seminal work by Kitagawa and Hauser, countless studies have documented large differences in U.S. adult mortality risk across education levels. Since the 1980s, these differences have grown considerably, making education one of the strongest predictors of adult mortality in the United States. The half century of evidence about educational differences in adult mortality has been invaluable in shedding light on several of the reasons for the differences

and their growth over time. Nonetheless, the reasons are not fully understood and the differences have continued to widen. This research develops a fundamentally new framework for explicating educational differences in mortality. This “Geo-Contextual Framework” is critical because, while education is a personal resource, opportunities for translating it into health and longevity are conditioned by surrounding contexts, such as state policy environments. Moreover,

those contexts vary markedly across the United States, with potentially profound implications for the education-mortality association. Does low education pose similar mortality risks in poor and rich states? Does high education offer similar mortality benefits in “blue states” and “red states”? What do answers to questions like these say about the reasons for educational differences in mortality? What do they say about strategies for shrinking the differences?

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## CAUSAL ANALYSES OF FINE PARTICULATE MATTER AND SPECIFIC MORTALITY ENDPOINTS (NCHS)

*Ke Zu—Gradient Corp*

*Xiaobin Liu—Gradient Corp*

Associations between short term exposures to fine particulate matter (PM2.5) and other criteria pollutants, and mortality endpoints have been observed in many time series epidemiology studies, which regulatory bodies relied upon to support policy making. Our study aims to examine the causality of observed associations between PM2.5 and other criteria pollutants and

specific mortality endpoints. We will use national mortality data from 1999-2013 and data on ambient air quality and meteorological factors, and aggregate them to county-level daily time series data. First, we will use conventional Poisson regression based time series analysis, evaluating the association between PM2.5 and mortality adjusting for meteorological factors and

co-pollutants (such as ozone, and other criteria pollutants). We will then apply alternative analytical methods, such as Granger causality testing, time series smoother analysis, and local control analysis, to the same dataset. Our results will provide additional insight to and aid in the debate on whether PM2.5 or other criteria pollutants are causally related to mortality.

## MORTALITY AMONG PROFESSIONAL ATHLETES (NCHS)

*Marc Weisskopf—Harvard University*

*Jarvis Chen—Harvard University*

Studies suggest a possible link between head injury and neurodegenerative diseases, and findings of chronic traumatic encephalopathy in athletes have called attention to potential neurological consequences of sports. Increased risk of neurodegenerative diseases, including amyotrophic lateral sclerosis (ALS), has been reported among soccer players and American National Football League (NFL) football players, while the NFL players have been found to have lower rates of other disease-specific

mortality like cardiovascular mortality. To date, the risk of neurodegenerative and other mortality among Major League Baseball (MLB) players—another elite athlete profession but with lower head injury prevalence—has not been evaluated. Vital status and causes of death has been obtained from the National Death Index for 10,451 MLB players who played at least one professional baseball game between 1906 and 2006. We will combine this MLB data with the previously published data on 3,439 National Football League (NFL) players with at

least 5 pension-credited playing seasons from 1959 to 1988 in order to directly compare MLB and NFL players mortality rates. Standardized mortality ratios (SMRs) will be used to compare to the U.S. male population, calculated using the NIOSH Life Table Analysis System. Standardized rate ratios will be calculated for internal comparisons of whether length of professional playing time, position, or sport is associated with higher risk of different causes of mortality.

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## GEOGRAPHIC DISTRIBUTION OF SEXUAL AND GENDER MINORITY (SGM) POPULATION AND COMPARISON OF SGM SUBGROUPS ON PREVALENCE OF CHRONIC DISEASES AND SCREENING BEHAVIORS BY GEOGRAPHIC LOCATION (NCHS)

*Jane McElroy—University of Missouri*

*Jamie Smith—University of Missouri*

*Amy Williams—University of Missouri*

*Kevin Everett—University of Missouri*

This research will use NHIS data collected in 2013 and 2014 to better describe sexual and gender minority (SGM) populations. The first aim is to describe the geographic distribution of SGM individuals—using an NHIS derived dichotomous variable of urban-rural status; by region; as well as using CDC rural-urban commuting area (RUCA) and rural-urban continuum (RUCC) classifications. The second aim is to compare the prevalence of overall health, pro-health behavior, modifiable lifestyle

choices, and cancer screening among SGM individuals, and between SGM and heterosexual individuals, by geographic location. Differences in health-related outcomes and behaviors between and among the SGM and heterosexual population will also be examined, separately by gender, SGM subtype, and geographic location. Furthermore, modeling of selected health-related outcome and behavior variables will be used to describe predictors of these behaviors, while controlling for potential

confounders. Findings will supply valuable information to the research community in planning interventions, inform policy makers and researchers about the allocation of resources, and provide some evidence of whether or not any disparity in preventive medicine, risk behaviors, and/or overall health exist by geography among SGM populations, as well as compared to the heterosexual population within these urban-rural geographies.

## ELECTRONIC CIGARETTES AND PASSIVE VAPING (NCHS)

*Rahi Abouk—William Paterson University*

Introduced in the U.S. in 2007, electronic cigarettes (e-cigarettes) have become widely popular. Although the risk of smoking e-cigarettes is perceived to be less than smoking conventional cigarettes, there has not been compelling evidence to rule out the harm of e-cigarettes as the suggested evidence in the literature is mixed. Since 2009, local and state governments have started banning vaping in

indoor public places, including workplaces, restaurants, and bars. The present study evaluates the displacement effect of vaping bans from vaping in regulated indoor places to unregulated ones, particularly at home. By using the 2000-2014 National Health and Nutrition Examination Survey (NHANES), I investigate the effect of the comprehensive e-cigarette bans on the cotinine levels in respondents'

blood among smoking and nonsmoking families, after controlling for comprehensive bans on smoking conventional cigarettes. I also test if such bans affect individuals' behavior in smoking conventional cigarettes. This is likely as the recent data shows around 16 percent of adult smokers dually use e-cigarettes and conventional cigarettes.

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## MEDICAL MARIJUANA LAWS AND THE INCIDENCE OF FATAL OPIOID OVERDOSES (NCHS)

*June Kim—New York University*

It has been hypothesized that medical marijuana laws (MMLs) in the United States reduce the burden of opioid overdose mortality. Studies have found that state MMLs are indeed associated with lower opioid overdose mortality, and that states with licensed dispensaries have lower opioid-related treatment admissions and overdose mortality. While the mechanisms underlying this association remains speculative, one possible explanation is that patients with severe or

chronic pain conditions either substitute or reduce their opioid use for marijuana. This finding may have important policy and public health implications, but further evidence is still necessary. In particular, we cannot infer individual risks from state-level changes. Furthermore, when attempting to explain observed associations (e.g., for whom do these laws benefit, if any), individual-level measurements of exposure, outcome, as well as potential effect modifiers,

is likely preferable over data aggregated by state and time. To test the robustness of the MML-overdose hypothesis, consistency across a range of studies holding varying assumptions is necessary. Thus, this study proposes to assess the association between state MMLs and the incidence of fatal opioid overdoses among participants sampled in the National Health Interview Survey (NHIS) between 1986-2009.

## CHILD SSI CASELOADS, TAKE-UP, AND AGE-FOR-GRADE EFFECTS ON DISABILITY (NCHS)

*Cassandra Benson—Cornell University*

Recent trends in child Supplemental Security Income (SSI) caseloads show an increased percentage of child SSI diagnoses are related to mental impairments, including ADHD, learning disability, and developmental delay. This research aims to determine whether relative age and child immaturity is a factor driving the evolving patterns of children's SSI application and receipt. Studies have found that being the youngest child

in the classroom increases the probability of being diagnosed with ADD/ADHD and that each additional month of relative age decreases the likelihood of receiving special education services. Teachers may make subjective evaluations that potentially hinge on the maturity of the child. A special education diagnosis or an IEP is a relatively easy way for parents to meet the required documentation for an SSI claim. This study aims to examine

whether the youngest children in a grade are in fact more likely to enroll in child SSI. Using regression discontinuity methods, I will estimate the effect of relative-age-for-grade on disability determination of SSI. The main benefit of this research will be to provide evidence that one's relative age to an arbitrary school-eligibility cut-off date may have a lasting impact on an individual's disability status.

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## HEALTH INSURANCE AND ACCESS TO CARE AMONG YOUNG ADULTS WITH DISABILITIES (NCHS)

*Shirley Porterfield—University of Missouri-St. Louis*  
*Jin Huang—St. Louis University*

Young adults have long had the highest risk of uninsurance, with over 30 percent uninsured prior to passage of the Affordable Care Act (ACA). One of the first implemented provisions in the ACA allowed young adults to remain on their parents' private health insurance plans until their 26th birthday, even if they were not full time students. The purpose of this study is to investigate the impact of the ACA on young adults with disabilities, with respect to

health insurance coverage, healthcare access, and out-of-pocket costs, looking at three distinct time periods: pre-ACA (2006-2009), post-ACA but pre-full implementation (2011-2013), and post-full implementation of the ACA (2014-2015). The National Health Interview Survey (NHIS) annual files for 2006 to 2015 will be used for this project. Our empirical approach will include descriptive analysis and the estimation of multivariate

models that take into account age, disability, time period, and income, while controlling for Medicaid expansion and demographic characteristics. With access to restricted geographic variables we will be able to estimate the difference in public and private health insurance coverage, access, and costs over time in the early expansion states versus the later and no expansion states.

## HOW MEDICARE AFFECTS MORTALITY AND INCOME AFFECTS MORTALITY ACROSS THE SEASONS (NCHS)

*Tal Gross—Boston University*

The goal of this project is to understand the determinants of mortality. First, we seek to understand how the age-65 Medicare eligibility threshold affects mortality. Card, Dobkin and Maestas (2009) show that within-hospital mortality in California decreases at age 65 due to the availability of Medicare. No studies since have credibly measured the effect of Medicare on mortality in the general population. We propose to use the Multiple

Cause of Death data and regression discontinuity methods to examine whether there is a broader change in mortality at age 65. The Social Security Full Retirement Age, which was traditionally at age 65, has now increased to age 66, and that variation allows us to separate the effects of Social Security from the effects of Medicare. Second, we seek to understand the role of seasonality and weather as mediating factors in these

relationships, using panel data and difference-in-differences methods. Aggregate mortality exhibits a strong seasonal pattern, with mortality higher in the winter than at other times of the year. Understanding the role of seasonality could have important policy implications for better designing social policies, such as providing more income support for low-income families during the winter.



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## STRUCTURAL DETERMINANTS OF HEALTH: THE INFLUENCE OF INCOME INEQUALITY AND RACIAL RESIDENTIAL SEGREGATION ON LATINO CHILDHOOD OBESITY (NCHS)

*Patrice Sparks—University of Texas at San Antonio*  
*Rebecca Adeigbe—University of Texas at San Antonio*

Structural determinants of health are factors associated with larger systems-level inequalities caused by unjust practices and policies in the distribution of health-promoting resources. For Latinos, income inequality and racial residential segregation have been identified as potential structural determinants	influencing obesity. The purpose of this study is to examine how these determinants influence Latino children’s obesity status, accounting for family-level sociodemographic characteristics and potential sex differences. To do so, hierarchical logistic regression will be used to determine if income inequality and/or	racial residential segregation influences Latino children’s obesity status over and above family-level income and other sociodemographic characteristics and residential conditions (neighborhood deprivation and the health promoting environment).
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## DISABILITY, FOOD SECURITY, AND PROGRAM PARTICIPATION (NCHS)

*Ariun Ishdorj—Texas A&M University*  
*Seungyeon Cho—Texas A&M University*

It is well known that disability is an important factor in understanding food insecurity. However, there are several important unanswered policy questions in this area of research. First and foremost: what is the effect of the Supplemental Nutrition Assistance Program (SNAP) on the food security status	of households with disabled persons? Second, how does the combination of receipt of Supplemental Security Income and SNAP affect food security for households with disabled members? An important context for these questions is the definition of disability itself: definitions to date have used binary indicators for whether or	not someone has an impairment (physical, mental, other functional), but has generally not looked at ways to refine and strengthen our understanding of the severity of disability and how that affects food insecurity. This project will examine these three areas of inquiry.
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## THE EFFECT OF THE AFFORDABLE CARE ACT MEDICAID EXPANSION ON INEQUALITIES IN ACCESS TO CARE AND HEALTH DISPARITIES (NCHS)

*Hyunjung Lee—University of Massachusetts Boston*

In 2010, the Affordable Care Act (ACA) was passed including Medicaid expansion for people with income up to 138 percent of the federal poverty level. As a result of the Supreme Court decision, this Medicaid expansion was implemented in 27 expansion states in 2014. The goal of this study is to examine the impact of the 2014 ACA Medicaid expansion on access to care and health status, and its impact on the inequalities in these outcomes

among income and racial/ethnic subgroups. Using the National Health Interview Survey (NHIS) data from 2010-2015, this study examines the changes in a variety of health policy outcomes among low-income adults aged 19-64 years and inequalities in the outcomes among racial/ethnic and income subgroups: insurance status (uninsured, covered by Medicaid); access to care (usual source of care, unmet needs due to cost, doctor visits); and

health outcome (self-reported health status). We adopt expansion states as a treatment group and non-expansion states as a control group. We use individual-level covariates, including age, gender, education, marital status, employment status, number of child, race/ethnicity, disability status, chronic disease status, pregnancy status, urban/rural, and MSA residence, as well as a number of state- and county-level control variables.

## PROVIDER CHARACTERISTICS AND POLICIES ASSOCIATED WITH PARTICIPATION IN THE MEDICAID PROGRAM, 2010-2015 (NCHS)

*William Schpero—Yale University*

Prior research indicates that approximately one-third of primary care physicians in the United States choose not to participate in the Medicaid program. This opt-out rate has raised significant questions about the adequacy of the Medicaid provider workforce. As the number of individuals enrolled in the Medicaid program continues to grow, following expansion of Medicaid eligibility under the Affordable Care Act (ACA), there is the potential that capacity

constraints may erode access to care for this vulnerable population. Importantly, it remains unclear how physicians who choose to treat Medicaid patients differ from those who do not: differences in the characteristics and capabilities of these providers may underlie differences in the quality of. In this study, we propose to use the 2010-2011 National Ambulatory Medical Care Survey (NAMCS) Electronic Health Record Supplement and the 2012-2015 National

Electronic Health Record Survey (NEHRS) to examine differences in the characteristics and capabilities of Medicaid and non-Medicaid physicians and physician practices. In addition, we propose to examine how these differences are affected by recent policy shocks, including changes in state-level Medicaid reimbursement policy and the implementation of the ACA's expansion of Medicaid eligibility.

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## DISAGGREGATING THE EFFECTS OF INCOME AND EDUCATION ON U.S. MORTALITY AMONG WORKING-AGED ADULTS (NCHS)

*Iliya Gutin—University of North Carolina at Chapel Hill*

Despite over four decades of continued declines in U.S. adult mortality rates, a set of recent social demographic and epidemiological studies have uncovered a reversal in this trend, especially among certain segments of the population. Perhaps most worrisome, these more recent trends are linked to rising mortality from so-called “despair deaths” among young and middle-aged adults, such as suicide, drug overdoses, and alcoholic liver disease. Further,

this rise in mortality and related decrease in life expectancy is especially notable among the most socially disadvantaged members of society, such as those with low socioeconomic status (SES) on the basis of their income or educational attainment. Using restricted cause of death data from the most recent release of the National Health Interview Survey Linked Mortality Files allows for the unique opportunity to analyze both of

these key measures of SES and their effect on the mortality of working-aged adults amid the widening socioeconomic inequality defining recent decades. Applying multivariate regression analyses will allow us to examine the separate and joint effects of education and income as determinants of mortality associated with the recent surge in midlife deaths within the United States.

## PREVALENCE AND CORRELATES OF SPECIAL HEALTH CARE NEEDS AMONG CHILDREN IN NON-PARENTAL CARE (NCHS)

*Lucy Bilaver—Northwestern University*

*Judy Havlicek—University of Illinois Urbana-Champaign*

Previous research has documented the health status and service needs of children living in non-parental care due to child welfare system involvement, yet little is known about the majority of children living in non-parental care due to the unavailability of parent resources. The purpose of this study is to shed light on the prevalence of special health care needs among children living in non-parental care and to determine whether the association between type of

non-parental caregiver and measures of family stress, caregiver well-being, and caregiver physical and mental health are moderated by special health care needs. We will examine previously defined subgroups of children with special health care needs as well as specific chronic conditions known to be associated with high levels of caregiver burden and multisector child service use such as autism spectrum disorder. We propose to use non-public data from the

2011-12 National Survey of Children's Health for children ages 0-17 and linked NSCH and National Survey of Children in Nonparental Care data for children ages 0 to 16 years of age in 2011-12. Logistic regressions will be fit to examine correlates of special health care needs and the association of between non-parental caregiver type and caregiver and family outcomes in this population.

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## WATER FLUORIDATION AND DISPARITIES IN CHILDREN'S ORAL HEALTH (NCHS)

*Bert Grider—U.S. Census Bureau*

Water fluoridation is a safe, cheap, and effective means of primary prevention against dental caries in children and in adults. It is accessible to all people regardless of income, race, or geography, and does not rely on behavior change. Evidence from other countries

shows that water fluoridation reduces socioeconomic disparities in dental caries by conferring greater protection to children in low income/education families than to children in more advantaged families. It is not known whether the effect of reducing

disparities is generalizable to U.S. children. This study will capitalize on the variation in access to fluoridated drinking water across the U.S. to investigate the generalizability of these findings to U.S. cohorts.

## STRUCTURAL DETERMINANTS OF ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH BEHAVIORS AND OUTCOMES (NCHS)

*Laura Lindberg—Columbia University*

*Elizabeth Fuentes—Guttmacher Institute*

*Issac Maddow-Zimet—Guttmacher Institute*

This analysis will examine patterns of differentials in sexual and reproductive health (SRH) behaviors and outcomes among adolescents by multiple components of their socioeconomic background and community context, using primarily nationally representative data from the National Survey of Family Growth. This study will make several novel contributions to adolescent SRH research. First, we will assess the

contributions of county-level SES characteristics to variations in adolescent SRH using a multilevel regression models. Second, we will conduct parallel analyses of the experiences of adolescent females and males in order to examine whether the nature and impact of neighborhood disadvantage, as measured at the county level, differ for young men and women. Finally, this analysis will test the hypothesis that the influence

of the characteristics of place depends upon individual SES; therefore, we will test for interactions of individual- and county-level factors. Analyzing both individual- and county-level factors—and the interrelationships between the two—will address how these county-level factors may compound or mitigate the effects of individual disadvantage on SRH outcomes and behaviors.

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## DISPARITIES IN HEALTHCARE ACCESS AND UTILIZATION AMONG CHILDREN WITH AND WITHOUT SPECIAL HEALTHCARE NEEDS, AND THEIR CAREGIVERS (NCHS)

*Nancy Cheak-Zamora—University of Missouri*

*Colleen Heflin—Syracuse University*

*Chinedum Ojinnaka—University of Missouri*

Children with special health care needs (CSHCN) have inadequate access to healthcare services compared to children without special healthcare needs. Factors that have been associated with access to care for all CSHCN include health insurance status, income level, region of residence, and quality of care received, as well as increased utilization of high-cost healthcare services, decreased functional level, family burden, and avoidable

death. Some research shows that children with multiple or more complex chronic conditions experienced the greatest disparity in access to care. There is a gap in literature on whether there is an association between provider availability, and healthcare access and utilization among CSHCN compared to children without special healthcare needs. It is also not clear whether any association between healthcare provider

availability and healthcare utilization and access differs based on number and complexity of needs. This study aims to fill this gap in literature by utilizing the restricted National Health Interview Survey data merged with the Area Health Resource File to explore the association between healthcare provider availability and healthcare access and utilization among CSHCN and across complexity and number of special healthcare needs.

## ASSESSING THE IMPACT OF RESIDENTIAL SEGREGATION AND NATIVITY STATUS ON HEALTH AMONG HISPANIC HOUSEHOLDS IN NEW VS. ESTABLISHED DESTINATIONS ALONG THE RURAL-URBAN CONTINUUM (NCHS)

*Raeven Chandler—Penn State University*

The Hispanic population will soon grow to about a quarter of the U.S. population. Additionally, the Hispanic population has become more geographically dispersed over the past 30 years, including outside of metropolitan areas. A growing body of literature explores health and health care access/use among Hispanics, but less is known about variation in Hispanic health outcomes between locations with historically large Hispanic populations versus those with relatively new

Hispanic populations or about variation in Hispanic health in rural versus urban areas. The extant literature is also sparse in its analysis of the role of neighborhood characteristics on Hispanic health outcomes. Our research will address these gaps by focusing on spatial disparities in Hispanic health care access, use, and outcomes. We focus on the following research questions, using data from the 2011-2014 NHIS: Are there differences in healthcare access, utilization, satisfaction with care, and

physical health outcomes among Hispanics in new vs. established destinations along the rural/urban continuum? What characteristics of Hispanics themselves (e.g., demographic, SES) and their neighborhoods contexts (e.g., residential segregation, economic disadvantage) are associated with Hispanic health outcomes, and do these associations vary across new and established destinations and by metropolitan status?

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## THE RELATION BETWEEN BEHAVIORAL RISK FACTORS FOR PROGRESSION TO END-STAGE RENAL DISEASE (NCHS)

*Tanushree Banerjee—University of California, San Francisco*

We hypothesize that unhealthy behaviors, including low-quality diets, physical inactivity, poor dental health, and low care seeking behavior, may affect the progression of chronic kidney disease (CKD). A dietary pattern such as the Dietary Approaches to Stop Hypertension (DASH) has been proven to be effective in lowering blood pressure, but the DASH is not recommended for patients with CKD stages 3-4. We investigate whether the DASH diet, if followed by adults with moderate CKD, is associated with lower risk of

progression to end stage renal disease (ESRD) and whether no participation in leisure-time physical activity, periodontal disease, low care seeking behavior, and use of over-the-counter medications are confounders in this association. Further, we explore whether the increase in undetermined anions, due to consumption of diet high in acid load, have a potential role in increasing the risk of progression of CKD in adults with moderate CKD. We will use dietary records of adults over 20 years in the

National Health and Nutrition Examination Surveys (1988-1994 and 1999-2004) and evaluate the relationship between DASH diet, physical activity, undetermined anions, and progression to ESRD, accounting for age, sex, race/ethnicity, education, poverty status, anthropometric measures, body mass index, diabetes, hypertension, smoking, alcohol use, estimated glomerular filtration rate (eGFR), and albuminuria.

## THE ASSOCIATION BETWEEN CHILDHOOD DISADVANTAGE AND ADOLESCENT PATHOGEN BURDEN (NCHS)

*Grace Noppert—Duke University*

Disparities along lines of socioeconomic disadvantage are observed across the life course. One critical driver of disparities in late-life morbidity and mortality is senescence of the immune system, or immunosenescence, which is known to be associated with chronic inflammation. However, emerging evidence also points to immune dysfunction resulting from

continual assault on the immune system by multiple persistent infections. Together, these infections and resulting immune dysfunction set in motion a cascade of events leading to accelerated immunosenescence. Accelerated immunosenescence may then be a driver of health disparities later in life. New research suggests disparities in immune dysfunction across the life course can be

linked to social disadvantage extending back to childhood. A critical knowledge gap is how early we observe the relationship between childhood disadvantage and accelerated immunosenescence. It may be that experiences of disadvantage in childhood result in higher pathogen loads for adolescents, which in turn may put them on a trajectory of accelerated immunosenescence.

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## THE EFFECT OF SNAP ON CHILDREN'S HEALTH: EVIDENCE FROM IMMIGRANTS' CHANGING ELIGIBILITY (NCHS)

*Chloe East—University of Colorado Denver*

SNAP comprises 70 percent of total U.S. expenditures on food and nutrition programs, 20 percent of all U.S. spending on safety net programs, and provides benefits to 12 percent of the U.S. population, making it the key safety net program today. However, because there has typically not been variation in benefit amounts or eligibility, which is typically used to estimate the causal effects of safety net programs,

very little is known about the effects of SNAP. I plan to take advantage of the only recent variation of this type—the loss of SNAP eligibility for immigrant families as a result of welfare reform and then the haphazard restoration of eligibility across states and over time in the following years—to estimate the effects of SNAP on children's health. In order to analyze how these eligibility changes affected children's health, I need

the restricted-use NHIS, which allows me to observe state of residence and birth, country of birth (foreign or not), and the number of years foreign-born have been in the United States, because the eligibility rules depend on whether the family is a recent immigrant or not. It also allows me to have more power and examine more health outcomes than I can with existing public use data.

## THE IMPACT OF HUD HOUSING ASSISTANCE PROGRAMS ON ACCESS, USE, AND HEALTH (NCHS)

*Natalie Slopen—University of Maryland*

*Michel Boudreaux—University of Maryland*

*Andrew Fenelon—University of Maryland*

The quality and stability of housing has an impact on health and well-being, and improvements in housing can lead to better physical and mental health. Federal housing assistance programs that aim to provide safe and affordable housing to lower-income families may have implications for population health and health disparities. Our work will examine the impact of Department of Housing and Urban Development (HUD)

housing assistance programs on health, well-being, and health care access and use. We will use NCHS's data linkage program, which combines the National Health Interview Survey with administrative housing records from HUD. The linkage provides housing histories for respondents in the National Health and Nutrition Examination Survey, allowing us to examine self-reported and measured outcomes among survey respondents in

the HUD housing population. Our analytical approach will make use of the longitudinal housing information in the linkage to compare those currently receiving housing assistance with those waiting to enter housing. We will examine the main effects of housing assistance and the heterogeneity of effects by program type and individual characteristics, such as sex, race/ethnicity, age, and duration of assistance.



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## EXAMINING SPILLOVER EFFECTS OF MEDICAID EXPANSION ON FOOD INSECURITY (NCHS)

*Shilpa Londhe—Yale University*

Food insecurity is a significant hardship for low to moderate income families, especially for those with adults or children with chronic conditions. Often, financial constraints lead to families skipping meals and delaying medical care. Insufficient financial protections, such as health insurance, may induce or exacerbate this problem depending on the level of coverage provided and assets available. While rates of the

uninsured are often studied as a primary outcome of health care reform, the study of spillover effects within the context of social welfare warrants further investigation. We hypothesize that counties within states that have chosen to participate in Medicaid Expansion (early or in 2014 or later) will realize effects on county-level food insecurity. The NHIS includes family level food insecurity measures, as defined by the USDA, from

2011-2015. We also examine whether food insecurity is related to experiences of high medical spending and unmet medical needs in Medicaid expansion states. Since Medicaid Expansion is a state-level policy, and Medicaid uptake has significant variation within states at the county level, we utilize county and state indicators that are only available through in the restricted-use data.

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

*Martha Bailey—University of Michigan*

*Michael Murto—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). Our research aims to (i) quantify the shorter- and longer-term impact of CHCs on health and economic outcomes by age and race, and (ii)

examine how CHCs achieved these effects, by quantifying their impacts on health care utilization. This project uses restricted information from the National Health Interview Surveys (NHIS) from 1973 to 2015 and the National Vital Statistics System (NVSS) on natality and mortality rates from 1959 to 2015. The NHIS contains geographic identifiers, which allow us to link the presence of CHCs in an area, as well as detailed earnings information

and date of birth, which allow us to estimate individuals' potential eligibility to use CHCs. The NVSS also contains geographic identifiers as well as dates of birth and death, which allow us to estimate eligibility for CHCs at critical ages. This study contributes to our knowledge about CHCs' effects across places, time, and demographic groups, and provides new evidence on CHCs' longer-term effects.

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## EXAMINING THE EFFECTS OF SOCIAL POLICIES ON FAMILY HEALTH (NCHS)

*Rita Hamad—Stanford University*

*David Rehkopf—Stanford University*

Adverse socioeconomic conditions are correlated with worse adult and child health. However, little is known about how social and economic policies that target families influence health outcomes. We will examine the impacts of changes in several policy “natural experiments” on various measures of adult and child physical and mental health. To test such hypotheses, we will employ

several econometric techniques, including interrupted time series and difference-in-differences analysis, taking advantage of natural experiments that present geographic and/or temporal variation in the implementation of relevant policies, including the earned income tax credit and family leave policies. For example, we will compare individuals living in California and New Jersey before and after the parental

leave policy was enacted in these states, comparing them with a “synthetic control” of similar individuals in other states. To conduct this study, we require state-of-residence, income, and month/year of birth for individuals included in multiple waves of NHIS. This will allow us to determine what policies were present in their state that might influence their health.

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

*Richard Rogers—University of Colorado*

*Andrea Tilstra—University of Colorado*

*David Braudt—University of North Carolina at Chapel Hill*

*Justin Vinneau—University of North Carolina at Chapel Hill*

Although U.S. early life mortality rates are magnitudes lower than later life mortality rates, and have continued to decline, they are 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 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. We plan to use the recently-released National Health Interview Survey Linked Mortality Files together with multivariate linear regression, multivariate logistic regression, multivariate hazard models, and multivariate Poisson analyses, to examine patterns and trends in early life mortality within the United States.

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## THE IMPACT OF HUD HOUSING ASSISTANCE PROGRAMS ON ACCESS, USE, AND HEALTH OF CHILDREN (NCHS)

*Michel Boudreaux—University of Maryland*

*Natalie Slopen—University of Maryland*

*Andrew Fenelon—University of Maryland*

The quality and stability of housing has an impact on health and well-being, and improvements in housing can lead to better physical and mental health. Federal housing assistance programs that aim to provide safe and affordable housing to lower-income families may have implications for population health and health disparities. Our work will examine the impact of Department of Housing and Urban Development (HUD)

housing assistance programs on child health, well-being, and health care access and use. We will use NCHS's data linkage program, which combines the National Health Interview Survey with administrative housing records from HUD. The linkage provides housing histories for respondents in the National Health Interview Survey, allowing us to examine self-reported and measured outcomes among survey respondents in the HUD housing

population. Our analytical approach will make use of the longitudinal housing information in the linkage to compare those currently receiving housing assistance with those waiting to enter housing. We will examine the main effects of housing assistance and the heterogeneity of effects by program type and individual characteristics, such as sex, race/ethnicity, age, and duration of assistance.

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## Appendix 4.

### CENTER FOR ECONOMIC STUDIES (CES) DISCUSSION PAPERS: 2017

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

17-01	"Firm Leverage, Consumer Demand, and Employment Losses during the Great Recession," by Xavier Giroud and Holger M. Mueller, January 2017.	17-10	"Geography in Reduced Form," by Oren Ziv, January 2017.
17-02	"State Taxation and the Reallocation of Business Activity: Evidence from Establishment-Level Data," by Xavier Giroud and Joshua Rauh, January 2017.	17-11	"Labor Reallocation, Employment, and Earnings: Vector Autoregression Evidence," by Henry R. Hyatt and Tucker S. McElroy, January 2017.
17-03	"Redistribution of Local Labor Market Shocks through Firms' Internal Networks," by Xavier Giroud and Holger M. Mueller, January 2017.	17-12	"Public-Use vs. Restricted-Use: An Analysis Using the American Community Survey," by Satkartar K. Kinney and Alan F. Karr, January 2017.
17-04	"How Destructive is Innovation?" by Daniel Garcia-Macia, Chang-Tai Hsieh, and Peter J. Klenow, January 2017.	17-13	"R&D, Attrition and Multiple Imputation in BRDIS," by Juana Sanchez and Sydney Noelle Kahmann, February 2017.
17-05	"Industrial Investments in Energy Efficiency: A Good Idea?" by Mary Jialin Li, January 2017.	17-14	"Do Firms Mitigate or Magnify Capital Misallocation? Evidence from Plant-Level Data," by Matthias Kehrig and Nicolas Vincent, February 2017.
17-06	"Estimating Market Power: Evidence from the U.S. Brewing Industry," by Jan De Loecker and Paul T. Scott, January 2017.	17-15	"Slow to Hire, Quick to Fire: Employment Dynamics with Asymmetric Responses to News," by Cosmin Ilut, Matthias Kehrig, and Martin Schneider, February 2017.
17-07	"Consequences of the Clean Water Act and the Demand for Water Quality," by David A. Keiser and Joseph S. Shapiro, January 2017.	17-16	"Bankruptcy Spillovers," by Shai Bernstein, Emanuele Colonnelli, Xavier Giroud, and Benjamin Iverson, February 2017.
17-08	"Job-to-Job Flows and Earnings Growth," by Joyce K. Hahn, Henry R. Hyatt, Hubert P. Janicki, and Stephen R. Tibbets, January 2017.	17-17	"Declining Dynamism, Allocative Efficiency, and the Productivity Slowdown," by Ryan A. Decker, John Haltiwanger, Ron S. Jarmin, and Javier Miranda, February 2017.
17-09	"Locked In? The Enforceability of Covenants Not to Compete and the Careers of High-Tech Workers," by Natarajan Balasubramanian, Jin Woo Chang, Mariko Sakakibara, Jagadeesh Sivadasan, and Evan Starr, January 2017.	17-18	"Going Entrepreneurial? IPOs and New Firm Creation," by Tania Babina, Paige Ouimet, and Rebecca Zarutskie, February 2017.

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17-19	“Destructive Creation at Work: How Financial Distress Spurs Entrepreneurship,” by Tania Babina, February 2017.	17-29	“Firm Dynamics, Persistent Effects of Entry Conditions, and Business Cycles,” by Sara Moreira, March 2017.
17-20	“The Effects of Occupational Licensing Evidence from Detailed Business-Level Data,” by Marek Zapletal, February 2017.	17-30	“The Impact of College Education on Old-Age Mortality: A Study of Marginal Treatment Effects,” by Evan Taylor, March 2017.
17-21	“Brighter Prospects? Assessing the Franchise Advantage using Census Data,” by Francine Lafontaine, Marek Zapletal, and Xu Zhang, February 2017.	17-31	“Import Competition from and Offshoring to Low-Income Countries: Implications for Employment and Wages at U.S. Domestic Manufacturers,” by Fariha Kamal and Mary E. Lovely, March 2017.
17-22	“Multinationals, Offshoring, and the Decline of U.S. Manufacturing,” by Christoph E. Boehm, Aaron Flaaen, and Nitya Pandalai-Nayar, February 2017.	17-32	“What Drives Differences in Management?” by Nicholas Bloom, Erik Brynjolfsson, Lucia Foster, Ron Jarmin, Megha Patnaik, Itay Saporta-Eksten, and John Van Reenen, March 2017.
17-23	“Are Firm-Level Idiosyncratic Shocks Important for U.S. Aggregate Volatility?” by Chen Yeh, March 2017.	17-33	“Firm-to-Firm Relationships and Price Rigidity Theory and Evidence,” by Sebastian Heise, April 2017.
17-24	“Earnings Inequality and Mobility Trends in the United States: Nationally Representative Estimates from Longitudinally Linked Employer-Employee Data,” by John M. Abowd, Kevin L. McKinney, and Nellie L. Zhao, March 2017.	17-34	“Two Perspectives on Commuting: A Comparison of Home to Work Flows Across Job-Linked Survey and Administrative Files,” by Andrew S. Green, Mark J. Kutzbach, and Lars Vilhuber, April 2017.
17-25	“Examining Multi-Level Correlates of Suicide by Merging NVDRS and ACS Data,” by David A. Boulifard and Bernice A. Pescosolido, March 2017.	17-35	“How Wide Is the Firm Border?” by Enghin Atalay, Ali Hortaçsu, Mary Jialin Li, and Chad Syverson, April 2017.
17-26	“An Empirical Analysis of Capacity Costs,” by Merle Ederhof, Venky Nagar, and Madhav Rajan, March 2017.	17-36	“Creditor Rights, Technology Adoption, and Productivity: Plant-Level Evidence,” by Nuri Ersahin, April 2017.
17-27	“Has Falling Crime Invited Gentrification?” by Ingrid Gould Ellen, Keren Mertens Horn, and Davin Reed, March 2017.	17-37	“Revisiting the Economics of Privacy: Population Statistics and Confidentiality Protection as Public Goods,” by John M. Abowd and Ian M. Schmutte, April 2017.
17-28	“School Accountability and Residential Location Patterns: Evaluating the Unintended Consequences of No Child Left Behind,” by Keren Mertens Horn, March 2017.	17-38	“Ready-to-Mix: Horizontal Mergers, Prices, and Productivity,” by Robert Kulick, April 2017.

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17-39	“Decennial Census Return Rates: The Role of Social Capital,” by Julie L. Hotchkiss, April 2017.	17-48	“Estimating the Costs of Covering Dependents through Employer-Sponsored Plans,” by G. Edward Miller, Jessica Vistnes, Matthew Buettgens, and Lisa Dubay, August 2017.
17-40	“Developing a Residence Candidate File for Use with Employer-Employee Matched Data,” by Matthew R. Graham, Mark J. Kutzbach, and Danielle H. Sandler, May 2017.	17-49	“Recalculating...: How Uncertainty in Local Labor Market Definitions Affects Empirical Findings,” by Andrew Foote, Mark J. Kutzbach, and Lars Vilhuber, August 2017.
17-41	“Macro and Micro Dynamics of Productivity: From Devilish Details to Insights,” by Lucia S. Foster, Cheryl A. Grim, John Haltiwanger, and Zoltan Wolf, May 2017.	17-50	“Taken by Storm: Hurricanes, Migrant Networks, and U.S. Immigration,” by Parag Mahajan and Dean Yang, September 2017.
17-42	“Personal Bankruptcy Law and Entrepreneurship,” by Geraldo Cerqueiro, María Fabiana Penas, and Robert Seamans, June 2017.	17-51	“Pirate’s Treasure,” by Jenny X. Lin and William Lincoln, September 2017.
17-43	“Sorting Between and Within Industries: A Testable Model of Assortative Matching,” by John M. Abowd, Francis Kramarz, Sebastien Perez-Duarte, and Ian M. Schmutte, June 2017.	17-52	“The Long-Run Effects of Recessions on Education and Income,” by Bryan A. Stuart, September 2017.
17-44	“Hours Off the Clock,” by Andrew S. Green, June 2017.	17-53	“High-Growth Entrepreneurship,” by J. David Brown, John S. Earle, Mee Jung Kim, and Kyung Min Lee, September 2017.
17-45	“File Matching with Faulty Continuous Matching Variables,” by Nicole M. Dalzell, Jerome P. Reiter, and Gale Boyd, June 2017.	17-54	“Who Files for Personal Bankruptcy in the United States?” by Jonathan Fisher, September 2017.
17-46	“The Annual Survey of Entrepreneurs: An Update,” by Lucia Foster and Patrice Norman, June 2017.	17-55	“The Potential for Using Combined Survey and Administrative Data Sources to Study Internal Labor Migration,” by Christopher F. Goetz, September 2017.
17-47	“A Comparison of Training Modules for Administrative Records Use in Nonresponse Followup Operations: The 2010 Census and the American Community Survey,” by Melissa C. Chow, Hubert P. Janicki, Mark J. Kutzbach, Lawrence F. Warren, and Moises Yi, June 2017.	17-56	“Estimating the Local Productivity Spillovers from Science,” by Subhra Saha, Joseph Staudt, and Bruce Weinberg, October 2017.
		17-57	“Reservation Employer Establishments: Data from the U.S. Census Longitudinal Business Database,” by Randall Akee, Elton Mykerezi, and Richard M. Todd, October 2017.

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17-58	“Firm Reorganization, Chinese Imports, and US Manufacturing Employment,” by Ildikó Magyari, October 2017.	17-66	“Upstream, Downstream: Diffusion and Impacts of the Universal Product Code,” by Emek Basker and Tim Simcoe, November 2017.
17-59	“Effects of a Government-Academic Partnership: Has the NSF-Census Bureau Research Network Helped Secure the Future of the Federal Statistical System?” by Daniel H. Weinberg, John M. Abowd, Robert F. Belli, Noel Cressie, David C. Folch, Scott H. Holan, Margaret C. Levenstein, Kristen M. Olson, Jerome P. Reiter, Matthew D. Shapiro, Jolene Smyth, Leen-Kiat Soh, Bruce D. Spencer, Seth E. Spielman, Lars Vilhuber, and Christopher K. Wikle, October 2017.	17-67	“Does Parents’ Access to Family Planning Increase Children’s Opportunities? Evidence from the War On Poverty and the Early Years of Title X,” by Martha J. Bailey, Olga Malkova, and Zoe M. McLaren, November 2017.
17-60	“Social Influence and the Consumer Bankruptcy Decision,” by Jonathan D. Fisher, October 2017.	17-68	“The Parental Gender Earnings Gap in the United States,” by YoonKyung Chung, Barbara Downs, Danielle H. Sandler, and Robert Sienkiewicz, November 2017.
17-61	“Ranking Firms Using Revealed Preference,” by Isaac Sorkin, October 2017.	17-69	“Just Passing Through: Characterizing U.S. Pass-Through Business Owners,” by Nathan Goldschlag, J. Daniel Kim, and Kristin McCue, November 2017.
17-62	“The Need to Account for Complex Sampling Features when Analyzing Establishment Survey Data: An Illustration using the 2013 Business Research and Development and Innovation Survey (BRDIS),” by Brady T. West and Joseph W. Sakshaug, October 2017.	17-70	“The Cross-Section of Labor Leverage and Equity Returns,” by Andres Donangelo, François Gourio, Matthias Kehrig, and Miguel Palacios, December 2017.
17-63	“Who Moves Up the Job Ladder?” by John Haltiwanger, Henry Hyatt, and Erika McEntarfer, November 2017.	17-71	“Total Error and Variability Measures with Integrated Disclosure Limitation for Quarterly Workforce Indicators and LEHD Origin Destination Employment Statistics in OnTheMap,” by Kevin L. McKinney, Andrew S. Green, Lars Vilhuber, and John M. Abowd, December 2017.
17-64	“Considering the Use of Stock and Flow Outcomes in Empirical Analyses: An Examination of Marriage Data,” by Joelle Abramowitz and Marcus Dillender, November 2017.	17-72	“Business Dynamic Statistics of Innovative Firms,” by Nathan Goldschlag and Elisabeth Perlman, December 2017.
17-65	“Planning Parenthood: The Affordable Care Act Young Adult Provision and Pathways to Fertility,” by Joelle Abramowitz, November 2017.		

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## Appendix 5.

### NEW CENSUS BUREAU DATA AVAILABLE THROUGH RESEARCH DATA CENTERS (RDCs) IN 2017<sup>1</sup>

#### BUSINESS DATA

Data product	Description	New or updated years
Annual Capital Expenditures Survey (ACES) and Information and Communication Technology (ICT) Survey	The ACES is a firm-level survey that collects industry-level data on capital investment in new and used structures and equipment. Every 5 years, additional detail on expenditure by asset type (by industry) is collected. Beginning in 2003 (with the exceptions of 2014 and 2015), the ICT supplement to the ACES collects data on noncapitalized and capitalized expenditure on ICT equipment and computer software. All nonfarm sectors of the economy are covered by these surveys.	2015
Annual Retail Trade Survey (ARTS)	The ARTS collects data on total annual sales, e-commerce sales, end-of-year inventories (including those held outside the United States), purchases, total operating expenses, and end-of-year accounts receivable for retail businesses located in the United States. The ARTS collects annual sales and e-commerce sales for accommodation and food service firms.	2014
Annual Survey of Manufactures (ASM)	The ASM collects 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.	2015
Annual Wholesale Trade Survey (AWTS)	The AWTS collects data on total annual sales, e-commerce sales, end-of-year inventories (including those held outside the United States), purchases, and total operating expenses for merchant wholesalers and for manufacturers' sales branches and offices located in the United States. The AWTS also began collecting sales, commissions, and operating expenses data for agents, brokers, and electronic markets in 2005.	2014
Compustat-SSEL Bridge	The Compustat-SSEL Bridge file allows the firm-level data in the Compustat database to be easily linked to Census Bureau surveys and databases.	1976–2011

<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.

Data product	Description	New or updated years
Foreign Trade—Import Transactions (IMP)	The IMP database contains information on the universe of import transactions (valued at more than \$2,000), including commodity, value, quantity, weight, date, origin, destination, method of transportation, and other variables. This information is primarily collected through the U.S. Custom and Border Protection's Automated Commercial System, as well as import entry summary forms, warehouse withdrawal forms, and Foreign Trade Zone documents. Data on imports of electricity and natural gas from Canada are obtained from Canadian sources.	2012–2014
Foreign Trade—Export Transactions (EXP)	The EXP database contains information on the universe of export transactions (valued at more than \$2,500), including commodity, value, quantity, weight, date, origin, destination, method of transportation, and other variables. Filing this information through the Automated Export System is required by law. For U.S. exports to Canada, the United States uses Canadian import information.	2012–2014
Integrated Longitudinal Business Database (ILBD)	The ILBD is a research data set constructed at the Center for Economic Studies that contains the roughly 20 million businesses in the U.S. economy (per year) <i>without</i> paid employees from 1977 to 2014. The ILBD contains a firm identifier that allows the linkage of these nonemployers across time and to businesses with <i>paid</i> employees found in other Census Bureau surveys and databases. The ILBD can be used to investigate nonemployer entry and exit, gross revenue flows, and transitions between nonemployer and employer status.	2014
Longitudinal Business Database (LBD)	The LBD is a research data set 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 2015. 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.	2015
Longitudinal Firm Trade Transactions Database (LFTTD)	The LFTTD links individual trade transactions to the firms that undertake them. It links export transactions to the U.S. exporter and import transactions to the U.S. importer. The firm identifier in the LFTTD allows linkages to other Census Bureau surveys and databases.	2015

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
Manufacturers' Shipments, Inventories, and Orders Survey (M3)	The M3 survey provides monthly data on current economic conditions and indications of future production commitments in the manufacturing sector. The M3 contains data on manufacturers' value of shipments, new orders (net of cancellations), end-of-month order backlog (unfilled orders), end-of-month total inventory, materials and supplies, work-in-process, and finished goods inventories (at current cost or market value). The sample consists of manufacturing establishments with \$500 million or more in annual shipments.	2013–2017
Medical Expenditure Panel Survey—Insurance Component (MEPS-IC)	The 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., percentage of workers female, earn low/medium/high wage) characteristics.	2016
Quarterly Survey of Plant Capacity Utilization (QPC)	The QPC provides data on the rates of capacity utilization for the U.S. manufacturing and publishing sectors on a quarterly basis. Data collected include actual production, number of days, hours, and weeks in operation, full production capability, and production achievable under national emergency conditions. Additional items include reasons why the plant operated at less than full production, reasons why full production capability changed from the previous quarter, and how quickly the plant can reach national emergency levels of production. In 2007, the QPC replaced the annual Survey of Plant Capacity Utilization, which collected data for the fourth quarter of the survey year.	2014–2017
Services Annual Survey (SAS)	The 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.	2014
Standard Statistical Establishment List (SSEL)	The SSEL files maintained at the Center for Economic Studies are created from the old SSEL (prior to 2002) and the new Business Register (2002 and forward).	2014–2015

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
UMETRICS Crosswalk	UMETRICS contains transaction-level data on university research grants, including information on the awards, wage payments to university employees, vendor purchases, and subcontracts. Information on research output, including doctoral dissertations, publications, and patents, is also available. Crosswalks to restricted-use Census Bureau data on employment and employers permit users to study the effects of research investments on the broader economy, including the careers of impacted individuals and on the performance of the businesses and industries that hire them. These data are the result of a partnership between the Census Bureau and the University of Michigan's Institute for Research on Innovation and Science.	2001–2016

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

<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
American Community Survey (ACS)	The 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.	2016 (1-year and 5-year files)  2015 (5-year files)
American Community Survey—Contact History Instrument (CHI)	The CHI has been used since 2004 by Census Bureau field representatives to collect data on Computer-Assisted Personal Interviewing contact attempts in demographic surveys. Data collected include date and time of contact attempt; contact mode; with whom contact was made; outcome of contact attempt; respondent and nonrespondent concerns, behaviors, or reluctance types; and contact strategies employed. Such paradata can shed light on optimal survey design, survey cost efficiency, and total survey error.	2011–2017

<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.

Data product	Description	New or updated years
Current Population Survey (CPS)	<p>The 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 and is also used to collect data on a wide variety of topics through supplemental questions to the basic monthly 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 <i>Annual Social and Economic</i> (ASEC, or "March") supplement of the CPS collects data on work experience, several sources of income, migration, household composition, health insurance coverage, and receipt of noncash benefits. The <i>Fertility</i> 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 <i>School Enrollment</i> supplement of the CPS, conducted annually in October, collects data on school enrollment (from nursery through professional schools) and high school graduation. The <i>Voting and Registration</i> supplement of the CPS, conducted biennially in November, collects data on the voting behavior of citizens aged 18 and up. The <i>Tobacco Use</i> supplement of the CPS, conducted every 3-4 years, collects data on current and former tobacco use, restrictions on smoking at home and the workplace, smoking cessation activity, attitudes toward smoking, and other topics. The <i>Computer and Internet Use</i> supplement of the CPS collects data on a household's computer and Internet use, and about each household member's use of the Internet from any location.</p>	<p>2016 (ASEC/ March)</p> <p>2014 (Fertility)</p> <p>2015 (School Enrollment)</p> <p>2014 (Voting and Registration)</p> <p>2001-2003, 2006-2007, 2014-2015 (Tobacco Use)</p> <p>2011, 2015 (Computer and Internet Use)</p>
Master Address File Extract (MAFX)	<p>The MAFX contains an accurate, up-to-date inventory of all known living quarters in the United States, Puerto Rico, and associated island areas. The MAFX is used to support most of the household surveys the Census Bureau conducts, including the decennial census and the American Community Survey. The MAFX includes latitude and longitude of each housing unit, as well as Census Bureau geographic location codes and other valuable address information.</p>	2017

Data product	Description	New or updated years
National Crime Victimization Survey (NCVS)	<p>The 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. The NCVS is also periodically used as the vehicle for fielding a number of supplements to provide additional information about crime and victimization. The <i>School Crime</i> supplement to the NCVS collects information about victimization, crime, and safety at school, and includes topics such as alcohol and drug availability; fighting, bullying, and hate-related behaviors; fear and avoidance behaviors; gun and weapon carrying; and gangs. The <i>Identity Theft</i> supplement to the NCVS collects information about experiences with identity theft, including unauthorized use or attempted use of an existing account; unauthorized use or attempted use of personal information to open a new account; and misuse of personal information for a fraudulent purpose. The <i>Supplemental Victimization Survey</i> (SVS) collects information on stalking, harassment, and unwanted contact and behavior, such as unwanted phone calls, letters, or e-mails; following or spying on the victim; waiting at places for the victim; unwanted items or presents; and posting information or spreading rumors about the victim. The <i>Police-Public Contact Survey</i> (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.</p>	<p>2015–2016</p> <p>2011, 2015 (School Crime)</p> <p>2016 (Identity Theft)</p> <p>2016 (SVS)</p> <p>2015 (PPCS)</p>
National Immunization Survey (NIS)	<p>The NIS is a national random digit dialing telephone survey to identify households with children ages 19–35 months and 13–17 years and to interview the adult most knowledgeable about the child's vaccinations. With consent of the child's parent or guardian, the NIS also contacts (by mail) the child's health care provider(s) to request information on vaccinations from the child's medical records. The NIS was established to provide an ongoing, consistent data set for analyzing vaccination coverage among young children.</p>	<p>2009–2010 (Florida Evaluation Study)</p>



<b>Data product</b>	<b>Description</b>	<b>New or updated years</b>
Rental Housing Finance Survey (RHFS)	The RHFS collects data on the financial, mortgage, and property characteristics of multifamily rental housing properties. The RHFS includes financing information, with an emphasis on new originations for purchase, refinancing, and loan terms associated with these originations. The survey also includes information on property characteristics, including the number of units (by bedroom count), monthly rent (by bedroom count), amenities, and age. The survey also collects data on rental income, operating expenses (by type), capital improvements (by type), ownership, and Section 8 tenancy.	2015
Survey of Income and Program Participation (SIPP)	The SIPP collects data on the source and amount of income, labor force information, program participation and eligibility, and general demographic characteristics. The data are used to measure the effectiveness of existing federal, state, and local programs, to estimate future costs and coverage for government programs, and to provide improved statistics on the distribution of income in the United States.	2014 Panel: Wave 2

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## Appendix 6.

# FEDERAL STATISTICAL RESEARCH DATA CENTER (FSRDC) PARTNERS

### FEDERAL PARTNERS

Agency for Healthcare Research and Quality  
Bureau of Labor Statistics  
National Center for Health Statistics  
U.S. Census Bureau

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Syracuse University  
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**Northwest RDC (Seattle)**

Mark Ellis, Executive Director

University of Washington  
Center for Studies in Demography and Ecology

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University of Houston  
University of Texas at Austin  
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Texas A&M University System  
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Rice University  
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RTI International  
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**UIUC RDC (Urbana-Champaign)**

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**Wisconsin RDC (Madison)**

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**Yale RDC**

Peter Schott, Executive Director

Cowles Foundation at Yale University  
Yale University Department of Economics  
Yale School of Management  
Institution for Social and Policy Studies 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 2018.

##### **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  
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Workforce Development

##### **Mid-Atlantic** (*Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia*)

Keith Bailey, 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, Chief  
Bureau of Labor Market Statistics  
Florida Department of Economic Opportunity

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Labor Market Information Bureau  
Ohio Department of Job and Family Services

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Carrie Mayne, Director  
Research and Analysis  
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##### **Southwest** (*Arkansas, Louisiana, New Mexico, Oklahoma, Texas*)

Vacant

##### **Western** (*Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington*)

Bill Anderson, Chief Economist  
Research and Analysis Bureau  
Nevada Department of Employment, Training,  
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#### 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  
U.S. Bureau of Labor Statistics  
U.S. Geological Survey, Geospatial Multi-Agency  
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#### STATE EDUCATION PARTNERS

University of Texas System  
Colorado Department of Higher Education  
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in partnership with:  
University of California Office of the President  
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As of December 2017.

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Maine Department of Labor

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Office of Workforce Information and Performance  
Maryland Department of Labor, Licensing, and  
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Massachusetts Division of Unemployment  
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**Michigan**

Jason Palmer, Director  
Bureau of Labor Market Information and  
Strategic Initiatives  
Michigan Department of Technology, Management,  
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Labor Market Information Office  
Minnesota Department of Employment and  
Economic Development

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Mary Willoughby, Bureau Director  
Labor Market Information  
Mississippi Department of Employment Security

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Bill Niblack, Labor Market Information Manager  
Missouri Economic Research and Information  
Center  
Missouri Department of Economic Development

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Annette Miller, Chief  
Research and Analysis Bureau  
Montana Department of Labor and Industry

**Nebraska**

Phil Baker, Labor Market Information Administrator  
Nebraska Department of Labor

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Bill Anderson, Chief Economist  
Research and Analysis Bureau  
Nevada Department of Employment, Training,  
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Bruce DeMay, Director  
Economic and Labor Market Information Bureau  
New Hampshire Employment Security

**New Jersey**

Chester 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

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New York State Department of Labor

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Jacqueline Keener, Assistant Secretary of Policy,  
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Labor and Economic Analysis Division  
North Carolina Department of Commerce

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Michelle Kommer, Acting Director  
Research and Statistics  
Job Service North Dakota

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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

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Robert Uhlenkott, Division Director  
Workforce and Economic Research  
Oregon Employment Department

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

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Elda Pares, Director  
Bureau of Labor Statistics  
Puerto Rico Department of Labor

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

**South Carolina**

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

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

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Lisa Howard, Assistant Commissioner  
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Labor Market Information  
Texas Workforce Commission

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

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Mathew Barewicz, Director  
Economic and Labor Market Information Section  
Vermont Department of Labor

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Gary Halyard, Director  
Bureau of Labor Statistics  
U.S. Virgin Islands Department of Labor

**Virginia**

Tim Kestner, Director  
Economic Information Services Division  
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Cynthia Forland, Director  
Labor Market and Economic Analysis  
Washington Employment Security Department

**West Virginia**

Joseph Jarvis, Director  
Research, Information and Analysis Division  
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Dennis Winters, Director  
Bureau of Workforce Information and Technical  
Support  
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Tony Glover, Manager  
Research and Planning  
Wyoming Department of Workforce Services

## Appendix 8.

# CENTER FOR ECONOMIC STUDIES (CES) ORGANIZATIONAL CHART (December 2017)

